Studies in Systems, Decision and Control 500

Ghislaine Pellat
Jovan Zafiroski
Marian Šuplata *Editors*

Cooperation and Enlargement: Two Challenges to be Addressed in the European Projects—2022

Springer

Studies in Systems, Decision and Control

Volume 500

The series “Studies in Systems, Decision and Control” (SSDC) covers both new developments and advances, as well as the state of the art, in the various areas of broadly perceived systems, decision making and control–quickly, up to date and with a high quality. The intent is to cover the theory, applications, and perspectives on the state of the art and future developments relevant to systems, decision making, control, complex processes and related areas, as embedded in the fields of engineering, computer science, physics, economics, social and life sciences, as well as the paradigms and methodologies behind them. The series contains monographs, textbooks, lecture notes and edited volumes in systems, decision making and control spanning the areas of Cyber-Physical Systems, Autonomous Systems, Sensor Networks, Control Systems, Energy Systems, Automotive Systems, Biological Systems, Vehicular Networking and Connected Vehicles, Aerospace Systems, Automation, Manufacturing, Smart Grids, Nonlinear Systems, Power Systems, Robotics, Social Systems, Economic Systems and other. Of particular value to both the contributors and the readership are the short publication timeframe and the world-wide distribution and exposure which enable both a wide and rapid dissemination of research output.

Indexed by SCOPUS, DBLP, WTI Frankfurt eG, zbMATH, SCImago.

All books published in the series are submitted for consideration in Web of Science.

Ghislaine Pellat · Jovan Zafiroski · Marian Šuplata
Editors

Cooperation and Enlargement: Two Challenges to be Addressed in the European Projects—2022

Springer

Editors
Ghislaine Pellat
Université Grenoble
Alpes, France

Jovan Zafiroski
Saints Cyril and Methodius University
Skopje, North Macedonia

Marian Šuplata
Faculty of Management
Comenius University Bratislava
Bratislava, Slovakia

ISSN 2198-4182 ISSN 2198-4190 (electronic)
Studies in Systems, Decision and Control
ISBN 978-3-031-42252-2 ISBN 978-3-031-42253-9 (eBook)
https://doi.org/10.1007/978-3-031-42253-9

This Springer imprint is published by the registered company Springer Nature Switzerland AG
The registered company address is: Gewerbestrasse 11, 6330 Cham, Switzerland

Paper in this product is recyclable.

Contents

Introduction

Ghislaine Pellat and Jovan Zafiroski

From the very beginning, the EU was based on, and called for, forms of multinational cooperation, bilateral (internal and external) at different level, involving economic actors, public actors, local authorities and civil society. The frameworks for this cooperation as well as for the successive enlargements of the EU were drawn up in the context of European negotiations, in particular during discussions on the European's Treaties. European values, standards and rules are embodied in the texts of agreements, resolutions and European directives and Treaties signed by all Member States. They establish the functioning of European institutions and the framework of democratic life in Europe.

The emergence of various crises (Brexit, COVID19, migration crisis, non-respect of rule of law rules, refusal of certain member countries to apply the European Charter of Human Rights, etc.) is questioning the project of European Union, and introduced the challenges which should be overcome by the proposal of the new project able to face the internal complexity of the Union and to answer to the pressure of a conflicting international context. What remains of the European ideal affirmed in the treaties of 1957, 1992 and 2007? How to "re-enchant" the common project? Yet, the European Union remains attractive for new candidate's countries. How do they read the integration conditions into the EU with regard to their own projects?

The process of enlargement is the most successful European policy. Nevertheless, in the last fifteen years, the EU institutions were dealing with different crisis and were focused on the reforms within the EU while the process of the enlargement was not high on the EU's agenda. It was linked and depended on the reforms and the choice on the future mode of functioning of the EU. That the enlargement was not a

G. Pellat (✉)
Grenoble Université Alpes, Grenoble, France
e-mail: Ghislaine.pellat@univ-grenoble-alpes.fr

J. Zafiroski
Ss. Cyril and Methodius University, Skopje, Republic of North Macedonia

G. Pellat et al. (eds.), *Cooperation and Enlargement: Two Challenges to be Addressed in the European Projects - 2022*, Studies in Systems, Decision and Control 500,
https://doi.org/10.1007/978-3-031-42253-9_1

priority for the European institutions became clear in 2014 when the newly elected president of the European commission Jean-Claude Junker said that there will be no new enlargements in the next five years. Also, the process of the enlargement was not a high priority in the most influential European capitals. Thus, in 2017, in his speech on the future of Europe the President Emanuel Macron hardly mentioned the Western Balkan region and the process of the enlargement. For a long time, the EU was preoccupied with solving its own problems and agendas. That opened space for influence of other international players that wanted to use the *status quo* in the European integration and enter in the region with investments, infrastructural project for realization of their own interests. However, there is a new geopolitical reality in Europe and in the world. This should be an awakening call for the entire EU and its member states which should take bold steps and integrate the entire western Balkan region in the EU. Also, the Western Balkan countries should continue their work for achieving higher living standards and fulfilment of different criteria for EU membership which requires profound efforts from the entire society.

The ERECO PGV association is a group of researchers who are interested in European states of play through the point of view of each specialty. This book is an interdisciplinary approach of the European project in terms of society and democratic life, of territories and for companies. 133 academic and private members from 33 universities have been working together for 26 conferences to propose analyses and contributions to the European project. In 2022 (22–24th of September), the conference was located in Ohrid, Northern Macedonia. This country is a candidate for EU membership. The Hosted university was Ss Cyril and Methodius University in Skopje, Faculty of Law "Iustinianus Primus", Macedonia. This Faculty organized two days of study on the European model and its capacity to integrate new members. This subject is particularly sensitive at the time of the publication of this book, since the conflicts between Ukrainian and Russia are forcing European players to understand each other, admit each other and negotiate a mutual understanding.

Considering the Societies and Democracy: The universal approach of human rights is a supreme value of the European Union expressed in the European Charter of Human Rights. Does Europe is able to ensure that it is respected by all of its members? How European Charter is mobilized during debates and conflicts which relate to respect for the rights of minority populations (Roma populations, refugees, LGBT people, women's rights, etc.) which, from one side, bear witness to the commitment of citizens in favour of its respect, but from other side, of the refusal on the part of certain political actors (states, communities) to apply it.

After more than 60 years of the EU's existence, can we speak about a European identity? What are its embryonic forms? Where are they expressed? Is this just a narrative reality, affirmed in the speeches of European leaders and founding texts of the EU? Do cultural and university exchanges contribute to the construction of this identity as living reality?

At the same time, the notion of European citizenship is questioned in regard of the conditions of the integration of migrants and, above all, when very active extremist and nationalist social movements (so-called identity-based) are very active in many countries of Europe.

What roles do European social movements and citizens play in structuring the new challenges to which the Union must respond in its new project intended to embody its ideal? What are the issues raised by these movements, how are they heard? Is the institutional functioning of the EU in line with these challenges?

Considering the role and the impact of the territories policies: At the EU level, all the member countries are territories but we can also analyze cooperation between municipalities, regions etc., without forgetting the localized development which reduces poverty and exclusion in the local territories, and makes it possible to counteract certain ideological regressions, reduce the fears that limit the reception of others (migrants, Roma population, LGBT people, etc.) and open up the possibility of cooperation at different levels of territories.

However, under the pressure of current events and action of European authorities, since the Covid-19, new forms of cooperation and dynamics have emerged across European territories. New territorial issues are being organized around the environment and the exploitation of natural resources, geographic mobilities (structuring of transport modes and networks), access to digital networks and security, and hard problems which would be faced in certain regions concerned by the reception of migrants. None of these problems could be stop at national and regional borders and it call for new forms of consultation and actions (cross-border policies and projects, investment decisions, co-innovations, prevention policies, etc.). What types of cooperation are implemented in Europe at the territorial level and what results does their implementation produce for the reconfiguration of its common project? What territorial solutions could the European Union offer as part of a common approach or by giving support to unique territorial initiatives?

At a time when teleworking is taking hold in the professional world, where the lives of citizens confronted with the problems of medical deserts and the absence of services and public powers enhanced territorial inequalities, the digital equipment of the territories represents a challenge for Europe. What tools do we have to deal with these problems? Can we identify good practices in this area and spread them across Europe?

Considering the role of the companies in Europe**:** Through their decisions, their strategies, their capacity for innovation, the practices of companies give consistency to the European economic project and to its power in a very competitive global environment. Their practices are also key elements (to be monitored) in the progress of workers' living conditions, and therefore of peace in Europe and the protection of natural environment. The job European market is changing especially the hire practices due to the lack of manpower. In this context, the chosen immigration policies are applied almost everywhere in Europe. What are the consequences of this reversal tendency and what proposals should be made to match the offer of companies with the skills of the people to be hired?

Does Europe is able to answer to the challenges of European production with regard to health, production of medicines, electronic components and energy while respecting environmental protection standards? Which actors are ready to take up these challenges? (EU, countries, regions, economic sectors…)? How are companies

responding to the climate emergency and how are they supported in this direction by European programs?

Under the influence of global competition, economic data changes as supply and demand change. The commodity markets are seeing their prices soar under the effect of two joint phenomena: the scarcity of goods resulting from the Covid-19 and the demand from customers for local production, more respectful of the environment and mobilizing know-how local, national or European. What kind of political and financial tools does the EU have to encourage the economic players from different countries to cooperate with each other? Sectoral initiatives are developed in particular in the agri-food sector and in energy production. It would be useful to have an overview of the cooperation in this matter, to analyse their results and to capitalise the good practices to be developed as a specific European model or as a source of development for new forms of cooperation.

The following chapters make an overview of the cooperation implemented by and in the European Union and describe the concrete forms they have taken. The issue is to analyse the internal European cooperation between economic actors, politicians and EU citizens at different levels, but also on to focus attention into the external cooperation (neighbourhood policies, external policies and collaborations with international institutions: NATO, OECD, WTO etc.). Carry an uncompromising attention on this issue means rethinking the European project in the light of today's challenges. Through their scientific contributions, the authors of this book, participate in the discussion of the European project.

The authors have organized the book with a time perspective in mind, starting with some main dates of the construction of Europe until today. This review of the state of the art, with contributions from the authors, provides an insight into the proposals being made for the future of the European project. The proposals analyses the place of Europe in the world and the consequences of partnerships. This part is followed by a comparative study of the 27 countries of the actual Europe today and the candidates for accession to Europe. Intra-European initiatives are discussed in the following chapters, illustrating the achievements of European construction which contribute to a stronger union to face with external pressures.

Ghislaine Pellat
Université Grenoble Alpes (France)
Jovan Zafiroski
Ss. Cyril and Methodius University Skopje (Republic of North Macedonia).

History and State of Play

Past Accession Experience and Actual Challenges for the European Union Enlargement Process

Marian Šuplata

Abstract The European integration process, launched by an initiative of Robert Schuman on 9 May 1950 and joined by six founding member states, certainly belongs to one of the most remarkable *sui generis* geopolitical projects, based on voluntary economic co-operation, in human history. This is still true, despite of numerous severe crises hitting the European Union after adoption of the Lisbon Treaty. The contemporary European Union of 27 Member States could not become a reality without several waves of gradual enlargement, based on Schuman's profound open-minded vision to welcome new states of Europe that would wish and fulfil the criteria to join the European Community. The main aim of the paper is three-fold: (1) to outline main achievements of the past enlargement process, before and after May 2004; (2) to outline the main challenges for the European Union enlargement process; (3) to examine the attitudes of citizens of EU member states related to EU enlargement (valuation of EU membership of their own country of origin, as well as support for speeding up of the ongoing enlargement process). The research paper uses qualitative and quantitative secondary sources from supranational institutions (European Commission and other relevant institutions), alternatively also from the national administration, as well as a relevant professional expertise, both from the past accession negotiation process into the EU and from the European institutions.

1 Introduction

1.1 Relevance

The enlargement policy belongs among important policies of the European Union. In more than seventy years since the Schuman plan and the creation of the common European project, peacefully uniting the West with the Central and Eastern European

M. Šuplata (✉)
Faculty of Management, Comenius University Bratislava, Odbojárov 10, Bratislava, Slovakia
e-mail: Marian.Suplata@uniba.sk

G. Pellat et al. (eds.), *Cooperation and Enlargement: Two Challenges to be Addressed in the European Projects - 2022*, Studies in Systems, Decision and Control 500,
https://doi.org/10.1007/978-3-031-42253-9_2

countries the history of enlargement is one of the greatest peaceful geopolitical innovations in human history. Despite of Brexit and series of crises the EU was facing in the last decade it seems the European Union is remaining an attractive space, offering perspective of peace and prosperity, gradually constructed on the initial ideas of its founding fathers. This statement can be justified by further requests by new nation states to accede the EU as a full member or as a partner in trade, or, in broader economic and political cooperation. This can be underlined by the last conclusions of the European Council in June 2022 regarding the enlargement that, among other issues allowed Ukraine and Moldova to become candidate countries for EU membership. Except these two countries that gained priority attention following the war in Ukraine, the EU is altogether considering membership of eight other countries that might be its members in the future.

1.2 Goals and Objectives

The main aim of the paper is threefold: (1) to briefly outline main achievements of the past enlargement process, before and after May 2004; (2) to outline the main challenges for the European Union enlargement process; (3) to examine the attitudes of citizens of EU member states related to EU enlargement (valuation of EU membership of their own country of origin, as well as support for speeding up of the ongoing enlargement process).

As shown in Table 1, our paper classified the EU member states into four categories [1, 2]. The intention of this division was, first, to show heterogeneity of borders and relations of the integration process, secondly to outline and compare the answers to research questions in the researched member states and the groups indicated in the table.

2 Theoretical and Conceptual Background

The EU enlargement is hardly possible without considering it to be the top priority of the domestic politics of the acceding country. There are various perceptions and definitions of the EU enlargement. Cini and Pérez-Solórzano Borragán define it as: "*a complex process that challenges the explanatory power of European integration theories*" [3]. Schimmelfennig and Sedelmeier define the EU enlargement as "*a process of gradual and formal horizontal institutionalisation*" [4]. Piket considers the policy of enlargement to be "one of the most successful EU's foreign policies" [5]. When looking at the outputs of the EU foreign policy, subject to unanimous (consensual) decision making, it is hard to object this statement.

Kempe [6, 7], and Meurs [7, 8], Sulamaa and Widgrén [9] take a look on the enlargement from the perspective of "risks and prospects", Neuder [10], Breus [11, 12] take a point of view of "costs and benefits" of the enlargement, Frisch [13]

Table 1 Four groups of EU countries

No.	Name of the group	Members of the group
1	Group of EU27 countries	Including all EU member states
2	Group of EU14 countries	Including countries of Western Europe, being a subject of the enlargement before May 2004, former countries of "EU15". This includes: Belgium (BE); Denmark (DK); Germany (DE); Ireland (IE); Greece (EL); Spain (ES); France (FR); Italy (IT); The Netherlands (NL); Austria (AT); Portugal (PT) Finland (FI) a Sweden (SE)
3	Group of EU13 countries	Including countries of Central and Eastern Europe (that became subject of EU enlargement after 1 May 2004. This includes: Bulgaria (BG); Czech Republic (CZ); Estonia (EE); Croatia (HR); Cyprus (CY); Lithuania (LV); Latvia (LT); Hungary (HU); Malta (MT); Poland (PL); Romania (RO); Slovenia (SI); Slovakia (SK)
4	Group of *Visegrád* countries (V4)	At the same time belonging to the same group as EU13 countries (include Czech Republic, Hungary, Poland and Slovakia)

Source Own elaboration, compare Šuplata-Lacová (2022)

of its welfare effects. Some authors, like Inotai [14] and others [15, 16] reflect on institutional aspects of the EU enlargement, some are focusing on a specific wave of EU enlargement. As argued by Gateva [17], Basheska [18] not forgotten remains a question on the "conditionality" of the accession process. Shuibhne [19], Takács and Jancics [20], Nováčková [21] focus on the legal issues of the enlargement. Various economic aspects of enlargement are of interest by Roeger and 't Veld [22], Belke and Hebler [23], Smith [24], Pelkmans and Cassey [25], Buch [26] Rosati [27], Brenke et al. [28], specific focus on regional policy in the context of enlargement by Faíña and López-Rodríguez [29], political focus is offered by Lašas [30], Sadurski [31], Pridham [32]. Schmähl [33], Neck et al. [34] and Pawera [35–37] pay attention to various aspect of EU security, including enlargement process. There are numerous other authors focusing on various aspects of the enlargement [38–51].

3 History of the EU Enlargement and Its Seven Stages

The first initiative to integrate the counties of the Western Europe was launched by French Minister of Foreign Affairs Schuman [52] who with the support of the German Prime Minister Konrad Adenauer and his Italian fellow Alcide de Gasperi initiated the European Coal and Steel Community (ECSC).[1] This meant an unprecedented step towards integration of first six countries of Western Europe (France, West Germany,

[1] Treaty of Paris (signed in 1950).

Italy, Belgium, the Netherlands, and Luxembourg), some of the previously notoriously alienated, into an after-war collaboration. The subordination of the production of coal and steel to a common supervision, among other, allowed control of strategic commodities necessary for production of weapons. This one of the main preconditions that made the start of an armed conflict technically impossible. This was one of the reasons why the unified Europe could have enjoyed an unprecedented historical period living in peace and prosperity. The situation in Ukraine nowadays underlines the importance of the value of peace and reminds of the, historically already well-known, consequences of its absence.

The dynamic economic development in, the after-war destroyed and suddenly newly integrated Europe, strengthened by a combined application of a strong political leadership of the founding fathers of both West Germany and France that became an "engine" of the integration process, together with the execution of Marshal Plan, become important pre-conditions for an unprecedented economic growth in Europe. In 1958 the Member States of ECSC move towards strengthening integration through establishing EURATOM and European Economic Community (EEC) signed by the Governments of the ECSC Member States.[2] This is by the Maastricht Treaty as of 1993 transformed into the European Union. In its history the common Europe achieves numerous important milestones: customs union; the world's largest single market and four freedoms; introduction of the common currency, common Schengen area; development aid and assistance for millions in developing countries to name a few.

Since the very beginning of the Robert Schuman's European integration project, materialized by the creation of ECSC followed by EEC and EURATOM, becomes an inspiration for other European countries to join as members or partners. Until 1990s and the end of Cold War, for political reasons, the enlargement was possible only for countries of the Western Europe. The Central and Eastern Europe in 90s just started transforming from the centrally planned model of economy into the market economy which, since the adoption of the Maastricht treaty, has been and remains to be one of the main preconditions to join the European Union.[3]

Historically speaking there have been seven consecutive stages of the EC/EU. Before 1993 we can speak about enlargement of the European Economic Communities, after 1993 (following the adoption of the Maastricht Treaty) about the enlargement of the European Union. The enlargement can be distinguished also from geographical point of view, the simplest classification is between enlargement by countries of Western Europe (which took place before 2004) and the enlargement by countries of the Central and Western Europe (taking place after May 2004).

The very first enlargement of the EEC took place in 1973 and included the United Kingdom, Ireland and Denmark. The second enlargement, in 1981 included Greece. The third, called "Iberic" enlargement included the accession of Portugal and Spain in 1986. The fourth enlargement, and at the same time the first enlargement that took place after the adoption of the Maastricht, forming of the European Union, took

[2] Treaty of Rome (signed in 1957).

[3] Compare to the Maastricht criteria.

place in 1995 and included Austria, Finland, and Sweden. From the geographical point of view, this was the very last stage of the Western Europe enlargement. In May 2004 the enlargement continues by an accession of ten new Member States of the Central and Eastern Europe (CEE): Slovenia, Slovakia, Poland, Malta, Cyprus, Czech Republic, Estonia, Hungary, Latvia and Lithuania. This stage of enlargement was perceived as a symbolic re-unification of Europe, for decades divided by the iron curtain. The enlargement by the CEE countries continued by its sixth wave in 2007 by the accession of Bulgaria and Romania and by, so far, the final, seventh enlargement, allowing the accession of Croatia into the European Union in July 2013. However, except the above mentioned seven stages of enlargement leading to gradual expansion of the EU territory, the EU experienced also countries that decided to leave the Union: the United Kingdom in 2020 and Greenland 1985. However, this was not for the first time the EU/EC loses its territory: After Algeria became independent on 5 July 1962, it automatically (as an non-European independent state) left the EC. Twenty five years later, Morocco's application that in 1987 applied for the EU Membership was rejected. It is also worth mentioning reunification of Germany in 1990 that, however, did not lead to an accession of a new member state, as the West Germany, as a founding member was already a firm part of the euro-integration project since its very beginning. Despite this project was attractive since its very beginning, there were states that, even some of them concluded accession negotiations with the EU, following the will of their citizens revealed in referenda, decided to remain out of the Union (Switzerland, Norway), or, even if started the accession negotiations requested the European Commission not to be regarded as candidate country anymore (Iceland, in March 2015). However, these countries remained a part of the European Free Trade Agreement (Switzerland, Norway, Liechtenstein, Iceland).

As suggested by Horeháj et al. [53], the EU membership offers four different perspectives regarding the borders in Europe:

1. European Union, composing of almost 450 million inhabitants, including 27 Member States;
2. Schengen Area, including around 400 million inhabitants of 22 EU Member States, Iceland, Norway, Liechtenstein and Switzerland;
3. European Economic Area that includes 31 member states and around 406 million inhabitants;
4. Euro area, composed of 19 member (including around 340 million of inhabitants) state with 20th (Croatia) to join on January 2023.

After the enlargement, introduced by the Maastricht treaty, became an official policy, until now, there have been six Commissioners directly responsible for the portfolio of EU enlargement in four respective European Commissions led by the following Presidents: Prodi, Barroso I, Barroso II, Juncker and Von der Leyen Commission: German, Güther Verheugen (1999–2004) joined by Slovenian Janez Potočnik (2004–2004) after the enlargement of 2004; Slovenian Janez Potočnik (2004–2010), Czech Štefan Fülle (2010–2014); Austrian Johannes Hahn (2014–2019) until the current Commissioner—Hungarian Olivér Várhelyi taking his mandate in the Von der Leyen Commission as from 2019. Some authors tend to

perceive the attribution of the enlargement portfolio to an Hungarian Commissioner designate with an alleged intention of "Senior Brussels politicians" to punish the PM Viktor Orbán for his "disobedience", who in recent years, became perceived as a "chronic rule breaker of "Brussels agreements".

4 Accession Criteria for the EU Enlargement and the State of Play of the Accession Process

The EU memberships criteria were officially declared before the enlargement by ten EU Member States (joined in May 2004) by the Presidency conclusions in Copenhagen in 1993 as follows: "*Membership requires that candidate country has achieved stability of institutions guaranteeing democracy the rule of law, human rights, respect for and protection of minorities, the existence of a functioning market economy as well as the capacity to cope with competitive pressure and market forces within the Union. Membership presupposes the candidate's ability to take on the obligations of membership including adherence to the aims of political, economic, and monetary union*" (compare Copenhagen Presidency conclusions, 21–22 June 1993) [54]. In December 1995 the European Council in Madrid conclusions added criteria on "*appropriate adjustment of administrative structures*", with an effort to reflect the EU legislation into the national legislation.

Treaty of the European Union (TEU) states that a EU Membership is open to "*any European state which respects the values referred to in Article 2 and is committed to promoting them*" (TEU, 49) [55]. The "values" mentioned by the article 2 are the following: "*respect for human dignity, freedom, democracy, equality, the rule of law and respect for human rights, including the rights of persons belonging to minorities*" (TEU, Article 2) [55].

As regards the Western Balkans countries, the European Commission declares a necessity for "special process", that includes stabilizing the countries politically, allowing their smooth transition into a market economy and enforcing regional cooperation, which might lead into "eventual membership in the EU". After the country becomes a potential candidate country which means gaining "prospect of membership", followed by "candidate status" after the potential country becomes ready. [56] This process is accompanied by the necessity to transpose and adopt the EU law into the national legislation, as well as to adopt other standards to European and wider international ones, especially in trade (free access to EU markets); financial and economic aid; stabilization, reconstruction and development aid, as well as "stabilization and association agreements" [56].

The start of the accession negotiations is possible only after a proposal by the Commission, followed a joint, consensual (unanimous) decision by the EU Council, deciding on the negotiating mandate of the EU negotiators (the Commission) with individual candidate country. There are usually eight phases leading to completion of the enlargement process, listed in the Table 2.

Table 2 Eight phases of the enlargement process

1	Screening (checking the state of play of the domestic legislation and criteria that will be relevant for evaluation)
2	Negotiation chapters opening
3	Accession negotiations between European Commission and the Member State (technical issues discussed between the Chief negotiators and their teams of both, the European Commission, and the Acceding country)
4	Negotiation chapters closing
5	Signature of the Accession Treaty between the EU (Member States) and acceding country/countries (if more than one)
6	Agreement by the European Commission, EU Council, and the European Parliament. As mentioned earlier, enlargement is one of the remaining EU policies that needs to be decided unanimously
7	Signature by the representatives of both the EU member and acceding candidate countries
8	Ratification by both, the EU member and acceding country (by the Parliament, by the national referendum)
	= EU membership

Source Own elaboration (2022)

5 Future Challenges for the EU Enlargement

After the enlargement by 13 CEE countries, the fifth (2004), sixth (2006) and seventh (2013) enlargement (2013) the period of EU enlargement was put on hold. Immediately at the beginning of the mandate of the first European Commission formed after the "big-bang" enlargement by CEE countries, its president José Manuel Barroso made it very clear that one of his priorities for the five-year mandate is to manage and sustain the cohesion of the newly enlarged EU [57]—merging the Western and Eastern parts of Europe, with very heterogenous culture, history, economies and state of play of regional economic developments. At the beginning of Jean-Claude's Juncker's Commission taking place between 2014 and 2019, the President decided the line to take on enlargement as follows: "*When it comes to* ***enlargement****, I fully recognize that this has been an historic success that brought peace and stability to our continent. However, the Union and our citizens now need to digest the addition of 13 Member States in the past ten years. The EU needs to take a break from enlargement so that we can consolidate what has been achieved among the 28. This is why, under my Presidency of the Commission, ongoing negotiations will continue, and notably the Western Balkans will need to keep a European perspective, but* ***no further enlargement will take place over the next five years****. With countries in our Eastern neighbourhood such as Moldova or Ukraine, we need to step up close cooperation, association, and partnership to further strengthen our economic and political ties*" [58]. Consequently, the EU Enlargement to the East was not a part of the Commission's priority, however the policy of Enlargement remained a part of the European Commission services which were renamed and transformed from

Table 3 The actual state of play of enlargement process negotiations

Country	Candidate status	AA, MA, CS, NS (years)	Chapters[4]	
			Opened	Closed
Serbia	Negotiating	13, 09, 12, 14	**16/35** (5–7, 13, 17, 18, 20, 23, 24–26, 29, 30, 32, 33, 35)	**2/35**
Montenegro	Negotiating	10, 08, 10, 12	33/35 (1–33)	**3/35** (25, 26, 30)
Turkey	Negotiating	64, 87, 99, 05	**16/35** (4, 6, 7, 10, 12, 16–18, 20–22, 25, 27–28, 32, 33	**1/35** (25)
Albania	Candidate	09, 09, 14, –	—	
N. Macedonia	Candidate	04, 04, 05, –		
Ukraine	Candidate	17, 22, 22, –		
Moldova	Candidate	16, 22, 22, –		
Bosnia and Herzegovina	Potential/ applicant	15, –, –, –		
Georgia	Potential/ applicant	16, 22, –, –		
Kosovo	Potential	16, –, –, –		

Key AA—Association Agreement, MA—Membership application, CS—Candidate status; NS—Negotiating status
"Years"—Last two digits of calendar years, for example 13 = year 2013
Source Own processing based on data by the European Commission [59, 60]

Directorate General for Enlargement into Directorate General for Neighbourhood and Enlargement Negotiations.

There are generally the following important preconditions leading the acceding the candidate country to the EU: (1) the acceding country must accept relevant EU conditions; (2) all actual Member States must unanimously agree on the enlargement and joining the acceding countries; (3) the acceding countries must (via referendum, vote in the Parliaments or both) express agreement on the accession into the EU.

The European Commission decided to come back with the idea of the enlargement only after a short break, allowing Serbia, Montenegro, Turkey (Negotiating status) Albania, North Macedonia, Ukraine, and Moldova (Candidate Status) as well as Bosnia and Herzegovina, Georgia, and Kosovo to have a perspective to continue in the future accession process. Naturally, the horizon of their potential accession is very heterogenous and depends on various factors, including (and prevailing) political ones (Table 3).

[4] Chapters which are subject of accession negotiations (chapters of *acquis communautaire*) are the following: (1) Free movement of goods; (2) Freedom of movement of workers; (3) Right of establishment and freedom to provide services; (4) Free movement of capital; (5) Public procurement; (6) Company law; (7) Intellectual property law; (8) Competition law; (9) Financial services; (10) Information society and media; (11) Agriculture and rural development; (12) Food safety, veterinary and phytosanitary policy; (13) Fisheries; (14) Transport policy; (15) Energy; (16) Taxation; (17)

Ukraine, Moldova, and Georgia have and association agreement with the EU since 2014. Following the war conflict in Ukraine openly starting on 24 February 2022, these countries officially applied for an EU membership. Following the Commission's view and proposal, on 23 June the European Council decides positively only on the membership application of Ukraine and Moldova. Georgia receives negative opinion by the European Council and most likely will not be admitted as a candidate country in the coming years. Even the countries that are for the moment negotiating with the EU on the membership have no certainty they will be admitted for a membership. As an example, could serve political blocking of Croatia by Slovenia, of Turkey by Cyprus, or of North Macedonia by Greece and later (on 23 June 2022) by Bulgaria. In some cases (like in the lastly mentioned case) there is a great probability the objections raised by the blocking state (for example concerning language, history, minority issues in the last-mentioned case) will be lifted on the political level in the end. The reluctance of the European Council to move forward with accession negotiations of some countries, especially of the North Macedonia might seem, however, surprising.

6 Attitudes of EU Citizens to EU Membership and to Speeding up Enlargement

The previous parts of this paper outlined the main achievements of the past enlargement process, before and after May 2004 and outlined the main challenges for the European Union enlargement process. In the next step we will examine the attitudes of citizens of EU member states related to EU enlargement (valuation of EU membership of their own country of origin, as well as support for speeding up of the ongoing enlargement process). We will do so separately for EU27, EU14, EU13 and V4 countries, by looking at the research questions related to valuation of their EU membership, potential speeding up enlargement and simple relation between these two questions. We used the data of the European Commission [61, 62].

The first question examines the attitude of EU citizens to their own country's membership in the EU, by asking the following research question: "*Generally speaking, do you think that (your country's) membership in the EU is…*" either "good thing" or "bad thing". As revealed by the Table 4, among the EU14 member states the top three countries stating that their country's membership in the EU is "a good thing" belong: Luxemburg (90%), followed by Ireland (86%) and Portugal (80%). The least positive about this question among EU14 member states are Greece (41%); Austria (46%) and Italy (49%). Among the EU13 member states the most

Economic and monetary policy; (18) Statistics; (19) Social policy and employment; (20) Enterprise and industrial policy (21) Trans-European networks; (22) Regional policy and co-ordination of structural Instruments; (23) Judiciary and fundamental rights; (24) Justice, freedom and security; (25) Science and research; (26) Education and culture; (27) Environment; (28) Consumer and health protection; (29) Customs union; (30) External relations; (31) Foreign security and defence policy; (32) Financial control; (33) Financial and budgetary provisions; (34) Institutions; (35) Other issues.

positive about the question of their country's membership are Latvia (82%), followed by Estonia (76%) and Malta (74%). The least positive on this question among EU13 are Slovakia (41%); Bulgaria (47%) and Romania (47%). What is remarkable and significant is relatively high difference between EU14 (70.21%) and EU13 (60.85%) in responding the question on the membership of their country as "good thing". V4 countries marked even lower result of 56.75% than the EU27 average (65%) and EU13 average (60.85%).

As revealed by Table 5, the most citizens among EU14 member states that agree with the statement "*In view of the Russian invasion of Ukraine, the European Union should speed-up its efforts to let new countries join the EU*" come from Ireland (77%), Spain (74%) and Portugal (74%), whereas the least citizens of EU14 that agreed with this question come from Austria (45%), the Netherlands (46%) and France (47%). Among EU13 member states the number of respondents that agreed with the research question was the highest in Poland (81%) Latvia (75%) and Croatia (71%) and the lowest in Slovakia (36%), Bulgaria (40%) and Slovenia (44%). The research has shown relative balance among positive answers in EU28 (58%), in EU14 (57.28%), EU13 (57,84%), as well as in V4 countries (55%), with no significant findings (Graphs 1 and 2).

Table 6 compares question 1: "*In view of the Russian invasion of Ukraine, the European Union should speed-up its efforts to let new countries join the EU*"; AND

Table 4 Question: "*Generally speaking, do you think that (YOUR COUNTRY'S) membership in the EU is…*" Ordered from Member States from the "*most positive*" to "*least positive*" (EU14, EU13 and V4) answers

Answer	LU	IE	PT	ES	DK	DE	NL	SE	FI	BE	FR	IT	AT	EL
Good thing	**90**	**86**	**80**	**78**	**78**	**77**	**75**	**75**	**75**	**74**	**59**	**49**	**46**	**41**
Bad thing	3	3	2	4	7	5	8	7	7	7	10	10	17	16
Neither good nor bad thing	7	11	17	17	14	18	17	18	17	19	30	40	36	43
Don´t know	0	0	1	1	1	0	0	0	1	0	1	1	1	0
Answer	**LT**	**EE**	**MT**	**PL**	**SI**	**LV**	**HU**	**HR**	**CZ**	**CY**	**RO**	**BG**	**SK**	**EU**
Good thing	**82**	**76**	**74**	**72**	**67**	**62**	**60**	**56**	**54**	**53**	**47**	**47**	**41**	**65**
Bad thing	0	4	4	8	7	5	5	10	10	7	23	15	9	8
Neither good nor bad thing	17	19	20	20	26	31	34	34	34	40	29	47	50	26
Don´t know	1	1	2	0	0	2	1	0	2	0	1	2	0	1

Average values of "good thing" replies: EÚ28 = 65; EU14 = 70.21; EU13 = 60.85; V4 = 56.75

Source Own calculation and elaboration based on available data from the European Commission (2022)

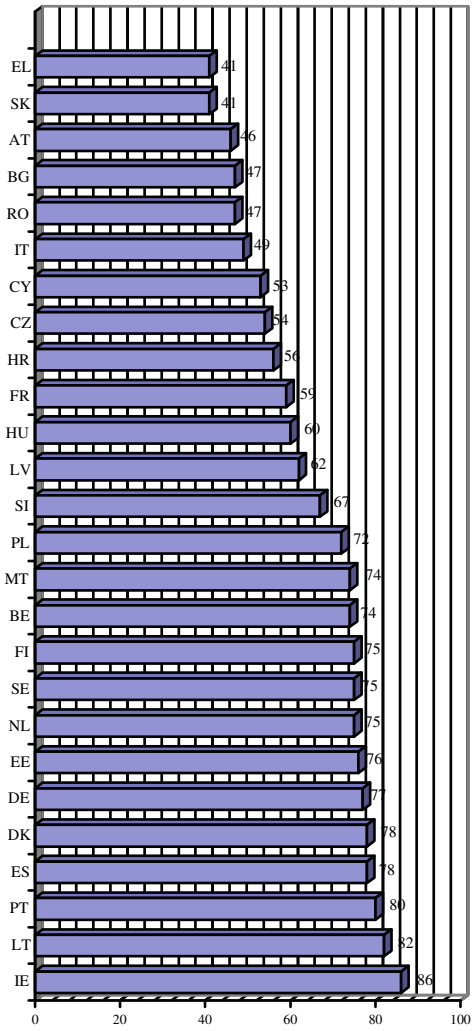
Table 5 Question "*In view of the Russian invasion of Ukraine, the European Union should speed-up its efforts to let new countries join the EU*". Ordered from the highest to the lowest of "total agree" (EU14, EU13 and V4) answers

	IE	ES	PT	SE	DK	IT	BE	FI	DE	EL	LU	FR	NL	AT
Fully agree	25	26	13	16	18	10	12	11	14	10	10	13	12	12
Tend to agree	52	48	53	48	44	50	43	43	39	40	39	34	34	33
Tend to disagree	13	12	23	25	27	26	32	31	27	28	31	28	34	30
Totally disagree	4	6	3	11	9	9	12	10	15	14	17	18	18	20
Don´t know	6	8	8	0	2	5	1	5	5	8	3	7	2	5
Total agree	**77**	**74**	**66**	**64**	**62**	**60**	**55**	**54**	**53**	**50**	**49**	**47**	**46**	**45**
Total disagree	17	18	32	36	36	35	44	41	42	42	48	46	52	50
	PL	**LT**	**HR**	**LV**	**MT**	**EE**	**RO**	**HU**	**CY**	**CZ**	**SI**	**BG**	**SK**	**EU**
Fully agree	29	30	16	27	36	27	16	10	16	14	11	9	6	**16**
Tend to agree	51	45	55	38	28	35	44	47	35	33	33	31	30	**42**
Tend to disagree	14	12	18	20	18	16	23	24	22	27	36	27	33	**24**
Totally disagree	3	4	6	10	12	11	9	12	20	20	15	15	22	**12**
Don´t know	3	9	5	5	6	11	8	7	7	6	5	18	9	**6**
Total agree	**80**	**75**	**71**	**65**	**64**	**62**	**60**	**57**	**51**	**47**	**44**	**40**	**36**	**58**
Total disagree	17	16	24	30	30	27	32	36	42	47	51	42	55	**36**

Average values of "total agree" replies: EU28 = 58; EU14 = 57.28; EU13 = 57.84; V4 = 55.0
Source Own calculation and elaboration based on available data from the European Commission (2022)

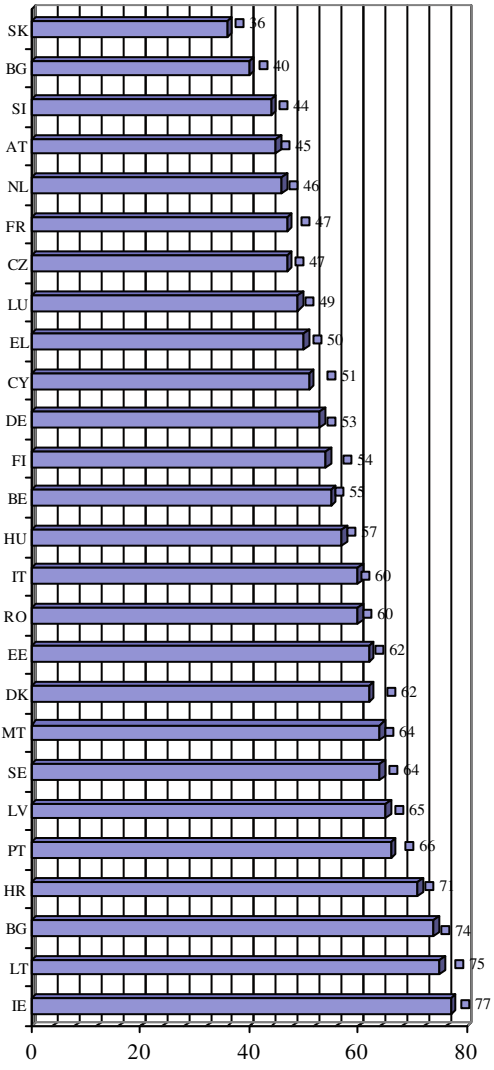
question 2: "*Generally speaking, do you think that (YOUR COUNTRY'S) membership in the EU is a good thing*" and makes a **summary** (Σ) of the % of answers. It can be said, in simplified way, that this summary allowed us to order the responses of the citizens of researched member states and the groups we focus on (EU28, EU14, EU13 and V4) according to their overall support for both, their countries' membership in the EU (responding: "*good thing*") and for the support of "*speeding-up European Union's efforts to let new countries join the EU*". The countries marking the highest score among EU14 countries are Ireland (163), followed by Spain (152) and Portugal (146). The lowest score was marked by Greece (91), Austria (91) and France (106). Among member states of EU13 the highest score was marked by Latvia (157), Poland (152) and Estonia (138) and the lowest score by Slovakia (77), Bulgaria (87) and Czech Republic (107). The average values show no significance neither for EU27 = 123; nor for EU14 = 127.35; nor EU13 = 118.77, except for the V4 with the lowest value of 111.75.

Table 7 shows the percentage of responses of EU27 citizens who think that (1) "*In view of Russian invasion of Ukraine, the European Union should speed-up its efforts to let new countries join the EU*" AND (2) their country's membership in the EU is a good think. The third row of the table shows the difference (+/−) between



Graph 1 Question: "*Generally speaking, do you think that (YOUR COUNTRY'S) membership in the EU is….*" Ordered from Member States from the "*most positive*" to "*least positive*" answers—EU27 order. *Source* Own elaboration (2022)

the answers. We have ordered the countries with the highest difference to the lowest (negative) difference. This was done separately for of EU14 Member States and EU13 Member States, the very end (in black box) contains the EU average values. As revealed by the Table 7, the first three countries from EU14 Member States with the highest difference are Luxembourg (+41), the Netherlands (+29) and Germany (+22). The lowest difference between EU14 Member States was marked by Greece (−9), Austria (+1) and Spain (+4). The highest difference among EU13 member states was achieved by the citizens of Slovenia (+23), Estonia (+14) and Malta (+10), the lowest by Croatia (−15), Romania (−13) and Poland (−8). The average of EU27 Member States is +7.



Graph 2 Question "*In view of the Russian invasion of Ukraine, the European Union should speed-up its efforts to let new countries join the EU*". Ordered from the highest to the lowest of "total agree" answers—EU27 order. *Source* Own elaboration (2022)

Table 7 identifies the gap between the support of respective Member States in question of speeding up the accession process (as a result of Ukrainian conflict) and in question of support for its own EU membership. In simplified way, it can be said the Table 7 and the variation (+/−) outlines the order of countries of which the citizens value the membership in the EU more in comparison to their openness of speeding up of the enlargement process. The leading countries among EU14 that value more their membership than speeding up of the enlargement process are Luxembourg (+41), the Netherlands (+29) and Germany (+22), those who value more the speeding up of the enlargement process rather than their own EU membership are

Table 6 Comparison between question 1: "*In view of the Russian invasion of Ukraine, the European Union should speed-up its efforts to let new countries join the EU*"; AND question 2: "*Generally speaking, do you think that (YOUR COUNTRY'S) membership in the EU is a good thing*" and **the summary** (+/−) of the % of (EU14, EU13 and V4) answers

	IE	ES	PT	DK	SE	LU	FI	BE	DE	NL	IT	FR	AT	EL
Total agree	77	74	66	62	64	49	54	55	53	46	60	47	45	50
Good thing	86	78	80	78	75	90	75	74	75	75	49	59	46	41
Σ	**163**	**152**	**146**	**140**	**139**	**139**	**129**	**129**	**128**	**121**	**109**	**106**	**91**	**91**
	LT	**PL**	**EE**	**MT**	**LV**	**HR**	**HU**	**SI**	**RO**	**CY**	**CZ**	**BG**	**SK**	**EU**
Total agree	75	80	62	64	65	71	57	44	60	51	47	40	36	**58**
Good thing	82	72	76	74	62	56	60	67	47	54	54	47	41	**65**
Σ	**157**	**152**	**138**	**138**	**127**	**127**	**117**	**111**	**107**	**105**	**101**	**87**	**77**	**123**

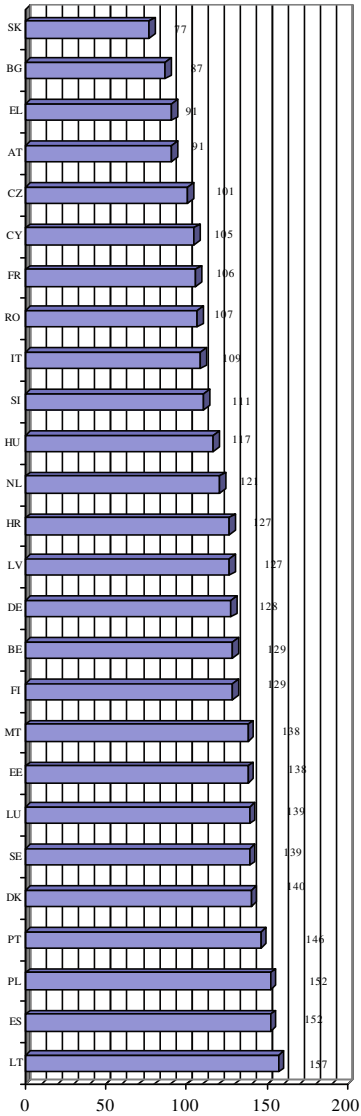
Key: "Total agree" = those who agree with the statement in question 1
"Good thing" = response to question 2
Σ = the summary of answer 1 and answer 2
Average values of Σ: EU27 = 123; EU14 = 127.35; EU13 = 118.77; V4 = 111.75
Source Own calculation and elaboration based on available data from the European Commission (2022)

Table 7 Comparison between question 1: "*In view of the Russian invasion of Ukraine, the European Union should speed-up its efforts to let new countries join the EU*"; AND question 2: "*Generally speaking, do you think that (YOUR COUNTRY'S) membership in the EU is a good thing*" and **the difference** (+/−) between the answers

	LU	NL	DE	FI	BE	DK	PT	FR	IT	SE	IE	ES	AT	EL
Total agree	49	46	53	54	55	62	66	47	60	64	77	74	45	50
Good thing	90	75	75	75	74	78	80	59	49	75	86	78	46	41
+/-	**+41**	**+29**	**+22**	**+21**	**+19**	**+16**	**+14**	**+12**	**+11**	**+11**	**+9**	**+4**	**+1**	**-9**
	SI	**EE**	**MT**	**BG**	**CZ**	**LT**	**SK**	**CY**	**HU**	**LV**	**PL**	**RO**	**HR**	**EU**
Total agree	44	62	64	40	47	75	36	51	57	65	80	60	71	**58**
Good thing	67	76	74	47	54	82	41	54	60	62	72	47	56	**65**
+/-.	**+23**	**+14**	**+10**	**+7**	**+7**	**+7**	**+5**	**+3**	**+3**	**-3**	**-8**	**-13**	**-15**	**+7**

Key: "Total agree" = those who agree with the statement in question 1
"Good thing" = response to question 2
+/− = the difference between the answers
Average values of +/−: EU27 = 7; EU14 = +14.36; EU13 = +3.08; V4 = +1.75
Source Own calculation and elaboration based on available data from the European Commission (2022)

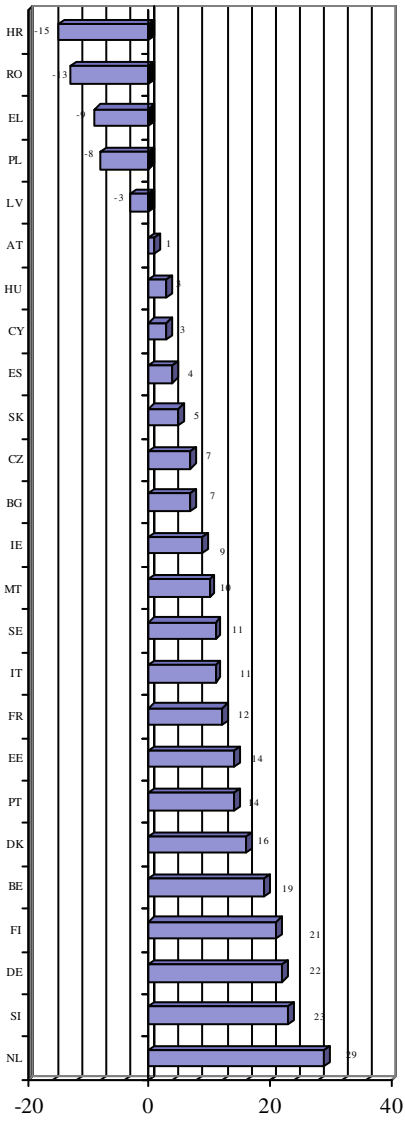
Greece (−9), Austria (+1) and Spain (+4). Among the EU13 countries, the citizens that value the membership of their country in the EU the most, in comparison to the speeding up of the enlargement process are Slovenia (+23); Estonia (+14) and Malta, whereas the most citizens of EU13 member states that value more the speeding up of the enlargement process rather than their own EU membership are Croatia (−15), Romania (−13), Poland (−8) (Graphs 3 and 4).



Graph 3 Question "*In view of the Russian invasion of Ukraine, the European Union should speed-up its efforts to let new countries join the EU*". Ordered from the highest to the lowest of "total agree" answers—EU27 order. *Source* Own elaboration (2022)

7 Conclusions

The idea of enlargement is a part of the European project since its very beginning and is considered the most successful part of the EU external policy. This statement can be underlined by seven consecutive enlargements and further attractiveness to join the EU by other negotiating, candidate, or potential candidate countries.



Graph 4 Comparison between question 1: "*In view of the Russian invasion of Ukraine, the European Union should speed-up its efforts to let new countries join the EU*"; AND question 2: "*Generally speaking, do you think that (YOUR COUNTRY'S) membership in the EU is a good thing*" and **the summary** (+/−) of the % of answers—EU27 order. *Source* Own elaboration (2022)

Our paper examined in the first part the past developments, actual and future developments of the enlargement process; in the second part the attitudes of citizens of EU member states (separately for EU27, EU14, EU13 and V4 countries) to questions related to valuation of their EU membership, potential speeding up enlargement and relations between these two questions. This has revealed the valuation of own EU membership and the support for speeding up the enlargement process in two ways: (1) as a summary of the two categories of valuation (own membership + speeding up of

enlargement process); (2) as the difference between the two categories of valuations (own membership—speeding up of enlargement process).

Among the EU14 member states the top three countries stating that their country's membership in the EU is "a good thing" belong: Luxemburg (90%), followed by Ireland (86%) and Portugal (80%). The least positive about this question among EU14 member states are Greece (41%); Austria (46%) and Italy (49%). Among the EU13 member states the most positive about the question of their country's membership is Latvia (82%), followed by Estonia (76%) and Malta (74%). The least positive on this question among EU13 are Slovakia (41%); Bulgaria (47%) and Romania (47%). What is remarkable and significant is relatively high difference between EU14 (70.21%) and EU13 (60.85%) in responding the question on the membership of their country as "good thing". V4 countries marked even lower result of 56.75% than the EU27 average (65%) and EU13 average (60.85%).

Most citizens among EU14 member states that agree with the statement "*In view of the Russian invasion of Ukraine, the European Union should speed-up its efforts to let new countries join the EU*" come from Ireland (77%), Spain (74%) and Portugal (74%), whereas the least citizens of EU14 that agreed with this question come from Austria (45%), the Netherlands (46%) and France (47%). Among EU13 member states the number of respondents that agreed with the research question was the highest in Poland (81%) Latvia (75%) and Croatia (71%) and the lowest in Slovakia (36%), Bulgaria (40%) and Slovenia (44%). The research has shown relative balance among positive answers in EU28 (58%), in EU14 (57.28%), EU13 (57.84%), as well as in V4 countries (55%), with no significant findings.

The leading countries among EU14 that value more their membership than speeding up of the enlargement process are Luxembourg (+41), the Netherlands (+29) and Germany (+22), those who value more the speeding up of the enlargement process rather than their own EU membership are Greece (−9), Austria (+1) and Spain (+4). Among the EU13 countries, the citizens that value the membership of their country in the EU the most, in comparison to the speeding up of the enlargement process are Slovenia (+23); Estonia (+14) and Malta, whereas the most citizens of EU13 member states that value more the speeding up of the enlargement process rather than their own EU membership are Croatia (−15), Romania (−13), Poland (−8).

We also ordered the responses of the citizens of researched member states and the groups we focus on (EU28, EU14, EU13 and V4) according to their overall support for both, their countries' membership in the EU (responding: "*good thing*") and for the support of "*speeding-up European Union's efforts to let new countries join the EU*". The countries marking the highest score among EU14 countries are Ireland (163), followed by Spain (152) and Portugal (146). The lowest score was marked by Greece (91), Austria (91) and France (106). Among member states of EU13 the highest score was marked by Latvia (157), Poland (152) and Estonia (138) and the lowest score by Slovakia (77), Bulgaria (87) and Czech Republic (107). The average values show no significance neither for EU27 = 123; nor for EU14 = 127.35; nor EU13 = 118.77, except for the V4 with the lowest value of 111.75.

We have also found out that:

1. when taking into consideration the support for EU membership in respective member states, there is no immediate threat that any of the EU27 (therefore none of EU14, EU 13 nor V4) would be for the moment in a position to seriously considering a withdrawal from the EU (following the UK).
2. In case the negotiations accession process would be concluded, for the moment, the average support for speeding up of the enlargement process is 58%. However we can deduct, the support for enlargement in general is higher than support of EU citizens for "speeding up" the enlargement process, including the member that have shown the lowest support for "speeding up" of the enlargement process: EU14: Austria (45%); the Netherlands (46%) and France (47%); EU13: Slovakia (36%); Bulgaria (46%); Slovenia (44%). However, for the successful finalisation of the accession is much more important the decision of the supranational institutions (Commission, Council, and the European Parliament), as well as prevailing domestic support of the acceding countries that is, as mentioned earlier, one of the necessary conditions for finalisation of the accession process.

7.1 Further Research

The issue of enlargement certainly deserves more and continuous space to be researched on, not only from the historical point of view, but especially coming with the actual and future enlargement perspectives. A valuable contribution could be made by an in-depth analysis of the idea of the enlargement process, coined by the founding father of the common European project—Schuman [52]. Eventually, more rigorous quantitative methods of research inspired by researchers also from other study fields could be introduced in the next stages of the research [63, 64].

Acknowledgements This paper was created within the project KEGA (Slovak Republic) *Diversification of the content and didactic forms of education of economic courses in Slovak language and in world languages*. Project registration number 040UMB-4/2021.

References

1. Šuplata, M., Lacová, Ž.: (Compulsory) vaccination against covid-19 in the European Union as a way to "freedom", peace and trust? Attitudes of citizens of EU27 member states. In: International Relations 2021: Current Issues of World Economy and Politics, Bratislava, Ekonóm (2021). ISBN 978-80-225-4904-2
2. Šuplata, M., Lacová, Ž.: The attitudes to vaccination against covid-19 in the European Union: drivers and obstacles. In: ICEI 2022, Ostrava (2022). ISBN 978-80-248-4604-0
3. Cini, M., Pérez-Solórzano Borragán, N.: European Union Politics, 5th edn. Oxford University Press (2015)

4. Schimmelfennig, F., Sedelmeier, U.: Theorizing EU Enlargement: Research Focus, Hypotheses, and the State of Research, pp. 500–527. Routledge, Taylor and Francis, Oxford (2011)
5. Piket, V.: EU enlargement and neighbourhood policy. Institute for Strategic Studies
6. Kempe, I.: Prospects and Risks Beyond EU Enlargement, p. 303. Springer, Viesbaden (2003). 978-3-8100-3863-0
7. Kempe, I., van Meurs, W.: Europe beyond EU enlargement. In: Kempe, I. (eds.) Prospects and Risks Beyond EU Enlargement. VS Verlag für Sozialwissenschaften, Wiesbaden (2003). https://doi.org/10.1007/978-3-322-97591-1_1
8. Meurs, W.: Prospects and Risks Beyond EU Enlargement, p. 303. Springer (2008). https://doi.org/10.1007/978-3-663-11183-2
9. Sulamaa, P., Widgrén, M.: EU-enlargement and beyond: a simulation study on EU and Russia integration. Empirica **31**, 307–323 (2004). https://doi.org/10.1007/s10663-004-4090-4
10. Neuder, F.: (2003); Costs ax;nd benefits of EU enlargement. Intereconomics **38**, 190–195 (2003). https://doi.org/10.1007/BF03031706
11. Breuss, F.: The political millennium event: EU enlargement as an economic challenge. In: Landesmann, M.A., Rosati, D.K. (eds.) Shaping the New Europe. Palgrave Macmillan, London (2004).https://doi.org/10.1057/9780230523692_8
12. Breuss, F.: Benefits and dangers of EU enlargement. Empirica **29**, 245–274 (2002). https://doi.org/10.1023/A:1020255826824
13. Frisch, H.: How large are the welfare effects of EU enlargement? In: Breuss, F., Hochreiter, E. (eds.) Challenges for Central Banks in an Enlarged EMU. Schriftenreihe der Österreichischen Gesellschaft für Europaforschung (ECSA Austria)/European Community Studies Association of Austria Publication Series, vol. 9. Springer, Vienna (2005).https://doi.org/10.1007/3-211-27259-3_18
14. Inotai, A.: Institutional aspects of EU enlargement. In: Aiginger, K., Hutschenreiter, G. (eds.) Economic Policy Issues for the Next Decade. Springer, Boston, MA (2003). https://doi.org/10.1007/978-1-4757-5046-1_13
15. Polkowski, A.: The fifth EU enlargement round: two years on. Intereconomics **41**, 174–175 (2006). https://doi.org/10.1007/s10272-006-0187-2
16. Kóczy, L.Á.: Strategic aspects of the 1995 and 2004 EU enlargements. Group Decis. Negot. **19**, 267–277 (2010). https://doi.org/10.1007/s10726-009-9161-2
17. Gateva, E.: The evolution of EU enlargement conditionality: overview and key findings. In: European Union Enlargement Conditionality. Palgrave Studies in European Union Politics. Palgrave Macmillan, London (2015). https://doi.org/10.1057/9781137482433_6
18. Basheska, E.: EU enlargement in disregard of the rule of law: a way forward following the unsuccessful dispute settlement between Croatia and Slovenia and the name change of Macedonia. Hague J. Rule Law (2022). https://doi.org/10.1007/s40803-022-00169-7
19. Shuibhne, N.N.: Legal implications of EU enlargement for the individual: EU citizenship and free movement of persons. ERA Forum **5**, 355–369 (2004). https://doi.org/10.1007/s12027-004-0025-6
20. Takács, T., Jancic, D.: Fundamental rights and rule of law promotion in EU enlargement policy in the Western Balkans. In: Paulussen, C., Takacs, T., Lazić, V., Van Rompuy, B. (eds.) Fundamental Rights in International and European Law. T.M.C. Asser Press, The Hague (2016). https://doi.org/10.1007/978-94-6265-088-6_6
21. Nováčková, D.: Základy európskeho práva pre manažérov (2012). ISBN 978-80-8057-970-8
22. Roeger, W., 't Veld, J.I.: The economic impact of single market membership on the EU enlargement countries. In: Landesmann, M., Székely, I.P. (eds.) Does EU Membership Facilitate Convergence? The Experience of the EU's Eastern Enlargement, vol. II. Studies in Economic Transition. Palgrave Macmillan, Cham (2021). https://doi.org/10.1007/978-3-030-57702-5_2
23. Belke, A., Hebler, M.: EU enlargement and labour markets in the CEECs. Intereconomics **35**, 219–230 (2000). https://doi.org/10.1007/BF02930138
24. Smith, A.: International trade theory and EU enlargement. In: The Return to Europe. Studies in Russia and East Europe. Palgrave Macmillan, London (2000). https://doi.org/10.1007/978-1-349-62942-8_2

25. Pelkmans, J., Casey, J.P.: EU enlargement: external economic implications. Intereconomics **38**, 196–208 (2003). https://doi.org/10.1007/BF03031707
26. Buch, C.M.: Capital mobility and EU enlargement. Weltwirtschaftliches Archiv. **135**, 629–656 (1999). https://doi.org/10.1007/BF02707388
27. Rosati, D.K.: The impact of EU enlargement on economic disparities in Central and Eastern Europe. In: Landesmann, M.A., Rosati, D.K. (eds.) Shaping the New Europe. Palgrave Macmillan, London (2004). https://doi.org/10.1057/9780230523692_12
28. Brenke, K., Yuksel, M., Zimmermann, K.F.: EU enlargement under continued mobility restrictions: consequences for the German labor market. In: Kahanec, M., Zimmermann, K. (eds.) EU Labor Markets After Post-enlargement Migration. Springer, Berlin, Heidelberg (2009). https://doi.org/10.1007/978-3-642-02242-5_4
29. Faíña, J.A., López-Rodríguez, J.: European regional policy and backward regions: implications towards EU enlargement. Eur. J. Law Econ. **18**, 5–32 (2004). https://doi.org/10.1023/B:EJLE.0000032768.08952.b6
30. Lašas, A.: Introduction: explaining NATO and EU enlargement. In: European Union and NATO Expansion. Palgrave Macmillan, New York (2010). https://doi.org/10.1057/9780230106673_1
31. Sadurski, W.: EU enlargement and democracy in new member states. In: Sadurski, W., Czarnota, A., Krygier, M. (eds.) Spreading Democracy and the Rule of Law? Springer, Dordrecht (2006). https://doi.org/10.1007/1-4020-3842-9_2
32. Pridham, G.: EU enlargement, democratisation and domestic politics in post-communist Europe: patterns and problems of motivation. In: Designing Democracy. Palgrave Macmillan, London (2005). https://doi.org/10.1057/9780230504905_3
33. Schmähl, W.: EU enlargement and social security. Intereconomics **39**, 21–28 (2004). https://doi.org/10.1007/BF03032203
34. Neck, R., Haber, G., Mckibbin, W.: European monetary and fiscal policies after the EU enlargement. Empirica **31**, 229–245 (2004). https://doi.org/10.1007/s10633-004-1326-2
35. Pawera, R.: Manažment európskej bezpečnosti, 134 s. Bratislava, Eurounion (2004)
36. Pawera, R.: Manažment procesov vytvárania bezpečnosti v Európe. In: Civitas, roč. 12, č. 30 (2006). s. 7–9. ISSN 1335-2652
37. Pawera, R.: Bezpečnostní rizika, komponenty a cíle bezpečnosti EU. In: Bezpečnostní vědy: úvod do teorie, metodologie a bezpečnostní terminologie. Plzeň, Aleš Čeněk, pp. 227–231 (2019). ISBN 978-80-7380-0
38. Tewes, H.: Germany and EU enlargement. In: Germany, Civilian Power and the New Europe. New Perspectives in German Studies. Palgrave Macmillan, London (2002). https://doi.org/10.1057/9780230289024_5
39. Dluhosch, B., Horgos, D., Zimmermann, K.W.: EU enlargement and satisfaction with democracy: a peculiar case of immiserizing growth. Const. Polit. Econ. **27**, 273–298 (2016). https://doi.org/10.1007/s10602-015-9202-6
40. Finke, D.: EU enlargement and foreign policy coordination: more powerful, but less cohesive? Rev. Int. Organ **15**, 189–210 (2020). https://doi.org/10.1007/s11558-018-9328-1
41. Kahanec, M., Zaiceva, A., Zimmermann, K.F.: Lessons from migration after EU enlargement. In: Kahanec, M., Zimmermann, K. (eds.) EU Labor Markets After Post-enlargement Migration. Springer, Berlin, Heidelberg (2009). https://doi.org/10.1007/978-3-642-02242-5_1
42. Fellmann, T., van Leeuwen, M., Salamon, P., et al.: EU enlargement to Turkey: potential effects on Turkey's agricultural income and markets. Eurasian Econ. Rev. **2**, 1–16 (2012). https://doi.org/10.14208/BF03353834
43. Baimbridge, M., Harrop, J., Philippidis, G.: EU enlargement: EMU and agriculture. In: Current Economic Issues in EU Integration. Palgrave Macmillan, London (2004). https://doi.org/10.1057/9780230598164_8
44. Copeland, P.: EU enlargement, the clash of capitalisms and the European social model. Comp. Eur. Polit. **10**, 476–504 (2012). https://doi.org/10.1057/cep.2011.21
45. Havrylyshyn, O.: The impact of EU enlargement on countries beyond the new frontiers. In: Landesmann, M.A., Rosati, D.K. (eds.) Shaping the New Europe. Palgrave Macmillan, London (2004). https://doi.org/10.1057/9780230523692_14

46. Lippert, B.: Turkey as a special and (almost) dead case of EU enlargement policy. In: Reiners, W., Turhan, E. (eds.) EU-Turkey Relations. Palgrave Macmillan, Cham (2021). https://doi.org/10.1007/978-3-030-70890-0_11
47. Massai, L.: The EU enlargement. In: The Kyoto Protocol in the EU. T.M.C. Asser Press (2011).https://doi.org/10.1007/978-90-6704-571-1_2
48. Jørgensen, B.H.: Cross-border co-operation and EU enlargement. In: Hedegaard, L., Lindström, B., Joenniemi, P., Östhol, A., Peschel, K., Stålvant, CE. (eds.) The NEBI Yearbook 2001/2002. Springer, Berlin, Heidelberg (2002). https://doi.org/10.1007/978-3-662-13181-7_12
49. Elsner, B., Zimmermann, K.F.: Migration 10 years after: EU enlargement, closed borders, and migration to Germany. In: Kahanec, M., Zimmermann, K. (eds.) Labor Migration, EU Enlargement, and the Great Recession. Springer, Berlin, Heidelberg (2016). https://doi.org/10.1007/978-3-662-45320-9_4
50. Jovanovic, M.N., Damnjanovic, J.: Eastern enlargement; economic effects on new members 2000–2012. J. Econ. Integr. 29(2), 210–243 (2014). https://doi.org/10.11130/jei.2014.29.2.210
51. EU enlargement. In: Ness, I., Cope, Z. (eds.) The Palgrave Encyclopedia of Imperialism and Anti-imperialism. Palgrave Macmillan, Cham (2021).https://doi.org/10.1007/978-3-030-29901-9_300327
52. Schuman, R.: Pour l'Europe/Pre Európu. VydavateĽstvo Michala Vaška (2002)
53. Horeháj, J., Šuplata, M., Lacová, Ž.: The enlargements and common borders of the European Union: experiences and challenges ahead. In: Management & Gouvernance: Enterprises-Territoires-Sociétés. Grenoble Cedex: Le Réseau des Pays du Groupe de Vysegrad, no. 18, pp. 41–49 (2017). ISSN 2104-2438
54. Copenhagen Presidency conclusions, 21–22 June 1993
55. Treaty of the European Union
56. European Commission, DG Enlargement (2022)
57. Interview with a Senior Official of the European Commission (2022)
58. Juncker, J.-C.: Political guidelines for the next European Commission. http://www.eesc.europa.eu/resources/docs/jean-claude-juncker---political-guidelines.pdf. Accessed 21 Apr2017
59. European Commission, Negotiations status, 22 May 2022. Accessed 28 June 2022
60. Wikipedia: Enlargement of the European Union. Accessed 21 June 2022
61. Eurobarometer 97.3, 22 June 2022. Accessed 23 June 2022
62. Eurostat: Key Figures of the Enlargement Countries, 2017 edn. http://ec.europa.eu/eurostat/documents/3217494/7774688/KS-GO-16-001-EN-N.pdf/26107237-ec5d-4b1e-87f2-7bac279fb00a. Accessed 10 June 2022
63. Bauer, W., Kryvinska, N., Dorn, J.: Model of trust management for digital industry services. Towards E-Commerce 4.0. In Arxiv eprints, Cornel University (2020)
64. Rauer, J., Kroiss, M., Kryvinska, N., Engelhard-Nowitzki, K., Aburaia, M.: Cross-University virtual teamwork as a means of internationationalisation at home. Int. J. Manag. Educ. **19/3.** Elsevier (2021)

Reinvesting in European Citizenship Through Entrepreneurship and Frugal Innovation

Juliana Hadjitchoneva, Ghislaine Pellat, and Jana Marasova

Abstract *At a time when international issues are at stake and Europe is moving in the direction of environmental protection. The energy crisis, as well as in the wake of the Covid-19 pandemic, have inhanced being a citizen of Europe becomes particularly meaningful for individuals.* The study conducted here compares the feeling of being a European citizen vs. a citizen of one's native country among students from three European countries and includes entrepreneurial initiative as an explanatory vector for the results obtained. Being a citizen means being aware of the system in which each individual evolves, but does Europe currently allow any European student to invest in the project it proposes for the future? We study this axis through the concept of innovation and especially frugal innovation encouraged by the conjunctural and fundamental elements. The empirical study is conducted with 171 students from Bulgaria, France and Slovakia. The results indicate that the majority of students consider the European Union as a structure of citizenship. Personally, they call themselves primarily citizens of their countries and very few mention their European citizenship. Entrepreneurship is understood in very different ways in different countries and frugal innovation is still a very unknown area. The European project would therefore be well advised to target the younger generations of European entrepreneurs and to allow citizenship to be manifested in the territories it covers.

J. Hadjitchoneva (✉)
New Bulgarian University, 21, Montevideo Str., 1618 Sofia, Bulgaria
e-mail: jhadjitchoneva@nbu.bg

G. Pellat
University Grenoble Alpes, IUT2, 2, Doyen Gosse Sq., 38000 Grenoble, France
e-mail: ghislaine.pellat@univ-grenoble-alpes.fr

J. Marasova
University Matej Bel, Národná 12, 97401 Banská Bystrica, Slovakia
e-mail: jana.marasova@umb.sk

G. Pellat et al. (eds.), *Cooperation and Enlargement: Two Challenges to be Addressed in the European Projects - 2022*, Studies in Systems, Decision and Control 500,
https://doi.org/10.1007/978-3-031-42253-9_3

1 Introduction

European citizenship is not only about citizens' rights to free movement within the EU, initiative, voting rights and democracy, it is more than that—about a greener, better and more sustainable European future. The 'zero waste' philosophy of reducing food waste through civic behaviour, promoting the concept of 'zero deforestation' products to reduce the EU's impact on deforestation and forest degradation, attempts to reduce greenhouse gas emissions and biodiversity loss, will *accompany* entrepreneurship and innovation beyond the Green Pact for Europe.

Entrepreneurship is a European value and a key competence that the European Union promotes, which means it is essential to encourage EU citizens to be entrepreneurial, to find innovative solutions to societal problems and to develop products that have socio-economic added value. Innovation trends are increasingly moving towards innovation that is commensurate with the needs to be met, so-called frugal innovation.

In this new context, how is European citizenship positioned in regard of the national citizenship when the majority of citizens put their national identity before the European one? There is certainly confusion between identity and citizenship, and so our intention is to try to clarify the difference among young people by asking questions about citizenship, but also what is and how far does young Europeans' understanding of European citizenship go. Is it beyond the rights and obligations of citizenship in Europe, or at the opposite, is it perceived in a much broader context linked to European values and a common socio-economic greener future? Moreover, does it mean that they are aware of the European framework that offers incentives for entrepreneurship and innovation in Europe? If not, would it perhaps be necessary to develop new instruments to bring Europeans together to advance the European circular economy and environmental protection?

Our research is thus at the crossroads of all these issues between European and national citizenship, rethought by new solutions that are linked to frugal innovation and presuppose entrepreneurial drive, courage and knowledge about entrepreneurial approaches and processes. Our survey is conducted among students from three universities in Bulgaria, Slovakia and France. Methodologically, the study is based on a review of the basic conceptual framework, based on which a survey was developed and students in the three participating countries were surveyed. Young people's perceptions are presented in a comparative perspective in the light of the specificities of national and European citizenship, entrepreneurship and frugal innovation.

2 Conceptual Context

At this stage of the research, we review the literature on the three concepts of European citizenship, entrepreneurship, and frugal innovation. We relate these concepts to European policies, perspectives, and future development of green technologies. The subsequent empirical research builds on this foundation.

2.1 European Citizenship

European citizenship, like any other citizenship, lays and is practised in professional life as much, if not more, than in personal life. We become public or private actors of European citizenship in the exercise of our jobs, professions, and vocations, including entrepreneurship.

European citizenship is the subject of regular studies by EU as well as by individual countries. European citizenship is described as a construct [1] and authors advocate closer 'cooperation' between citizens for the European project. The definition of this notion is not easy to establish because it raises questions about the link to territories, nationalities, and ethnicities [2] and is often evoked in connection with migratory phenomena. For today's young Europeans, who were born in the European Union, "Europe is a missing link in the interweaving of affiliations from which young people define their identity [3]. We note that very often the notions of identity and citizenship are confused, which is why it is useful to define the contours of each of these notions, with regard to the existing literature on these subjects.

The notion of citizenship is a notion that belongs to sociological approaches because it concerns groups of individuals who live in a context of organised citizenship [4]. The leading works on citizenship are those of Marshall [5] which, like the work of Parsons [6], attempt to construct a general theory of society. These authors are particularly interested in the organic solidarity that sustains societies, of which citizenship, according to them, is a major component: "the 'internal logic' of citizenship would be an eminently favourable factor for the establishment of solidarity without, however, making conflict disappear". Citizenship is thus a status granted to all those who are full members of the community and the 'good citizen shows his loyalty to the community' by fulfilling his obligations to it. Citizenship attributes two main values: firstly, equality between citizens through political and legal institutions and secondly, freedom through the possibility to express oneself (voting), to move (migration) and to participate in societal decisions. Citizenship is a societal organisation designed to keep a group together, sometimes with a common project such as the European Union after the Second World War, whose objective was peace between countries. However, this ideal organisation has within it citizens who, despite their rights, often lack political competence or because they do not wish to alienate their freedoms, take little part in decisions through their votes. Marshall calls this situation 'political silence'.

It is then that the citizen is defined as an individual above all, and the explanation of his action strategies is studied by psychology. He then exists, in the context of citizenship, with his personal motivations, his history, his culture, his values… He is then defined by his identity which makes him unique. The identification of these two notions is important because they are often mixed up in studies on citizenship, which actually measure the identity of the people interviewed [7]. Citizenship is therefore not the same as identity, but each citizen, with his or her identity, is a constituent of citizenship [8]. The European project is then a constructed object gathering the aspirations of individuals of the constructed community whose vocation is the elaboration of a citizenship of its own [9]. Moreover, European citizenship is introduced in the Maastricht Treaty through the intermediary of the country that grants nationality, the right to vote and the existence of a citizen from Europe is not mentioned as Europe as a nation is not defined. "Citizens of the Union shall enjoy the rights and be subject to the duties provided for in this Treaty (Article 8 of the 1992 Maastricht Treaty).

A study conducted in 2006 among young European students ranks the significance of Europe in their sense of belonging [10]: they put Europe in the bottom position in terms of belonging. "The local nation confers global citizenship. The local scale, such as their town or region of residence, is their first place of belonging, followed by the feeling of belonging to the human race. This belonging gives them a strong sensitivity to ecology and migrant populations. Their national belonging is only a far behind, and their belonging to Europe even further behind.

Since we see citizenship as the construction of a community in which each participant contributes to its maintenance and protection, entrepreneurial initiative occupies an important place. Therefore, our study approaches the notion of European citizenship from the perspective of entrepreneurial dynamics. This is the pretext for achievements that contribute to the community and that allow the participants to find their place in it. Living as a citizen is a common goal to be achieved. This 'citizenship education' is indicated as a performance factor for entrepreneurship, especially in the context of innovation entrepreneurship [11]. Other works [12] converge towards this conclusion or even complement this analysis by differentiating two major parameters of citizenship: interpersonal, individual-oriented citizenship (I-CI) and task-oriented citizenship (T-CI), a measurement scale was introduced in the work of Seetton and Mossholder [13]. The organisational behaviour of citizenship has an impact on the performance indicators of a company not only in qualitative and quantitative terms but also on the operational efficiency of the company as well as on customer satisfaction [14]. The personal commitment that the quality of citizenship encompasses is very effective for small organisations because it allows for initiative-taking and teamwork all geared towards the achievement of a common goal [15]. Organisational citizenship has a particular impact on a company's ability to be adaptive. Indeed, "it is mutual support and team spirit that impact this performance to a large extent. Civic virtues interfere to a lesser extent" [16]. These findings have been verified for all types of organisations, regardless of their size. The environment in which these entrepreneurial actions take place has a strong influence on the sense of citizenship,

especially through the presence of laws and rules, freedom, and ethics in business [17].

In this article we propose to study the European entrepreneurship experienced by students from three European countries with regard to the facilities offered by European citizenship. In other words, it is important for us to know whether: (i) Europe represents a place for the practicing of entrepreneurship in the perception of students; (ii) whether this capacity for entrepreneurship is different at the national or European level; and finally (iii) whether students in our respective countries perceive the European value through the education provided.

The conception of the role of citizens in the European construction pursues a long process of maturation by complementing their economic roles of free movement of workers of the 1950s with their political roles of right to vote and to stand for election in European and local elections, the right to petition the European Parliament, the right to address the "ombudspersons", the protection from the diplomatic and consular authorities of any member state, under the same conditions as the natives of each state [18]. The term 'European citizenship', which first appeared in the Maastricht Treaty, represents a restrictive set of rights. Anyone who is a national of a Member State is a citizen of the Union, which demonstrates the additional nature of European citizenship; it does not replace national citizenship, it complements it. The Charter of Fundamental Rights, later elaborated in connection with the Treaty of Nice, incorporates these rights in the chapter on citizenship. The set of rights relating to European citizenship is extended by other rights, especially the right of citizens to good administration, the right of access to all documents of the European institutions, and social and economic rights.

In practice, however, European citizenship does not appear to be egalitarian, nor applied in an equal manner, nor understood in an equal manner by the populations. Strong disparities between the member countries are observed due to readings of the situation according to national visions; not all European citizens are equal in the practice of their rights, although equality is intended to be a valuable parameter to fill the democratic deficit of the EU [19]. Even if this concept of citizenship remains little known by European citizens, does it play the role of a symbolic meaning for European youth? To try to answer this question, we look at four constituent parts of European citizenship: free movement within the EU, the right to vote and associated democracy, the common values of the European Union such as respect for human dignity, freedom, democracy, equality and the rule of law, and finally access to the European market.

2.2 Entrepreneurship

From the beginning of the eighteenth century, entrepreneurship was associated with economic activity and risk-taking (Richard Cantillon) with organisation and leadership in the economy (Jean-Baptiste Say). These concepts were maintained and developed in the twentieth century when entrepreneurship became the subject of

focused research in economics [20]. According to many definitions, entrepreneurship is a type of behaviour that consists of undertaking initiatives, organising socio-economic mechanisms to activate the necessary resources, and obtaining practical benefits under conditions of accepting risk and failure [21].

The nature of entrepreneurship group researchers is discussed into different schools. Their ideas are summarised by these authors [22] in two main trends: the macro trend, which includes the effects of external factors in the business environment on the potential for entrepreneurial activity, e.g., access to finance or political, cultural or economic rejection of the individual and his or her orientation towards entrepreneurship as an alternative, incentives or barriers through national or supranational (e.g., EU) regulations or policies. In other words, these are exogenous factors that promote entrepreneurship, and this requires information, awareness, or learning. The other one, the micro trend. This micro component relates to the importance of personal characteristics for entrepreneurial success, the presence of business opportunities, their discovery by entrepreneurial individuals and the development of entrepreneurial strategies to target the value and uniqueness of markets. Thus, these are endogenous factors that to a greater or lesser extent can be trained during entrepreneurship education (e.g., key entrepreneurial skills such as creative thinking, communication, teamwork, problem-solving, and marketing).

Entrepreneurship is associated with four fundamental paradigms: business opportunity, organisation building, value creation and innovation [23–25]. Shane and Venkataraman [26] highlight three interrelated aspects of entrepreneurship: (i) the exploration of sources of business opportunities; (ii) the process of discovering opportunities, assessing their potential to develop into a business venture and capitalising on these opportunities; and (iii) the community of individuals who carry out the entrepreneurial process. Why, when and how are fundamental questions that highlight the creation of opportunities, their discovery and exploitation by individuals, as well as the modalities of different entrepreneurial activities. In other words, besides clarifying the reasons for their discovery, the timing of the discovery itself and the means by which entrepreneurial opportunities are created, remain important.

In our study, we study entrepreneurship in a broad sense. This includes the ability to create or identify opportunities and exploit them, the creation of an organisation by one or more people, or a process that creates value. We would also add to this list any activity related to innovation such as the creation of new products or services, new methods of production, distribution or sales, the opening of new markets or the development of a new organisation. Europe allows any European citizen to set up their own business in any EU country, including Iceland, Norway and Liechtenstein. This remains valid for the creation of a subsidiary or branch in the case of a company already registered in an EU country. The “Startup Visa” tool is intended for non-EU citizens. Although formalities vary from country to country, the EU encourages Member States to make it easier to set up a business from the very beginning, to minimise the cost of formalities, to bring together the formalities to be carried out on a “one-stop-shop” basis, to make it easier to complete registration formalities online, and to register a business online in another EU country. Also, EU funds are available to help with this process of business creation. In other words, there is a close

link between entrepreneurship and the practical orientations of European policies around entrepreneurship at the European level: finding out about the conditions for starting a business in different European countries, European measures to stimulate entrepreneurship in the EU, the possibilities of using European funds to support business projects, the possibilities of attracting European investors (e.g., European venture capital funds, business angels), the European Startup Visa mechanism, the "one-stop-shop" principle alleviate administrative constraints to the benefit of the company's economic activity.

The EU seeks to ensure that its common values, such as respect for human dignity, freedom, democracy, equality, and the rule of law, are present and respected in the entrepreneurial projects it supports. Entrepreneurship is a valuable skill for EU citizens, both for their personal and professional development. In the EU's priorities, entrepreneurship education plays a key role in fostering Europe's competitiveness and maintaining the growth of the European economy. Promoting entrepreneurship education as a key competence means encouraging EU citizens to be entrepreneurial, to find innovative solutions to societal problems and to develop products with socio-economic added value.

2.3 Innovation and Frugal Innovation

The concept of frugal innovation is based on the concepts of innovation and frugality. The concept of innovation includes both aspects of activity and the result of that activity representing a product or process or their combination in a new or improved way that differs significantly from previous products or processes made available to potential users [27]. The role of knowledge as the basis of innovation, novelty and utility, and the creation or preservation of value as the presumed objective of innovation are key elements of this concept; in contrast to invention, innovation requires implementation, i.e. use or making available to others for use or marketing [20]. It is useful to distinguish between innovation in two directions [28]: incremental developments ("doing what we do, but better"), and radical developments ("new to the world") or incremental developments (new versions of products), although radical new innovations are less common. On the other hand, frugality is linked to simplicity, austerity, lack of abundance, which forces a very limited use of resources compared to needs. The theory of frugal innovation has attracted the attention of several researchers over the past decade, and is defined as a "reference to products and services that are developed under resource constraints", "customers are at the centre of the development of accessible, adaptable, affordable and appropriate products", a "product innovation where there is a shortage of wealthy customers", "innovative products and business models with low cost and high quality", a "new philosophy", a "resource-constrained solution designed and implemented within constraints", and others [29–33]. Frugal innovation is associated with ecological and social sustainability, as it is characterised by minimal use of resources [34]. In this logic, we

approach European policies with the vision of a greener and more sustainable European future. The 'zero waste' philosophy of reducing food waste through citizen behaviour, promoting the consumption of 'zero deforestation' products to reduce the EU's impact on deforestation and forest degradation, and attempts to reduce greenhouse gas emissions and biodiversity loss will accompany entrepreneurship and innovation beyond the Green Pact for Europe. However, the concept of frugal innovation is still not or not enough and widely known of among people and in particular among European youth.

3 Research Methodology and Sample

The academic analysis of existing research has led us to formulate five hypotheses in light of two major interrogations. The first inquiry concerns the feeling of being European with three hypotheses to be tested: H 1.1, H 1.2, and H 1.3. The second inquiry concerns the support that Europe provides for entrepreneurship with two hypotheses: H 2.1 and H 2.2.

First investigation: The feeling of being European:

H 1.1 A student feels, first of all, citizen of his or her country, and then a European citizen;

H 1.2 Students imagine Europe as a favourable space to develop entrepreneurship;

H 1.3 Europe is a territory where frugal innovation conceived as sustainability is played out.

Second investigation: The way Europe encourages entrepreneurship and frugal innovation:

H 2.1 Europe encourages the creation of a European company in proximity to the student's project;

H 2.2 For those who have an idea for the creation or who have created a company, Europe helps them in their projects.

On this basis, a survey was developed, consisting of seven core questions and three general questions. The questionnary was developed using "Google Forms" in the three main languages of the study, using the 'round trip' method of translating from French to the selected language and then from the selected language to French. The languages used were Bulgarian, Slovak, and French. The survey was made available online at three universities—in Bulgaria, Slovakia, and France—and administered to students in bachelor and master programmes. The students' fields of study were entrepreneurship and business, management, economics, political sciences and European citizenship, natural sciences, and others. The questionnary was distributed online via email and also offered on social networks allowing communication between students and faculty.

The survey was carried out between May and June 2022 among students from two public universities (mainly financed by the state) in France and Slovakia, and one private university (mainly financed by the enrolled student and his/her family) in

Table 1 General information (auteurs' elaboration)

General data (all countries)	Bulgaria (%)	France (%)	Slovakia (%)
Total responses collected (171)	39	31	30
Level of study –Bachelor (84%) –Master (16%)	37 2	27 4	20 10
Study Programme –Management in the broad sense (accounting, business, human resources, etc.) 46% –Economics 24% –Arts 2% –Information and communication technologies 2% –Science (physics, biology, chemistry, etc.) 6% –Other 20%	15 9 0 0 1	24 0 1 1 4	7 15 1 1 1

Bulgaria. The sample consisted of 171 respondents with an almost even distribution between countries (Table 1).

Whatever the country, the responses of the Bachelor's students were 84% of our sample. The study programmes attended by the respondents are mainly in management studies (in the broad sense of the term) as well as in economics, i.e. a total of 70% of the sample, 20% are enrolled in other programmes such as political science, international relations, national and international security or other studies. This representation is due to the fact that the survey was administered mainly to students in management and economics courses taught by the authors of this article.

The following three criteria: level of study, study programme and country will be used in the analysis of the results, in light of the hypotheses formulated.

4 Results and Discussion

As a starting point, we highlighted the perception of the students interviewed on European citizenship by using the criteria selected from the literature reviewed. Then we analysed how Europe was conducive to entrepreneurship and innovation. Finally get an idea of the individual involvement, activities and commitment of each citizen towards their needs and how to satisfy them at a lower cost for the planet, defined as frugality.

4.1 European Citizenship: Students' Perceptions

For 98% of respondents, European citizenship represents a place of free movement. Schengen area is an achievement of the European policies highly appreciated by

students, but this very high percentage is without a doubt an outcome stimulated largely by the Erasmus+ exchange programmes. The access to the European market is strongly and positively correlated with the perception of an area as geographically open to trading (84%). 93% associate European citizenship with the right to vote and democracy, slightly more in Bulgaria than in Slovakia or France where the rates are 30% in each of these countries. 76% 'strongly agree' or 'agree' that human dignity, freedom and equality are respected in Europe. On this point, Bulgarian students have a much more positive perception than Slovak and French students—respectively, 43% compared to 29%.

As for Europe's ability to propose and achieve a greener and more sustainable future, 72% of the total sample population agreed with this proposal, but 45% of them were distributed among Bulgarian students; Slovak and French students had greater doubts about this future (both with 10-points difference to Bulgarian score). The scores are almost similar (74%) to these with regard to Europe's ability to encourage entrepreneurial initiatives, again with a 10-point difference between Bulgaria and the other two European countries. In an attempt to explain this gap between the perceptions of Bulgarian students and French and Slovak students, we further analyse by separating the strongly affirmative responses (strongly agree and agree) on a greener and more sustainable future into two groups of studies—represented by management and economics (Mgmt) on one hand, and other studies on the other hand, by country, in order to assess the weight of the responses (Fig. 1).

We observe from Fig. 1 a much higher share of optimistic expectations among Bulgarian students studying in management and economics programmes compared to the students studying these subjects in France and Slovakia; an even greater gap is visible for the other fields of study. Several explanations are possible: (i) in the curriculum of management, economics and entrepreneurship courses are incorporated and more explicitly addressed or studied issues of sustainable development and the European context; (ii) a large proportion of Bulgarian respondents in the other programmes study political sciences, political relations and security; in these

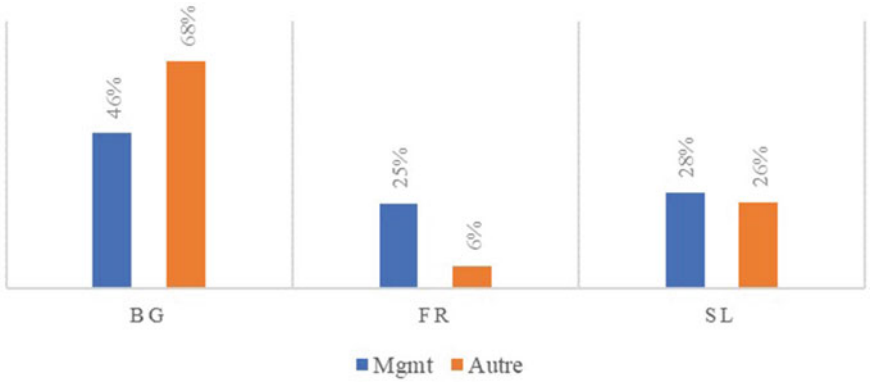


Fig. 1 European green future (author's elaboration)

programmes the subjects covered by the training definitely include European policies, European citizenship, the European context and development, human rights, human security, threats to freedoms and liberty as well as laws that guarantee freedoms; (iii) the pro-European optimism of Bulgarian youth is rather representative of Bulgarian society (without however underestimating the fact of their choice of a more liberal education in a private university); (iv) Bulgarian youth have high hopes for an European future (exasperated in these times of Covid-19 and other superimposed crises related to Bulgarian political and economic reality, and political instability). This trend is in line with the tendency of Bulgarian population groups to express positive attitudes towards European values and the economic dynamics of the European Union. Bulgarians see positives in EU membership, which increases institutional trust in the Union [35]. The level of trust in the EU is higher than the average trust in national governance institutions. According to the 2016 Eurobarometer, this difference is more pronounced in Eastern Europe—trust in the EU is also significantly higher—almost 50% of Bulgarians trust the EU.

To live as a citizen in Europe is to be able to move around freely, to live in democracy and freedom, and to have the possibility to do business including the aspect to obtain a greener and more sustainable future. However, these conclusions must be interpreted in a nuanced way by country. They include many indications that they cannot be seen as definitive, all the more so since they represent at most 25% of the responses obtained in this survey.

4.2 Perception of European vs National Citizenship

Of the students surveyed (from all three countries), 56% responded that they felt first and foremost citizens of their country before feeling European, but with great disparities between countries. Slovakia scored highest (69% of the sub-group) in favour of feeling like a European citizen before being a citizen of one's country, while France had the lowest rate with only 11%. Bulgaria and then France had the highest rates of 'feeling first a citizen of one's country and then a European' with 53 and 47% of the subgroups surveyed respectively. These differences between countries can be explained either by a frankly pro-European policy or by a strongly European-oriented education in university courses, especially for Slovakia. In the case of Slovak students, these two factors are additionally reflected in their very intensive and dynamic mobility within the EU since the 2000s, on the one hand within the framework of the Erasmus+ programme, but also due to their personal initiatives—a typical initiative is to regularly go and work abroad during the summer period.

4.3 The European Space as a Space for Entrepreneurship

Survey participants in all three universities were unanimous that there is a profound lack of awareness of the ways proposed by Europe to realise European entrepreneurship (between 66 and 81%). Policies such as "Startup visa" or "one-stop-shop" are not well known (81% are unaware of their existence), even though they are horizontal policies that are adopted by national governments and transmitted in national strategies and regulations. There is a lack of awareness of European incentives and opportunities to attract investors (75% are unaware of them). This gives the impression that Europe does not encourage the creation of entrepreneurial activities on European territory. However, the mechanisms do exist, so it appears that Europe seems very remote from the students, whatever the country, only one student (all countries included) knows all the procedures mentioned and agrees that Europe is an easy place to find information for the developing of entrepreneurship. Universities are not the relays for this information, which is most often located in chambers of commerce or in relay points far from university sites. It would be good for universities to be relays of this information that Europe is promoting in favour of entrepreneurship, especially at a time when Europe is aiming to relocate its production.

However, 33% of the student respondents confirmed that they knew where to find information on the conditions for setting up a business, 43% of them being Bulgarians, 16% French and 41% Slovaks. In total, it should be noted that the number of students who are aware of European measures on entrepreneurship and where to find information on starting a business reaches 18%. Two thirds of them are Bulgarians, one third Slovaks, and no French students in both groups.

4.4 Impact of Country of Origin on Young Students' Entrepreneurship

The relay of European initiatives via the countries to which they belong seems to be barely more effective than those that Europe initiates directly with each European citizen. Indeed, 57% of respondents are aware of Europe's desire to encourage entrepreneurship via the countries' information relays, but there is still a significant number of people who are unaware of this information. A majority of respondents of all nationalities mention that it is difficult to get information in their country on these European initiatives in favour of entrepreneurship and that they are not aware of the "Startup Visa" or "one-stop-shop" initiatives offered by Europe (for 80% of them), with all three countries being mentioned as lacking information. In fact, only 10% of all students confirm that they are aware of both mechanisms for reducing administrative barriers, 76% of them being Bulgarians and 24% Slovaks. In the case of the one-stop shop, none of the French students confirmed that they were aware of this mechanism, while the share of Bulgarian and Slovak students was 78 and 22% respectively. In contrast, only two French students out of 33 were aware of European

business creation visa policies; the rest were split between Bulgarians (64%) and Slovaks (30%).

Overall, even if we observe heterogeneous results between the countries studied, which can be explained by the different socio-economic, political, and entrepreneurial contexts and dynamics, we can draw the approximate conclusion that the entrepreneurial spirit of young people, despite being strongly encouraged by Europe, does not have sufficient resonance, if any, with students.

4.5 Entrepreneurial Projects or Activities

Across all countries, 74% of students report that they have thought about an entrepreneurial initiative but have not proceeded to implement the idea. However, 19% of this same group have set up a business and are living from it. Among them is only one in Slovakia where one respondent has started a business, while in Bulgaria 3 respondents mention that they already have a functioning business. Two French respondents indicate that they have an idea for a business but have not yet realised this initiative. The conclusion on these few statements is that there is a large gap between the information on national or European entrepreneurship and the concrete realisation by the learners. The knowledge is present but not the entrepreneurial know-how and the university structures in each country do not or not much encourage these initiatives, at least among the respondents who are mainly in the Bachelor's degree courses. Among the overall sample, entrepreneurship initiatives are associated with two Master's level respondents. It should be noted that there were 10 such respondents for the three countries, therefore this number is still very low (20%).

If we cross-reference the positive responses of respondents who claim to experience European citizenship through its aspect of entrepreneurial initiative possibilities at European level, on one hand, and their confirmations of entrepreneurial activity, on the other, we observe that (i) in total 28% of the students who perceive European citizenship through the possibilities of entrepreneurial initiative at the European level have already undertaken business activities (having a business idea and having started working, creating a business or having a functioning business)—per country, this is 33% of Bulgarian students, 29% of French students and 19% of Slovak students; (ii) 21% of the students have already started working on their own business idea; 22, 25 and 15% respectively; (iii) 3% of the students have already created a business; (iv) 5% of the students have a functioning business, the share of Bulgarian students is 11% (Table 2).

Certainly, a direct proportional relationship between these two variables is hardly an explanation for the (small) differences in entrepreneurial attitude and activity between the three countries studied. However, it is interesting to note that of the 25% (43 students in total) of all students who are aware of European measures to stimulate entrepreneurship in the EU, firstly, all have positive perceptions regarding European citizenship through the possibilities of entrepreneurial initiative at European level, and secondly, most of these 25% are Bulgarian students (63%), followed by Slovaks

Table 2 Perceived European citizenship through entrepreneurial initiative opportunities at European level and entrepreneurial activity (authors' elaboration)

	Positive answers	%	Actions	Idea	Creation	Functioning business
BG	64	96	21	14	0	7
FR	48	91	14	12	2	0
SK	48	94	9	7	2	1
	160		44	33	4	8

(30%) and French (5%). Plus, 40% is the share of students who have already considered or carried out entrepreneurial activities - 13 students who have started working on their entrepreneurial idea, of which there are 1 French, 8 Bulgarians and 4 Slovaks, 1 Slovak who has started a business and 3 Bulgarians who have a functioning business. Another 60% of this group of students surveyed (26 students in total) have not yet started a business activity, including 17 Bulgarians, 1 French and 8 Slovaks. So, regarding the European incentive to entrepreneurship among young people by taking into account these two aspects—the perception of European citizenship and the awareness of European measures to stimulate entrepreneurial intention, we find a clear polarity that can be explained by the diversity of the educational background but also by the students' interests, environments (e.g. family business or not) and developments (level of study or otherwise, but also of the economy that is more or less developed and respectively offers more or less business opportunities).

4.6 Innovative Entrepreneurial Ideas for the Planet

It was important for us to look for the contributions that young European students could bring to the ecological challenges of tomorrow. We note that unanimously (all 3 countries), a majority of absence of answers predominate in the answers as well as for the reduction of waste as for the protection of the forest, the use of solutions that reduce the greenhouse effect or in favour of the circular economy. However, the highest rate of non-commitment to ecological solutions is found in Slovakia. The large gap (74% for Slovakia) compared to France and Bulgaria, 11 and 15% respectively, indicates that young people's commitment to the planet is not a uniform and unambiguous behaviour in Europe.

The poor result for Slovakia with regard to the ecological future of Europe is all the more paradoxical given that, according to Eurobarometer, the country's population, including the younger generations, has been very favourable to Europe since the 1990s. How is it possible that the respondents in our research are so little interested in solutions for the environmental future of Europe? The most important reason is the lack or insufficient level of training focused on the need for sustainable development and lifestyle, especially in primary and secondary education. As

a result, current university students have very little knowledge of urgent environmental protection. Our interviews with some of them showed that it was only when they arrived at the university that they became aware of the different actions that can help to protect nature and thus achieve sustainable development. These include the circular economy, the production of new materials from recycled materials and many other innovative solutions. However, in recent years the environmental awareness messages, especially for young people, have been intensified by the Slovak government: the translation into Slovak of the publication [36] on the green future is a relevant illustration. A second reason for the low commitment of Slovak youth to ecological solutions is the country's education system, which is still based more on memorising knowledge than on leading young people to critical thinking, creativity, and personal initiative, thus awakening their curiosity about important contemporary issues. Finally, it is worth mentioning that many local authorities do not communicate sufficiently about their own actions in this field on the one hand, and those of other agents on their territories on the other. For example, if a waste recycling facility sets up a new processing chain and then asks citizens to change the way they separate their waste, there is little or no dissemination of information by municipalities to bring about a desirable change in behaviour. However, an improvement in environmental attitudes requires the close cooperation of all actors involved in order to achieve long-term results.

Some explanations for these non-commitments by country are given below. In France, "I try to set an example by my personal attitude in favour of the planet, but I do not wish to participate in public debates on the issue of ecology". In the same vein, in Slovakia, "I participate in the circular economy by buying few clothes and wearing them often" but otherwise "I have no entrepreneurial ideas related to the protection of the planet". This last sentence also seems to fit with the respondents from Bulgaria.

When we analyse the positive answers of the respondents, we observe that a bit more than a quarter (26%) of the students confirm that they have innovative entrepreneurial ideas related to a variety of aspects at the same time—to the "zero waste" philosophy (aiming at the reduction of waste from food through citizen behaviour) promoting the consumption of zero deforestation products to reduce the EU's impact on deforestation and forest degradation, attempts to reduce greenhouse gas emissions and biodiversity loss, and progress towards a European circular economy and nature protection. The distribution by country is as follows: 64% are Bulgarians, 27% are French and 9% are Slovaks. Of these, 6% of all students have already taken action to realise their ideas, while 9% of students have not taken any action (Table 3). Table 3 shows the share of respondents with ideas and actions taken or without actions taken of the total sample (n = 171), as well as the distribution by country. Two trends stand out: (i) an impressive share of Bulgarian students who have ideas and have acted (between 72 and 91%) and (ii) relatively equal proportions of Bulgarian and French students who have ideas but have not taken action to implement them.

The first observation, which shows a significant polarisation between the Bulgarians on the one hand and the French and Slovaks on the other, naturally attracts

Table 3 Innovative entrepreneurial ideas (authors' elaboration)

	Zero waste ideas (%)	Zero deforesta-tion ideas (%)	Greenhouse gas reduction/ biodiversity ideas (%)	Circular economy/ nature conservation ideas (%)	All ideas (%)
Actions	19	13	14	16	6
BG	72	91	75	86	80
FR	19	5	17	7	10
SK	9	5	8	7	10
Without actions	26	20	24	25	9
BG	42	38	44	43	63
FR	47	44	37	40	38
SK	11	21	20	17	0

our attention as it raises doubts about the degree of confidence in the relevance of the answers received. Through our questionnaire, we have a verification mechanism by establishing correlations that allow us to check the statements and establish the relative credibility of the answers. To this end, we will look for a correlation between the students' answers to the question of whether they have planned or initiated an entrepreneurial activity and their answers to the question of whether they have innovative environmental and sustainable development ideas and if they have implemented them.

We assume that the answers to the question on entrepreneurial attitudes and actions may have a higher degree of credibility. We use the answers to the questions on actions taken in relation to the discovery of innovative sustainable ideas and compare them with those on entrepreneurial initiative. If a student indicates that he/she has an innovative and sustainable idea and has acted, this should be confirmed in the response on entrepreneurial initiative (respectively, he/she has an entrepreneurial idea and has started working on it, he/she has created a company or he/she has a functioning company). Conversely, if he indicates that he has a sustainable innovative idea and is working on it, but at the same time gives a negative answer to the question on any entrepreneurial action taken, then we consider the result to have a low level of confidence.

The results of this assessment show that the overall level of doubt is 26%, varying between 25 and 31% (respectively, 26% for Bulgarians, 31% for French and 25% for Slovaks). These coefficients were obtained by comparing them to the total positive results for the four types of activity. The coefficients obtained do not show significant variations in the results of the different groups per country (about 30%). Therefore, we consider the reliability of the results to be about 70%, which does not affect the overall conclusions.

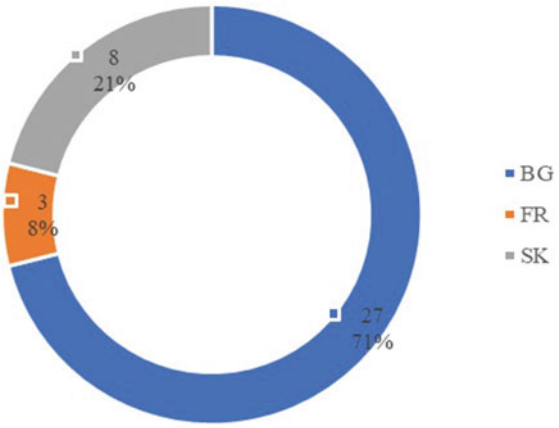


Fig. 2 Knowledge of the concept of frugal innovation by country, number and % (authors' elaboration)

4.7 Frugal Innovation, a Discovery for Students

In neither of the three countries is the concept of frugal innovation known by the Master's students, which we would have expected from the fact that it is a concept developed from high-level scientific knowledge. The innovation of creating at the level of one's need and being able to give back to nature the same level as what was used to produce this good, or action is unknown to 78% of the sample population in our study. Only 22% of the students know the concept of frugal innovation. The concept is best known in Bulgaria, where 71% of the Bulgarian group responded that they were familiar with the concept. The rate decreases to 21% in Slovakia and to 8% in France (Fig. 2).

These findings show that the notion of frugality is not self-evident, that it is a concept that needs to be taught to future generations starting from the first years of higher education. However, these results clearly show that the new generations (undergraduate level) are more familiar with the concept of frugal innovation, while the older generations (master level) are not yet. This is a confirmation of the novelty of the concept on the one hand, but also an indication of its diffusion among the younger generations (although still relatively low). We believe that the notion of frugality will become more and more present in entrepreneurship and innovation education as innovative pedagogical approaches that are more oriented towards experiential learning methods (e.g., techlab, fablab, etc.) are made available.

Analyses of awareness of the term frugal innovation across the curricula show that none of the students in the ICT and science programmes (physics, biology, chemistry, etc.) recognise it. We find that the percentage of familiarity with the concept is highest among students in management programmes (37%), followed by those in economics programmes (31%) (Fig. 3).

This result is somewhat surprising given that it is the technology and science curricula that are supposed to recognise this phenomenon and teach how to create frugal innovations. We could explain it for the moment by the very small sample

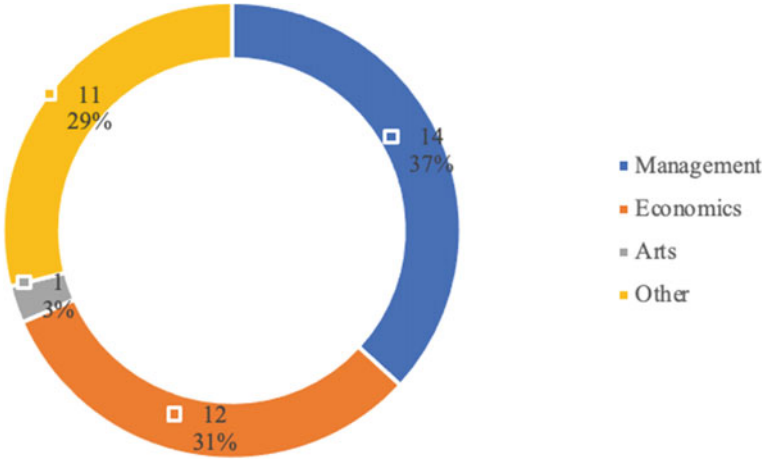


Fig. 3 Knowledge of the concept of frugal innovation by programme of study, number and % (authors' elaboration)

in our survey of students from such programmes (11 students in total)—just 3 in ICT and only 8 in science, including 1 Bulgarian in science, 8 French in science and technology (of which 7 in science) and 2 Slovaks in technology and science. A cautious conclusion we could draw here is the need for an increasing penetration of the theme of frugality, respectively appropriate technology, and engineering, in technology and science curricula.

These results show us how much national citizenship remains anchored to the detriment of European citizenship, that the student population analysed in this study has a positive image of Europe in terms of freedom of movement, freedom of thought and tolerance, but does not know how to act in Europe. Indeed, the tools to help them start their own business are ignored and are not promoted by the countries of their nationality. European entrepreneurship does not exist at present and there are doubts about the possibility of Europe cooperating to create relocated activities in Europe. Although Europe is the standard bearer of the great ecological challenge of tomorrow, this does not produce collaborative efforts among the EU states, and the universities do not play a sufficient role of relaying entrepreneurial action in favour of the great ecological causes. No doubt universities have a crucial role to play in educating tomorrow's citizens about global challenges but also in building a European identity among their students.

5 Conclusion

The aim of our paper was to investigate the perception of European citizenship by students in three European countries, particularly in relation to the development of entrepreneurship and the commitment to building a greener and more sustainable future. Achieving the latter will require a sustained development of young people's entrepreneurial spirit and innovative solutions to many economic and social issues.

Our survey of Bulgarian, French, and Slovak students showed that European citizenship is for almost all the students interviewed a place of free movement, voting rights and democracy. For the majority of them it is also a free space of respect for human dignity and equality. They also believe in Europe's capacity to encourage entrepreneurial initiatives. However, they are less convinced of the EU's ability and commitment to build a green and sustainable future. An optimistic result is based on the fact that about half of the students feel first of all a European citizen before being a citizen of their country. We obtained less satisfactory results regarding students' knowledge of existing European support instruments for entrepreneurship—they consider the access to this type of information as difficult. Even less satisfactory responses from students were given in relation to their innovative ideas and ecological commitment to the future of our planet. Similarly, very few students were aware of the concept of frugal innovation. Certainly, some differences between representatives from different countries emerged. Our survey also highlighted some national differences in terms of whether Europe is a place for entrepreneurship in the eyes of students, whether this entrepreneurial capacity is different at the national or European level, and finally whether students in our respective countries perceive European value through the education provided.

It is an important and urgent challenge for universities as well as for European and national institutional actors to find ways to respond to the weak points identified in this first study. Universities should target entrepreneurship in the European space more strongly in their curricula, support programmes and existing networks for this purpose. For European and national institutions, further improving access to information remains one of the crucial issues to make Europe less "remote", especially for young people, and to help the stimulation of the realisation of innovative ideas developed jointly by citizens from different countries. This corresponds to a collaborative way of getting to know each other better and of considering the European territory as a basis for projects to be developed and carried out together. This skill, which consists of knowing how to associate around a common international (European) project, whatever one's nationality and identity, is highly sought after by recruiters, particularly in companies whose spectrum of action is European.

This study raises a little or not yet explored issue of the interrelation between European citizenship seen through the prism of entrepreneurship and innovation, more precisely frugal innovation for a cleaner and more sustainable future.

Future research in this direction could deepen the analysis of the link between Europe and entrepreneurial attitudes and initiatives involving frugal innovation of young people, as well as broaden the scope of the research by including more member

countries in the studies. This research paper originated in partial fulfillment, and with the support of, the project VEGA 1/0668/20, 'Digital Inequality and Digital Exclusion as a Challenge for Human Resources Management in the Company', the project KEGA 040UMB-4/2021, 'Diversification of Content and Didactic Forms for Teaching Economic Subjects in the Slovak Language and World Languages'.

References

1. Magnette, P.: La citoyenneté européenne: Droits, Politiques, Institutions, pp. 543–544. Editions de l'Université de Bruxelles (1999)
2. Egry, G.: De l'ethnicisation de la nationalité à l'indigénat transnational: migration, citoyenneté, paix de Trianon. Revue d'Allemagne et des pays de langue allemande **52**(2), 341–363 (2020)
3. Klapisch, C., Muxel, A., Burguiere, A., Heintz, M.: L'Union européenne et les jeunes, regards croisés d'une sociologue et d'un cinéaste. Ethnol. Fr. **50**(3), 575–580 (2020)
4. Birnbaum, P.: Citoyenneté et identité: de T. H. Marshall à Talcott Parsons. Citizenship Stud. **1**(1), 133–151 (1997). https://doi.org/10.1080/13621029708420651
5. Marshall, T.H.: Citizenship and Social Class in Class, Citizenship and social Development, pp. 81–86. University of Chicago Press, Chicago (1977)
6. Parsons, T.: Le système des sociétés modernes, pp. 13–17. Dunod, Paris (1973)
7. Cinirella, M.: Towards a European identity? Interactions between the national and European social identities manifested by university students in Britain and Italy. Br. J. Soc. Psychol. **36**, 19–31 (1997)
8. Javadova, A.: Urban citizenship: enhancing non-citizen settlement and integration in global cities. J. Identity Migrat. Stud. **16**(1), 40–55 (2022)
9. Noversa, D.: Projected Europe: understanding the meanings associated with European identity from Erasmus Citizen's point of view. J. Identity Migrat. Stud. **16**(1), 146–165 (2022)
10. Leterre, T.: Nationalité et citoyenneté. Les échelles du collectif. Revue Raison présente **159**(3), 19–30 (2006)
11. Yan, L., Yan, J.: Leadership, organizational citizenship behavior, and innovation in small business: an empirical study. J. Small Bus. Entrepreneurs. **2**(2), 183–199 (2013)
12. Laurent, F., Houlfort, N.: Comportements de citoyenneté interpersonnelle: validation d'une échelle de mesure en français. Can. J. Behav. Sci. **52**(1), 18–28 (2020)
13. Settoon, R., Mossholder, K.: Relationship quality and relationship context as antecedents of person- and task-focused interpersonal citizenship behavior. J. Appl. Psychol. **87**, 255–267 (2002)
14. Podsakoff, P., MacKenzie, J., Paine, B., Bachrach, D.: Organizational citizenship behaviors: a critical review of the theoretical and empirical literature and suggestions for future research. J. Manag. **26**(3), 513–563 (2000)
15. Walz, S.M., Niehoff. B.P.: Organizational citizenship behaviors and their effect on organizational effectiveness in limited-menu restaurants. In: Keys, D. (ed.) Academy of Management Best Papers Proceedings, pp. 307–311. Omnipress, Madison (1996)
16. Khachlouf, N., Soparnot, R., Renard, L.: L'influence des comportements de citoyenneté organisationnelle sur la performance adaptative des salariés. Recherche en Sciences de Gestion-Management Sciences-Ciencias de Gestión **134**, 225–258 (2019)
17. Arteaga Garcia, A.: Work and citizenship in Mexico in the era of globalization. Relations Industrielles **60**(4), 737–761 (2005)
18. Catala, M., Jeannesson, J., Lamblin-Gourdin, A.-S. (éd.): L'Europe des citoyens et la citoyenneté européenne: Évolutions, limites et perspectives. Peter Lang (2016)
19. Belot, C., Cautres, B.: La citoyenneté européenne. In: Ziller, J. (dir.). L'Union européenne, pp. 59–61. La documentation française, Paris (2008)

20. Hadjitchoneva, J.: Entrepreneurship, Innovation and Artificial Intelligence in Bulgaria—Dynamics and Management. Publishing Complex—UNWE, Sofia (2022)
21. Shapero, A.: Entrepreneurship and Economic Development. The Center for Venture Management, Wisconsin (1975)
22. Kuratko, D.F.: Entrepreneurship: Theory, Process, Practice, 10th edn. Cengage Learning, Boston (2017)
23. Janssen, F. (sous la direction de): Entreprendre: Une introduction à l'entrepreneuriat. 2e édition. De Boeck Supérieur, Louvain-la-Neuve (2016)
24. Verstraete, T.: Entrepreneuriat: Connaître l'entrepreneur, comprendre ses actes. L'Harmattan, Paris (1999)
25. Verstraete, T., Fayolle, A.: Paradigmes et entrepreneuriat. Revue de l'entrepreneuriat **4**(1), 33–52 (2005)
26. Shane, S., Venkataraman, S.: The promise of entrepreneurship as a field of research. Acad. Manag. Rev. **25**(1), 217–226 (2000)
27. OECD/Eurostat: Oslo Manual 2018: Guidelines for Collecting, Reporting and Using Data on Innovation. 4th edn., p. 20. The Measurement of Scientific, Technological and Innovation Activities. OECD Publishing, Paris/Luxembourg (2018). https://doi.org/10.1787/9789264304604-en
28. Tidd, J., Bessant, J.: Managing Innovation: Integrating Technological, Market and Organizational Change, 5th edn, p. 20. Wiley (2017)
29. Bhatti, Y.A.: What is frugal, What is innovation? Towards a theory of frugal innovation (2012). https://doi.org/10.2139/ssrn.2005910
30. Radjou, N., Prabhu, J., Ahuja, S.: Jugaad Innovation: Think Frugal, Be Flexible, Generate Breakthrough Growth. Jossey-Bass, San Francisco (2012)
31. Meriade, L.: Innovation frugale et culture chinoise: Le cas de l'innovation Shanzhai. Innovations, September (2016). https://doi.org/10.3917/inno.051.0047
32. Weyrauch, T., Herstatt, C.: What is frugal innovation? Three defining criteria. J. Frugal Innov. **2**, 1 (2016). https://doi.org/10.1186/s40669-016-0005-y
33. Hossain, M.: Frugal innovation: a review and research agenda. J. Clean. Prod. **182**, 926–936 (2018)
34. Albert, M.: Sustainable frugal innovation—the connection between frugal innovation and sustainability. J. Clean. Prod. **237**(117747) (2019). https://doi.org/10.1016/j.jclepro.2019.117747
35. Centre for Liberal Strategies: 10 years Bulgaria in the EU. Report (2017)
36. Reina, E., et al.: Informovanie mládeže smerom k zelenej budúcnosti. Eryica et Eurodesk. Iuventa – Slovenský inštitút mládeže, Bratislava (2020)

Europe and the World

Africa-Europe Cooperation Revisited

Juliana Hadjitchoneva and Roger Tsafack Nanfosso

Abstract Nearly 60 years after the Yaoundé Conventions (Cameroon), cooperation between Africa and Europe, which formally began at the institutional level of the Africa-European Union in the 1950s, is being renewed in 2022 under the banner of "two unions, one common vision" around a partnership of solidarity, security, peace, economic development, and sustainable prosperity. But when analysing this evolution, at least two questions need to be asked: what are the chances that this time, this partnership between Africans and Europeans will be more like a "win–win" partnership? What are the untapped possibilities for optimising cooperation and achieving mutually beneficial common goals? In this paper, we explore different aspects of economic relations, but especially trade relations, in an attempt to offer a new perspective for the development of cooperation between Africa and Europe. Methodologically, our approach encompasses a historical overview of trade in goods in the period 2002–2021 in the context, however, of a contemporary reading of the challenges and opportunities for the development of this Euro-African partnership.

1 Introduction

Two major factors determine the relations between Africa and Europe—the geographical proximity between the continents which are just under 15 km apart, separated by the Straits of Gibraltar, and the long common history which has forged human and cultural links, integrating economic and commercial interests. Europe has always been Africa's main trading partner. This partnership between Africa and Europe has been framed by multidimensional cooperation policies since the 1950s, which evolve regularly through political and economic commitments around

J. Hadjitchoneva (✉)
New Bulgarian University, 21, Montevideo Str., 1618 Sofia, Bulgaria
e-mail: jhadjitchoneva@nbu.bg

R. T. Nanfosso
University of Dschang, Rectorate of UDs, Colline de Foto, B.P. 96, Dschang, Cameroon
e-mail: roger.tsafack-nanfosso@univ-dschang.org

G. Pellat et al. (eds.), *Cooperation and Enlargement: Two Challenges to be Addressed in the European Projects - 2022*, Studies in Systems, Decision and Control 500,
https://doi.org/10.1007/978-3-031-42253-9_4

the objectives of peace, security, solidarity, and economic development. Although hampered by the European Union's (EU) internal affairs, notably the Brexit, and the emergencies of the Covid-19 crisis, Africa-Europe cooperation is being renewed in 2022, almost 60 years after the Yaoundé (Cameroon) Conventions and after several summits and economic partnership agreements, under the banner of "two unions, one common vision", complementing long-standing commitments with the component of sustainable development and sustainable prosperity.

The renewed partnership coincides with China's strong interest and presence on the African continent, as well as that of other powers such as emerging countries (India, Turkey, Brazil, etc.) as well as the United States of America. China-Africa cooperation is indeed very important with its large-scale projects in infrastructure development, expansion of manufacturing industries, agriculture, creation and expansion of industrial zones and even green economy. Moreover, China has been an undisputed leader among African partners for the past decade [1, 2]. Its new "Silk Road" strategy known as "the road and the belt" since 2014 encompasses a new approach of co-production and relocation of some of the economic activities. Thus, as noted by Jaïdi and Martin [3], "Africa has become a subject of competition between the new rising forces and the traditional developed countries".

In this context of multiple regional and global challenges and reformulated geostrategy by major competitors around the world, what are the chances that this time the partnership between Africans and Europeans will be more like a win–win partnership? What are the untapped opportunities to optimise cooperation and achieve mutually beneficial common goals? It is true that there are many analytical studies on the evolution of the political and economic partnership between Africa and Europe. To our knowledge, however, few of them look at the long-term trade situation to highlight the trade and integration potential that remains to be unlocked in the cooperation between the two continents. We do this by exploring different aspects of purely commercial economic relations in an attempt to propose a new perspective for the development of cooperation between Africa and Europe. Methodologically, our approach encompasses a historical overview of trade in goods in the context of a contemporary reading of the challenges and opportunities for the development of the partnership.

We first present the relevance of strengthening the partnership between Africa and Europe. We then examine the diversity of instruments that frame their trade and economic relations. Finally, we analyse the evolution of trade over the last twenty years—from 2002 to 2021, including Euro-African or Afro-European cross-trade, with the aim of contributing to enriching the reflection on the multidimensional challenges facing this partnership, and to suggest some directions to overcome the difficulties on the way to a more fruitful and mutually beneficial interaction.

2 On Strengthening the Africa-Europe Partnership

Since the 1960s, the African continent has experienced a long-term population growth rate of more than 2.5% per year, while that of the European Union (EU) is on a continuing downward trend, estimated at −0.11% in 2021 (Fig. 1).

Africa is thus registering a steady and significant increase in population. Between 2000 and 2020, this rate was 65% for a population that now reaches 1,341 million inhabitants [5]. For the same period, Europe's rate is only 3%, reaching 748 million inhabitants, i.e., almost 18% and less than 10% of the world population respectively. In 2020, the share of the African population aged over 65 is 3.5%, while that of Europeans is 19.1%.

Africa's population is projected to double in 30 years with a share of the elderly population of 5.8%, while Europe's will shrink to 710 million with a share of the elderly population of 28.1%. Migration pressures will decrease significantly. The African continent will offer in 2050 a market of 2.5 billion inhabitants and a young population, while the European continent will offer a shrinking market with an ageing population.

Since the 1960s and apart from periods of crisis (raw materials, structural adjustment, covid, etc.), African economic growth has always been positive, although uneven. Moreover, it seems to have been pro-cyclical with that of Europe during all these years, which is a clear and relevant indicator of the latter's influence on its evolution (Fig. 2).

This growth, however, has become exceptional since the mid-1990s—averaging around 4% per year and consistently higher than world growth, including Europe.

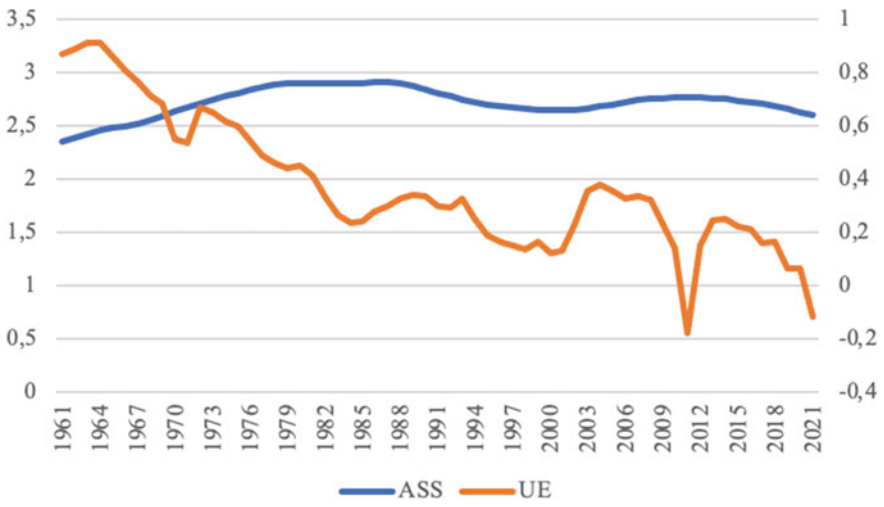


Fig. 1 Population growth rates (%): sub-Saharan Africa and the European Union (1961–2021)—EU right-hand axis (based on [4], authors' elaboration)

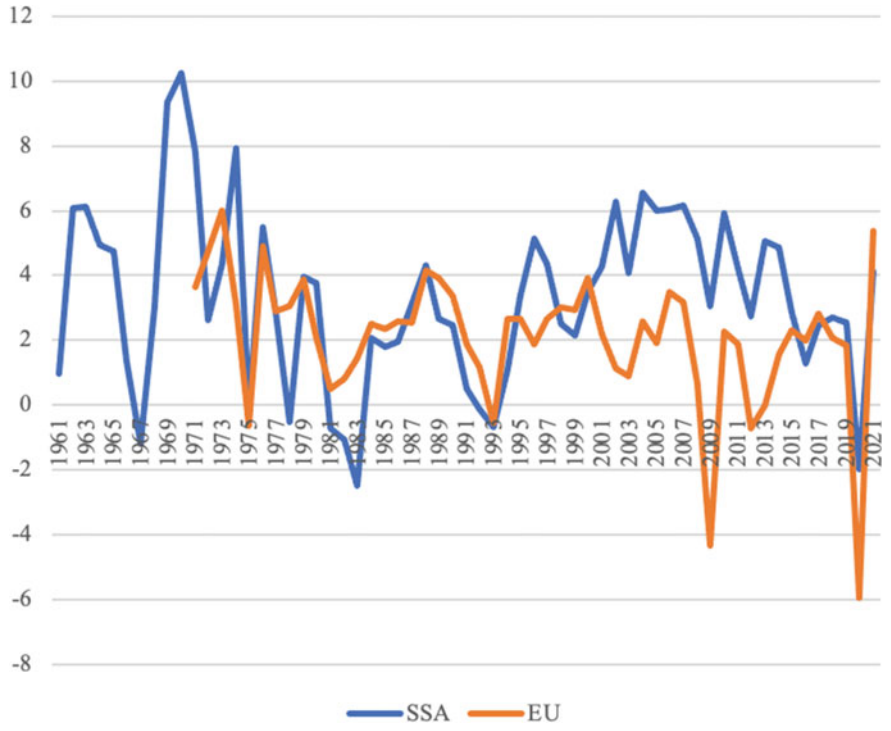


Fig. 2 GDP growth rates (%): sub-Saharan Africa and the European Union (1961–2021) (based on [4], authors' elaboration)

This improvement in Africa's performance places the continent in an optimistic convergence scenario, in which rising living standards are fuelled by trade that reduces factor price differences between rich and poor countries [6]. This scenario, which is considered feasible, is based on an increase in Africa's per capita income of 4.6% per year, which could exceed that of Russia, Malaysia, Mexico or Turkey, and thus converge with the rest of the world, rising from 27% of the current world average to 52% in 2050. Such a transformation of the continent's role in the world will have a significant impact on the size of the middle class and the number of poor people (between 750 million and 1.7 trillion respectively, and less than 3% of the population), as well as on Africa's share of global GDP (which could triple to 9% by 2050). Such African progress is certainly preconditioned by the development of institutions, the quality of education, a strong political will to increase productivity, to give an increasing place to industries in the economy, to develop regional cooperation and trade and to integrate into global value chains (GVCs), thus becoming less dependent on the volatility of commodity prices and relying on a self-interest orientation of nations. This is all the more important as the continent's current modes of participation in GVCs have not been conducive to a productive transformation beneficial to countries because they have remained unchanged for 20 years (Fig. 3)!

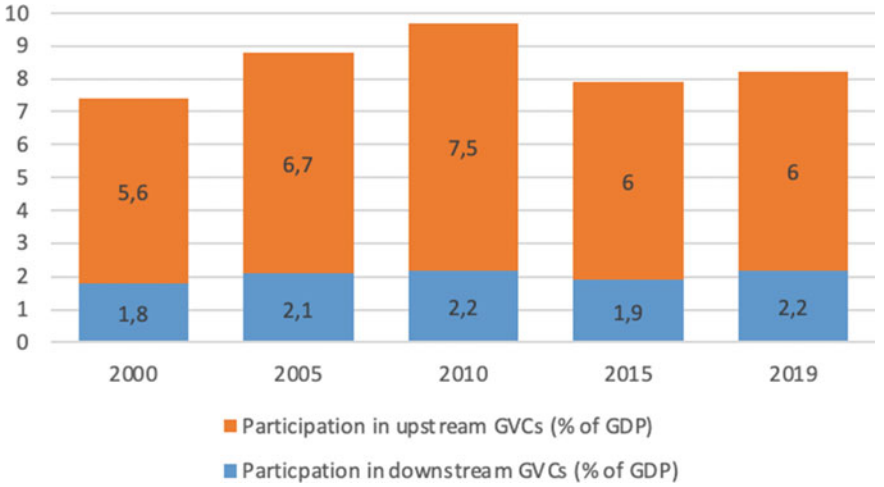


Fig. 3 Africa's upstream and downstream participation in global value chains (2000–2019) [7]. *Note* Participation in downstream GVCs refers to the total value of domestic exports included in foreign exports. Participation in upstream GVCs refers to the total foreign value added embedded in domestic exports

Indeed, as noted in [7], downstream participation has remained at around 6.3% of Africa's GDP, mainly due to exports of raw natural resources and agricultural products (such as unprocessed cocoa) whose subsequent processing is unfortunately relocated to other countries such as the EU. Conversely, upstream participation (with the positive example of the Mauritian garment industry sourcing fabrics from Asia) remains static at only 2% of African GDP. In the end, downstream participation is three times higher than upstream participation; a ratio considerably higher than in other regions of the world. The stagnation of this participation in GVCs calls for a serious rethink of internal integration strategies and modalities in Africa [8].

Comparing the advantages and disadvantages of the two types of trade orientation—towards the global market and towards the regional market—[3] emphasises the opportunity for access to modern technologies and the healthy transformation towards more competition and less rents in the first case; and the growing potential of the regional market with urbanisation, retention of value added in the region, adaptation of supply to local demand, and comparable bargaining power in the second case. Africa's aspirations in the African Union's (AU) Agenda 2063 already point to a desired rapid expansion of intra-African trade—from less than 12% in 2013 to nearly 50% in 2045, and an increase in Africa's share of world trade from 2 to 12% [9]. The African Continental Free Trade Area (AfCFTA) is effective since the beginning of 2021.

Europe no doubt remains a key player in the global economy and in technological progress. The EU's share of global GDP is 18% in 2020 [10]. By comparison, China's is 17% and the US 25%. The EU, China and the US are the three largest global players in international trade. With a share of about 15%, the EU is the second major player in

world trade in goods just after China and way ahead of the US. European merchandise trade represents the largest share compared to the US and other countries, reaching 86% of GDP, making it the most open economic area [11]. The basic pillars for strengthening Africa-Europe relations are briefly summarised by [3] in the growth of added value based on regional preference, anchoring in the relevant territory, and creating spatial synergies, and mobilising primarily internal resources to create an endogenous accumulation base. Moreover, the EU is an actor that has traditionally been the leading investor in Africa. This interest will certainly not fade away so easily; on the contrary, it will constitute the ground for the renewal of a mutually beneficial partnership in the context of new realities, consensual and built on the diversities and assets of the two continents, their cultures, their economic models, their progress, and the legitimate expectations that societies are entitled to expect from this economic partnership.

3 The Africa-Europe Partnership Framework

The framework of the contemporary Africa-Europe partnership is based on a number of conventions, agreements, summits, initiatives, and efforts that are indispensable and necessary in the current debates on the revisited, reimagined, renewed and renewed partnership between African and European unions and nations. It should be recalled that the Yaoundé (Cameroon) Conventions of almost 60 years ago and the Cotonou (Benin) Agreements of 2000 constitute the backbone of the partnership between the EU and Africa. They have been complemented by the Joint Africa-Europe Strategy adopted in 2007, the Euro-Mediterranean Agreements concluded in 2008 with North African countries, but also numerous bilateral and multilateral initiatives for economic and technological development and cooperation in the field of education, construction, and others [12, 13].

The AU-EU Joint Vision for 2030 for a renewed partnership with its second strategic axis on the economic theme focuses on investment attractiveness and regional market creation. Africa's economic integration at regional and continental levels must be promoted through economic agreements. In this case, the Economic Partnership Agreements (EPAs) are free trade agreements for access to the EU market. Compared to the Generalised System of Preferences (GSP) and Everything But Arms (EBA), these EPAs give African countries the opportunity to negotiate better conditions of access to European markets, free from unilateral decisions by the EU. Africa can thus negotiate an asymmetric Free Trade Area (FTA) with the EU and a reduction of non-tariff barriers (sanitary, phytosanitary, or environmental regulations, etc.). EPAs offer the chance to negotiate more favourable rules of origin to improve market access for African producers. They will necessarily have dynamic effects because they cover broad trade and development issues, promote regional groupings, and aim to build trade capacity by introducing reciprocal trade liberalisation measures between Africans and Europeans [14].

Trade negotiations with five African regions were launched in 2002 on the basis of the Cotonou Agreement: the Economic Community of West African States (ECOWAS) plus Mauritania in West Africa, Central Africa, the East African Community (EAC), the Southern African Development Community (SADC) and Eastern and Southern Africa (ESA). To date, however, no region has signed and implemented a comprehensive regional EPA involving all its member states. Only a few EPAs are being provisionally implemented—Mauritius, Zimbabwe, Seychelles, and Madagascar (East and Southern Africa), Cameroon (Central Africa), and Côte d'Ivoire (West Africa). Other EPAs have been signed but are still awaiting ratification by national parliaments. Beyond the real difficulties identified by [8] in the endogenous process of integration in Africa, this slowness reveals obvious reservations about the beneficial effects of EPAs as instruments of collaboration between Africa and Europe: the magnitude of the obstacles to be overcome, the importance of economic disparities, the negative impact on nascent industries and local production, the loss of customs revenues, the room for manoeuvre to use important tools for the development of certain economic sectors, demographic issues, the Common Agricultural Policy (CAP) and international competition in the agricultural sector. Not surprisingly, [3] points to three factors that have influenced the negotiations: (i) the complex dialectics of Europe-Africa relations over the years; (ii) the configuration of African regional entities involved in the negotiations; and (iii) the nature and scope of European demands. An analysis of the EU-West Africa EPA negotiations, the agreement reached between the two parties 11 years later and the subsequent obstacles to its implementation provides several lessons for a more effective partnership [15]: (i) not to impose the form of the agreement in trade negotiations (reciprocity leads to more complicated negotiations), but only to negotiate the details, (ii) to avoid power imbalances between the parties involved in the negotiations (to avoid creating unnecessary tensions), (iii) to be wary of the counter-productivity of a 'participatory' approach to negotiations, (iv) to take into account the complexity of the context (structural and negotiating), and (v) to consider the context as a determinant of the negotiating approach and strategies.

In this context, if Europe envisages a real partnership (and there is no reason to doubt it), it is probably time for it to change its approach and discourse and to move resolutely in the direction of the Cotonou agreements, which have really innovated compared to the Lomé agreements in terms of trade and free trade, when the principle of reciprocity replaced that of preferences. Indeed, unlike Lomé, the spectrum was not limited to trade issues or support for economic development, but extended to fundamental problems such as poverty, sustainable cultural and social development, and the gradual integration of regional economies into the world economy. The joint strategy between the two continents takes up this spirit, as well as the regular summits between Africa and Europe, systematised in Table 1.

This picture shows that the dialogue between Africa and Europe is being relaunched on a regular basis, which makes it in a sense dynamic but above all promising, even if progress is not really perceptible as the partners would like. Barriers are repeated and specific trade regimes multiply (such as the Generalised

Table 1 Europe-Africa Summits (based on [16], authors' elaboration)

Summit	Year	Place	Main lines of action	Economic highlights
6th	2022	Brussels	*Two Unions, one common vision*, common vision for a renewed partnership, focus on solidarity, security, and peace	*Sustainable, long-term economic development* and prosperity for citizens, €150 billion investment package
5th	2017	Abidjan	Investing in *youth* to accelerate inclusive growth and sustainable development of the continent, focus on youth, employment, migration, mobility and control of migration flows, peace, security and governance, structural transformation of Africa and building resilience	*EU external investment plan in Africa*, investing in human capital through education, science, technology, and skills development (including student exchange programmes between the two continents)
4th	2014	Brussels	*Common strategy roadmap (2014–2017)*, access for all to quality basic education, health systems and health care	Better access to more and better *jobs and social protection, creation of joint academic research programmes*, focus on innovation and the productive sector (including research infrastructure)
3rd	2010	Tripoli	*Human rights*, democracy, immigration, climate change	
2nd	2007	Lisbon	*From a policy for Africa to a policy with Africa*, a new common vision, a political partnership of equals, uncomplicated, liberated, pragmatic, and of mutual responsibility, focused on peace and security, terrorism, democratic governance, human rights	*Trade, regional integration and infrastructure*, development, energy, climate change, migration, mobility and employment, science, information society and space
1st	2000	Cairo	*Strategic framework for Europe-Africa dialogue*: focus on good governance, institutions and human rights, peace, and conflict management	*Regional integration in Africa and Africa's integration into the global economy*, sustainable development

System of Preferences (GSP), GSP+, Everything But Arms (EBA) for least developed countries which liberalise all their exported goods except arms). Although there is a desire for change in many political, economic, and societal aspects, political will is the real determining factor that must prevail in order to develop a partnership that is truly centred on the people, African and European youth, and the consolidation of Africa's capacities for a sustainable future.

4 Africa-Europe Trade

The volume of trade between Africa and the EU is growing at an average annual rate of 6.1% over the period 2002–2021. In twenty years, the volume has doubled from 131 to 291 billion euros (Fig. 4). Two trends stand out clearly: (i) the trend of African exports to the EU exceeding European imports into Africa in the period 2002–2014 with an exception in 2009, and (ii) the trend of European exports to Africa exceeding African imports into the EU in the period 2015–2020. In other words, the trend has reversed in recent years and there is a negative trade balance for Africa.

The trade balance amounted to 26–27 billion euros in 2015 and 2017 and 39 billion euros in 2016. Even if this second trend is reversed again in 2021, nothing can be prejudged as sustainable. In general, and on average for the period under review, the growth of Africa's imports from the EU (6.4%) exceeds Africa's exports to the EU (5.9%). While Africa imported 88% of its exports from the EU in 2002, twenty years later, in 2021, this share rises to 92.2%.

Figure 5 shows the evolution of African imports from the EU in gradual decline from 2010 with a positive rebound in 2021, and that of African exports to the EU with remarkable rebounds in 2008, 2012, 2018 and 2021.

The growth of the trade balance is most negative in 2015 (Fig. 6) when the difference between African imports from the EU and African exports to the EU amounts to almost EUR 27 billion.

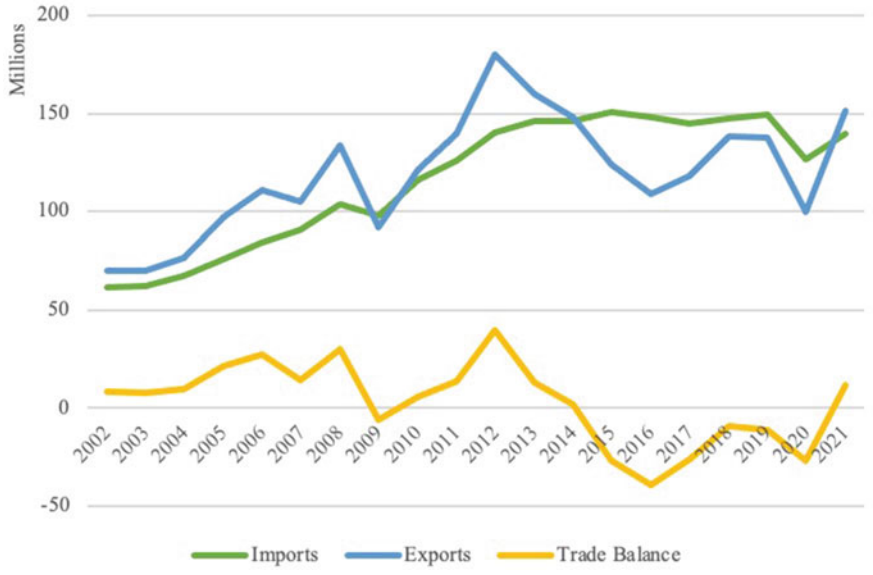


Fig. 4 Europe-Africa bilateral trade, billions of euros (2002–2021). *Note* Imports—Africa imports from the EU, exports—Africa exports to the EU (based on [17], authors' elaboration)

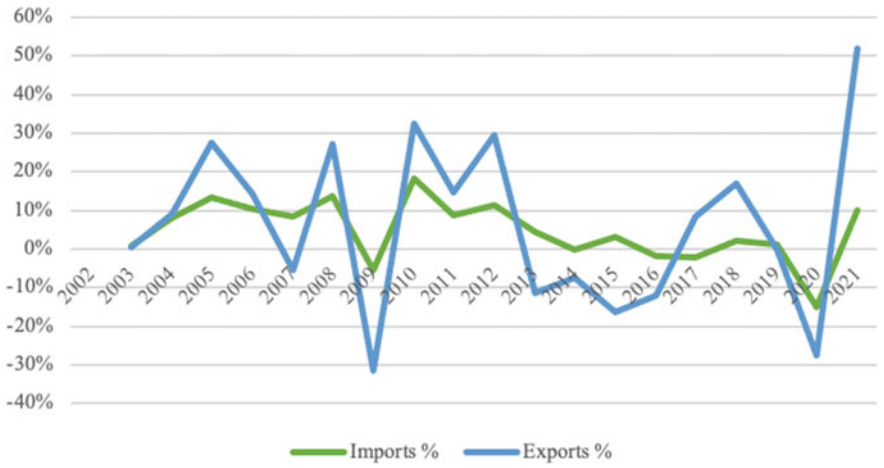


Fig. 5 Europe-Africa imports and exports: 2002–2021 (%) (based on [17], authors' elaboration)

Fig. 6 Europe-Africa trade balance: 2002–2021 (%) (based on [17], authors' elaboration)

In 2021, imports of more than €1 billion of product groups account for 84.91% of all imports into Africa. The top three of Africa's 97 import positions from the EU (each over €10 billion), amount to €51 billion or 36.51% of total imports. The European products most in demand on the African market are mineral fuels (including mineral oils and products of their distillation; bituminous materials; mineral waxes), machinery (including mechanical appliances, nuclear reactors, boilers; parts of such appliances) and motor vehicles (including tractors, cycles and other land vehicles, parts, and accessories thereof). All three product groups show increases in value between 2002 and 2021 (Fig. 7).

Imports of the mineral fuels group show the largest increase of all European imports, by 1022.3%. Machinery imports increased by 68% and motor cars and their

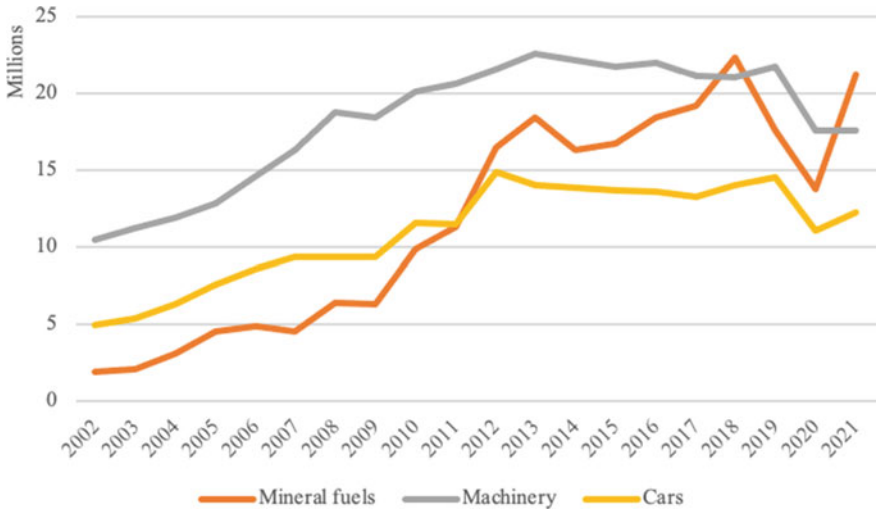


Fig. 7 EU imports to Africa, billions of euros (2002–2021). *Note* Highest value imports, 2021 ranking (based on [17], authors' elaboration)

parts and accessories by 147.6%. However, other product groups imported from the EU also show significant growth in the period under review: vehicles and equipment for railways or the like and parts thereof, mechanical (including electromechanical) signalling equipment for roads by 734.5%; footwear, gaiters and similar articles, parts thereof by 729.7%; wadding, felt and non-wovens, special yarns, twine, cordage, rope and cables, and articles of rope manufacture from 718.4%; animal or vegetable fats and oils, products of their dissociation, prepared edible fats, animal or vegetable waxes from 702.9%; pulp of wood or other fibrous cellulosic material, paper or cardboard for recycling (waste and scrap) by 431.4%; soaps, organic surfactants, washing preparations, lubricating preparations, artificial waxes, prepared waxes, cleaning products, candles and similar articles, modelling pastes, dental waxes and plaster-based dental compositions from 421.5%; salt, sulphur, earths and stones, plasters, limes and cements from 382.6%; etc. The share of petroleum oils and bituminous minerals in mineral fuels imports is the most significant—91% in 2021 compared to 77% in 2002.

Africa's 87 import positions cover a wide range of machinery and parts. Typically valued at around 6%, these imports are machinery and mechanical appliances; the same percentage also relates to fittings and similar components for pipes, boilers, tanks, vats or similar containers. Africa has traditionally imported cars and other motor vehicles (passenger cars and other motor vehicles designed for the transport of persons), parts and accessories of tractors and vehicles for transport and special purposes, and motor vehicles for the transport of goods. In 2021, these three subgroups of vehicles account for 48.5%, 20.6% and 12.5% of total car imports respectively. Tractors account for 8.4% of African imports from the EU, while the rest of the 12 positions do not exceed 3%.

60.21% of African exports to the EU are from four classified product groups—mineral fuels and oils, cultured and fine pearls and precious metals, motor cars and parts and accessories thereof, and machinery, apparatus, electrical equipment and parts thereof. Of the 97 product groups exported to Europe, 21 are worth more than EUR 1 billion and constitute 89.74% of Africa's exports in 2021. Obviously, mineral fuels and oils are the leading export–import products in Africa-Europe trade. A deeper analysis shows that the largest share of 68.36% is crude petroleum or bituminous mineral oils; the second largest share is petroleum gas and other gaseous hydrocarbons (23.56%), the third largest share is other petroleum or bituminous mineral oils (7.04%); and the rest of the exports do not exceed 0.7%. African exports to Europe of the two groups of motor vehicles on the one hand, and machinery and equipment and their parts and accessories on the other, have been increasing for the past decade, excluding the last two years of the Covid-19 crisis (Fig. 8).

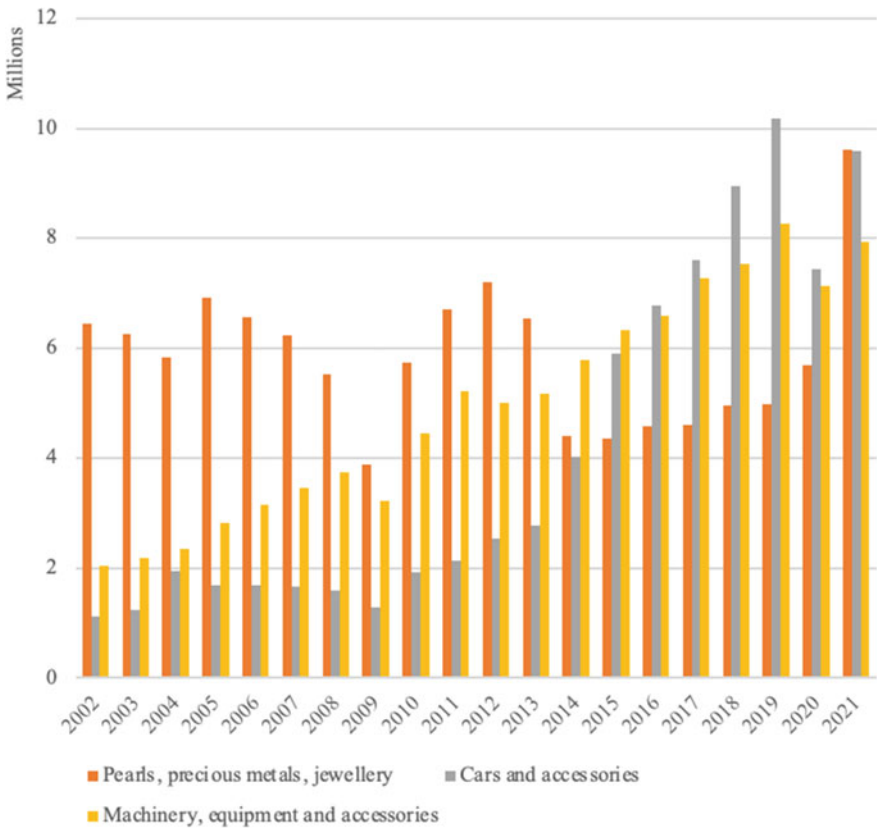


Fig. 8 African exports to Europe, billions of euros (2002–2021): highest value exports, excluding mineral fuels, 2021 ranking (based on [17], authors' elaboration)

The majority (60.29%) of African exports in the group of pearls, precious metals and jewellery is silver plated or lined on base metals (in rough or semi-finished forms); 24.12% is exported gemstones or synthetic stones in flakes and powder form; 10.22% is pearls, whether or not worked or graded but not strung, mounted or set; 3.67% is gold plated or clad on base metal or silver (unwrought or semi-manufactured); the rest of the exports represent less than 1%. In the group of motor cars and other, the most exported goods are passenger cars and other motor vehicles primarily designed for the transport of persons (65.07%), motor vehicles for the transport of goods (23.20%), and parts and accessories of tractors, vehicles for the transport of persons and goods, passenger cars, vehicles for transport and vehicles for special purposes (10.62%).

57.89% of the group of exported machines and their accessories consists of wires, insulated cables, coaxial cables, cables for electrical purposes and other insulated conductors for electricity. A much smaller share (9.65%) is accounted for by electrical equipment such as switches, relays, fuses, wave spreaders, plugs and sockets, lamp sockets, junction boxes and others. Monitors and projectors account for 6.28% and the rest less than 4%. Africa shows in some cases exceptional growth in exports to Europe. Some examples: 6176.7% for the export of umbrellas, parasols, walking sticks, seat sticks, whips, riding crops and their parts; 1536.1% for the export of oil seeds and fruits, miscellaneous seeds and fruits, industrial or medicinal plants, straw and fodder; 1177.8% for the export of milk and dairy products, birds' eggs, natural honey, edible products of animal origin; 825.2% for the export of tanning or dyeing extracts, tannins and their derivatives, pigments and other colouring matter, paints and varnishes, putty, inks; 807.4% for the export of nickel and articles of nickel; 762.3% for the export of cast iron and steel; 657.9% for the export of optical, photographic or cinematographic, measuring, checking or precision instruments and apparatus, medical and surgical instruments and apparatus, parts and accessories of such instruments or apparatus; 611.3% for the export of gums, resins and other vegetable juices and extracts; 602.3% for the export of knitted and crocheted fabrics, 414.3% for the export of carpets and other textile floor coverings, and 413.9% for the export of copper and articles thereof.

5 Euro-African or Afro-European Cross Trade

The economic analysis of international trade traditionally distinguishes between two types of trade: (i) inter-industry trade, characterised by the exchange of different products (which may be more or less complementary or not), and (ii) intra-industry trade, which concerns relatively identical products (which may be more or less substitutes) [18]. Since the 1980s, although inter-industry and intra-industry trade still coexist, it is noted that "trade in similarities" (intra-industry) is in many ways supplanting "trade in differences" (inter-industry). With the development of global value chains, there is a revival of intra-industry trade in intermediate products such as spare parts,

components, etc., whose exchange is intensifying with the fragmentation of productive processes, and which reveals the participation, even if small, of the African continent in its evolution (see Fig. 3).

Figure 8 has thus highlighted a phenomenon that is perhaps unexpected, given the belief of most analysts that Africa can only export to Europe products of the soil and subsoil. The appearance of cars and accessories as well as machinery, appliances and accessories among African exports draws attention to a reality that strongly characterises trade within the EU and North American countries, namely the existence of Euro-African or Afro-European inter- and intra-branch trade. By way of illustration, we consider four types of products: fuels, cars, parts and accessories, and machinery and appliances.

In the case of fuels, comparing the first three sub-groups of the most imported products between Africa and the EU, there is a dominant trend over the whole period in exports of crude oils from Africa to Europe (Exp1 and Imp1 in Fig. 9), while there are no significant exports from the EU to Africa (39,580,000€ euros in 2002, and 3,028,000€ in 2021). The value of crude oil exports (Exp1) from Africa to the EU more than doubled between 2002 and 2021, 2011, 2013, 2014, 2018, and more than tripled in 2012. Exports of petroleum oils or bituminous minerals from Africa to the EU have increased compared to imports from the EU to Africa—from 0.45 in 2002 to 3 and even 7 times more since 2015, 4 times more in 2020 and 2021. EU imports of petroleum gas and other gaseous hydrocarbons to Africa have traditionally represented between 3 and 7% of African exports to Europe, 4% in 2021. Finally, Africa imports petroleum coke, petroleum bitumen and other residues, the value of which has risen steadily to 22 times its 2001 level by 2021, making it the second most imported product group in Africa from the EU.

As for cars, we compare in value terms the top three sub-groups of cars and other motor vehicles most imported from Africa to the EU in 2021, namely passenger cars and other motor vehicles designed primarily for the transport of persons; parts and accessories of tractors, passenger cars and vehicles for transport and special purposes; and motor vehicles for the transport of goods. It can be seen that, in general, import values from Europe are significantly higher than export values from Africa. For example, there is a significant difference between the value of exports and imports of passenger cars and other motor vehicles primarily designed for passenger transport (Imp1 and Exp1 in Fig. 10) over the period 2002–2017. Indeed, European imports to Africa are 3.5 times higher than African exports to Europe in 2002, although there is some balance in these values after 2018. For parts and accessories of tractors, passenger cars and vehicles for transport and special purposes (Imp2 on the graph), there is a stable trend from 1.9% to 3.3% (from imports to exports), just as there is a trend towards neutralisation of the value of imports and exports of motor vehicles for goods transport after 2016.

As for parts and accessories, Table 2 highlights the ten most imported products between Africa and the EU. It can be seen that Africa exports three times less coachwork parts and accessories to the EU than it imports from the EU. Similarly, Africa exports three times less parts and accessories for tractors, transport, passenger, and special purpose vehicles to the EU than it imports from the EU. It

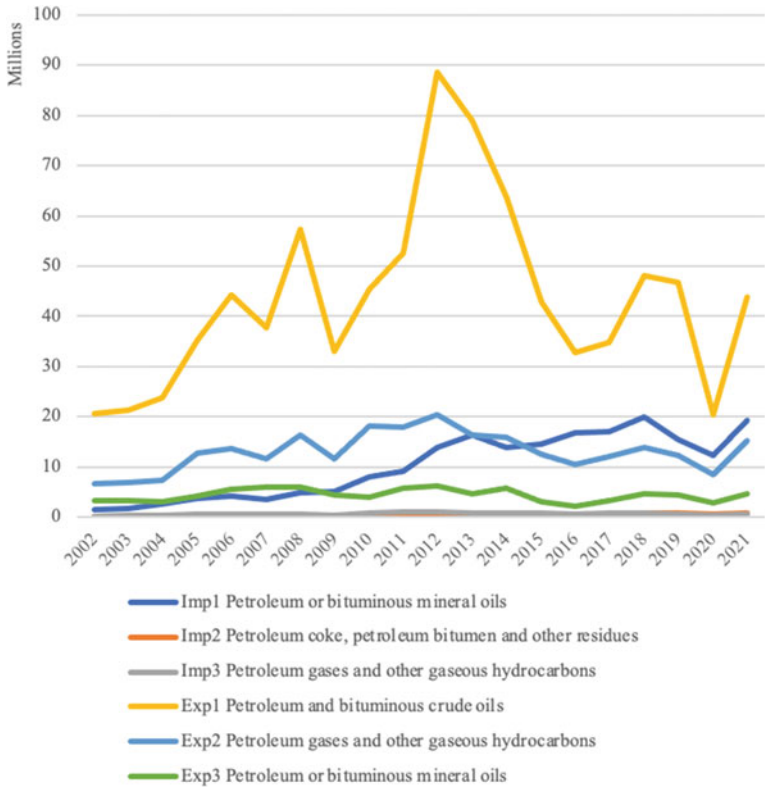


Fig. 9 Afro-European cross trade in fuels, billions of euros (2002–2021): highest value imports, 2021 ranking (based on [17], authors' elaboration)

can also be observed that Africa's exports to the EU of wheels, parts and accessories are increasing, although they remain three times lower than the quantities of these goods it imports from the EU. Finally, radiators and their parts are among the top 10 goods exported by Africa to the EU, but do not seem to have the same importance in the opposite direction. This is the case for gearboxes and parts (or brakes and brake servos and parts) for the EU, which do not appear in the top-ten products exported by Africa to the EU, whereas they do for the EU.

Finally, with regard to machinery and appliances, Table 3 lists the ten most imported products from Africa to the EU. It can be seen that Africa imports massively from the EU (to which it exports little) tapware, liquid pumps, centrifuges and the like, dishwashers, jet engines and reciprocating engines. Africa is quite active in the export of centrifuges to the EU (1.5 times more than it imports from the EU). Liquid pumps and automatic data-processing machines are products in the top 10 that Africa imports from the EU (they are non-existent in the other direction); while driveshafts and crankshafts appear in the top-ten products exported by Africa to the EU, without having the same importance in the opposite direction.

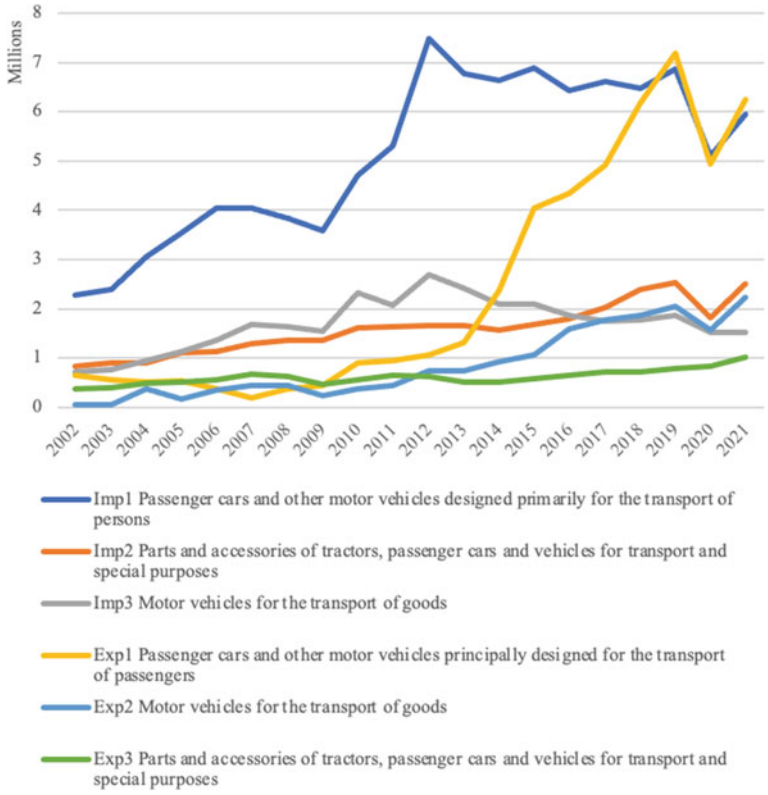


Fig. 10 Euro-African cross trade in cars, billions of euros (2002–2021): highest value imports, 2021 ranking) (based on [17], authors' elaboration)

Table 2 Euro-African cross trade in parts and accessories, million euros (2019–2021) (based on [17], authors' elaboration)

Products	Africa imports from the EU				Africa exports to the EU		
	2019	2020	2021		2019	2020	2021
Parts and accessories for tractors, transport, tourism, and special purpose vehicles	745.7	493.2	677.5	Steering wheels, steering columns and housings, and parts	244.8	198.6	273.4
Car body parts and accessories	516.8	327.1	572.8	Parts and accessories for tractors, transport, tourism, and special purpose vehicles	214.9	237.8	231.3
Brakes and brake servos and parts	217.3	168.4	258.6	Car body parts and accessories	113.3	104.7	143.1
Steering wheels, steering columns and housings, and parts	195.9	184.1	248.1	Wheels, their parts and accessories	20.3	80.3	141.3
Gearboxes and their parts	216.5	179.2	215.9	Mufflers, exhaust pipes, parts	14.4	7.8	58.1
Bridges with differential, whether or not fitted to other transmission components, and carrying axles, and parts	146.2	90.7	130.3	Suspension systems and parts thereof, including suspension dampers	42.4	50.2	50.0
Clutches and their parts	93.8	76.2	94.4	Bridges with differential, whether or not fitted to other transmission components, and carrying axles, and parts	40.6	59.2	28.0
Suspension systems and parts thereof, including suspension dampers	101.3	83.1	90.1	Airbags with inflation system and parts thereof	23.3	20.3	25.4
Airbags with inflation system and parts thereof	33.2	25.4	55.2	Clutches and their parts	22.1	19.1	24.7
Wheels, their parts and accessories	93.7	64.8	53.4	Radiators and their parts	8.9	25.6	18.6

Table 3 Euro-African cross-trade in machinery and equipment, million euros (2019–2021) (based on [17], authors' elaboration)

Products	Africa imports from the EU				Africa exports to the EU		
	2019	2020	2021		2019	2020	2021
Machinery and apparatus, incl. mechanical equipment, having a specific function, and parts thereof	1,407.0	1,067.8	1,043.0	Centrifuges, incl. centrifugal dryers; apparatus for filtering or purifying liquids or gases, parts	1,124.8	1,157.1	1,599.4
Articles de robi-netterie et orga-nes simil. pour tuyauteries, chau-dières, réservoirs, cuves ou conte-nants simil, yc. détendeurs et les vannes thermo-statique, et parties	1,155.9	1,026.8	999.6	Parts recognisable as being solely or principally for use in piston engines	254.2	183.8	247.6
Pumps for liquids, whether or not fitted with a measuring device; liquid lifts, parts	1,115.0	954.4	980.9	Turbojet, turboprop and other gas turbine engines	95.4	61.4	104.0
Centrifuges, incl. centrifugal dryers; apparatus for filtering or purifying liquids or gases, parts	1,061.0	970.7	897.2	Air conditioning machines and parts thereof	26.9	66.5	80.6
Parts recognisable as being solely or principally for use in machinery/ apparatus	883.2	800.3	835.6	Valves and similar fittings for pipes, boilers, tanks, vats or similar containers	48.1	57.1	64.6
Automatic data processing machines and their units; magnetic/optical readers, data storage machines in coded form and data processing machines	986.5	789.6	808.5	Spark-ignited reciprocating or rotary piston engines "internal combustion engines"	42.2	17.3	45.1

(continued)

Table 3 (continued)

Products	Africa imports from the EU				Africa exports to the EU		
	2019	2020	2021		2019	2020	2021
Dishwashing machines; machinery and apparatus for cleaning/drying bottles or other containers; machinery and apparatus for filling, closing, capping/labelling bottles, cans, bags or other containers; machinery and apparatus for capping bottles, jars, tubes and similar containers; other machinery and apparatus for packing/packaging goods; parts thereof	1,033.8	926.6	790.0	Parts recognisable as being exclusively or principally for use in machinery or apparatus	74.6	77.7	44.8
Turbojet, turboprop and other gas turbine engines	900.2	582.5	686.0	Machines and appliances, including mechanical devices, with their own function, and parts	38.3	29.6	44.5

(continued)

Table 3 (continued)

Products	Africa imports from the EU				Africa exports to the EU		
	2019	2020	2021		2019	2020	2021
Air or vacuum pumps, compressors for air or other gases and fans; extractor or recirculating hoods with built-in fans, whether or not filtered, and parts	689.0	589.2	664.1	Engines and driving machines (excluding steam turbines, piston engines, water turbines, water wheels, gas turbines and electric motors), and parts	20.4	45.9	40.2
Spark-ignited reciprocating or rotary piston engines "internal combustion engines"	607.7	406.4	554.5	Drive shafts and cranks, for machines; bearings and bushings; gears and friction wheels, for machines; threaded ball/roller spindles, for machines; speed reducers, multipliers/drives, parts	35.9	31.7	34.6

6 Conclusion

The reversal of the trend in Africa-Europe trade since 2015 is a clear signal of profound developments and changes, which can be interpreted ambiguously and which stem from a series of external and internal, socio-economic, geo-strategic and crisis factors, outside the realm of purely African-European relations and cooperation. A series of circumstances bear these developments, be it the intensification and complexity of African conflicts and crises from 2014 onwards, the impact on security in Europe, the effect of the Brexit crisis on European operationality, institutionalism and affairs, China's strategies, and achievements in Africa, etc. Other crises and tensions at the global level have been added since 2019 to further complicate the landscape of Afro-European cooperation and prospects: the Covid-19 pandemic, the resulting closures and de-globalisation, the role of Russia, its race to strengthen its presence on the geostrategic map, the war in Ukraine and its liberticidal effects on trade, etc. If we seek to address the major development issues of the African continent around which the partnership can renew its effectiveness, we cannot ignore those that concern Europe.

For a real rethinking of the European Union-African Union partnership to be put into perspective, it must be reconfigured in the current context of international geopolitical tensions. On the one hand, there should be more regional cooperation and more opportunities for the development of industries to meet Africa's local demand; on the other hand, there should be more efforts to establish a coherent framework of strategies and rules to provide an optimistic path for the partnership between Africans and Europeans if it is to truly assume the mantle of a "win–win" partnership. There are many untapped opportunities to optimise cooperation and achieve common mutually beneficial goals, but all of them are conditional on respect and more fruitful and mutually beneficial interaction.

However, the present study needs to be broadened and deepened, both in terms of the analysis of the groups of traded goods to be complemented by trade in services, as well as in terms of the partners, to enhance the potential of this Africa-Europe cooperation.

References

1. Tsafack Nanfosso, R.: Chine: opportunité ou menace pour l'Afrique? Dans: Clerc, P., Guerraoui, D., Richet, X. (Sous la direction de). (2017). Les nouveaux territoires économiques: acteurs et facteurs de l'émergence, comparaisons internationales, pp. 549–575. L'Harmattan/Editions la croisée des chemins, Paris (2017)
2. Tsafack Nanfosso, R.: Une relation gagnant-gagnant sino-africaine est-elle possible? Webinaire Rencontres internationales francophones: Développement économique de l'Afrique: enjeux, positionnements et stratégies. Université Laval/CEDIMES, 26 mars (2021). http://www4.fsa.ulaval.ca/la-recherche/chaires-de-recherche/chaire-stephen-a-jarislowsky-en-gestion-des-affaires-internationales/
3. Jaïdi, L., Martín, I. (éd.): Le partenariat Afrique-Europe en quête de sens, p. 34. OCP Policy Center, Rabat (2018)
4. World Development Indicators (WDI): Population and GDP Growth (2022). https://databank.worldbank.org/source/world-development-indicators
5. UN: World Population Prospects 2019, Volume II: Demographic Profiles (2022). https://population.un.org/wpp/
6. Ahlers, T., Kato, H., Kohli, H.S., Madavo, C., Sood, A. (eds.): Africa 2050—Realizing the Continent's Full Potential. Oxford University Press (2014)
7. CUA/OCDE: Dynamiques du développement en Afrique 2022: des chaînes de valeur régionales pour une reprise durable. CUA, Addis Abeba/Éditions OCDE, Paris (2022). https://doi.org/10.1787/f92ecd72-fr.p.7
8. Tsafack Nanfosso, R.: La qualité de l'intégration de l'Afrique dans l'économie mondialisée. Revue Internationale des Économistes de Langue Française **1**(1), 129–148 (2016)
9. Commission de l'Union Africaine: Agenda 2063: L'Afrique Que Nous Voulons (2015)
10. Banque Mondiale: PIB ($US courants)—United States, European Union, World, China (2022). https://donnees.banquemondiale.org/indicateur/NY.GDP.MKTP.CD?locations=US-EU-1W-CN
11. Banque Mondiale: Commerce de marchandises (% du PIB)—World, European Union, China, United States, Sub-Saharan Africa, Middle East & North Africa (2022). https://donnees.banquemondiale.org/indicateur/NE.TRD.GNFS.ZS?locations=1W-EU-CN-US-ZG-ZQ
12. Hadjitchoneva, J.: Les relations entre la Bulgarie et l'Afrique, réalités et perspectives. Dans: Guerraoui D. (Sous la direction de). (2021). Repenser l'Afrique au XXI siècle. Centre Culturel du Livre, Casablanca (2021)

13. Guerraoui D. (Sous la direction de): Repenser l'Afrique au XXI siècle. Centre Culturel du Livre, Casablanca (2021)
14. Tsafack Nanfosso, R.: Les accords de partenariat économique: contribution à la prospérité et au libre commerce. Journées d'Amitié Cameroun-Europe. Ministère des Relations Extérieures, Yaoundé. Colloque des 14 et 15 décembre (2005)
15. Koné, S.: L'Accord de partenariat économique entre l'Union européenne et l'Afrique de l'Ouest. Leçons d'une négociation. Négociations **29**, 121–141 (2018). https://doi.org/10.3917/neg.029.0121
16. Conseil de l'UE & CE.: Relations UE-Afrique (2022). https://www.consilium.europa.eu/fr/policies/eu-africa/
17. ITC: Commerce bilatéral entre l'Afrique et l'Union européenne (UE 28) (2022). https://www.trademap.org/Bilateral_TS.aspx?nvpm=2%7c%7c7%7c%7c14719%7cTOTAL%7c%7c%7c2%7c1%7c1%7c3%7c2%7c1%7c1%7c1%7c1%7c1
18. Abd-El-Rahman, K.S.: Réexamen de la définition et de la mesure des échanges croisés de produits similaires entre les nations. Revue Économique **37**(1), 89–115 (1986)

The Determinants of EU Trade: Evidence from Panel Data Gravity Model

Elena Makrevska Disoska and Katerina Shapkova Kocevska

Abstract The European Union is the biggest trading bloc in the world. It is the second-largest exporter and third-largest importer of goods. However, many challenges, such as the financial crisis, the migrant crisis, BREXIT, and the COVID-19 crisis, influence negatively the prospect of increased trade liberalization among countries. The member states are imposing restraints on internal trade flows, thus jeopardizing the positive effects of trade liberalization. This paper gives a detailed overview of the trade profile of the European Union and explores the determinants of EU trade. We apply the gravity model to estimate the aggregate benefits of intra-trade or benefits from free trade agreements with third countries. We measure the influence of GDP, population, land and capital endowment, EU membership, and signed free trade agreements with the trading partners on EU trade as a dependent variable. The analysis includes data for the 82 biggest EU trading partners (including members) over a period of 60 years (from 1960 to 2020). The European Economic Community was created in 1957, but the elimination of customs duties and measures that have an equivalent effect was achieved in 1968 with the creation of the Customs Union. Due to different stages in regional integration, in particular the creation of the internal market, we estimate subsequent equations with different time periods. The main research question of this paper is: can the internal market still be the driving force for economic growth, or is widening trade relations with third countries much more important for sustaining the dominant trading position of the EU? The results show that the EU's trade is directly proportional to the trade partner's GDP and population. Regarding the coefficient of EU membership, it does not significantly change its value as we shorten the time periods, proving that the average trade advantage due to EU membership increases over time. On the contrary, as we shortened the

E. M. Disoska
Faculty of Economics-Skopje, Ss. Cyril and Methodius University in Skopje, Blvd. Goce Delchev 9V, 1000 Skopje, North Macedonia
e-mail: elenam@eccf.ukim.edu.mk

K. S. Kocevska (✉)
Iustinianus Primus Faculty of Law-Skopje, Ss. Cyril and Methodius University-Skopje, Blvd. Goce Delchev 9B, 1000 Skopje, North Macedonia
e-mail: k.shapkova@pf.ukim.edu.mk

G. Pellat et al. (eds.), *Cooperation and Enlargement: Two Challenges to be Addressed in the European Projects - 2022*, Studies in Systems, Decision and Control 500,
https://doi.org/10.1007/978-3-031-42253-9_5

time periods in the analysis, we obtained a positive but decreasing coefficient for the variable free trade agreements. This confirms that trade exchange within the EU has had a more significant effect than extra-EU trade, especially since the creation of the Internal Market.

Keywords EU trade · EU membership · Free trade agreements · Gravity model

JEL classification F15 · F17 · C33 · N74

1 Introduction

The Internal Market is a core element of the European integration process. Article 26(2) from the Treaty of the Functioning of the European Union (TFEU) defines the Internal market as an area without internal borders for goods, services, capital, and people. Each of the four freedoms varies in terms of its scope and competencies to pursue different regulation policies. The elimination of tariffs and quantitative barriers was progressively achieved during the 1960s with the creation of the Customs Union. The formation of the Internal Market in 1992, eliminated physical and technical barriers to the four freedoms and gave additional stimulus for dynamic economic growth.

The EU continues to strengthen the economic grounds for the Internal market, focusing on trade distortions and unfair market practices, by enforcing compliance with European law. The European Union also works toward the elimination of transactional costs, coordination of tax policies, harmonization of the competition rules, non-discrimination in public procurement, etc. to ensure fair conditions for domestic operating companies and to increase productivity. The deepening of the Internal Market is also envisaged in the areas of energy, digital technology, and banking, addressing the changes in the global economy. In order to achieve the ambitious plan, the member countries need to have strong political support and legitimately comply with the EU legislation.

However, European firms are less anchored than ever before to the European continent as they prefer to invest in emerging markets [1]. The result is that European firms are losing ground as banks have retrenched to their home markets so that innovation is hampered by a lack of a unified capital market as differences in bankruptcy rules or tax regimes create structural barriers for many small and medium firms that impede their ability to engage in cross-border trade [2–4]. Also, due to the COVID-19 crisis, the rise of Eurosceptics, and the dynamics of the global happening, the member-states are imposing restraints on the internal trade flows, thus jeopardizing the achieved positive effects of trade liberalization within the Internal Market. Ambroziak [5] points out that the European Commission has limited enforcement of the legal basis of these actions which additionally limits the prospects of the Internal Market.

Also, the United Kingdom's exit from the EU and more specifically from the Internal Market and Customs Union was a hard hit on the attractiveness of the Internal Market. Although the Internal Market is still attractive, especially to the candidate counties, these countries are also seeking different markets as they lose the European perspective.

However, it is a fact that the Internal Market and the common trade policy contributed to the leading role of the EU in international trade. Two-thirds of EU export are towards EU member countries (intra-trade), especially toward so-called old member states (EU-15). If we add other European countries—EFTA (Switzerland, Norway, Iceland, and Liechtenstein) and Turkey—this figure rises to three-quarters [6].

The rest of the trade is dominant with trading partners from Asia and North America. Trading partners from Asia, dominantly China, Hong Kong, India, etc., account for 15% of the EU's imports and 10% of its exports. From North America, only USA accounts for 5% of the total imports and 7% of EU export. Unfortunately, with these countries, the EU trades under the Most Favourable Nation clause (MFN) under the GATT/WTO. Africa, Latin America and the Middle East are not very important as EU export destinations since their shares in export and import are less than 3%.

The ambition of the EU is for many of these countries to be part of the wide network of free trade agreements that it promotes. Through international trade negotiations and liberalization, the EU has been promoting a new generation of FTAs, meaning not only the elimination of tariffs and quotas but also covering issues such as investment, public procurement, competition rules, intellectual property rights enforcement, etc. These FTAs also impose Internal Market rules and standards on the trading partners such as the promotion of environmental, and food safety standards i.e. 'The Brussels Effect'. The trade increases the tradability of European goods and services and strengthens the role of the EU on the global market.

It is uncertain whether globalization is a threat or an opportunity for Europe. Therefore, the main research question of this paper is: can the Internal Market still be the driving force for economic growth, or widening the trade relations with third countries is much more important for sustaining the dominant trading position of the EU?

The paper is structured into five sections. The second section gives an overview of the EU common trade policy, as well as current trends in intra and extra-trade of the member states. In Sect. 3, a comprehensive review of the literature is performed to identify the determinants of the international volume of trade. In Sect. 4, we describe the data used and present the model specification. The results from the analysis are reported in Sect. 5. In the final section, we present the conclusions of the paper.

2 The Role of the EU as a Main Trade Player in the World

The process of regional integration, and most importantly the existence of the EU common trade policy has helped turn the EU into one of the most powerful trade blocs in the world, along with other global trade powers such as the US and China. The EU's common trade policy is one of the Union's oldest policies. In 1957, with the Treaty of Rome and the establishment of the European Economic Community, the six founding members (Germany, Italy, Belgium, France, Luxemburg, and the Netherlands) transferred their competence in trade policy to the EU. During the 1960s the scope of the EU common trade policy emerged through the establishment of the Customs Union and later the Internal Market. Therefore, common trade policy is an exclusive responsibility of the EU.

The legal basis of the Union's Common Trade Policy is defined in Article 207 TFEU (ex Article 133) of the EC Treaty. In international organizations such as the WTO in most areas (although there are some exceptions), the EU acts on behalf of its member states, while in the UN and its specialized organizations, it has the status of an observer because the member states act there on their behalf. The Union has full competence in managing the Common Trade Policy of its current 27 member states [7].

The main objective of the EU in terms of its common trade policy is to protect the interests of its companies, regardless of whether they appear as exporters or importers of goods, services, capital, or holders of intellectual property rights. Hence, it follows that the key objectives of the EU's foreign trade policy are: (1) Protection of the Internal Market from unfair (non-commercial) restrictions in their export activities (trade defence); and (2) Participate in multilateral and bilateral preferential trade agreements that ensure easier access to products and services in foreign markets (trade promotion) [8].

The EU's common foreign trade policy operates at three levels. The first level is within the World Trade Organization (WTO). The European Union is actively involved in setting the rules for the multilateral system of global trade. With the members of the WTO, with which the European Union has not concluded preferential trade agreements, it applies the treatment of the most favoured nation (MFN) in trade. At the second level, the EU negotiates on a bilateral basis with other countries/groups of countries or regional integrations. It is evident that these preferential agreements are spreading in new areas, especially in regulatory policy and security, but also in foreign investments, which are related to a large number of "internal" policy areas such as competition policy, environmental policy, industrial policy, etc. The third level is unilateral, through the approval of asymmetric preferences of developing countries and least developed countries by the EU, known as the Generalized System of Preferences—GSP [9].

With its largest trading partners: Australia, Chinese Taipei, Hong Kong, Japan, New Zealand, the United States and China (all WTO members), the European Union applies most-favoured-nation (MFN) treatment in trade. This implies that the EU has not concluded a bilateral agreement with these countries or that the EU has

not approved asymmetric preferences. Seen from the perspective of fair treatment in international exchange, we can conclude that the principle of the most favoured nation is an exception rather than a rule in the conduct of the EU's foreign trade policy.

2.1 Extra-Trade of Goods

As a result of the process of regional integration and the existence of the Common Trade Policy, the Union is the largest trade player in the world, measured as the sum of total exports and imports in the value of GDP.

If we look individually, on the export side and the import side without taking into account intra-EU trade, we will notice that the EU was the world's second-largest exporter and the world's third-largest importer in 2021. The largest exporter in the world in 2021 was China with a share in world exports of 18.4%, followed by the EU with 14.1% and the USA with 9.6%. On the import side, the USA had the largest share in 2021 with 15.8%, followed by China with 14.4% and the EU with 13.4% [10].

The participation of the EU in world exports was the highest in 2003, with as much as 38.6% participation. In 2021, the EU records a decrease of 8 pp. and with that, it loses positions in the world markets. At the same time, China has a rising trend which from 2003 to 2021 increased its share in world exports by 9.6 pp. (Table 1).

The exports from the EU to external partners of the Union are concentrated in a few countries. Namely, 59% of the EU's total exports in 2021 are inclined to only seven countries: the USA, Great Britain, China, Switzerland, Russia, Japan and Turkey. The USA was the main trading partner of the EU with a share of 18% in the total exports of the EU in 2021 and after the exit of Great Britain, the country becomes the

Table 1 World merchandise exports by region and selected economy, billion dollars and percentage

	1948	1953	1963	1973	1983	1993	2003	2021
World (in billion American dollars)	59	84	157	579	1838	3688	7382	21,678
%	100	100	100	100	100	100	100	100
USA	21.6	14.6	14.3	12.2	11.2	12.6	9.8	8.1
EU			24.5	37	31.3	37.3	38.6	30.6
Germany	1.4	5.3	9.3	11.7	9.2	10.3	10.2	7.5
Netherlands	2.0	3.0	3.6	4.7	3.5	3.8	4.0	3.9
France	3.4	4.8	5.2	6.3	5.2	6.0	5.3	2.7
China	0.9	1.2	1.3	1.0	1.2	2.5	5.9	15.5
Japan	0.4	1.5	3.5	6.4	8.0	9.8	6.4	3.5
India	2.2	1.3	1.0	0.5	0.5	0.6	0.8	1.8

Source World trade organization (2022): *International trade statistics 2021*, WTO: Geneva, p. 52

second largest trade partner of the EU with a 13% share of the total EU extra-export. China was the third largest trading partner of the EU, where the EU places 10% of the total export of goods. Switzerland is not part of the EU, nor is it a member state of the European Economic Area, but has many bilateral trade agreements with the EU, that guarantee the free movement of goods between the EU and Switzerland. Trade with Switzerland was significant, or about 8% of total exports in 2021. About 4% of the total EU export is oriented toward Russia, Japan and Turkey, individually.

On the import side, the largest trade partner of the EU in 2021 was China. China provided 22% of the EU's imports and the Union had a goods trade deficit with China. The USA is the second largest exporter to the EU market with 11% of the total goods imported into the EU, followed by Russia with an 8% share in the total EU import. Britain and Switzerland had a 6% share. Looking separately by country, seven countries cover two-thirds of the EU-27's imports. In trade in goods, the EU achieved a trade surplus in 2021 of 69 billion Euros [11].

Regarding the trade in goods, by the main product groups, the European Union trades mostly in industrial goods and products with a high degree of processing. The five most dominant groups of products in exports are machinery and equipment; pharmaceutical products; motor vehicles, trailers and semi-trailers; chemicals and chemical products; and computer, electronic and optical products.

The relative importance of the first 5 product groups amounted to 50.9% of the value of total exports to the EU in 2021. Machines and equipment account for 12.9% of the total EU exports, and Germany, Italy, and the Netherlands make up most of the exports. Pharmaceutical products account for 10.7% of total EU exports. The category of motor vehicles, trailers, and semi-trailers participates with a similar percentage (10.3%), while chemicals and chemical products create 9.1% and computer, electronic and optical products participate with 7.9%.

Since the European Union is poor in energy sources, it is a large importer of oil and gas, i.e. one out of five euros spent on imports, goes to fuel. About 7% of EU-27's exports and imports are made up of agricultural products (food, beverages, cigarettes). Considering the aggressive agricultural policy of the EU, this percentage is not so high. But if import barriers are removed and trade in these products is liberalized, the EU would certainly be a net importer of food.

2.1.1 EU Trade with Services

Regarding trade in services, the EU is the world's largest importer and exporter of services. Based on the data from 2021, the EU accounted for a quarter of world exports, i.e. 25.4 and 24.1% of world imports of services. The USA accounted for 15.9 and 11.7% of world exports and imports, while China accounted for 8 and 9.8% of the export and import side in 2021. In absolute terms, the EU exported services worth 1.232 billion euros in 2021, while imported services were worth 1.080 billion euros [10].

The largest trading partners of the EU on the export and import side of the EU in trade in services are the USA, Great Britain, and Switzerland. The USA had the

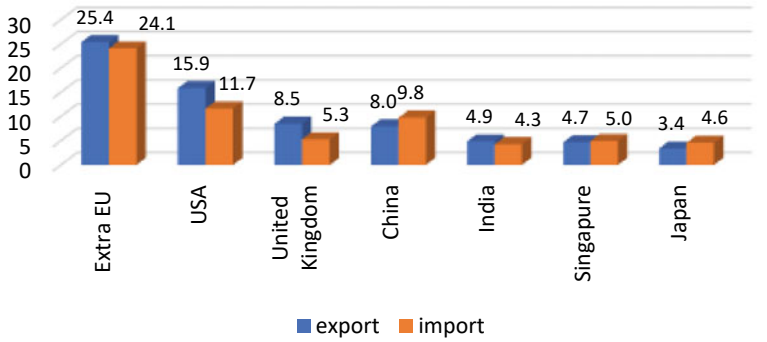


Fig. 1 Leading exporters and importers in world trade in commercial services (excluding intra-EU trade), 2021 (percentage) (*Source* World trade organization (2022): *International trade statistics 2021*, WTO: Geneva, p. 61 [10])

largest trade surplus in trade in services, i.e., 207 billion euros in 2021, while the EU was second with a trade surplus of 133 billion euros. Hence, it is evident that the small surplus in the exchange of goods is complemented by the positive trade balance in the trade in services. The total amount of the EU's trade balance in 2021, in the trade of goods and services, amounted to 202 billion euros [12] (Fig. 1).

2.2 Intra-trade in Goods

The creation of the Customs Union has contributed to the elimination of customs duties, quantitative restrictions, and other measures having an equivalent effect on the trade of goods. Harmonisation and mutual recognition of standards and national regulations allow businesses to sell their products to a market of more than 450 million. The removal of obstacles has led to a significant increase in trade within the EU. The deepening of the process of regional integration and rounds of enlargements created additional benefits for the member countries, triggering an increase in the bilateral trade flows.

Intra-trade of goods between the EU member states, measured as a value of export was €3.428 billion in 2021. The value is 63% higher than the trade of the EU with third countries that do not belong to the bloc. In 2021 the value of exports to third countries was €2.125 billion (extra-EU trade). The intra-trade of goods in the EU in 2021 went above pre-pandemic levels, after a dramatic fall in the period between February 2020 and April 2020 due to COVID-19 [13].

In 2021, the value of export in goods within the EU ranged from €751 billion for Germany to €0.9 billion for Cyprus. Export of goods from only nine member countries in the EU account for 81% of the total value of intra-EU exports of goods (Germany, Netherlands, Belgium, France, Italy, Poland, Spain, Czech Republic, and Austria).

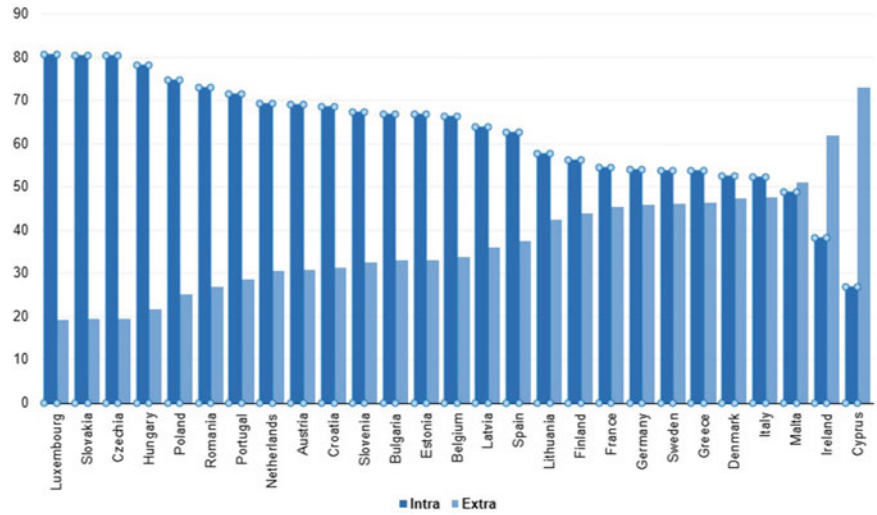


Fig. 2 Intra versus extra export (% share of the total export), by EU country (*Source* Eurostat—Comext DS-018995) [13]

The top three main EU trading partners within the Internal Market are Germany, Italy, and France. In 20 member countries, these three countries account for half of their export within the EU.

The intra-trade is more important for the EU countries compared to the extra-trade, since in most of the member states the share of the intra-EU export accounts for 50% to 75% of the total volume of export. Countries that trade more with countries outside the EU are Cyprus, Ireland, and Malta (Fig. 2).

Considering the SITC we can classify the goods into six general groups of goods. If we analyse the EU intra-trade by product group we can see that the share of machinery and vehicles is a dominant export category and accounts for 34% of the total intra-EU export in 2021. The second category is other manufactured goods with a share of 28%, followed by chemicals with 18% of the total export between EU countries (Fig. 3).

The existence of the Customs Union and the Internal Market of the EU has brought many benefits for the member states. The challenges ahead of the EU are to remove the remaining obstacles to free movement and to adapt the market to new developments such as digital transformation and the transition to a less carbon-intensive and more sustainable economy.

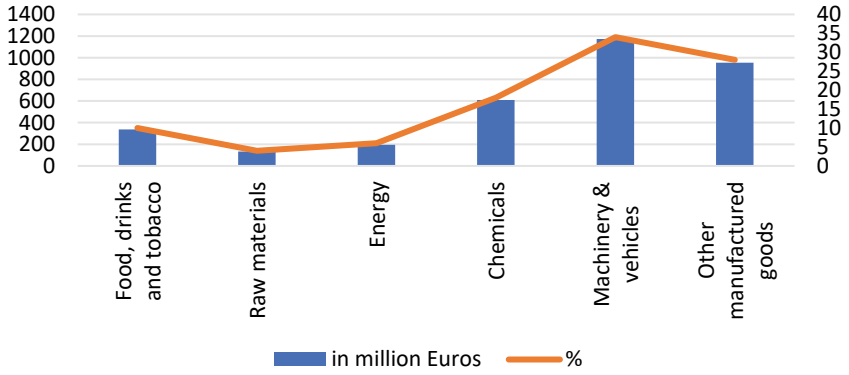


Fig. 3 Share in intra-EU export of goods by product type (*Source* Eurostat—Comext DS-018995) [13]

3 Literature Review

The development of the Internal Market is regarded as one of the European Union's greatest achievements. It has several benefits for the member countries. One of the most significant benefits of the Internal Market is increased political stability. Garret [14] argues that the institutional arrangements that maintain the Internal Market, as well as the formidable legal system that underpins it, impose constraints on member states' actions, resulting in improved political stability inside the Union.

Furthermore, the formation and operation of the Internal Market have produced recorded proof of its economic benefits. EU accession resulted in significant economic benefits for the member countries. According to one estimate, the entire economic gains of the Internal Market are assessed as direct trade impacts and firm's mark-ups above marginal cost estimates between 8 and 9% greater GDP for the EU [15]. If no integration had occurred since 1950, the EU's GDP per capita would be around one-fifth smaller today [16].

Campos et al. [17] discovered that EU membership had a significant beneficial economic impact on GDP per capita and labour productivity in member nations. The authors predicted that if economic and political integration did not occur, EU member nations' per capita GDP would be 12% lower on average. Similarly, Lehtimäki and Sondermann [18] concluded that the Internal Market increased real GDP per capita in the EU by 12–22% as compared to a hypothetical situation in which there was no common market among member states. The authors also determined that the benefits of the Internal Market are slightly greater for smaller EU members than for bigger member states. They also advocate for more EU integration by deepening and broadening the Internal Market whenever practicable and requested by Member States.

Other economic benefits of establishing the EU Internal Market include increased intra-regional trade of goods and services, economies of scale and scope, increased

competitiveness, and foreign investment inflows, among other things. Using data on European regional trade flows from 2000 to 2010, Thissen et al. [19] discovered that globalization in trade was still limited in Europe, with only a small percentage of goods and services traded with countries outside Europe, and that the European regional economy is highly interconnected. Dijkstra [20] assessed economies of scale and scope for Eurozone banks between 2002 and 2011, discovering that economies of scale were positive and large for all years and asset levels, while economies of scope were positive for all years and rose during crisis years. Bogdanova and Orlovska [21] propose broadening and strengthening the Internal market to boost EU competitiveness on a global scale, including improving resource quality and enabling external cooperation initiatives.

Davis and Gift [22] investigated the influence of labour mobility as a result of the Schengen Agreement on the cross-border exchange of goods and services from 1980 to 2011. Their findings indicate that Schengen membership strengthens reading partners by increasing demand for foreign goods, raising awareness of low-cost manufacturers, and lowering the risks connected with trading with international partners.

There is evidence that entry into the Internal Market benefited not just EU member nations but also candidate countries for EU membership. Lejour et al. [23] predicted that EU enlargement with countries from Central and Eastern Europe would result in significant economic gains for these countries, including increased sustainability and well-being. EU enlargement was a notable example of economic gains for both EU incumbents and new member states [24].

The empirical literature focuses on various aspects of the development, trends, and dynamics of EU trade because regional integration can improve the welfare of member-states through trade creation (intense trade among regional integration members), but it can also have welfare-reducing effects on the integration and global welfare through trade diversion (trading with countries outside the regional integration). Hoekman et al. [25] investigated the factors influencing intra-industry trade between East and West Europe. According to their findings, vertical intra-industry commerce accounted for 80–90% of overall intra-industry trade. Vertical intra-industry trade was positively associated with product differentiation, the labour intensity of production, economies of scale, and foreign direct investment. Horizontal intra-industry trade, on the other hand, was favourably linked with FDI, product differentiation, and industry concentration but adversely associated with economies of scale and labour intensity.

Another study on the factors influencing intra-industry trade between developing nations and the United States yielded similar conclusions [26]. Distance and relative factor endowments are adversely related to intra-industry trade, although the economic size and trade orientation are positively related. The impact of economies of scale remained unclear.

The gravity model has been frequently used to investigate intra- and extra-national trade flows [27–30]. Its simplicity and adaptability make it appealing to both researchers and policymakers. The model implies that trade between two nations is positively related to GDP and negatively related to distance. Cai [31] provides a novel

estimation approach for assessing bilateral commerce between a country's regions. The model employs the doubly constrained gravity model approach.

Recent research [32] looks at the EU's and the Internal Market's trade benefits for the Netherlands and other EU Member States. The results reveal that the EU has lowered trade costs, resulting in significant trade advantages for practically all EU member states (Finland is an exception). The benefits are greater in more recent EU member countries from Central and Eastern Europe and less so in older EU member countries (Greece and Italy). According to the report, the advantages of EU trade are estimated to be worth 3.1% of GDP in the Netherlands. The Netherlands is one of the countries that has reaped the biggest benefits from increased EU trade.

Kox et al. [33] created a gravity model to evaluate the impact of regulatory obstacles on trade and investment in services. Their attention was drawn to the proposed EU directive on services in the internal market. They discovered that the proposal might reduce intra-EU heterogeneity in product market regulation for services, resulting in higher commercial services trade of 30–60% and a 20–35% rise in foreign direct investment stock in services.

Leitner et al. [34] apply the gravity approach and prove that extra-EU trade is significant, and the response of trade to partner countries' GDP of non-EU countries even increased, pointing towards the stronger role of extra-EU trade in the period after the financial crisis. The share of intra-trade in global trade flows was 30% in 2001, and a decade later it declined to 20%. Also, intra-trade has become more important to member countries from Central and Eastern Europe (CEE), meaning that bilateral trade intensities are stable for CEE countries (Austria, Germany, Belgium, and the Netherlands) but declining for the remaining countries. Nitsch [35] points out that, on average, in all EU countries, extra-trade is about ten times higher than intra-trade with an EU partner country of similar size and distance.

Spornberger [36] used a structural gravity framework and a flexible two-step estimation technique to investigate EU trade integration in manufactured products. Her findings reveal that the first degree of integration among the EU15 members resulted in a 70% rise in intra-EU trade shares until 1995. Following this time, the trade shares of newly admitted EU members from Central and Eastern Europe more than doubled.

Another study studies the influence of regional trade agreements on intra-industry trade developments for selected economies in Central and Eastern Europe from 1997 to 2019 using an upgraded structural gravity model and the Pseudo-Poisson Maximum Likelihood Estimator [37]. According to the findings, the influence of regional trade agreements on intra-industry trade is sensitive to the degree of economic asymmetry defined by the difference in GDP per capita of integration members. The negative impact of trade agreements was greatest for EU integration, followed by CEFTA integration and trade agreements between Central and Eastern European nations and other countries.

The same trend is evident in the trade of agri-food products. Although the intra-trade in these products is significant among member states, global agri-food export growth has grown even faster as a result of innovation and technological improvements on the supply side and increased food demand due to population and income

growth [38]. The fact that extra-EU trade grew faster than intra-EU trade does not point toward a failure of the Internal Market but rather signals that growth and general economic conditions were stronger outside the EU. For example, a small share of firms in the EU outsource their activities to another EU country. Most of them internationalize their production outside the EU in emerging and developing countries.

Further market integration should reduce, to a certain extent, the magnitude of border effects [39]. Elimination of barriers is essential for sustaining the function of the Internal Market and for EU growth prospects. Market integration creates an unequal distribution of benefits, and for these problems to be addressed, the members need to introduce and coordinate corrective policies (regional, social policy, etc.). These policies aim to redistribute the benefits of unperfected market competition and require a strong political commitment to integration [40].

The use of gravity models to understand bilateral trade flows is present not only for the European economy and the Internal Market, but extensive studies have also been undertaken for other nations and regions throughout the world. Huyên [41] used the gravity model framework to investigate the trade relationship between Vietnam and its two main trading partners, the United States and China, from 1986 to 2019. The findings imply that GDP development in the two nations is a critical predictor of trade flows, enhancing export and import flows. Gul and Yasin [42] examined trade flows between Pakistan and its trading partners from 1981 to 2005 using gravity models. According to the findings of this study, economic size and per capita income have a favourable influence on trade flows. However, shared borders between trading partners have a negative effect. Kien [43] demonstrated that the export flows of ASEAN Free Trade Area (AFTA) nations rose proportionally with GDP using a gravity model Hausman-Taylor (HT) estimation for a national panel data set of 39 countries from 1988 to 2002. He also advocated for a stronger trade facilitation strategy in order to move closer to a free trade zone. In the case of Japan and Korea, Lawrence and Weinstein make a compelling case for free trade [44]. The findings indicate that export-led growth outperforms import-led growth in these nations. Lower tariffs and increased import volumes would have been especially beneficial for total factor productivity development in Japan from 1964 to 1973. They advocate for a rethink of trade policy aimed at more liberalization.

4 Data and Model

Data on 82 European Union trading partners are included in the analysis. The period of analysis dates back from 1960 to 2020. The EU's trading partners are chosen based on the highest value of the country's exports to the EU as trading partners throughout the entire analysed period. We worked with unbalanced panel data. For example, no data were available for Eastern European countries in the 1980s and 1990s, and several countries no longer exist (Czechoslovakia, Soviet Union and Yugoslavia).

The dependent variable is *Trade* from the European Union to each trading partner. It represents the total volume of international trade between the European Union and its trading partner. We calculate it as a sum of the export from the EU to the trading partner and import to the EU from the trading partner in a given year. The data on export and import are measured as FOB in million American dollars and are obtained from the IMF's Direction of Trade Statistics for the period 1960–2020. The variable Trade is transformed into natural logarithm form and is presented on an annual basis.

We use five independent variables and two dummy variables in the model. Taking into consideration the previous body of research in gravity models of the international volume of trade, we selected the following independent variables: GDP distance, Remote, Scale, Land Endowment, and Capital Endowment. The dummy variables are titles EU and FTA. Table 2 shows the explanation and source of the independent variables.

We have used heteroscedasticity-corrected OLS regression. We used the software Gretl to estimate the model. By using the panel data model, we try to estimate the aggregate benefits of EU membership.

The framework of the model is based on the analogy with the Newtonian theory of gravity reflecting the relationship between the intensity of trade between two partners, the size of their economies and the distance between them [27, 45]. The traditional gravity model successfully reproduces the volume of trade between trading partners using macroeconomic properties, such as GDP, geographic distance, and other related factors. Although there are different modifications of the model in terms of the empirical specification [46, 47], we have used the basic heteroscedasticity–corrected OLS model by constructing the following equation:

$$\begin{aligned} Trade_{i,j,t} = {} & constant + \alpha_1 GDPdistance_{i,j,t} + \alpha_2 Remote_{i,j,t} + \alpha_3 Scale_{i,j,t} \\ & + \alpha_4 LandEndowment_{i,j,t} + \alpha_5 CapitalEndowment_{i,j,t} + + \beta_1 EU \\ & + \beta_2 FTA + e_{i,j,t} \end{aligned} \quad (1)$$

5 Results and Discussion

In Table 3, we provide the results from the gravity model on the EU's trade. In the original model (*Model 1*) we inquire about the effects of EU's trade caused by changes in the variables *Remote*, *Scale*, *GDP distance* and the *land and capital endowments* from 1960 to 2020. Two dummy variables are also included in the model, EU and FTA. The selection of the independent variables is based on the trending papers in gravity models of international trade. The results acknowledge that all of the independent variables used in the model prove to be statistically significant at a level of significance of 99%. Adjusted R squared is 84%, suggesting good fitness of the model.

Table 2 Explanation and source of the independent variables

Variable name	Explanation	Source
Remote	Captures the relative importance of the trading partner in the context of the global economy It is calculated as the natural logarithm of the product of the geographical distance between the trading partners and the GDP of the trading partner, divided by the world GDP in period t Geographical distance is the distance between the biggest cities of countries i and j. dkl is the distance between cities k and l GDP at purchaser's prices is the sum of gross value added by all resident producers in the economy/world (constant prices 2015, US dollars)	The variable *Remote* is calculated by the authors Source (distc): CEPII Source (GDP and World GDP): World development indicators
GDP distance	Captures the level of difference in economic development between the trading partners It is calculated as a natural logarithm of the difference between the maximum value and the minimum value of the GDP per capita between the trading partners GDP per capita is gross domestic product divided by midyear population. Data are in constant 2015 U.S. dollars	The variable *GDP distance* is calculated by the authors Source (GDP per capita): World development indicators
Scale	Represents the relative size of the country by its population It is calculated as a natural logarithm of the product of the populations of two countries Total population is based on the de facto definition of population, which counts all residents regardless of legal status or citizenship. The values shown are midyear estimates	The variable *Scale* is calculated by the authors Source (Population): (1) United Nations Population Division. (2) Census reports and other statistical publications from national statistical offices, (3) Eurostat: (4) U.S. Census Bureau: International Database, and (5) Secretariat of the Pacific Community: Statistics and Demography Programme
Land endowment	Captures the distance in terms of land endowment between two countries It is calculated as a natural logarithm of the ratio between the maximum and the minimum value of the arable land per person between two countries. Arable land per person is given in hectares	The variable *Land endowment* is calculated by the authors Source (Arable land): Food and Agriculture Organization, electronic files and website

(continued)

Table 2 (continued)

Variable name	Explanation	Source
Capital endowment	Captures the distance in terms of capital endowment between two countries It is calculated as a natural logarithm of the ratio between the maximum and the minimum value of the capital per capita ratios between two countries. The capital per capita ratio is calculated as the ratio between the gross fixed capital formation of the country and its population Gross fixed capital formation data are in constant 2015 prices, expressed in U.S. dollars	The variable *Capital endowment* is calculated by the authors Source (Gross fixed capital formation): World development indicators Source (Population): (1) United Nations Population Division. (2) Census reports and other statistical publications from national statistical offices, (3) Eurostat: (4) U.S. Census Bureau: International Database, and (5) Secretariat of the Pacific Community: Statistics and Demography Programme
EU	EU is an indicator variable that takes the value of 1 if country *i* is the EU member, otherwise it takes the value of 0	Dummy variable
FTA	Free Trade Agreement (FTA) is an indicator variable that takes the value of 1 if country *i* has signed an FTA agreement with the EU, otherwise it takes the value of 0	Dummy variable

Source Created by the authors

To estimate the average benefit due to EU membership, we estimated subsequent equations with different periods. We have estimated two specifications, one from 1960 to 1991 (Model 2), and the second from 1992 to 2020 (Model 3), or in other words before and after the creation of the Internal Market.

In both of the specifications, R^2 and the adjusted R^2 are high, between 84 and 89%, which suggests that the independent variables considerably explain the dependent variable *Trade*. In all equations, we used the same variables as in the original specification. Here, also, all of the coefficients before the independent variables are statistically significant at a level of 99%.

The variable *Remote* captures the relative importance of the trading partner in the context of the global economy [48–51]. It is a dynamic variable, calculated as a natural logarithm of the product of the geographical distance between the trading partners and the GDP of the trading partner, divided by the world GDP in period t. The expected sign of the coefficient of this variable is negative. This indicator captures the relative importance of the trading partners meaning that the international volume of trade of the EU lowers as the geographical distance gets larger, but also considering the economic stance of the country. For example, a country that is geographically closer to its EU trading partner can trade less compared to a country that is geographically more distant but has better infrastructure.

Table 3 Results from the heteroscedasticity–corrected OLS model, period 1960–2020, dependent variable: trade

Variables	Model 1 Period 1960–2020	Model 2 Period 1960–1991	Model 3 Period 1991–2020
Const	−33.2543*** (0.742677)	−29.0475*** (1.27629)	−30.1480*** (0.809834)
Remote	−0.353277*** (0.0153502)	−0.372987*** (0.0271252)	−0.344481*** (0.0169567)
GDP distance	0.938268*** (0.0300764)	0.664610*** (0.0496367)	0.517649*** (0.0328307)
Scale	0.983470*** (0.0204014)	0.923763*** (0.0366373)	1.01404*** (0.0220180)
Land endowment	0.270455*** (0.0157666)	0.142281*** (0.0342583)	0.277325*** (0.0105932)
Capital endowment	−1.41561*** (0.0216929)	−1.22724*** (0.0418293)	−1.36246*** (0.0227936)
EU Member = 1	1.39095*** (0.0448722)	1.22531*** (0.0949800)	1.33346*** (0.0460867)
FTA Yes = 1	0.598111*** (0.0335738)	0.876488*** (0.124562)	0.474431*** (0.0356130)
Number of observations	2904	932	1972
R^2	0.844129	0.841691	0.887971
Adj. R^2	0.843752	0.840492	0.887571

Note Numbers given in parenthesis are corresponding standard errors. ***: $p < 0.01$; **: $p < 0.05$; *: $p < 0.1$

The next variable used in our models is *GDP distance*, as a common variable used in gravity models [52–56]. It captures the level of difference in economic development between the EU and its trading partners, measured by GDP per capita. The coefficient estimates of the GDP distance variable in all of the models are statistically significant and positive.

The Scale variable presents the differences between the trading partners in terms of their size, measured by the country's population [57, 58]. The coefficient estimates are positive and statistically significant at a level of 99% in the three models we have developed. These results show that the EU trade is higher with relatively bigger countries, measured by their population.

The next two variables, *Capital Endowment* and *Land endowment* Heckscher-Ohlin predict that countries with different factor endowments will trade more with each other [59], while Linder [60] hypothesized that nations of similar development level will have similar preferences and thus will trade less with countries possessing different factor endowments. In the models, the capital endowment coefficient has a negative sign, while the land endowment has a positive sign. The results of the influence of factor endowments (capital and land) on trade indicate that they are statistically significant. However, the difference in capital abundance has a negative

impact on the trade exchange of goods between EU member countries, and the difference in land endowment has a positive effect.

The negative coefficient of capital endowment indicates that when the difference between capital endowments between EU trading partners is bigger, it should lead to a decrease in mutual trade. The coefficient for land endowment indicates that the bigger the difference in labour productivity among EU trading partners, the higher the mutual trade.

The main success of this study is the examination of the data produced from the model of the influence of the dummy variable on EU trade. We admit that the coefficient assessing the impact of EU membership is statistically significant and positive. When we disaggregate the time span, we notice that the coefficient is increasing over time. It means that the importance of the EU Internal Market for intra-EU trade is positive for the whole period. The EU membership dummy proves to be a statistically significant variable. The coefficient is positive in all three models. The relative importance of the Internal Market is increasing over the years, despite all the external shocks that the EU is facing.

The FTA dummy shows that trade of the EU with countries with preferential treatment (those who have signed free trade agreements) is affected positively. However, the coefficient is lower than the EU coefficient proving that the Internal Market is still the main driving force of EU trade.

6 Conclusions

This paper applies the gravity model to estimate the aggregate benefits of the trade of the European Union. Two models are estimated from 1960 to 1991 and from 1991 to 2020 in order to see the changes in the coefficients, before the creation of the Internal Market and afterwards. The results from the models show that intra-trade is more significant for the EU than external trade with partners outside the EU, especially in the period of the existence of the Internal Market. The answer to the main research question is that, without a doubt, the Internal market is still the main driving force of the European Union. However, continuous efforts are necessary to ensure the further deepening of the market such as the digital single market, cutting red tape and elimination of the existing barriers.

The models show that EU trade is higher with relatively bigger countries, measured by their population and with countries that are geographically closer to each other. The results support the fact that Germany, the Netherlands, Belgium, France and Italy are the five countries that have the highest value of export in the EU.

Countries within the EU have high participation in the global and EU supply chains. Gunnella et al. [61] claim that euro-area countries are much more integrated into euro-area supply chains than into supply chains with the rest of the world and that intra-euro area supply chains have been more resilient during the global financial crisis and the global trade slowdown.

Strengthening the Internal Market should go hand in hand with widening the trade relations with third countries since they both contribute to increasing the trade volumes of the EU. EU countries benefit from trade agreements since the trade agreement with countries outside the EU enables businesses to access the raw materials and other inputs they need more easily and at lower prices, helping them to stay competitive, and trade without trade barriers. Globalization should be an opportunity for the EU if the EU succeeds in turning its potential into real benefits. In order to achieve the ambitious plan, the member countries need to have strong political support and legitimately comply with EU legislation.

References

1. Cini, M., Perez-Solorzano Borragan, N.: European Union Politics. Oxford University Press, Oxford (2022)
2. Howarth, D., Sadeh, T.: The ever incomplete single market: differentiation and the evolving frontier of integration. J. Eur. Publ. Policy **17**(7), 922–935 (2010). https://doi.org/10.1080/13501763.2010.499220
3. Camisão, I., Guimarães, M.H.: The commission, the single market and the crisis: the limits of purposeful opportunism. J. Common Mark. Stud. **55**(2), 223–239 (2017)
4. Egan, M.: The internal market of the European Union: from indivisibility to differentiated integration. In: Laursen, F. (ed.) The Oxford Encyclopaedia of European Union Politics. Oxford University Press, Oxford (2020)
5. Ambroziak, A.A.: Does the European single market exist in the era of a coronavirus pandemic? The case of intra and extra-EU trade in COVID-19-related products. Studia Europejskie-Stud. Eur. Aff. **25**(1), 63–83 (2021)
6. Baldwin, R.E., Wyplosz, C.: The Economics of European Integration. McGraw-Hill Education, London (2019)
7. Toshevska-Trpchevska, K.: Multilateral Trading System. University Ss. Cyril and Methodius in Skopje, Faculty of Economics-Skopje (2022)
8. Jovanovik, M.: The Economics of International Integration. Edward Elgar, London (2013)
9. Baldwin, R.E., Wyplosz, C.: Economics of European Integration. McGraw-Hill Companies, Washington (2020)
10. World Trade Organization: International Trade Statistics 2021. WTO, Geneva (2022). Accessed 1 April 2023
11. Eurostat: International trade in goods for the EU - an overview (2022). Retrieved from: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=International_trade_in_goods_for_the_EU_-_an_overview&oldid=454291#International_trade_in_goods_-_intra-EU_and_extra-EU_flows. Accessed 2 April 2023
12. Eurostat: International trade in services (2023). Retrieved from: https://ec.europa.eu/eurostat/statisticsexplained/index.php?title=International_trade_in_services#General_overview. Accessed 2 April 2023
13. Eurostat: Intra-EU trade in goods-main features (2023). https://ec.europa.eu/eurostat/statisticsexplained/index.php?title=Intra-EU_trade_in_goods_-_main_features. Accessed 2 April 2023
14. Garrett, G.: International cooperation and institutional choice: The European Community's internal market. Int. Organ. **46**(2), 533–560 (1992). https://doi.org/10.1017/S0020818300027806
15. in't Veld, J.: Quantifying the Economic Effects of the Single Market in a Structural Macromodel. European Commission (2019)

16. Badinger, H.: Growth effects of economic integration: evidence from the EU member states. Rev. World Econ./Weltwirtschaftliches Archiv **141**(1), 50–78 (2005). http://www.jstor.org/stable/40441034
17. Campos, N.F., Coricelli, F., Moretti, L.: Economic Growth and Political Integration: Estimating the Benefits from Membership in the European Union Using the Synthetic Counterfactuals Method. IZA Discussion Paper No. 8162 (2014). Available at SSRN: https://ssrn.com/abstract=2432446 or https://doi.org/10.2139/ssrn.2432446
18. Lehtimäki, J., Sondermann, D.: Baldwin versus Cecchini revisited: the growth impact of the European single market. Empir. Econ. (2021). https://doi.org/10.1007/s00181-021-02161-w
19. Thissen, M., Oort, F., Diodato, D.: Integration and Convergence in Regional Europe: European Regional Trade Flows from 2000 to 2010, ERSA Conference Papers, European Regional Science Association (2013). https://EconPapers.repec.org/RePEc:wiw:wiwrsa:ersa13p1116
20. Dijkstra, M.: Economies of Scale and Scope in the European Banking Sector 2002–2011. Amsterdam Law School Research Paper No. 2013-44, Amsterdam Center for Law & Economics Working Paper No. 2013-11 (2013). Available at SSRN: https://ssrn.com/abstract=2311267 or https://doi.org/10.2139/ssrn.2311267
21. Bogdanova, O., Orlovska, A.: Competitiveness of Nations in Global Economy Competitive Perspectives of the European Union. Econ. Manag. 446–452 (2008)
22. Davis, D., Gift, T.: The positive effects of the Schengen Agreement on European trade. World Econ. **37**(11), 1541–1557 (2014). https://doi.org/10.1111/twec.12158
23. Lejour, A.M., De Mooij, R., Nahuis, R.: EU Enlargement: Economic Implications for Countries and Industries (2001). Available at SSRN: https://ssrn.com/abstract=287847 or https://doi.org/10.2139/ssrn.287847
24. Baldwin, R.E., Francois, J.F., Portes, R.: The costs and benefits of eastern enlargement: the impact on the EU and central Europe. Econ. Policy **12**(24), 125–176 (1997). https://doi.org/10.1111/1468-0327.00018
25. Aturupane, C., Djankov, S., Hoekman, B.: Determinants of Intra-Industry Trade Between East and West Europe, No. 1721, CEPR Discussion Papers, C.E.P.R. Discussion Papers (1997)
26. Clark, D.P., Stanley, D.L.: Determinants of intra-industry trade between developing countries and the United States. J. Econ. Dev. **24**(2), 79–94 (1999)
27. Bergstrand, J.H.: The gravity equation in international trade: some microeconomic foundations and empirical evidence. Rev. Econ. Stat. **67**(3), 474–481 (1985). https://doi.org/10.2307/1925976
28. Anderson, J.E., Wincoop, E.V.: Gravity with gravitas: a solution to the border puzzle. Am. Econ. Rev. **93**(1), 170–192 (2003)
29. Anderson, J.E.: The gravity model. Annu. Rev. Econ. **3**, 133–160 (2011)
30. Head, K., Mayer, T.: The United States of Europe: a gravity model evaluation of the four freedoms. J. Econ. Perspect. **35**(2), 23–48 (2021)
31. Cai, M.: A calibrated gravity model of interregional trade. Spat. Econ. Anal. **18**(3), 89–107 (2022). https://doi.org/10.1080/17421772.2022.2081715
32. Freeman, D., Meijerink, G., Teulings, R.: Trade Benefits of the EU and the Internal Market. CPB Communication (2022)
33. Kox, K., Lejour, A., Montizaan, R.: The Free Movement of Services Within the EU. CPB Netherlands Bureau for Economic Policy Analysis (2004)
34. Leitner, S.M. et al.: The Evolving Composition of Intra-EU Trade. wiiw Research Report, No. 414, The Vienna Institute for International Economic Studies (wiiw), Vienna (2016)
35. Nitsch, V.: National borders and international trade: evidence from the European Union. Can. J. Econ./Revue canadienne d'économique **33**(4), 1091–1105 (2000)
36. Spornberger, J.: EU integration and structural gravity: a comprehensive quantification of the border effect on trade. Rev. Int. Econ. **30**(1), 1–24 (2021)
37. Zaninović, V.: The intra-industry trade dynamics in CEE countries July 2022. Zbornik Radova Ekonomskog Fakulteta u Rijeci/Proc. Rijeka School Econ. **40**(1), 129–145 (2022)
38. Bojnec, Š, Fertő, I., Fogarasi, J.: Quality of institutions and the BRIC countries' agro-food exports. China Agric. Econ. Rev. **6**(3), 379–394 (2014)

39. Chen, N.: Intra-national versus international trade in the European Union: why do national borders matter? J. Int. Econ. **63**(1), 93–118 (2004)
40. McCarthy, C.: Regional Integration: Part of the Solution or Part of the Problem? Page, S., Bilal, S. (2001). Regional Integration in Western Africa. Report Prepared for and Financed by the Ministry of Foreign Affairs, the Netherlands, ODI, London (1996)
41. Huyên, T.K.: Trade relationship of Vietnam from the perspective of the China-US trade War 2019: a comparison study using the Gravity Model. Int. J. Manag. Innov. Entrepreneurial Res. **9**(1), 01–13 (2009)
42. Gul, N., Yasin, H.M.: The trade potential of Pakistan: an application of gravity model. Lahore J. Econ. **16**(1), 23–62 (2011)
43. Nguyen, K.: Gravity model by panel data approach: an empirical application with implications for the ASEAN free trade area. ASEAN Econ. Bull. **26**(3), 266–277 (2009)
44. Lawrence, R., Weinstein, D.: Trade and Growth: Import-Led or Export-Led? Evidence From Japan and Korea. NBER Working Papers 7264, National Bureau of Economic Research, Inc. (1999)
45. Tinbergen, J.: Shaping the World Economy; Suggestions for an International Economic Policy. Twentieth Century Fund, New York (1962). http://hdl.handle.net/1765/16826. Accessed 16 April 2023
46. Helpman, E., Melitz, M., Rubinstein, Y.: Estimating trade flows: trading partners and trading volumes. Q. J. Econ. **123**(2), 441–487 (2008)
47. Almog, A., Bird, R., Garlaschelli, D.: Enhanced gravity model of trade: reconciling macroeconomic and network models. Front. Phys. **7**, 55 (2019)
48. Rose, A.: One money, one market: estimating the effect of currency unions on trade. Econ. Policy **15**, 7–46 (2000)
49. Feenstra, R.C., Markusen, J.R., Rose, A.K.: Using the gravity model equation to differentiate among alternative theories of trade. Can. J. Econ. **34**, 430–447 (2001)
50. Soloaga, I., Winters, L.A.: Regionalism in the nineties: what effect on trade? North Am. J. Econ. Finance **12**, 1–29 (2001)
51. Yamarik, S., Ghosh, S.: A sensitivity analysis of the gravity model. Int. Trade J. **19**(1), 83–126 (2005). https://doi.org/10.1080/08853900590905784
52. Frankel, J.A.: Is Japan creating a yen bloc in East Asia and the Pacific? NBER Working Papers, Series (4050) (1992)
53. Rahman, M.M., Dutta, D.: A panel data analysis of Bangladesh's trade: the gravity model approach. J. Asia-Pac. Bus. **13**, 263–286 (2003)
54. MinKyoung, K., Cho, G.D., Koo, W.W.: Determining Bilateral Trade Patterns Using a Dynamic Gravity Equation. Agribusiness & Applied Economics Report, No. 525 (2003)
55. Sandberg, H.M., Seale, J.J.L., Taylor, T.G.: History, regionalism and CARICOM trade: gravity model analysis. J. Dev. Stud. **5**(42), 795–811 (2006)
56. Nguyen, B.X.: The determinants of Vietnamese export flows: static and dynamic panel gravity approach. Int. J. Econ. Financ. **2**(4), 122–129 (2010)
57. Bayoumi, T., Eichengreen, B.: Ever closer to heaven? An optimum-currency-area index for European countries. Eur. Econ. Rev. **41**(3–5), 761–770 (1997)
58. Evenett, S.J., Hutchinson, W.K.: The gravity equation in international economics: theory and evidence. Scott. J. Polit. Econ. **49**(5), 489–490 (2003)
59. Bergstrand, J.H.: The Heckscher-Ohlin-Samuelson model, the Linder hypothesis, and the determinants of bilateral intra-industry trade. Econ. J. **100**, 1216–1229 (1990)
60. Linder, S.B.: An Essay on Trade and Transformation. Wiley, New York (1961)
61. Gunnella, V., Lebastard, L., Lopez-Garcia, P., Serafini, R., Mattioli, A.Z.: The Impact of the Euro on Trade: Two Decades into Monetary Union. ECB Occasional Paper (2021/283) (2021)

Reinventing the Gravity Model: The Significance of Real-Time Data and Time-Related Factors in International Trade

Thierry Warin and Aleksandar Stojkov

Abstract The gravity model serves as a multifaceted instrument with applicability across various empirical domains. In the realm of international macroeconomics, it is often employed to assess the implications of trade agreements, exchange rate fluctuations, currency unions, the 'border effect,' the utilization of shared or related languages, and a diverse array of more specialized applications. This paper presents a critical analysis of the evolution of gravity models in international trade by examining methodological advancements and empirical successes. Our primary focus lies in the underdeveloped concept of distance between two economies. The most straightforward and frequently employed approach to measuring distance involves the use of countries' capital cities. However, given the rapid progress in data science and emerging technologies, our study integrates previously inaccessible digital information, such as the actual distances between two ports. This methodological enhancement allows for the (1) reconfiguration of the gravity model using real-time data as opposed to annual data, and (2) estimation that, contrary to popular belief, distance is not the most critical determinant; rather, it is time. Time delays in international trade correspond to a country distancing itself from its trading partners beyond what geographical factors dictate. By harnessing the power of data science and novel technologies, this research illuminates the potential to reinvent the gravity model and provide a more accurate understanding of the complex relationships between economies in the global trade landscape.

T. Warin
HEC Montréal, 3000, chemin de la Côte-Sainte-Catherine, Montréal, Québec H3T 2A7, Canada
e-mail: thierry.warin@hec.ca

A. Stojkov (✉)
Ss. Cyril and Methodius University in Skopje, Blvd. Goce Delcev 9b, 1000 Skopje, North Macedonia
e-mail: a.stojkov@pf.ukim.edu.mk

G. Pellat et al. (eds.), *Cooperation and Enlargement: Two Challenges to be Addressed in the European Projects - 2022*, Studies in Systems, Decision and Control 500,
https://doi.org/10.1007/978-3-031-42253-9_6

1 Introduction

1.1 Relevance

Some of the main benefits of European cooperation and enlargement stem from the deepening trade integration between the European Union (EU) member states and the EU candidate and potential candidate countries. Credible academic research and policy-oriented projects can significantly contribute to informed decisions by policymakers on the potential net benefits of trade integration in Europe. The Eastern enlargement of the EU in May 2004 with ten new member states, and three more thereafter in 2007 and 2013, created a unique historical opportunity for deepening economic integration and accelerating economic growth on the European continent. On May 1st, 2004, the EU was enlarged with eight countries from Central and Eastern Europe (Czechia, Estonia, Hungary, Latvia, Lithuania, Poland, the Slovak Republic, and Slovenia) and two Mediterranean countries (Malta and Cyprus). Bulgaria and Romania joined the EU on January 1st, 2007, whereas Croatia on July 1st, 2013. The EU accession process encouraged high degrees of trade and financial integration with the "old" Europe, harmonization of the legislation, institutional capacity building, labor mobility, etc.

From an empirical perspective, the benefits of international trade integration in Europe have mainly been assessed by using some gravity equation. The gravity model has been widely used in various empirical disciplines, as it provides a versatile instrument to estimate the impact of factors such as trade agreements, exchange rate volatility, currency unions, the 'border effect,' and the usage of shared or related languages. Its widespread acceptance can be attributed to the critical role of international trade flows in economic connections, the accessibility of required data, and the validation of the model's legitimacy through numerous high-profile studies [1–3] that provide standard methods for addressing the empirical choices faced by researchers.

Although the gravity model had a tenuous theoretical foundation when it first appeared in the 1960s [4–6], subsequent developments in trade theory and efforts to provide theoretical underpinnings have led to a shift from too few theoretical foundations to an abundance of them. The work by Anderson and van Wincoop [7] on micro-founding gravity equations is one such example.

The central objective of this paper is to emphasize the importance of real-time data in assessing the net benefits of European trade integration and the transport bottlenecks across Europe. More specifically, we aim to explore the potential application of data science in the gravity model and the insights that can be derived. While the use of machine learning in place of conventional econometrics may improve accuracy, our focus is primarily on the distance variable. We argue for a reconsideration of the distance variable, which has been removed from certain gravity models due to the introduction of dummies to account for "medal mistakes," as it holds greater potential than just nation or pair dummies.

Data science allows us to redefine the concept of distance between countries. While the great circle distance between capitals has been the most widely used

measure, recent advancements in data science enable us to access digital information such as actual distances between two ports. By utilizing tools like *corridor* (https://warint.github.io/corridoR/), we can accurately determine the actual distance traveled by a container ship between two countries as well as the actual time it took.

This newfound ability allows us to: (1) reconstruct the gravity model using real-time data rather than relying on annual data, and (2) estimate that, contrary to popular belief, distance is not the most critical determinant; rather, it is time. With big data analytics, we can track every cargo from one port to another down to the minute, enabling a more precise understanding of the complex dynamics of international trade.

In conclusion, this paper presents a brief history of the gravity model and examines its applications beyond trade in goods. By incorporating data science and reevaluating the distance variable, we can enhance the gravity model's accuracy and relevance in understanding the intricate relationships between economies in the global trade landscape.

1.2 Goals and Objectives

This study aims to explore the potential application of data science within the gravity model and derive insights from its integration. Employing machine learning estimations as opposed to traditional econometrics can significantly enhance accuracy. Simultaneously, we seek to draw scholarly attention to the distance variable, which constitutes a nuanced aspect of the model. Due to the inclusion of dummies to account for "medal mistakes," the distance variable has been omitted from certain gravity models. Nonetheless, we advocate for the reevaluation of the distance variable, as it appears to hold greater potential compared to mere nation or pair dummies. By updating and reinforcing the gravity model using actual metrics rather than proxies, this paper strives to contribute to the ongoing refinement and development of this widely used analytical tool.

2 Theoretical and Conceptual Background

2.1 Three-Stage Evolution of Gravity Modelling

In physics, gravity is conceptualized as a force of attraction between two bodies, which is proportional to the product of their masses and inversely proportional to the square of the distance between them. The Newton's idea has been borrowed by economists and adapted to economic categories. Gravity in macroeconomic terms is the force of attraction between two economies (trade flows or capital flows) which is proportional to the product of the two countries' GDPs, denoted by *Yi* and *Yj*, and

inversely proportional to their distance (between capital cities or economic centres). McCallum [8] found that the U.S.–Canadian border led to 1988 trade between Canadian provinces is a factor 22 (2,200%) times trade between U.S. states and Canadian provinces. National borders reduce trade between industrialized countries by moderate amounts of 20–50% [7].

Since the early 1970s, economists have been estimating gravity equations using bilateral trade data; however, until 1995, this body of work remained on the periphery of trade research. One of the significant impediments to the widespread acceptance of gravity equations was their perception as analogous to physics comparisons rather than economic analyses. Anderson [9] put forth a standard economic model of gravity that continues to be employed today. He appears to be the first to establish explicit micro-foundations based only on assumptions that would be considered entirely normal by today's readers. Although Anderson's thesis was first considered ad hoc, its foundation was built on the assumption that was widely regarded as such at the time: that each nation created a distinctive good that was only imperfectly substitutable with the commodities of other nations. After falling out of favour in the 1970s and 1980s, the gravity model is now referred to as having "rather questionable theoretical pedigree" by scientists such as Alan Deardoff [10, p. 503].

Bergstrand [11] attempted to offer theoretical foundations for the gravity equation based on the old trade theory; in particular, he constructed a theoretical relationship between factor endowments and bilateral commerce, which became the next set of theoretical foundations for the gravity equation. Despite his best efforts, he could not convert the complicated pricing terms to an equation that could be experimentally implemented; "calculating the complex price terms in [his expression] is beyond the scope of this study," he stated. Bergstrand [11] suggested that it was possible to approximate the theory-based pricing terms with various already existent price indices. Bergstrand [12, 13] re-did his earlier effort using the Helpman–Krugman model [14], which combined new and old trade theory, but he continued to use existing price indices rather than the ones he justifies with his theory.

In stark contrast to the situation in 1995, gravity is now regarded as an intrinsic and vital component of international trade. The recent integration of gravity as a critical element can be conceptualized as having transpired in three distinct phases:

1. The Admission (1995): Trefler [15] first introduced the concept of "missing trade," highlighting the empirical challenges faced by the Hecksher–Ohlin–Vanek (HOV) model. He attributed this missing trade to "home bias," as described by Armington [16]. Leamer and Levinsohn [17] questioned why trade economists did not incorporate the influence of distance into their thinking. Krugman et al. [18] also addressed the issue of "remoteness" and provided a rationale for multilateral resistance (MR) terms. This stage underscores the need to justify the Heckscher-Ohlin variables in our model.
2. The Multilateral Resistance/Fixed Effects Revolution (2002–2004): Anderson and van Wincoop [7], Eaton and Kortum [19] dispelled the notion that gravity equations lacked micro-foundations. Their work demonstrated that gravity equations could be universally applied, regardless of the number of nations or sectors.

They also laid the groundwork for estimation techniques that took the models' structure into account. Redding and Venables [20] provided a rationale for using institutional features in our model.

3. Convergence with Heterogeneous Firms Literature (2008): The publication of three key papers [21–23] marked the convergence of gravity models and heterogeneous firms literature. This convergence led to the development of novel distinctions between intensive and extensive margins of adjustment to trade shocks. It also revealed the necessity of adjustments in the estimation of gravity equations and the interpretation of coefficient estimates. Chaney [21] demonstrated how the predictions of the Krugman's model are disrupted when firm heterogeneity is present.

An important lesson from this convergence is that the model incorporating heterogeneous firms generates a generalized gravity equation accounting for the self-selection of firms into export markets and their impact on trade volumes [22].

2.2 Gravity Models Beyond the Exchange of Commodities

Gravity models were originally developed using cross-sectional data, lacking a temporal dimension. These models have been adapted to fit stocks of Foreign Direct Investment (FDI), allowing for potential application to greenfield investments. The notion of corporations selecting the best "investment project" across all host countries, rather than bidding on assets, can further extend this concept. Some researchers, such as Petroulas [24] and Warin et al. [25], have debated the use of FDI outbound stocks versus flows. They prefer FDI stocks over FDI flows due to the higher negative values and greater instability and inconsistency in flows over time. Petroulas [24] suggested taking the average of FDI inflows and outflows between the same countries to eliminate inconsistencies in balance-of-payments statistics and avoid the negative values that prevent taking the natural log. The lesson is to use FDI flows and employ a Poisson Pseudo-Maximum Likelihood (PPML) estimation approach.

At the origin, gravity models were based on cross-sectional data, with no time dimension. Essentially, they were used to fit inward stocks of FDI. Later on, they were used to measure greenfield investments. Gravity models have also been used to analyze bilateral FDI flows (e.g., [25]). The rationale is that similar explanatory variables shape the decisions of multinational enterprises whether to proceed with additional fixed cost of a production plant abroad or with additional variable cost of continued exports. The gravity-focused research of the behaviour of bilateral foreign investment has mainly focused on the flows among the members of the currency areas.

3 Methodological Challenges

In what follows, we will highlight seven methodological challenges explaining some of the evolution of the gravity model through time.

3.1 Reported Trade Inflows or Outflows?

The first methodological challenge arises when determining which statistics are more reliable: reported French exports to Germany or German imports from France? The problem becomes more dramatic when the reported differences are significant. Opting to rely on data from one official source would easily undermine the credibility of the other one. Therefore, Petroulas [24] suggested taking the average of FDI inflows and outflows between the same countries to eliminate inconsistencies and avoid the negative indicators that prevent us from taking the natural log in the first place. Similarly, to address this challenge in the context of trade, we can take the average of trade inflows and outflows between the same countries to eliminate inconsistencies in the reported trade data. By doing so, we ensure a more accurate representation of bilateral trade flows and mitigate potential biases stemming from discrepancies in the reporting of trade statistics by individual countries.

3.2 Calculation of Fixed Effects

The second methodological challenge pertains to the transition from utilizing log GDPs as proxies in naive gravity equations to the modern practice of employing fixed effects. Log GDPs were initially used to represent the "capabilities" of exporter i as a supplier to all destinations and to capture characteristics of the destination country that encourage imports from all sources. However, contemporary practice has shifted towards using fixed effects for these terms, as demonstrated by Harrigan [26], who was among the first to include separate importer and exporter fixed effects in his estimations. The lesson to be learned here is that prominent empirical trade economists, such as Anderson and van Wincoop [7], now advocate for estimating gravity equations with fixed effects for both importers and exporters. In our case, we aim to eliminate the fixed effects associated with origin and destination countries by substituting time-varying variables that could serve as a suitable alternative for latent fixed effects. Nevertheless, we must also consider the critiques put forth by Baldwin and Taglioni [27]. The presence of importer and exporter fixed effects in a gravity equation makes it impossible to identify various trade determinants. Three types of factors must be considered: (1) factors affecting exporters' propensity to export to all destinations, (2) variables influencing imports irrespective of their origin, and (3)

the total, average, and difference of country-specific variables, which applies to size variables and country-level institutional factors such as the rule of law.

3.3 Resistance on a Multilateral Scale, Tetrads, and Demeaning

The significance of Multilateral Resistance (MR) within gravity theory was emphasized by Anderson and van Wincoop [7], advocating for accounting for MR by employing exporter- and importer-specific effects. The use of MR with the Poisson Pseudo Maximum Likelihood (PPML) estimation method, as proposed by Silva and Tenreyro [3] has proven to be effective.

Although Anderson and van Wincoop [7] rely exclusively on cross-sectional data and do not incorporate panel data, using panel data can result in over-simplification. For most applications, it is recommended to employ fixed effects for each exporter-year and importer-year to "absorb" monadic effects. An inside transformation can be used to eliminate the two sets of monadic effects from a balanced panel of bilateral exports; however, true bilateral datasets are often unbalanced due to missing data, zeros, and variations in the number of partners for each reporting country. As Kiviet [28] notes, the inside transformation does not work well with unbalanced two-way panels, necessitating the use of the Least Squares Dummy Variable (LSDV) technique when possible. Tetrads, as suggested by Head and Mayer [2], Romalis [29], Hallak [30], can be employed when fixed effects reach a computational limit.

The lesson is that all variables must be tetrad-ed, meaning they should be transformed into ratio-type estimations. Additionally, Ordinary Least Squares (OLS) is not an optimal estimator under the structural gravity assumption as a data-generating process, as it results in biased estimates towards zero for explanatory factors. Baldwin and Taglioni [27] attribute their "gold medal" error to gravity regressions that neglect to include dummies for exporters and importers, which is supported by their findings. In the absence of missing data, System Iterative Least Squares (SILS) produces distance estimates close to genuine values.

3.4 The Impact of a Common Currency

A fourth methodological challenge relates to the impact of common currencies on international trade. There has been disagreement about the effect of common currencies on trade. Rose et al. [31] were the first to include currency union dummies in their model and found that trade doubled in a standard currency system. Baldwin and Taglioni [27] estimated that the currency effect was around 30%. However, Silva and Tenreyro [3] found that the currency union had little effect on trade, attributing this to the already well-integrated nature of the zone.

The lesson from [3] is that when examining foreign direct investment (FDI) activity among eurozone countries, they highlight Mundell's [32] hypothesis that currency unions among highly unsynchronized countries might be more beneficial in terms of capturing the gains from deeper capital market integration. Warin et al. [25] were the first to propose this hypothesis.

In the absence of realistic instruments when dealing with panel data, including country-pair fixed effects appears to be the most promising strategy. This approach helps account for unobservable factors that may affect trade relationships between specific country pairs, providing more robust and reliable estimates of the impact of common currencies and other variables on international trade.

3.5 Heteroskedasticity and Its Implications

The fifth methodological challenge involves the estimation techniques used in gravity models. Traditionally, the multiplicative gravity model has been linearized and estimated using ordinary least squares (OLS) under the assumption of constant error variance across observations (homoskedasticity) or using panel techniques based on the assumption that the error variance is constant across countries or country pairs. However, when heteroskedasticity is present, OLS estimation may be inconsistent, and non-linear estimators should be employed (e.g., [33]).

When heteroskedasticity is present, the parameters of log-linearized models estimated using OLS lead to incorrect estimations of the real elasticities of the model. Silva and Tenreyro [3] demonstrate this using the standard gravity equation introduced by Tinbergen [4] as well as a gravity equation that incorporates multilateral resistance factors or fixed effects, as proposed by Anderson and van Wincoop [7]. Moreover, Silva and Tenreyro [3] find that OLS produces substantially larger effects of geographical distance when using the [7] gravity equation.

The lesson is to be aware that the trade dataset is not a panel dataset, which means it does not contain a temporal component. However, even after controlling for fixed effects, the presence of heteroskedasticity can lead to significantly different results when the gravity equation is log-linearized rather than estimated in levels. Jensen's inequality is essential in estimating gravity equations, both quantitatively and qualitatively.

To address this issue, consider incorporating multilateral resistance and running a PPML estimation using count data for the dependent variable. Silva and Tenreyro [3] argue that Poisson PML [34] is a suitable alternative to log-linearized OLS in the presence of heteroskedasticity for multiplicative models like the gravity equation. They also suggest Gamma PML (see [2]) as a potential option for application to gravity equations. Researchers should avoid the allure of the Negative Binomial, as [2] caution. The most critical reason, as pointed out by Bosquet and Boulhol [35], is that the estimates of Negative Binomial PML estimations are dependent on the units of measurement used for the dependent variable.

3.6 Problems with the Number Zero

Gómez-Herrera [33] describes another difficulty that has been discussed in literature as being related to zero values. Because the logarithm of zero is not defined, truncation and filtering approaches have been proposed in the literature to deal with the problem of zero-flows in information. It has been pointed out by Westerlund and Wilhelmsson [36] that the exclusion of trade flows when the zeros are not distributed randomly results in sample selection bias.

Using a Heckman-based method, zeros are approached in [22]. In this paper, a theoretical framework is proposed, which is based on a Mélitz-style model with the heterogeneity of enterprises and an adapted Heckman process. This entails estimating the chance that country *n* imports a positive quantity from country *i*, by using the probability distribution function (*probit*). The second stage, which includes a selection adjustment, calculates the gravity equation based on the positive-flow data in the first step.

We may learn from this: some writers consider the positive dependent variables.

In any model that does not use the continuum assumption, the Multinomial PML is the suitable estimator to use. The value may be calculated when the market share is multiplied by the Poisson command, combined with country-specific effects. When data are heteroskedastic and contain a significant proportion of zero observations (over 50%), the Heckman sample selection model is the preferred estimation method among non-linear techniques [33]; however, some authors disagree and continue to prefer the PPML [3].

According to Baldwin and Taglioni [27], the presence of most prospective export flows is insufficient, and the occurrence of these "export zeros" is highly connected with distance from the source and the size of the importing nation. Second, the value of export units is favorably connected to distance and adversely related to the size of the market. As a trade flow that may have happened but did not, they assigned a zero.

Compared to other methods, the PPML is more attractive since it integrates the zeros and produces consistent estimates (as long as we do not have large numbers of zeros, see [37]). Aside from that, inaccurate zero trade observations might cause bias in the estimates of independence effects in either Tobit or PPML [38]. The zero trade observations are included in the real transaction by Felbermayr et al. [39] by subtracting one unit from the actual trade. According to the units of real commerce, this approach provides a variety of various outputs (i.e., dollars or millions of dollars).

The following is another lesson: According to the conventional method of taking the log of actual trade (in millions of dollars, with rounded at $0.01, and trade below 0.005 becoming zero), and then dropping observations where trade is recorded as zero, Head et al. [38] follow the conventional method of taking the log of the actual trade. They also provide estimates for PPML in order to ensure that their results are consistent with the specification.

3.7 Problems with the Currency Units

The seventh methodological challenge highlights the issue of omitted variable biases, as pointed out by Baldwin and Taglioni [27]. Rose et al. [31] initially contributed by adding the shared currency dummy to the list of variables in the model. When estimating a model that is smaller than the actual model suggested by the theory, omitted variable biases occur, affecting the estimation of the model. This is especially true for the "gravitational un-constant" regression residual, referred to as the "multilateral trade barrier" by Anderson and van Wincoop [7] and as "remoteness" by Frankel et al. [40].

The major issue is that the omitted variables are correlated with the trade-cost term, which biases the estimate of trade costs and all its drivers, including the currency union (CU) dummy, in the direction of the inverse relationship. The currency union dummy CU is expected to be correlated since it includes all other variables of bilateral trade costs and currency. Variables like CU or Free Trade agreement (FTA) are anticipated to facilitate trade, creating a positive association between CU and the relative-prices-matter variable. In this case, the coefficient on the CU dummy is biased upwards.

One takeaway is that we can try to capture some of these omitted factors by using convergence variables (such as Maastricht and institutional variables). The minor issue (the bronze-medal error) is the incorrect deflation of nominal trade values using the US aggregate price index. Including this component is likely to result in biases due to spurious correlations driven by global trends in inflation rates. Fortunately, Rose et al. [31] corrected this by introducing time dummies in their analysis.

The lesson is to include temporal dummies when using a panel dataset to account for the bronze-medal error. We can learn from this mistake and use the difference-in-difference estimation to partially correct it in the future. Another lesson is to incorporate pair dummies to account for the gold-medal error (and country dummies). Pair dummies do not work with cross-sectional data, but they perform better than country dummies for panel data. However, pair dummies limit the estimation of time-invariant parameters like distance elasticity. Some authors [41] suggest a bilateral interaction effect in addition to importer- and exporter-fixed effects.

Lastly, the silver-medal error occurs when most researchers mistakenly equate the log of the average with the average of the logs (see [27] for more information).

4 Distance or Time?

4.1 Why This Time Is Different? Digital Data, Computing Power, and Data Science

After examining the literature on gravity modelling, we can better understand its evolution and the extent of its development. The gravity model has undergone significant methodological advancements and refinements since its introduction by Tinbergen [4]. Researchers have addressed various challenges and limitations, leading to improvements in the model's accuracy and explanatory power in understanding international trade patterns.

It is an essential aspect of the gravity model's evolution. While distance has traditionally been a significant factor in the model, it can be seen as a proxy for various underlying variables that directly impact trade. One such metric is time.

Distance is often used as a measure of transportation costs and trade barriers, which are crucial determinants of international trade patterns. However, in reality, it is not just physical distance that matters but the time it takes to transport goods and services across borders. Time captures the efficiency of transportation networks, customs procedures, regulatory hurdles, and many other factors that affect the cost and ease of conducting trade between countries.

As the global economy has evolved and trade patterns have become more complex, the importance of time as a factor in trade has become increasingly apparent. Improved transportation infrastructure, technological advancements, and trade liberalization have reduced the significance of distance as a primary trade barrier. As a result, researchers have started to pay more attention to time-related factors in trade, such as shipping times and waiting times at borders, when examining the gravity model.

A researcher employing a gravity model would typically rely on the geographical distance between the two capital cities or economic centers. Let us say that the geographical distance (by highways) between Thessaloniki (Greece) and Vienna (Austria) is very similar to the route between Vienna and Vilnius (Estonia) (approximately 1,200 km). The distance would be approximately the same in the model. Such an approach would ignore the fact that a cargo truck may travel much more through the numerous borders of the Balkans. The delivery time between Thessaloniki and Vienna would be much longer than the intra-EU route between Vienna and Vilnius. In a nutshell, if time is considered, then Athens and Vienna would be essentially more distant. The shipping times and times of delivery by land routes also matter for the existing EU countries. Some of them are signatories of the Schengen Agreement, implying freedom of movement across the internal borders of the EU. Bulgaria, Croatia, Cyprus, Ireland, and Romania are EU member states that are not yet part of the Schengen area. Hence, the geographical distance between Bucharest (Romania) and Vienna might be also misleading, as it would not fully capture the delivery time for goods.

4.2 Time Is of Essence

Advancements in data science, machine learning, and the availability of digital information can enhance the gravity model by incorporating real-time data and more accurate measures of distance. This helps to address limitations of traditional gravity models that rely on simpler measures such as great-circle distance between capitals. By reconstructing the gravity model with real-time data, policymakers can better understand trade dynamics and capture variations in trade patterns that might not be evident in annual data.

Additionally, incorporating time factors such as shipping times, waiting times at borders, and transportation network efficiency into the gravity model can provide more accurate indicators of the actual cost and ease of conducting trade between countries. For example, using real-time data for exact shipping times by credible providers of specialized maritime traffic data (such as MarineTraffic) can significantly improve the estimations (Fig. 1). This paradigmatic shift can lead to a more accurate and nuanced understanding of trade patterns and enable more effective policy formulation.

Every cargo from one port to another may be tracked down to the minute using big data analytics. Containers are loaded into ships alongside other containers from a different port, most frequently from another nation. It is anticipated that they will be carried to a port once some of the original containers have been delivered to their respective final destinations, which may be in a different country. As a result, a container will travel a great distance and not always straight.

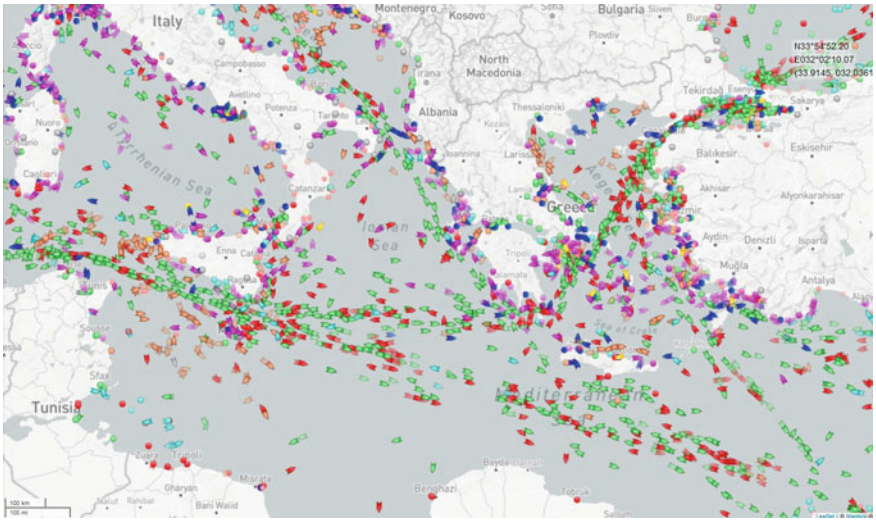


Fig. 1 Live maritime traffic in the Mediterranean region. *Source* Live Maritime Traffic, https://www.marinetraffic.com/en/ais/home/shipid:6683485/zoom:6 (Accessed April 23rd, 2023)

5 What Data Science and Artificial Intelligence Change?

5.1 The Data Revolution

In the realm of international trade, the advent of digital data has brought about unprecedented access to vast amounts of information. Additionally, the development of efficient functional languages and novel methodologies, including inductive and self-supervised techniques, have enabled us to analyze these digital data effectively. As a result, it is imperative to reconsider the original intuition of the gravity model and employ the actual metrics of international trade instead of proxies or sophisticated protocols to avoid potential methodological challenges. Ultimately, this underscores the paramount importance of data in the revolution of economics, rather than artificial intelligence (AI) which is a complementary tool to help maximize the value of data. While AI has the potential to transform technological innovation, its real-world effects necessitate further examination by social scientists. In economics, data is the new "oil" and represents the visible hand in decision-making, optimizing coordination, and creating more accurate information for policymakers. In summary, the vast quantities of digital data, advanced computational tools, and sophisticated methodologies offer an opportunity to reexamine the gravity model and refine our understanding of the driving factors that shape international trade patterns.

But beyond the volume of data (reference to the Three Vs), it is also the velocity of data: the fact that digital data can also be in real-time. There is also another dimension: the geography of data. We have indeed access to geolocated real-time data, which changes a lot of considerations in international trade. The velocity and geography of data are also crucial aspects of the digital transformation that have significant implications for international trade and economic analysis. Let us discuss these dimensions in more detail.

1. Velocity of data: Real-time data enables faster and more timely decision-making, as businesses and policymakers can quickly react to changing market conditions or emerging trends. This increased responsiveness can lead to more efficient resource allocation, reduced risks, and better-targeted policies. Additionally, the ability to monitor trade flows and other economic indicators in real-time can help identify potential issues or opportunities earlier, allowing for timely interventions or adaptations.
2. Geography of data: Geolocated data allows for more granular and precise analysis of trade flows and economic activity. It enables researchers and analysts to study the spatial distribution of economic activities, identify regional patterns and disparities, and understand the impact of geographic factors on trade. Geolocated data can also provide valuable insights into the role of transportation infrastructure, regional trade agreements, and other location-specific factors in shaping international trade.

The combination of real-time and geolocated data can greatly enhance our understanding of international trade and help address various methodological challenges in

gravity modeling. For example, having access to real-time data on the actual distances traveled by container ships or the time it takes for goods to move between countries can lead to more accurate estimates of trade costs and their impact on trade flows.

Furthermore, geolocated data can help uncover the effects of regional trade agreements, infrastructure projects, or other location-specific factors on international trade, enabling more targeted and effective policy interventions.

In conclusion, the volume, velocity, and geography of data are essential dimensions of the digital transformation that offer significant potential for improving our understanding of international trade and addressing methodological challenges in gravity modeling. By leveraging these data dimensions and incorporating them into our models and analyses, we can develop more accurate, timely, and actionable insights to inform better decision-making and policy design.

5.2 The Model Revolution

As aforementioned, it is also about having access to new mathematical techniques and protocols embedded in the terms "machine learning." The development of new mathematical techniques and protocols under the umbrella of "machine learning" has greatly contributed to our ability to analyze complex data and extract meaningful insights from it. Machine learning allows us to build models that can learn from data, identify patterns, and make predictions or decisions without being explicitly programmed to do so.

Some of the key techniques and algorithms in machine learning include:

1. Supervised learning: Models are trained on labeled data, where the input–output relationship is already known. Examples include linear regression, support vector machines, and neural networks.
2. Unsupervised learning: Models are trained on unlabeled data, and the goal is to identify underlying patterns or structures in the data. Examples include clustering algorithms like *k-means*, hierarchical clustering, and dimensionality reduction techniques like principal component analysis (PCA) and t-distributed stochastic neighbor embedding (t-SNE).
3. Reinforcement learning: Models learn to make decisions by interacting with an environment and receiving feedback in the form of rewards or penalties. This approach is particularly useful for optimization problems and has been applied to areas like robotics, game playing, and finance.
4. Deep learning: A subset of machine learning that focuses on neural networks with many layers, allowing for more complex representations and better generalization. Convolutional neural networks (CNNs) and recurrent neural networks (RNNs) are popular deep learning architectures.
5. Ensemble methods: Techniques that combine multiple models to improve overall performance, such as bagging, boosting, and stacking.

These new mathematical techniques and protocols enable researchers and practitioners to tackle problems that were previously intractable due to their complexity, or the size of the datasets involved. In the context of international trade and gravity modeling, machine learning can be used to develop more accurate and robust models, incorporating a wide range of factors and accounting for complex interactions among them.

Moreover, something that is often overlooked: it is not only data that can change in real-time, models based on real-time data also change in real-time. It is easy to imagine for neural networks-based models. Models based on real-time data can adapt and change in real-time, which is a significant advantage when dealing with dynamic and rapidly evolving situations. Real-time data allows models to capture the most recent information, making them more accurate and relevant to the current context.

Neural networks, especially Recurrent Neural Networks (RNNs) and their variants such as Long Short-Term Memory (LSTM) networks, are well-suited for processing real-time data. These networks are designed to handle sequential data and can learn patterns over time, making them ideal for applications like time series forecasting, natural language processing, and real-time decision making.

When models are trained and deployed on real-time data, they continuously update their parameters to reflect the most recent observations. This process is known as online learning or incremental learning, where the model learns from new data as it becomes available without the need to retrain the entire model from scratch.

In the context of international trade and gravity modeling, real-time models offer several benefits:

1. Improved accuracy: Models that are updated with the most recent data can provide more accurate estimates of trade flows, exchange rates, or other relevant variables.
2. Timely decision-making: Policymakers and businesses can make better-informed decisions based on the most up-to-date information, allowing them to respond more effectively to changing market conditions.
3. Adaptability: Real-time models can automatically adapt to shifts in trade patterns or economic conditions, ensuring that their predictions remain relevant even as the underlying factors change.
4. Early warning: By monitoring real-time data, models can detect emerging trends or anomalies more quickly, potentially allowing for early intervention to mitigate risks or capitalize on opportunities.

In summary, the combination of real-time data and models that adapt to this data, such as neural networks, can greatly enhance our ability to analyze and understand complex systems like international trade.

5.3 A Real-World Example: CorridoR

To illustrate the power of Big Data analytics, we will briefly elaborate on the research project "*corridoR*". We have recovered, from the Marine Traffic database, 20,000 sea

trips of commercial vessels all passing through the Panama Canal. From this data, we manipulated it to add geographic data (latitude and longitude).

Next, we take two shapefiles from Natural Earth Data to model our geospatial model. The first shapefile corresponds to a model of all countries. The second corresponds to rivers and lakes. Once these two shapefiles were chosen, we used QGIS to merge and modify the shapefiles. Indeed, by superimposing the two shapefiles, we could see the position of the main courses of the Earth in relation to the different countries. However, these courses were mostly closed. We had to open them manually thanks to QGIS, following of course, the real position of the passages we wanted to recreate.

Once the geospatial manipulations were done, we were left with two main shapefiles that will be used to calculate sea routes: (1) shapefile where the Panama Canal is open and where the Northwest Passage is closed; and (2) Shapefile where the Panama Canal is closed, and the Northwest Passage is open.

We started by calculating the distances for the routes through the Panama Canal. The logic was to separate the routes into sections to ensure that we recreated the actual sea routes from Marine Traffic. Thus, calculations were made between Previous_Port1 (PP1) and Previous_Port2 (PP2), between PP2 and Panama_Canal (PA), between PA and Next_Port1 (NP1) and between NP1 and Next_Port2 (NP2). Finally, we added these results to obtain the final result (Distance_PA_Total).

The same approach was used to calculate the distances of the routes through the Northwest Passage. It is important to note that we removed the crossing point represented by the Panama Canal since the routes no longer passed through it. However, it should be noted that several PP2 and NP1 ports are located near the Canal. It should therefore be noted that there is probably a limit to our research here since if a route passed through the Northwest Passage, it would not necessarily pass through the same ports as those passing through the Panama Canal. The result for the total distance passing through the Northwest Passage is called (Distance_CN_Total). Finally, we took the Distance_CN_Total results and subtracted Distance_PA Total from them to obtain the final result Distance Analysis.

From the results obtained, we created an *R* package named *corridoR* to facilitate the access and analysis of our data for researchers. To allow users to refine their search, we added the countries corresponding to each port. Thus, it is possible to search for the distance between ports, either according to the name of the port or according to a selected country.

6 Conclusion

6.1 Synopsis

Artificial intelligence is undeniably a transformative force, but it is not the sole or primary revolution in today's rapidly evolving world. Data, in fact, plays a critical role as the indispensable catalyst for change, though it is not sufficient on its own. AI emerges as a radical innovation that enhances and propels the data revolution.

The data revolution is indeed pivotal in economics and various other disciplines. This profusion of data has unlocked new opportunities for understanding and optimizing numerous facets of the economy, including international trade. Concurrently, artificial intelligence serves as a potent instrument for efficiently harnessing the data revolution. AI techniques, such as machine learning and self-supervised methods, facilitate the analysis of vast datasets, reveal concealed patterns, and enable more accurate predictions and decisions based on these insights.

In the realm of economics, data can be considered analogous to the new "oil", as it provides enhanced information, facilitates better decision-making, and fosters optimized coordination among market participants. By leveraging the combined power of data and AI, economists and policymakers can attain more profound insights into the intricate dynamics of international trade. Consequently, they are equipped to devise more effective policies and strategies to augment global economic well-being.

In conclusion, the synergy of data and AI has the potential to revolutionize our comprehension of international trade and the factors that underpin it. Embracing this data revolution and harnessing the power of AI will enable the development of more precise and nuanced trade models that better inform policy decisions and contribute to global economic prosperity.

6.2 Further Research

Time sensitivity of transport of goods has been ignored in the current research and policy projects at the European level. Free movement of goods has not been entirely unrestricted, given the numerous obstacles and bottlenecks in transport and logistics. Potential avenues for future research on the gravity model using time and real-time data include:

1. Dynamic gravity models: Incorporating time-varying factors and real-time data to understand trade pattern evolution and short-term events.
2. High-frequency trade data: Using daily or weekly data to capture trade flow dynamics and identify short-term trends.
3. Time-varying trade barriers: Investigating the role of fluctuating exchange rates, tariffs, and transport costs in shaping trade patterns and their interaction with other factors.

4. Gravity models for trade forecasting: Developing real-time models to predict future trade flows and assess the impact of policy changes or external shocks.
5. Real-time policy evaluation: Using real-time data to evaluate the immediate impact of trade policies on trade dynamics.
6. Machine learning and AI for dynamic gravity models: Using advanced techniques to improve estimation and predictive capabilities.
7. Time-sensitive global value chains: Understanding the impact of time-varying factors on the organization and efficiency of global value chains.

By incorporating time and real-time data into gravity models, researchers can gain a more nuanced understanding of the complex dynamics of international trade and provide valuable insights to inform policy decisions and contribute to global and European economic prosperity. Using real-time data can also better inform the European transport policymakers about potential bottlenecks and non-tariff barriers negatively affecting bilateral trade flows of European countries.

References

1. Baier, S.L., Bergstrand, J.H.: Do free trade agreements actually increase members' international trade? J. Int. Econ. **71**(1), 72–95 (2007). https://doi.org/10.1016/j.jinteco.2006.02.005
2. Head, K., Mayer, T.: Chapter 3—Gravity equations: workhorse, toolkit, and cookbook. In: Gopinath, G., Helpman, E., Rogoff, K. (eds.) Handbook of International Economics, vol. 4, pp. 131–195. Elsevier (2014). https://doi.org/10.1016/B978-0-444-54314-1.00003-3
3. Silva, J.M.C.S., Tenreyro, S.: The log of gravity. Rev. Econ. Stat. **88**(4), 641–658 (2006). https://doi.org/10.1162/rest.88.4.641
4. Tinbergen, J.: Shaping the World Economy: Suggestions for an International Economic Policy. The Twentieth Century Fund, New York, NY (1962)
5. Poyhonen, P.: A Tentative Model for the Volume of Trade Between Countries, vol. 90. Weltwirtschaftliches Archiv (1963)
6. Linnemann, H.: An Econometric Study of International Trade Flows. Holland Publishing, Amsterdam (1966)
7. Anderson, J.E., van Wincoop, E.: Gravity with gravitas: a solution to the border puzzle. Am. Econ. Rev. **93**(1), 170–192 (2003). https://doi.org/10.1257/000282803321455214
8. McCallum, J.: National borders matter: Canada-U.S. regional trade patterns. Am. Econ. Rev. **85**(3), 615–623 (1995)
9. Anderson, J.E.: A theoretical foundation for the gravity equation. Am. Econ. Rev. **69**(1), 106–116 (1979)
10. Deardorff, A.: Testing trade theories and predicting trade flows. In: Handbook of International Economics. Elsevier. [Online]. https://econpapers.repec.org/bookchap/eeeintchp/1-10.htm (1984). Accessed 24 Apr. 2023
11. Bergstrand, J.H.: The gravity equation in international trade: some microeconomic foundations and empirical evidence. Rev. Econ. Stat. **67**(3), 474–481 (1985). https://doi.org/10.2307/1925976
12. Bergstrand, J.H.: The generalized gravity equation, monopolistic competition, and the factor-proportions theory in international trade. Rev. Econ. Stat. **71**(1), 143–153 (1989). https://doi.org/10.2307/1928061
13. Bergstrand, J.: The Heckscher-Ohlin-Samuelson model, the Linder hypothesis and the determinants of bilateral intra-industry trade. Econ. J. **100**(403), 1216–1229 (1990)

14. Helpman, E., Krugman, P.: Market Structure and Foreign Trade: Increasing Returns, Imperfect Competition, and the International Economy. MIT Press, Cambridge, MA (1985)
15. Trefler, D.: The case of the missing trade and other mysteries. Am. Econ. Rev. **85**(5), 1029–1046 (1995)
16. Armington, P.S.: A theory of demand for products distinguished by place of production (Une théorie de la demande de produits différenciés d'après leur origine) (Una teoría de la demanda de productos distinguiéndolos según el lugar de producción). Staff Pap. Int. Monet. Fund **16**(1), 159–178 (1969). https://doi.org/10.2307/3866403
17. Leamer, E., Levinsohn, J.: International trade theory: the evidence. In: Handbook of International Economics. Elsevier. [Online]. https://econpapers.repec.org/bookchap/eeeintchp/3-26.htm (1995). Accessed 19 Apr. 2023
18. Krugman, P., Cooper, R.N., Srinivasan, T.N.: Growing world trade: causes and consequences. Brook. Pap. Econ. Act. **1995**(1), 327–377 (1995). https://doi.org/10.2307/2534577
19. Eaton, J., Kortum, S.: Technology, geography, and trade. Econometrica **70**(5), 1741–1779 (2002)
20. Redding, S., Venables, A.J.: Economic geography and international inequality. J. Int. Econ. **62**(1), 53–82 (2004). https://doi.org/10.1016/j.jinteco.2003.07.001
21. Chaney, T.: Distorted gravity: the intensive and extensive margins of international trade. Am. Econ. Rev. **98**(4), 1707–1721 (2008). https://doi.org/10.1257/aer.98.4.1707
22. Helpman, E., Melitz, M., Rubinstein, Y.: Estimating trade flows: trading partners and trading volumes*. Q. J. Econ. **123**(2), 441–487 (2008). https://doi.org/10.1162/qjec.2008.123.2.441
23. Melitz, M.J., Ottaviano, G.I.P.: Market size, trade, and productivity. Rev. Econ. Stud. **75**(1), 295–316 (2008). https://doi.org/10.1111/j.1467-937X.2007.00463.x
24. Petroulas, P.: The effect of the euro on foreign direct investment. Eur. Econ. Rev. **51**(6), 1468–1491 (2007)
25. Warin, T., Wunnava, P.V., Janicki, H.P.: Testing Mundell's Intuition of Endogenous OCA Theory*. Rev. Int. Econ. **17**(1), 74–86 (2009). https://doi.org/10.1111/j.1467-9396.2008.00802.x
26. Harrigan, J.: Openness to trade in manufactures in the OECD. J. Int. Econ. **40**(1–2), 23–39 (1996)
27. Baldwin, R., Taglioni, D.: Trade effects of the euro: a comparison of estimators. J. Econ. Integr. **22**(4), 780–818 (2007)
28. Kiviet, J.F.: On bias, inconsistency, and efficiency of various estimators in dynamic panel data models. J. Econ. **68**(1), 53–78 (1995). https://doi.org/10.1016/0304-4076(94)01643-E
29. Romalis, J.: NAFTA's and CUSFTA's impact on international trade. Rev. Econ. Stat. **89**(3), 416–435 (2007)
30. Hallak, J.C.: Product quality and the direction of trade. J. Int. Econ. **68**(1), 238–265 (2006). https://doi.org/10.1016/j.jinteco.2005.04.001
31. Rose, A.K., Lockwood, B., Quah, D.: One money, one market: the effect of common currencies on trade. Econ. Policy **15**(30), 9–45 (2000)
32. Mundell, R.: A plan for a European currency. In: The Economics of Common Currencies—Proceedings of the Madrid Conference on Optimum Currency Areas, Allen and Unwin, pp. 114–132 (1973)
33. Gómez-Herrera, E.: Comparing alternative methods to estimate gravity models of bilateral trade. Empir. Econ. **44**(3), 1087–1111 (2013)
34. Gourieroux, C., Monfort, A., Trognon, A.: Pseudo maximum likelihood methods: theory. Econometrica **52**(3), 681–700 (1984). https://doi.org/10.2307/1913471
35. Bosquet, C., Boulhol, H.: Applying the GLM variance assumption to overcome the scale-dependence of the negative binomial QGPML estimator. Econ. Rev. **33**(7), 772–784 (2014)
36. Westerlund, J., Wilhelmsson, F.: Estimating the gravity model without gravity using panel data. Appl. Econ. **43**(6), 641–649 (2011). https://doi.org/10.1080/00036840802599784
37. Martin, W., Pham, C.S.: Estimating the gravity model when zero trade flows are frequent and economically determined. Appl. Econ. **52**(26), 2766–2779 (2020). https://doi.org/10.1080/00036846.2019.1687838

38. Head, K., Mayer, T., Ries, J.: The erosion of colonial trade linkages after independence. J. Int. Econ. **81**(1), 1–14 (2010). https://doi.org/10.1016/j.jinteco.2010.01.002
39. Felbermayr, G., Kohler, W., Felbermayr, G.J.: Exploring the intensive and extensive margins of world trade, CESifo, CESifo working paper series 1276. [Online]. https://econpapers.repec.org/paper/cesceswps/_5f1276.htm (2004). Accessed 19 Apr 2023
40. Frankel, J., Stein, E., Wei, S.-J.: Trading blocs and the Americas: the natural, the unnatural, and the super-natural. J. Dev. Econ. **47**(1), 61–95 (1995)
41. Egger, P., Pfaffermayr, M.: The proper panel econometric specification of the gravity equation: a three-way model with bilateral interaction effects. Empir. Econ. **28**(3), 571–580 (2003)

Hungary's Ambivalent Discourse Around Its Geopolitical Positioning

Renáta Varga

Abstract By adopting a communicative approach, this contribution aims to reveal the ambivalent politics of Hungarian Prime Minister Viktor Orbán in his geopolitical positioning. We outline three main discourse strategies. First, the relationship with the EU is dramatised by the Hungarian government which presents it as a permanent conflict. Second, Hungary's Euroregional influence is based on several levers, particularly the strategic alliance of the Visegrad Group and neighbourhood policy. The latter is mainly oriented towards the cross-border Hungarian diasporas, which are tightly integrated into the Prime Minister's political project of unifying the nation. Finally, the rapprochement with autocratic powers such as China, Türkiye and Russia through the establishment of bilateral relations and economic cooperation, serves to build strategic alliances and consolidate Orbán's leadership on a global level, albeit at the cost of Hungary's isolation in the European space, especially against the backdrop of the war in Ukraine.

1 Introduction

This contribution focuses on Viktor Orbán's ambiguous geopolitical discursive positioning and the influence that he has been building since he came to power. As the head of the Fidesz-KDNP coalition since 2010, Orbán has retained a large majority in parliament at each election, which has reinforced his political ambitions. The Prime Minister has adopted a conservative right-wing position and claims to be a Christian Democrat, but over the years he has appropriated the strong themes of the far right to win over a new electorate. For several years, the government's communication strategy has exploited the dramatic context of migration, in order to maintain its priority themes of identity, security and national sovereignty on the political agenda. Orbán uses the two levels of the state and Europe to stage a "war of independence" with the EU, distilling anti-European messages on the national level, but still ensuring

R. Varga (✉)
University of Lille, Lille, France
e-mail: renata.varga@univ-lille.fr

G. Pellat et al. (eds.), *Cooperation and Enlargement: Two Challenges to be Addressed in the European Projects - 2022*, Studies in Systems, Decision and Control 500,
https://doi.org/10.1007/978-3-031-42253-9_7

the attachment of Hungarians to the EU within the European space. This two-fold strategy has contributed to increasing Hungary's visibility and influence on both the European and international levels.

In this contribution, we aim to show how the Hungarian government's ambivalent geopolitical discursive positioning is used to increase the Prime Minister's leadership and influence on the international stage in order to build up national political capital to maintain his power. In the Hungarian government's communications, political and economic objectives are intertwined, and the economic cooperation that Hungary chooses to pursue reveals underlying political issues. Indeed, for Viktor Orbán, the success of a state is linked to a combination of political and economic conditions: a strong political community, a nation state, and economic prosperity.

Our study adopts a communicative approach to institutional discourse, drawing on multidisciplinary research concerning Hungary's foreign policy [8, 20], the political actions of the Hungarian government, and the specificity of governance under the Orbán regime [4, 1, 10, 12, 14, 22]. We will analyse excerpts of the Hungarian government's institutional communications,[1] mainly speeches by Viktor Orbán and his Foreign Minister Péter Szijjártó, delivered at various political events, and posted on the Hungarian government's website.[2]

This chapter is structured into four parts, raising questions around the place of Hungary in the international political space as represented in the speeches of the Hungarian government in relation to three geographical areas[3]: its relationship with the EU, regional policy, and cooperation outside Europe, particularly the opening towards the East.[4] First and foremost, the relationship with the EU is at the centre of the Hungarian government's communications. This relationship is dramatised and presented as a permanent conflict. Secondly, Hungary's Euroregional influence is based on several levers including the strategic alliance of the Visegrad Group and its neighbourhood policy. The Visegrad Group is used in the power struggle with the EU, and its neighbourhood policy is largely directed towards the cross-border Hungarian diasporas, which are an integral part of the Prime Minister's political project and his conception of the nation. Thirdly, opening up to powers such as China, Türkiye and Russia has enabled a political rapprochement with these autocracies under the cover of bilateral economic cooperation. Finally, the recent context of the war in Ukraine has changed the situation and forced Hungary to perform a delicate balancing act

[1] Institutional communication includes all discourse (speeches, interventions, interviews) by the Prime Minister and members of the government, publications on social networks, and any communication devices and materials used by the government.

[2] All of the Prime Minister's speeches are published and archived in written form on the Hungarian government website (www.kormany.hu). They are available in English, and sometimes in other languages, depending on the speech.

[3] We will not question Viktor Orban's foreign policy, but the position of Hungary, i.e., the way in which the Prime Minister and the government position Hungary in international politics.

[4] The three priorities set out in the Hungarian government's foreign policy strategy "for the economic development and prosperity of Hungary" are the Euro-Atlantic orientation, the regional neighbourhood policy and, finally, opening up to the global economy, more specifically opening up to the East [8, 20].

which strives to maintain its good relationship with Russia at the cost of further isolating itself within the EU.

2 Building an Illiberal State Within the EU

2.1 Choosing a Divergent Path

Since the victory of the Fidesz-KDNP coalition in 2010, the Hungarian government has been methodically dismantling the foundations of the rule of law and unravelling the checks and balances, marking its open opposition to the policy and the spirit of the founding texts and the values of the EU [4, 1, 10]. Alongside this political action, in his institutional discourse, Viktor Orbán has developed a national narrative about Christian roots and values, the greatness of the nation, and Hungary's place in Europe. All of this is for electoral purposes [24]. The political power implements what Sárközy has referred to as "media-marketing governance" [22], i.e., institutional communication is integrated into the very exercise of power and is instrumentalised to give meaning to political action. The government's communication strategy is conceived of on the two levels of the state and Europe. From this perspective, attacking the EU as a supranational adversary serves to distract citizens from political and economic realities [17].

In his founding speech delivered in July 2014 in Tusnádfürdő (Băile Tuşnad), Orbán set himself on the course of deconstructing the established order with the aim of rebuilding a new one, which he refers to as an "illiberal state". "this non-liberal state does not reject the fundamental principles of liberalism such as freedom, and I could list a few more, but it does not make this ideology the central element of state organisation, but instead includes a different, special, national approach" (26 July 2014).[5] This speech represented a decisive step in the construction of the Orbán regime. The new constitution, drafted in 2011, facilitated this deconstruction, setting out to transform state institutions, and consolidate Viktor Orbán's power over the long term [19]. Orbán took on this ambition by announcing, during the parliamentary elections on 10 April 2018, his wish to remain in power until 2032.

2.2 Rejection of Liberal Democracy and the "War of Independence" Against the EU

The war against liberalism, the "European forces of the liberal left" and the "progressive liberals" became the hobbyhorse of the Hungarian government, which characterises the European leaders as its main opponents, and criticises them on

[5] For the excerpts of speeches by Orbán and Szijjártó quoted, the date of delivery/publication are indicated in brackets.

moral grounds. Orbán contrasts liberalism, which he describes as decadent, with the national-Christian system of thought and defines the policy he pursues as "Christian democratic, conservative and patriotic" (3 April 2022).

In his definition of the illiberal ideal, Orbán places the national community above individual freedoms: "the illiberal or national viewpoint states that the nation is a historically and culturally determined community. It is a historically developed configuration, which must protect its members and prepare them to stand their ground in the world for a common cause. […] in a national system, action—individual action—is worthy of praise if it also benefits the community. […] This way of reasoning states [illiberalism] that the individual's appeal to freedom must not override the interests of the community. There is a majority, and it must be respected, because that is the essence of democracy. The state must not be indifferent to culture, the state must not be indifferent to the family, and the state must not be indifferent to the question of what kinds of people—or who—are within the borders of your country. In other words, today it is the illiberal person who defends their borders, defends their national culture and rejects external interference and attempts at empire building" (27 July 2019). Orbán's illiberal views can be summarised in three points: the rejection of migration and immigration; the definition of the family as the union of a man and a woman; and the duty of state institutions to safeguard Christian culture [20]. Beyond his ultraconservative policies, his profession of his faith is, in many ways, opposed to the values of the open, inclusive society promoted by the EU.

In addition, Orbán's highly symbolic speeches are constructed in such a way as to position him as a charismatic leader on the national and European stages. Thus, he has theorised about what he calls a "war of independence" [22] against the European institutional discourse, and displays his pride in being considered, in his own words, the "black sheep" of Europe. Indeed, he claims to uphold the right of every state to decide for itself the policy it wishes to pursue, and considers that the EU interferes in affairs of the state. He proudly repeats that Hungary will represent the "mainstream" in the near future, and that "indeed right now no one can rule out the European mainstream following the same path in the next few years which it has itself tried so hard to prevent Hungary following. This is how the black sheep will become the flock, and this is how the exception will become the rule" (23 July 2016). In his declaration marking his victory in the parliamentary elections in April 2022, Orbán "sent a message to Europe" which was mocking in tone, stressing that he had "won a victory big enough to be seen from the moon and certainly from Brussels" and that the policies pursued in Hungary "do not represent the past, but the future of Europe" (3 April 2022).

2.3 Conflict Over the Rule of Law

The Orbán regime is described by some as a "hybrid regime in a 'grey zone' between democracy and autocracy" [1, 10], and by others as an "illiberal informational autocracy" [14], which is an exception in Europe. In September 2018, anti-European

rhetoric and attacks on the founding principles of the EU led the European Parliament to adopt the Sargentini report,[6] showing the existence of a clear risk of Hungary seriously violating the values upon which the Union was founded. This in turn led to Article 7 of the European Treaty being triggered, Hungary being isolated within the EU, and the subsequent departure of Fidesz MEPs from the European People's Party (EPP) group in March 2021.[7]

Nevertheless, despite the sanctions against Hungary, which included blocking some EU funding, Orbán benefitted both domestically and in Europe from this conflict. Nationally, the overwhelming victory of the Fidesz-KNDP coalition in the 2018 parliamentary elections and in the 2019 European elections was indisputable and an increase in the parliamentary majority was seen following the 2022 parliamentary elections. On the international stage, the significant media coverage and the emergence of populist themes in the European space during the 2019 European campaign, which staged a split between "progressives" and "populists" [25], making Orbán appear as a threat to democracy, testified to his influence, and contributed to his visibility, to the point that some people speak of the Orbanisation of Europe [23]. Orbán thus succeeded in establishing himself as a major opponent in the European political arena, building political capital from his virulent anti-European speeches and provocative posturing.

This strategy contributed towards the rapprochement with representatives of the European far right such as Marine Le Pen, Matteo Salvini and Giorgia Meloni, prefiguring the constitution of a transnational European populist force and heralding the political reconfiguration of the EU. At the same time, Orbán was banking on the sluggishness and weight of the European bureaucracy and justice in the ongoing procedures concerning Hungary. On the institutional level, he has tried to block certain decisions, oftentimes using his veto[8] as a bargaining chip in negotiations with the EU.

3 Neighbourhood Policy and Regional Influence

On the Euroregional level, Orbán positioned himself as a key political actor wishing to influence the balance of power with the small Central European states within the EU. His policy of "cross-national regionalism" [16] is based on "antagonism designed to organise the territorial, symbolic and institutional claims" associated with this transnational region. According to his vision, Central Europe is in a permanent economic, cultural and political power struggle with Western Europe, represented in

[6] https://www.europarl.europa.eu/doceo/document/A-8-2018-0250_FR.html.

[7] The relationship between the EPP group and Fidesz party MEPs became strained in February 2019 when the Hungarian government organised a poster campaign with *ad hominem* attacks on Jean-Claude Juncker and spreading unfounded information about the European Commission [25].

[8] For example, in June 2022 Hungary vetoed the adoption of a 15% minimum tax on the profits of large multinationals from 2024 [18].

his discourse by the "Brussels-based dominant power". "Orbán is structuring what can be called 'a defiant new regionalism' around two opposing entities concerning the management of capital flows at the V4 regional border. The territorial shape of the Visegrád region is determined by a power struggle between the positively labelled V4 ingroup of countries and people and a negatively presented dominant Western European power based in Brussels, which refuses to give up its economic dominance" [16]. He likes to repeat that Central Europe has surpassed Western Europe both morally and economically. In July 2022, in his annual speech in Tusnádfürdő, he used the term "post-West" to signify the decline of the West and its loss of political and economic space: "the West—let us say the West in its spiritual sense—has moved to Central Europe: the West is here, and what remains there is only the post-West. A battle is going on between the two halves of Europe. We have made the post-West an offer based on tolerance or being left alone, letting everyone decide for themselves who they want to live with; but they reject it and continue to fight against Central Europe, with the aim of making us like them" (23 July 2022).

3.1 The Visegrad Group (V4)

Hungary relies on the influence and legitimacy of the Visegrad Group to display the unity of Central European countries in order to influence European decisions and to form a bloc against the EU. For the Hungarian government, this is "the closest, most effective and most successful cooperation in Europe" [20]. In August 2018, Foreign Minister Péter Szijjártó emphasised the importance of this strategic alliance, stating that "for Hungary, maintaining the cooperation of the Visegrad Group is of fundamental importance, which is a huge international challenge because this cooperation is in the interest of no one but the four of us" [20]. This cooperation, which aims to represent a common force within the EU, is intense and dynamic, organised through several annual meetings between the heads of state as well as between the foreign ministers.

"Orbán expresses in this speech a vision of cross-national regionalism associated with the Visegrád space. This regionalism centres on a process of material and mental (de)bordering, the main component being illegitimate economic and cultural marginalization by Western Europe. The division between Western and Central Europe is also included in a multiscalar field of international politics marked by tensions and threats. V4 is the scale at which Orbán decided to structure a power struggle within the EU, on the management of multiple flows within Europe, and also between Europe and its regional environment" [16].

In his speeches, Orbán invokes the authority of the V4 and maintains a privileged relationship with Poland, the other European country targeted by sanctions in relation to the rule of law. The relationship between the two countries is of such symbolic importance that the Prime Minister's first official trip after the Fidesz victory in 2010 was to Warsaw. Orbán likes to highlight the friendship between the two countries, especially through events with symbolic value and, more particularly, on 15 March,

the day of the commemoration of the Hungarian Revolution of 1848, one of the country's most emblematic national holidays. On 15 March 2018, he emphasised the deep bond between the two peoples: "It is with special esteem that I greet our Polish friends. Our closeness is natural, and our embrace is a source of strength. In the time of our forefather Kossuth, it was written that 'Hungary and Poland are two imperishable oaks which have grown two separate trunks, but whose roots have intertwined. Therefore, the existence and strength of one is the precondition for the life and health of the other'. It is no different today: if Poland is strong, then Hungary cannot be lost; if we are strong, we can help our Polish friends."

On 15 March of the following year, he praised the Hungarian-Polish bond: "Without Poles, Hungary would not be free today, and Europe could not have been reunified […] we Hungarians tip our hats in salute to the Polish people. Poland occupies a special place in the hearts of the Hungarians. Some say that such a close friendship between the two peoples is simply a romantic legend, which is incompatible with the unyielding laws of modern politics. […] When Poland is attacked from Brussels, the attack is against the whole of Central Europe—and against us Hungarians. To empire-builders who seek to cast their shadow over Central Europe, we have this to say: they will always need to reckon with the strong bonds between Poland and Hungary" (15 March 2019).

3.2 Neighbourhood Policy and Cross-National Regionalism

Hungary has close relations with its neighbouring countries. Cross-border trade is intense, as reflected in the government's COVID-19 crisis management strategy. In 2020, when Hungary's borders were closed and entry to the national territory was highly restricted, even for Hungarian nationals, the borders were gradually opened for cross-border workers, whose entry was facilitated.

Beyond neighbourly political and economic relations, the Hungarian government is also building a strong bond with the cross-border Hungarian minorities located mainly in Romania, Serbia, Ukraine and Slovakia. The narrative of a collective identity serves to maintain a symbolic form of regional unity which is delimited by mental borders, allowing the development of a cross-national regionalism [16]. As national unification is one of Orbán's strongest political objectives, the transnational narrative he constructs maintains a certain nostalgia for the Great Hungary and the illusion of the nation's rediscovered grandeur. In this spirit, the Hungarian government seeks to include the Hungarian diasporas living outside the national borders in its conception of the nation, and implements a nation policy strategy. "Nation policy is the policy of the Hungarian state towards Hungarians living abroad—in neighbouring countries and in other countries of the world—which strengthens the relations between the Hungarian state and Hungarian individuals and communities abroad with the aim of developing a united Hungary. It aims at safeguarding the identity of Hungarian communities abroad and transmitting the Hungarian identity" [8]. The inspiration behind the nation policy was also laid down in the new constitution of 2011: "Hungary, bearing in mind the unity of the Hungarian nation, bears responsibility for the

Table 1 Viktor Orbán's formal meetings in the Euro-region (2010–2019) (based on [3])[9]

Countries	Formal meetings	Meetings with minority representatives
Poland	21	–
Czech Republic	8	–
Slovak Republic	13	12 (MKP[10])
Slovenia	12	1 (Muravidék[11])
Ukraine	11	9 (KMKSZ[12])
Romania	4	19 (RMDSZ[13])
Serbia	28	17 (VMSZ[14])
Croatia	11	1 (HMDK[15])
Austria	12	–
V4	39	–

fate of the Hungarians living outside its borders, encourages the survival and development of their communities, suppresses their attempts to oppress their Hungarian nation, […] and promotes their harmony with each other and with Hungary" [8].

The importance of cross-national regionalism can be seen in the frequency with which Viktor Orbán met political leaders from neighbouring countries between 2010 and 2019. Table 1 shows that meetings with minority representatives were as numerous as official visits to the leaders, especially in Serbia, Romania and Slovakia, indicating a sustained dialogue with the diasporas. In comparison, over the same period, the Prime Minister only met six times with the leader of Italy, eight times with France, ten times with Great Britain, and 38 times with the leaders of Germany, the EU, the first foreign investor in Hungary, and an economic partner cherished by the Hungarian government.

The naturalisation law passed in 2010 under the second Orbán government, which allowed for simplified naturalisation of cross-border Hungarians and granted them the right to vote in Hungarian parliamentary elections, largely benefitted the government, which leveraged it in its communication strategy [9]. Finally, the symbol of the unification of the nation is one of the most prominent events in the Prime Minister's political calendar: the Tusnádfürdő festival (Băile Tuşnad) in Romania, is

[9] Table 1 shows Orbán's formal meetings in the Euroregion between June 2010 and August 2019. The first column shows formal meetings with representatives of the neighbouring and V4 countries. The second column shows, for the same period, the meetings with the representatives of the Hungarian diaspora associations located in neighbouring countries. The data presented in the table were extracted from the interactive database: https://atlo.team/a-miniszterelnok-talalkozasai.

[10] Hungarian Community Party, Slovak Republic.

[11] Hungarian minority in Slovenia.

[12] Hungarian Cultural Union of Transcarpathia, Ukraine.

[13] Hungarian Democratic Union of Romania.

[14] Alliance of Voivodia Hungarians, Serbia.

[15] Union of Hungarians of Croatia.

also the most publicised, since his annual speech to the Hungarians of Transylvania is followed closely by the national and international press and the world's media.

Viktor Orbán varies his interpretation of borders according to the context and his political objectives [17], and conceives of border mobility on a Euroregional scale [24], ensuring that the country's borders do not correspond to economic borders: "the European Union and the Schengen Area do not end at various country borders—in particular, if we think of Serbia and Ukraine. And so we have to adopt a different approach. We do not see state borders as any kind of starting point. We have to live with their existence, but do not see them as a starting point when we define, say, the scope and validity of our economic policy. […] As I see it, the Hungarian aspiration that the Hungarian economy—or the economic network created by the Hungarian people, which transcends state borders—should not be perceived in terms of state borders, but in terms of a region, this idea has taken root. In this context, we can perhaps also identify here the beneficial effect of the European Union. We must think in terms of regions: regions which transcend borders" (1 December 2016).

The Hungarian government is also a strong advocate of EU enlargement and works for the European integration of the countries of the Western Balkans. Orbán regularly mentions his wish for the EU to integrate Serbia: "we support Serbia's European Union membership—even though the European Union doesn't want to enlarge, and doesn't even have the slightest intention of taking these issues seriously. […] The European Union doesn't have a bright future if it refuses to admit countries which are eligible, suitable, and have ties to Europe. Serbia is such a country, and Serbia's place is in the European Union" (30 November 2016).

"We must restore our competitiveness. This means reducing debt, and introducing flexible terms of employment. Once we've done that, our Western European friends, who are tired of enlargement, must frankly admit that there will be no peace in Europe without the full EU integration of the Balkans. We must therefore enlarge the European Union, and must first of all admit the key state, Serbia—however absurd this idea may appear at this point in time" (22 July 2017).

3.3 Interstate Tensions

Ties to the cross-border diaspora and nostalgia for Greater Hungary regularly lead the Prime Minister to cross diplomatic boundaries by symbolically encroaching on neighbouring territories. For example, on a visit to Serbia in April 2016 to sign grant agreements for an economic development plan, Viktor Orbán called on voters, in the name of his conception of the nation as something which transcends borders, to support the party of Voivodina Hungarians, while acknowledging that as Prime Minister of a neighbouring country he had no right to intervene in the campaign [24].

Sometimes he even crosses the "red line", as in May 2022, when Hungary's disagreement with the proposed Russian oil embargo caused a diplomatic incident with Croatia. In an interview, Orbán explained that the EU's proposal would cause difficulties for countries such as Hungary that do not have seaports. He added

"although we would have them had they not been confiscated" (6 May 2022), referring to the 1920 Treaty of Trianon. This little sentence threw a spanner in the works of Hungary's diplomatic relationship with Croatia, whose Minister of the Interior immediately summoned the Hungarian ambassador, while the Croatian ambassador demanded an explanation from the Hungarian government [11].

The Hungarian government's nation policy is the cause of the greatest neighbourhood tensions. For example, simplified naturalisation, which the government advocates, is hindered in Slovakia and Ukraine, as both countries exclude the possibility for their citizens to have dual citizenship. In addition, there is another more important conflict between Hungary and Ukraine, as an education law passed in September 2017 severely restricted teaching in the language of minorities in schools, preventing Transcarpathian pupils from continuing their education in Hungarian, especially in higher grades [20]. At the UN Human Rights Council session in March 2023, Péter Szijjártó seized the opportunity to criticise Ukraine regarding the rights of national minorities, mentioning a Ukrainian bill that would allow families who enrol their children in Ukrainian language education instead of national minority education to receive a sum of around one thousand euros.

The disagreement between the two countries is mutual, as Ukraine, for its part, takes a dim view of Hungary's close relationship with Russia. In 2018, Orbán blamed Ukraine for the discord: "We support Ukraine, but while the Hungarian government is pro-Ukrainian, the government in Ukraine is anti-Hungarian" [20].

4 Opening to the East

In an ambivalent posture, EU membership and distrust of European policies are reflected in the foreign policy of the Hungarian government, whose priorities include opening up to the global economy and developing privileged economic relations with autocratic powers such as China, Türkiye and Russia (see Fig. 1). These countries gain a foothold in the EU and offer international recognition in exchange. To justify the rapprochement, or even the friendship shown to these autocracies, Orbán stresses the Hungarian national interest, and the economic advantage it can gain from consolidating links with these powers. He considers that Western Europe is in decline and that these powers represent economic and political models to be followed: "the most popular topic in thinking today is trying to understand how systems that are not Western, not liberal, not liberal democracies and perhaps not even democracies, can nevertheless make their nations successful. The stars of the international analysts today are Singapore, China, India, Russia and Türkiye. […] while breaking with the dogmas and ideologies that have been adopted by the West and keeping ourselves independent from them, we are trying to find the form of community organisation, the new Hungarian state, which is capable of making our community competitive in the great global race for decades to come" (28 July 2014).

At the Dialogue conference between China and the Central European political parties held in Budapest in 2016, Orbán clearly explained his views on the sovereignty

Fig. 1 Hungary's geopolitical discursive positioning (produced by the author, 2023)

of states, and his refusal to interfere in internal politics: "According to the conventional Western way of thinking, the West represents a superior ideal and culture. This is laid down in various international doctrines, and the West expects other regions of the world to also embrace these. I believe we should make it clear that we Hungarians are not enthusiastic about the export of various political and economic systems. We hold that each house has its own customs. We believe that each nation has its own character, and that this is embodied in specific and unique political systems. And this is something which should be respected. Therefore we, for our part, also look upon the Chinese political system in this spirit. The Chinese political system is a matter for the Chinese people, just as the Hungarian political system is a matter for the Hungarian people. No one has the right to interfere with this by adopting the role of a kind of self-appointed judge" (6 October 2016).

4.1 Controversial Chinese Investments

Hungary's opening up towards China can be seen through cooperation projects between the two countries, formalised after a series of meetings between the Prime Minister and Chinese leaders (a total of 21 meetings over the 2010–2019 period), including ten visits to Hungary [3], and demonstrating the symbolic importance of this world power extending its influence in Europe. The first large-scale, controversial project was the renovation of the Budapest–Belgrade railway line, which was launched in 2014, with a majority Chinese investment. The opacity of the project, the colossal budget and the very uncertain return on investment on the Hungarian side worried the opposition even more, as the government classified the contract documents as a state secret [15]. However, the most political and controversial project is to establish the Chinese Fudan University in the heart of Budapest by 2024, on the site of a large university campus. Outrage over this project is based on a number of concerns. First and foremost, there are protests over the exorbitant cost of the Fudan project, the lack of transparency around the structures surrounding it, and the government's desire to conceal data of public interest.

The arrival on European soil of a higher education institution openly serving Chinese propaganda also has highly symbolic political meaning [6]. The political dimension of this project and the tug-of-war between the opposition and civil society on the one hand, and the government on the other, is reminiscent of the battle over the Central European University (CEU) [5],[16] one of Hungary's most prestigious universities in the field of social sciences, which was forced to leave Budapest and move to the Austrian capital Vienna, in 2019, despite two years of negotiations and mobilisations.

4.2 Turkic Council

Hungary is at pains to show its respect to Türkiye and its leader Recep Tayyip Erdoğan. Viktor Orbán has repeatedly expressed his sympathy for the Turkish President and has praised his political successes, holding no fewer than eight personal meetings with him between 2010 and 2019 [3]: "President Erdoğan has long been a personal friend of mine. Our relationship with Türkiye is close and trusting" (25 February 2016). At the same time, in his state-of-the-nation speech, he set Berlin, Moscow and Ankara as the direction for Hungary's foreign policy, stressing the absolute need to maintain good relations with all three powers: "the Hungarians can only be independent, can only live in freedom, and can only run the course mapped out by their own talent and hard work if none of the great powers are our enemies. To be more precise, we can be independent if all three at once have an interest in the independence and economic growth of Hungary. […] It is therefore the iron law of Hungarian foreign policy that we Hungarians have an interest in peace. It may be sarcastic and ironic, but it is true: our place is in the camp of peace. The same logic tells us that we should not allow ourselves to be drawn into any international campaign against Germans, Russians or Turks" (28 February 2016).

By deepening its relations with Türkiye, Hungary has been enabled to join, as an observer, the Organization of Turkic States (OTS), formerly known as the Cooperation Council of Turkic Speaking States, an intergovernmental organisation comprising Turkic countries. The observer status is purely symbolic, but Orbán attaches great importance to it. At the 6th Summit of the Cooperation Council of Turkic Speaking States in September 2018, he highlighted the importance of safeguarding national identity and traditions as points of rapprochement for Hungary with the member countries of the organisation.

"The Government of Hungary is committed to ensuring that, in the modern, global world, Hungary preserves its language, character, culture, origins and traditions. We

[16] Through the operating framework of this private law university, the Lex CEU law, passed in March 2017, targeted its founder George Soros, a business tycoon of Hungarian origin, considered by Viktor Orbán as a "shadow power from Brussels". This led to Hungary's condemnation in 2020 by the European Court of Justice, which found that the law introduced measures restricting academic freedom, and that Hungary's requirements to allow foreign higher education institutions to operate on its territory were incompatible with EU law.

believe that—also in the twenty-first century—the only states which can be strong are those which are proud of their national identities and are able to preserve them. Today's Western teaching does not recognise this truth, but we insist on preserving our Hungarian national identity. In Europe, Hungary is often described as the most westerly of the people of the East. Earlier this was meant as a slight—intended to express disdain and condescension. However, due to the fantastic achievements of your countries—due to the economic and political development of your countries—being referred to as an Eastern people should now be taken as praise. It has been proven beyond doubt that the old-world order—with its dogma that capital and knowledge flow from West to East in search of cheap labour—has come to an end. We are living in a new world order, and its history is fundamentally determined by the development of the rising states in the East" (3 September 2018).

A year later, at the Cooperation Council of Turkic Speaking States summit in Baku, Orbán continued to build bridges to show that his country belongs to a community of values and traditions, mentioning the "Hungarian Kipchaks", a fanciful story that provoked questions in Hungary. "Not everyone here is aware that there are Kipchaks in Hungary, that many Hungarians have Kipchak blood, and that they have their own self-government. President Nazarbayev is also President of the Hungarian Kipchak tribes, and we send him a message every year when the annual meeting of the Kipchaks is held in Hungary." Against the backdrop of the 2019 European Parliament elections, and in anticipation of the distribution of the various responsibilities, Orbán expressed his hope that Hungary would obtain the portfolio of the EU's neighbourhood policy and enlargement, in order to work in the interest of the countries of the Cooperation Council of Turkic Speaking States. He added that, beyond its observer status, Hungary also wants to contribute: "We joined the Turkic Council as an observer so that we can contribute something, rather than simply be a beneficiary. What we Hungarians can offer this council is a connection to Europe and the European Union" (15 October 2019).

4.3 Strong Links with Russia

Since the Fidesz party came to power,[17] relations between Hungary and Russia have intensified. Orbán has participated in 11 meetings with President Putin since 2010,

[17] Viktor Orbán has radically changed his views on the EU's relationship with Russia and in his consideration of Vladimir Putin. Before he came to power, he had strongly criticised Putin and his policies, as in 2007: "Russia's expansion and reassertion represent a real challenge for the West. Such a threat, such a challenge, which, starting from Central Europe, can reach the European Union, and can even reach the military power of the allies. Putin's lackeys have indeed multiplied in Europe, and now everyone is beginning to see this as dangerous" [20]. He even said in 2008, during the conflict between Russia and Georgia: "I am convinced that the peoples of Central Europe have the ability, when an independent country is under military aggression, to speak clearly and frankly. I think that we Hungarians are particularly burdened with this responsibility because of 1956. Therefore, when an independent country is attacked by the Russians with military aggression, it is worth us speaking out in a straightforward and correct moral way" However, from July 2010 onwards, Orbán wanted

mostly in Moscow [7].[18] Having expressed his admiration for the Russian President several times, the Prime Minister seems to be following in Putin's footsteps, as seen in the illiberal turn he has imposed on Hungary, according to Zakaria, author of the term "illiberal democracy": "Orbán has enacted and implemented in Hungary a version of what can best be described as 'Putinism' […] eroding judicial independence, limiting individual rights, speaking in nationalist terms about ethnic Hungarians and muzzling the press. The methods of control are often more sophisticated than traditional censorship" [27].

Since 2014, the frequent meetings between the two foreign ministers, Péter Szijjártó and Sergei Lavrov, who know and like one another,[19] have testified to the dynamism of economic cooperation between the two countries [20]. On 30 December 2021, Szijjártó was awarded the medal "for friendship"[20] by his counterpart and was recognised as a "friend" for the results achieved "in the development of bilateral relations" between the two countries. Indeed, Hungary is linked to Russia by numerous commercial contracts, notably related to the purchase of fossil fuels, which are essential to cover Hungary's energy needs. A strategic agreement, called Paks 2, for the development and construction of two nuclear reactors negotiated by the Orbán government is the subject of significant criticism and concern, because this investment falls within dubious and highly opaque political and economic deals concluded with the Russian company Rosatom without a call for tender. Following a negotiation with Rosatom, a modification of the construction and financing contract was announced by Péter Szijjártó in April 2023, without any further details.

Beyond the dynamic economic and political relations between the two countries, the position of the Hungarian government since 2010 has been invariable towards Russia. Orbán has regularly called for the normalisation of relations between the EU and Russia, even after the annexation of Crimea, stressing the need for cooperation between the two parts of the European continent in order for "Europe to regain its competitiveness". In 2017, in his annual speech in Tusnádfürdő, the Prime Minister explained the need to conclude "historical agreement [with Russia] which has economic, military and political dimensions" (22 July 2017). A year later, he described the EU's sanctions-based policy towards Russia as "primitive", citing threats to its security. At the same time, he explained: "Russia sees itself as a country that is not safe unless it is surrounded by buffer zones. Therefore, Russia will continue to strive to create buffer zones around itself, just as it has done up to now. Ukraine is one of the victims of this." He expressed strong reservations about Ukraine's attempt to move closer to the western part of Europe and said that the chances of it joining NATO and integrating into Europe were close to zero. For him, "the Russians' goal to tip Ukraine back to its former situation does not seem unrealistic" (28 July 2018).

---

to deepen the economic cooperation between Europe and Russia, emphasising the Christianity of the Russians and calling for the need for an alliance of the Central European countries (20).

[18] In 2013, during Orbán's visit to Moscow, Vladimir Putin stated that "Hungary is without doubt our priority partner in Eastern Europe".

[19] They are on familiar terms and in 2017 Szijjártó even invited Lavrov to his family home.

[20] This is the most important honour awarded to a foreign person by the President of Russia.

Furthermore, the Hungarian government regularly denounces what it calls the EU's double standards. For example, in 2018 Péter Szijjártó described the attitude of the Western powers as hypocritical and consisted of strong criticism of Russia at NATO sessions, while at the same time concluding contracts worth billions of euros with the country on the sly [20].

During his visit to Moscow on 1 February 2022, just three weeks before Russia invaded Ukraine, Viktor Orbán praised the "Hungarian model of Russian policy: Hungary is a member of NATO and the European Union, and has excellent relations with Russia", adding that relations between the two countries are "balanced, positive and constructive". He described his presence as a peace mission, arguing that "no European leader, not one, wants a conflict with Russia. This is especially true for us in Central Europe. […] That is why Hungarians and Central Europeans in general […] want to do everything possible to reduce tension and prevent a return to the Cold War" (1 February 2022).

5 War in Ukraine and Hungary's Isolation

The war in Ukraine has changed the situation, and Hungary now finds itself in a delicate position with regard to its proximity to Russia and its dependence on Russian gas. The government's communication strategy consists of going easy on Russia, focusing on the dangers of the war for the Hungarian population, and not mentioning the destruction of Ukraine, the violence of the war, and the suffering of the population.

5.1 Hungary's Apparent "Neutrality"

In this new context, Orbán tried to spare its Russian friend while initially displaying unity with the EU. In his statement on 24 February 2022, when Ukraine was invaded, he joined his allies in condemning the military intervention but expressed the fact that Hungary would not take part in the conflict. "This morning Russia launched a military attack on Ukraine. We therefore convened the National Security Operational Group. Together with our allies from the European Union and NATO, we condemn Russia's military intervention. […] From what I can see, it will be possible to maintain European unity and decide on joint action. Hungary must not be drawn into this military conflict because for us the number one priority is the security of the Hungarian people. Therefore, either deploying military personnel or sending military equipment to Ukraine is out of the question. We shall naturally provide humanitarian assistance, however." In his subsequent statements, he strove to appear neutral with regards to the conflict: "I have made it clear that Hungary will not take part in this war and will not allow itself to be dragged into it" (25 February 2022). He acknowledged that "a war is going on" but insisted on his country's interests: "Hungary's interests come

first, Hungary comes first, so what decisions do we have to take in order to be able to stay out of this conflict, and to avoid sanctions that would make us pay the price of staying out of the war, even if we end up staying in it?" (27 February 2022). Orbán opposed the transit of "lethal" weapons through Hungary and preferred to focus the humanitarian effort and solidarity on welcoming Ukrainian refugees. A few days later, in his interview with the national public radio station, Kossuth, he blasted the EU for not acting, in his words, to help Hungary defend its borders, thus shifting the focus from the military intervention in Ukraine to the relationship with the EU. "Well, you can always rely on Brussels when it comes to talking. When it comes to taking action, then you can rely on the nation states. God knows what they're doing in Brussels, what they're waiting for, and when they'll give money to anybody. If we were to wait for that, a serious situation would develop at the Hungarian border. […] we've been defending our southern border for years, and they haven't given us a penny for the fence: they haven't given Hungary a penny to deal with the migration pressure it's facing. So it's best to leave this, and say that we'll take care of these problems" (3 March 2022).

Although Hungary voted unanimously with the EU to impose the first sanctions against Russia, it opposed the sixth sanctions package, especially the Russian oil and gas embargo, due to its dependence on Russian supplies. The month-long negotiations on the Russian energy embargo ended favourably for Hungary, as Hungary, Slovakia and the Czech Republic were granted exemptions from the gas pipeline ban. Furthermore, Orbán worked to have the name of the head of the Russian Orthodox Church, Patriarch Kirill of Moscow, who is close to Putin, removed from the list of individuals sanctioned by the EU [21]. In contrast to the efforts of EU member states to diversify energy resources and reduce consumption, Hungary refused to sign the symbolic energy sobriety pledge in July 2022 and, following negotiations in Moscow in the summer of 2022, Péter Szijjártó announced in September 2022 the signature of an additional gas contract with Russia. At the same time, Viktor Orbán travelled to Moscow to visit the coffin of Mikhail Gorbachev. As the only foreign leader present at the funeral of the former Russian President, his visit was interpreted as a sign of his closeness to Russian power and as an affront to Western leaders.

5.2 Negative Communication About EU Sanctions

The invasion of Ukraine coincided with the parliamentary election campaign, and the Hungarian government deployed a fear-mongering communication strategy, dramatising the Allies' approach. Hungary presented itself as the defender of the interests of its citizens, repeating over and over again that Hungary was on the side of peace, and would not participate in a war that did not concern it. After the elections, Viktor Orbán stepped up his anti-EU attacks, shifting the focus from the war in Ukraine to the energy crisis in Europe. His argument has remained unchanged over the months, but the tone of his discourse has changed, and the virulence of his attacks has increased.

His messages simplify the political issues and present a Brussels–Budapest antagonism, setting up the Hungarian population as victims of the energy war, forced to suffer the consequences of the EU's economic sanctions against Russia [26]. In his inaugural speech at the new parliamentary session in September 2022, Orbán emphasised the local character of the military war in Ukraine, which has turned into a global economic war: "Today the West stands on the side of war, while Hungary stands on the side of peace. Instead of continuing and deepening the war, we demand an immediate ceasefire and peace talks. In this economic war, which has spread around the globe, each country has its own interests. For Hungary, the most important considerations are security and the defence of economic and national sovereignty" (26 September 2022). According to him, the cancellation of the EU measures would bring stability and economic prosperity, castigating the "Brussels bureaucrats" for their (false) promises regarding the effectiveness of the sanctions.

In the autumn of 2022, as inflation in Hungary soared, the Hungarian government launched a massive communication campaign presented as a participatory democracy "national consultation", entitled "Seven questions about the Brussels sanctions" (14 October 2022) with the aim of "correcting the wrong EU sanctions". The seven statements proposed in the document challenged the EU, and presented the Hungarian government's view as a matter of course, as common sense. This was accompanied by a two-pronged communication campaign against the EU. First, in autumn 2022, a 4×4 poster campaign urged citizens to participate in the national consultation with the slogan "the Brussels sanctions are destroying us" and featuring a bomb to visually represent the consequences of the sanctions. The second campaign in January 2023 announced the results of the national consultation: "the Hungarians have decided: 97% say NO to sanctions. Sanctions will ruin us. It is time for the voices of the people to be heard in Brussels"[21] (26 January 2023).

In 2023, Orbán voiced a new argument about Hungarian casualties in the Ukraine war[22]: "Brusselites have not yet sacrificed their lives in this war, but Hungarians have". He repeated his view at an extraordinary summit of the OTS in March 2023: "The main issue in Europe today is war, and this puts my country in a difficult situation. For us Ukraine is a neighbouring state, and therefore the effects of the war on us are serious and immediate: inflation is sky-high, and energy prices are at an all-time peak. I have to inform you that many Hungarians have died in this war, because those being conscripted into the Ukrainian army include men from the Hungarian community in Western Ukraine. Therefore for Hungary the most important thing is to save human lives. Human lives can only be saved through peace, and this is why Hungary is arguing for the soonest possible declaration of a ceasefire and peace negotiations" (2 March 2023).

In a generalised way, the institutional communication deployed since the beginning of the war in Ukraine has been addressed to the national population, narrating

[21] For example, in this video clip: https://www.youtube.com/watch?v=ok78tHlI3h0&ab_channel=Magyarorsz%C3%A1gKorm%C3%A1nya.

[22] Transcarpathian Hungarians.

and exacerbating a conflict with the EU that decided on sanctions which had disastrous consequences for the Hungarian population. Tinged with anger, interspersed with contemptuous metaphors, the messages aimed to disqualify EU policy through mockery.[23] In Hungary's communication strategy, Orbán presented himself as the only leader (one with common sense and courage) to stand against all the others (the dilettante Western leaders) in an EU where decisions are taken by the "elites", the "Brussels bureaucrats" or "Brusselites", far removed from the will of the people.[24] This communication strategy directed against the EU spares Russia and Vladimir Putin, whose responsibility in the war has never been clearly acknowledged.

In the Prime Minister's annual state-of-the-nation address in February 2023 which coincided with the anniversary of the invasion of Ukraine, Orbán, while attacking the EU, nevertheless tried to play down his disagreement with the leaders of the member states: "While our pro-peace position and the pro-war position of others accentuate differences between us, they also obscure the fact that we are in full agreement on strategic objectives. We want Russia not to be a threat to Europe, and we want there to be a sufficiently broad and deep area between Russia and Hungary: a sovereign Ukraine. The difference between us is in our view of the means to achieve this: those who support the war think that this can be achieved by defeating Russia; and we think that it can be achieved by an immediate ceasefire and negotiations. There is another strong argument in favour of our proposal: the only thing that can save lives is a ceasefire. Loss of life is already being expressed in the hundreds of thousands. The pain, widowhood, growing numbers of orphans and oceanic waves of suffering can only be calmed by a ceasefire" (18 February 2023).

5.3 Tensions with Ukraine and the Visegrad Group

The Prime Minister's ambiguous attitude towards Russia has led to criticism in the European space and has increased tension with Ukraine. On 24 March 2022, at the EU summit in Brussels, Ukrainian President Volodymyr Zelenskyy challenged Viktor Orbán with the words "Listen, Viktor, do you know what is going on in Mariupol? […] And you are hesitating whether to impose the sanctions or not? And are you hesitating whether to let the weapons through or not? Are you hesitating whether to trade with Russia or not? There is no time to hesitate. Now is the time to decide" [21]. Continuing in an emotional register, he evoked a personal memory of Budapest, with reference to the Shoah memorial: "I saw this memorial… on the banks of the Danube. About the mass murders. I was there with my family. Listen, Viktor, do you know what is happening in Mariupol? Please, if you can, go to the waterfront. Look

[23] "A car with four flat tyres"; "you can't put out a fire with a flamethrower".

[24] At the opening of the parliamentary session in September 2022, Orbán even suggested that the sanctions against Russia were decided outside the democratic rules required by the EU: "the European treaties put democracy at the top of the list of European values. And let's face it, these sanctions were not introduced in a democratic way. They were decided by Brussels bureaucrats and European elites. Nobody asked the European people for their opinion" (26 September 2022).

at the shoes, and you will see how massacres can happen again in today's world. And this is what Russia is doing today" [2]. The next day Orbán added fuel to the fire by posting a message on his Facebook account, claiming that "energy sanctions against Russia would bring the Hungarian economy to a standstill, which would mean that we would actually be made to pay the price of the war" [21]. A few days later, on the night of the victory in the parliamentary elections on 3 April 2022, Orbán aimed another attack at Zelenskyy: "In our battle we were outnumbered like never before. […] All the money and every organisation in the Soros empire; the international mainstream media; and, towards the end, even the President of Ukraine. We've never faced so many opponents at once."

A year after the war began, the relationship between the two countries remains frosty, and although the two leaders have discussed matters several times, Orbán did not respond favourably to Zelenskyy's invitation to undertake a formal visit to Ukraine. In April 2023, the Ukraine President, Volodymyr Zelenskyy, said in an interview with European journalists that Hungary's behaviour and relations with Russia do not correspond to the status of a NATO ally: "How to resolve the dispute with Budapest? The only question is Budapest's desire. It seems to me that there is a political confusion among the political elites in Hungary. It's a very strange situation, can a NATO country be for Russia and against NATO?" The Hungarian Prime Minister expressed outrage at the statement made by the NATO Secretary General during his visit to Kyiv that Ukraine should become a member of the Alliance in the future.[25] Against the backdrop of the Pope's visit to Hungary, it was Péter Szijjártó who reacted on social media to Zelenskyy's criticism, saying: "1. Fortunately, that's not for him to decide. (Whether Hungary's behaviour is appropriate, that is.) 2. The Hungarian people have already paid an extremely high price for this war. 3. Many Hungarian people—members of the Hungarian community in Transcarpathia—have already died in this war" (30 April 2023).[26]

European tensions have also spilled over into the V4 group as disagreements over Russia have clouded the group's membership. The V4 summit scheduled to take place in Budapest on 30 March 2022 was cancelled, with Poland and the Czech Republic refusing to attend. In a radio interview on 8 April 2022, Polish politician Jaroslaw Kaczyncki strongly criticised Viktor Orbán for refusing to condemn Russia for the massacre of civilians in Bucha and said he was saddened by the Hungarian Prime Minister's attitude, adding that "when Orbán says he cannot see what happened in Bucha, he should be advised to see an ophthalmologist" [13]. Each side is entrenched in its convictions, and Orbán prefers to divert this political disagreement to the level of affect in order to avoid conflict with his allies, assuming the posture of the wise man waiting for his partners to come to their senses. "The problem of relations between Hungary and Poland is a problem of the heart. We Hungarians see this war as a war between two Slavic peoples, a war we want to keep out of. But the Poles see it as a war in which they are also involved: it is their war, and they are almost fighting it. And since it is an affair of the heart, we cannot agree with each other on this, but we

[25] https://www.eurointegration.com.ua/news/2023/04/29/7160727.

[26] https://hvg.hu/vilag/20230430_Szijjarto_Peter_beszolt_Zelenszkijnek.

have to use our intelligence to save all we can of the Polish-Hungarian friendship and strategic alliance for the post-war period. Of course, we still have our Slovak and Czech friends, but there have been changes of government in these countries, which now prefer the post-western world, and they do not want to get into conflicts with Brussels—which gives them good marks. In my opinion, this is like tying their horses in a burning stable. Good luck!" (23 July 2022).

6 Conclusion

In this contribution, we have taken a communicative approach to institutional discourse, in order to describe Hungarian Prime Minister Viktor Orbán's ambivalence and his geopolitical discursive positioning in relation to three geographical areas: Hungary's place within the EU, its neighbourhood policy, and its links with powers such as China, Türkiye and Russia. Hungary's foreign policy has economic objectives for the development and prosperity of the country, but these are intertwined with political issues and a national narrative which has been developed around identity, security and sovereignty that ensures the coherence of political actions. It is in the name of "conservative, national-Christian and patriotic" principles and in order to safeguard national sovereignty and Christian culture that Orbán develops his antagonistic discourses against "Brussels" and the European elites [16] which he considers to be the decadent West, and constructs an illiberal state distancing Hungary from the democratic principles and values inherent to the European project. As for the Hungarian government's Euroregional influence, Orbán's transnational regionalism, which sits at the centre of his discourse, relies on interconnected political and economic levers. On the one hand, the strategic alliance with the V4 group constitutes a common force and serves to more effectively negotiate with the EU, and on the other hand, the neighbourhood policy mainly benefits the Hungarian diasporas, thus providing the Hungarian government with a certain political capital. Finally, the rapprochement with autocracies through large-scale economic agreements serves to build strategic alliances and to consolidate Orbán's leadership on the international stage, albeit at the price of Hungary's ostracism in the European space, notably for its failure to distance itself from Russia in the context of the war in Ukraine.

Whatever the geographical area or institutional level, Orbán is positioned at the centre of attention, through his posture and the warrior figure he displays in his staged conflicts with the EU. This posture increasingly isolates Hungary on the European stage, but gives the country international visibility, and Orbán draws political capital from that to build his leadership. This geopolitical influence lent him legitimacy and strengthened his position in power with his fourth consecutive victory in the April 2022 legislative elections. In his declaration of victory, he made it clear that he wanted to continue the policy he had started, to remain in power for a long time, and to extend his influence in Europe. In his annual speech in July 2022, the Prime Minister effectively confirmed his European ambitions for 2030, predicting the decline of current EU policy and the fall of liberal governments before that date. In this way, he

wishes to take revenge on the dominant West: "Hungary has national ambitions, and even European ambitions. This is why, in order to preserve our national ambitions, we must show solidarity in the difficult period ahead of us. The motherland must stand together, and Transylvania and the other areas in the Carpathian Basin inhabited by Hungarians must stand together. This ambition is what propels us, what drives us. It is the notion that we have always given more to the world than we have received from it, that more has been taken from us than given to us, that we have submitted invoices that are still unpaid, that we are better, more industrious and more talented than the position we now find ourselves in and the way in which we live, and the fact that the world owes us something—and that we want to, and will, call in that debt. This is our strongest ambition" (23 July 2022).

References

1. Bozóki, A., Hegedüs, D.: An externally constrained hybrid regime: Hungary in the European Union. Democratization **25**(7), 1173–1189 (2018). https://doi.org/10.1080/13510347.2018.1455664
2. Brzozowski, A.: Volodymyr Zelenskyy invective Viktor Orbán lors du sommet de l'UE. https://www.Euractiv.com (March 25, 2022). Accessed June 11, 2022
3. Bátorfy, A., Galambosi, E., Mikola, B.: A miniszterelnök találkozói [The Prime Minister's Meetings], interactive database. https://atlo.team/a-miniszterelnok-talalkozasai/ (2018)
4. Bíró-Nagy, A.: Illiberal democracy in Hungary: the social background and practical steps of building an illiberal state. In: Morillas, P. (eds.) Illiberal Democracies in the EU. CIDOB Barcelona, pp. 31–44 (2017)
5. Coughlan, S.: How a university became a battle for Europe's identity. BBC. https://www.bbc.com/news/business-39780546 (Mai 3, 2017)
6. Didelot, N.: A Budapest, la fac chinoise Fudan va remplacer "l'université Soros". Libération (January 10, 2021)
7. Erdélyi, K.: Orbán Viktor 11 alkalommal találkozott Putyinnal 2010 óta, legtöbbször Moszkvában. [Viktor Orbán has met Putin 11 times since 2010, mostly in Moscow]. Altatszo.hu. https://atlatszo.hu/kozugy/2022/02/28/orban-viktor-11-alkalommal-talalkozott-putyinnal-2010-ota-legtobbszor-moszkvaban/ (February 28, 2022)
8. Gazdag, F.: Három évtized magyar külpolitkája (1989–2018). [Tree Decades of Hungarian Foreign Policy (1989–2018)]. Ludovika egyetemi kiadó, Budapest (2021)
9. Gulyás, M.: A Fidesz és a határon túli magyarok—mennyit ér és miért annyi a 95% ? Interjú Fosztó László kisebbségkutatóval és Ravasz Ábel szociológussal, [Fidesz and cross-border Hungarians—what are the 95% and why? Interview with László Fosztó, specialist in minority studies, and Ábel Ravasz, sociologist]. Partizán https://www.youtube.com/watch?v=fSHpqn1aoIU (April 4, 2022). Accessed 10 May 2022
10. Gyulai, A.: Magyarország a szürke zonában? A magyar politikai rendszer hosszú hibridizációja. [Hungary in the grey zone? The long hybridisation of the Hungarian political system]. In: Boda, Zs., Szabó, A. (eds.) Trendek a magyar politikában 2. A Fidesz és a többiek: pártok, mozgalmak, politikák [Trends in Hungarian Politics 2. Fidesz and the Others: Parties, Movements, Policies], pp. 15–42. Napvilág kiadó, Budapest (2017)
11. Haszán, Z.: Diplomáciai vihar kerekedett Orbán tengeres kijelentéséből. [Orbán's maritime declaration has created a diplomatic storm]. 444.hu (May 10, 2022)
12. Jack, V.: Poland's Kaczyński slams Orbán for refusing to condemn Bucha killings. Politico. https://www.politico.eu/article/poland-kaczynski-slams-15.hungary-orban-for-refusing-to-condemn-bucha-killings/ (April 8, 2022)

13. Katus, E.: Nem titkosíthatja a kormány bemondásra a Budapest-Belgrád vasútvonal iratait. [The government cannot classify documents relating to the renovation of the Budapest-Belgrade railway line as a state secret by simple declaration]. Atlatszo.hu (September 10, 2021)
14. Krekó, P.: The birth of an illiberal informational autocracy in Europe: a case study on Hungary. J. Illiberalism Stud. **2**(1), 55–72 (2022)
15. Körösényi, A., Illés, G., Gyulai, A.: The Orbán regime Plebiscitary Leader Democracy in the Making. Routledge, London (2020)
16. Lamour, C.: A radical-right populist definition of cross-national regionalism in Europe: shaping power geometries et the regional scale beyond state borders. Int. J. Urban Reg. Res. **I**, 8–25 (2022)
17. Lamour, C., Varga, R.: The border as a resource in right-wing populist discourse: Viktor Orbán and the Diasporas in a multi-scalar Europe. J. Borderland Stud. **35**(Issue 3) (2020)
18. Malingre, V., Michel, A.: La taxe mondiale peine à se concrétiser. Le Monde (June 20, 2022)
19. Müller, J.-W.: What is Populism? University of Pennsylvania Press, Philadelphia (2016)
20. Pesti, S.: Magyarország külpolitikája 2010–2020, Budapest. [Hungary's foreign policy 2010–2020]. Gondolat Kiadó, Budapest (2021)
21. Szabó, A., Panyi, Sz.: Inside Viktor Orbán's response to the war in Ukraine. Direct36, https://www.direkt36.hu/en/orban-a-haboruban/ (21 October 2022)
22. Sárközi, T.: Illiberális kormányzás a liberális Európában. [Illiberal governance in liberal Europe]. Park Könyvkiadó, Budapest (2019)
23. Tamás, G.M.: Az EU Orbánizálódik, miközben Orbánt bírálja. [The EU is Orbanising while criticising Orbán]. Mérce.hu (September 12, 2018)
24. Varga, R.: Construction du leadership national et européen de Viktor Orbán à travers les multiples représentations des frontiers. Management & Gouvernance n°18, 33–40 (2017)
25. Varga, R.: Au croisement des contre-discours, Viktor Orbán, figure centrale de la campagne des élections européennes de 2019. In: Maarek, Ph.J., Pelissier, N. (eds.) L'Europe au défi des populismes nationaux - La communication politique centrifuge des élections de 2019. L'Harmattan, pp. 93–113 (2020)
26. Varga, R.: L'équilibrisme de Viktor Orbán entre l'UE et la Russie. The Conversation France (September 20, 2022)
27. Zakaria, F.: The Rise of Poutinisme. The Washington Post (July 31, 2014)

Difference Between the EU 27 and the Future Members States

EU Enlargement and Anti-corruption Standards: From Candidacy to Accession

Julija Brsakoska Bazerkoska

Abstract This chapter analyses substantive changes to the European Union [EU] anti-corruption standards in the process of the most recent phase of EU enlargement, which facilitated membership of some former pro-Communist countries of Central and Eastern Europe. The chapter identifies a trend towards greater conditionality for EU membership from candidate countries within Eastern Europe, and argues that the scope of EU conditionality required for their membership was far greater for those countries, than was required of Mediterranean nations that had previously acceded into the EU. Further, it argues that increasing conditionality is grounded in efforts to impose more stringent anti-corruption standards onto Eastern European and Western Balkan states seeking EU membership, than have been applied to Western European member states. Specifically, as case study, the chapter centres the EUs mission to combat corruption, and explores how its anti-corruption standards have been brought to bear on candidate nations as conditionality of EU membership. It addresses the strengthened demands in the frame of rule of law to address the EUs fight against corruption in the candidate countries. The main research question asks how has the EU conditionality changed in the area of corruption, and how the external standards on the fight against corruption developed more extensively than the internal ones. In this context, the chapter considers the development of the EU legal framework which addresses corruption and compares it with the development of external EU action in this field. I argue that the EU endeavours to combat corruption touches upon a number of areas of EU competence, cutting across justice affairs, the EU budget, and criminal law, which therefore lends to fragmentation of EU law and policy in this field. This fragmentation is further emphasized in the context of the enlargement policy, especially since the candidate countries from the Western Balkans have greater levels of corruption in public services and require an even more robust anti-corruption approach in the EU enlargement process than was applied to their Eastern European predecessors.

The research examines the anti-corruption standards embodied in the EU enlargement methodology, as well as the anti-corruption mechanisms available to the new

J. B. Bazerkoska (✉)
Law Faculty, Ss. Cyril and Methodius University, Skopje, Republic of North Macedonia
e-mail: j.brsakoskabazerkoska@pf.ukim.edu.mk

G. Pellat et al. (eds.), *Cooperation and Enlargement: Two Challenges to be Addressed in the European Projects - 2022*, Studies in Systems, Decision and Control 500,
https://doi.org/10.1007/978-3-031-42253-9_8

EU Member States to illuminate the manner in which the EU has tended to adopt an increasingly proactive anti-corruption policy on the external level. This is true particularly in the context of EU enlargement, where the asymmetry between EU external standards and internal legislation is evidenced by the anti-corruption standards imposed upon candidate countries by the European Union. The chapter concludes that the EU's enlargement policy needs to go even further, since there is a need for more robust mechanisms to effectively tackle the rife corruption which is considered detrimental to the economic development of the candidate countries applying for membership.

1 Introduction

Tackling corruption is a complex issue, as borne out by the European Union's [EU] stringent efforts to implement effective anti-corruption mechanisms amongst Member States [1–7]. Corruption is a concern for all EU Member States and raises a broad array of financial and social issues. There is no "one-size-fits-all" solution in fighting corruption and, despite having anti-corruption instruments in place, EU countries have not been consistent in implementing them. This especially refers to the countries in Eastern Europe [8–14], which, according to the Corruption Perception Index by Transparency International, have a low score. Indeed, there has been very little progress in combatting corruption [15].

While the eastwards enlargement has been perceived as a success—ten former communist states have acceded and have experienced the economic and political benefits of membership after the rigours of the EU pre-accession process—there have been numerous concerns regarding EU enlargement which were further projected onto the accession process of future candidate countries. This has been especially true when it comes to the fight against corruption and how corruption needs to be assessed in the candidate countries. The starting point of EU enlargement was that through economic liberalization, including privatization and the promotion of new small and medium-sized enterprises, the reach of state officials in the economy would be reduced. However, the experiences of Bulgaria and Romania showed that these indirect measures alone are insufficient when institutions are weak and the level of corruption is high. This is why the EU started implementing a new approach in the fight against corruption in both Bulgaria and Romania, why it went even further with Croatia, and why this trend is continuing in the Western Balkans, where the states are weak and societies divided. At the external level, with the enlargement policy, the EU tends to forge ahead with an increasingly proactive anti-corruption policy mainly through the precondition of the rule of law, which differs from what the EU does internally. The chapter will argue that as long as Member States are not willing to delegate more power to the EU in the field of anti-corruption law and policy, the limited nature of the *acquis* will continuously require the EU to expand its demands through its political criteria in the enlargement policy. This in turn leads to undermining the EU conditionality principle, since there is a poor track record of

reforms, caused by the modest efficiency of the EU's tools for monitoring, measuring and reporting on the activities undertaken by the countries. The chapter will attempt to present the discrepancy in the EU internal and external action connected with the anti-corruption policy. It will also assess the need for EU to strengthen the criteria for the Western Balkans despite the limited mechanisms in the pre-accession period. Finally, it will explore the effectiveness of the EU's rule of law approach when it comes to the fight against corruption in the context of future enlargements.

The second part of the chapter analyses the development of the EU legal framework that addresses corruption and its development after the Treaty of Lisbon. The third part focuses on the development of external EU action in the area of the fight against corruption in the newly established approaches during the "big bang" enlargement. This part focuses on the establishment of a progressively more active anti-corruption policy in the EU's external action and the evident asymmetry with EU internal legislation. It elaborates on the new mechanism that was developed especially for EU enlargement with Bulgaria and Romania. Finally, the fourth part explores how these anti-corruption standards have been applied and further strengthened in the pre-accession period in the countries of the Western Balkans.

2 Setting the Scene: EU Anti-corruption Standards

In order to understand the EU's approach in the fight against corruption in the context of its enlargement policy, it is necessary to first outline the EU's internal anti-corruption standards. The nature and extent of corruption varies within and between the Member States, but it harms all EU Member States and the EU as a whole [16–18]. The fight against corruption touches upon a number of areas of EU competence and, consequently, EU law and policy in this field are fragmented.

Article 83(1) of the Treaty on the Functioning of the EU discusses corruption as a "euro-crime", which is defined as a particularly serious crime with a cross-border dimension, for which minimum rules on the definition of criminal offences and sanctions may be established [17]. Even though there has not yet been any serious attempt to use Article 83 in the context of corruption as a "euro-crime", with the adoption of the Stockholm Programme [19], the Commission has been given a political mandate to measure efforts in the fight against corruption, and to develop a comprehensive EU anti-corruption policy, in close cooperation with the Council of Europe Group of States against Corruption (GRECO).

According to the Commission's Communication of 2011, corruption "inflicts financial damage by lowering investment levels, hampering the fair operation of the internal market and reducing public finances. It causes social harm as organized crime groups use corruption to commit other serious crimes, such as trafficking in drugs and human beings. Moreover, if not addressed, corruption can undermine trust in democratic institutions and weaken the accountability of political leadership" [20]. In this statement by the Commission, it is possible to discern several aims for the adoption of the EU anti-corruption standards [1]. The first aim seeks to protect the

EU budget in order to protect its financial might and power. This leads towards the criminalization of corruption within the public sector, prompting the Member States to enact necessary measures to ensure that intentional acts of passive and active corruption constitute criminal offences [21].

The second aim is to protect the EU's internal market, especially since the market is a long-standing EU objective, and its operations invariably cut across a number of secondary EU measures. Anti-corruption standards are deemed essential to protect the internal market, and have been adopted in a variety of legal fields, ranging from criminal law to public procurement law [1]. The requirement that corruption within the private sector be criminalised was important because "along with globalisation, recent years brought an increase in cross-border trade in goods and services", and consequently, "any corruption in the private sector within a Member State is thus not just a domestic problem but also a transnational problem, most effectively tackled by means of a European Union joint action" [22]. The Framework Decision on combating corruption in the private sector criminalizes both active and passive corruption, imperative to safeguard and protect multiple interests, ranging from the market to economic development and the rule of law. Article 2 provides that the Member States should criminalise the following intentional acts, if committed in the course of business activities: "promising, offering or giving, directly or through an intermediary, to a person who in any capacity directs or works for a private sector entity, an undue advantage of any kind, for that person or for a third party, in order that that person should perform or refrain from performing any act, in breach of that person's duties; and directly or through an intermediary, requesting or receiving an undue advantage of any kind, or accepting the promise of such an advantage, for oneself or for a third party, while in any capacity directing or working for a private sector entity, in order to perform or refrain from performing any act, in breach of one's duties" [22]. Criminalisation applies to business activities in both profit and non-profit entities [Article 2(2); 22]. The Framework Decision also includes standard provisions on the liability of legal persons [Article 4 and 5; 22] and on jurisdiction [Article 7; 22]. The process of criminalising corruption in both the public and private sectors is considered necessary in order to protect a variety of interests ranging from the market to economic development and the rule of law [1].

The third aim is to facilitate judicial cooperation in criminal matters [1]. This has been achieved mainly by establishing the self-standing criminalization of corruption within the public sector. The 1997 EU Convention on the fight against corruption [23] was adopted to improve judicial cooperation in criminal matters of this nature. According to Mitsilegas [1], while maintaining emphasis on the fact that acts of corruption involving national or Union officials are likely to damage EU financial interests, the Convention went a step further with regards to the criminalization of corruption in the public sector. Henceforth, the criminalization of public sector corruption as established within the Corruption Convention was no longer conditional on the acts in question being such as to damage, or likely to damage the EU's financial interests. Thus the Convention broadens the criminalization of corruption in the public sector by disassociating it from fraud against EU financial interests, and thus arguably creating free-standing corruption offences. For passive corruption to

be criminal, a request for advantage is enough; for active corruption to be criminal, the promise of advantage is enough. No further action is required [1, 24].

Finally, the fourth aim of the European Commission contained in the Commission's Communication of 2011 is the safeguarding of the rule of law. Corruption can harm the rule of law internally. However, it is in the field of EU external action where safeguarding the rule of law has emerged as a key objective, justifying the emphasis placed by the EU on the adoption of and compliance with anti-corruption standards. The rule of law is a condition and a prerequisite for EU membership, and therefore emphasis on anti-corruption measures is made as a rule of law safeguard. Since the EU has limited competence to legislate rule of law issues internally, this approach might lead to claims that the EU is employing double standards in respect of anti-corruption measures by existing Member States and by candidate countries. Before examining the anti-corruption standards in the enlargement context, I will explain the instruments at the EU's disposal in the fight against corruption.

2.1 The EU Instruments in the Fight Against Corruption

In addition to the aims and instruments mentioned above, and European legislation in other areas such as anti-money laundering [25, 26] and public procurement [27], there are numerous international instruments that are available as monitoring and evaluation mechanisms. They include the Council of Europe Group of States against Corruption (GRECO) [28] that cooperates with the European Commission in the fight against corruption, and in the development of a comprehensive EU anti-corruption policy. Additionally, there are the broader and global instruments such as the OECD Working Group [29] and the Review mechanism of the UN Convention against Corruption (UNCAC) [30]. These mechanisms provide an impetus for States to implement and enforce anti-corruption standards, but they have proven to have limited ability to effectively combat the problems associated with corruption at the EU level.

Until 2011, when the Communication from the Commission on Fighting Corruption in the EU [20] provided for the EU Anti-Corruption Report to be established, these were the sole monitoring mechanisms available to the EU. This Report was intended to encourage and promote stronger political will for the fight against corruption in the Member States, and for enforcement of the existing legal and institutional tools. As a new mechanism, the EU Anti-Corruption Report was supposed to be combined with EU participation in GRECO. It was further intended to serve as a specific monitoring and assessment mechanism to serve the European Union and its Member States in their efforts to monitor the implementation of anti-corruption measures.

According to the Commission, the idea was that by means of periodic assessment and publication of objective fact-based reports, the Report would create additional impetus for Member States to effectively tackle corruption, notably by implementing

and enforcing internationally agreed anti-corruption standards [20]. Several indicators, such as perceptions of corruption, respondents' behaviour linked to corrupt activities, and criminal justice statistics, including those on seizure and confiscation of the proceeds of corruption-related crime, were to be studied. The Commission Communication provided that starting in 2013, the EU Anti-Corruption Report would be issued by the Commission every two years [20]. However, the first EU Anti-Corruption Report was issued in 2014 and, although it provided a good channel for the communication of anti-corruption measures among the Member States, the second report—originally scheduled for 2016—was never published. The unexpected decision to permanently shelve this second edition of the EU Anti-Corruption Report was announced by Vice-President Frans Timmermans in a letter to the European Parliament in early 2017 [31]. This ended the short life-span of the EU Anti-Corruption Report as imagined in the Commission Communication of 2011. Instead, the mechanism which was supposed to allow for some naming and shaming of miscreant EU Member States, and thus contribute to stronger implementation of the anti-corruption standards, was short-lived, and no longer exists.

The following parts of the chapter will explore the EU's anti-corruption standards and mechanisms in the external area, through its enlargement policy, though in this respect, it addresses an approach which differs in substance from the EU's own internal anti-corruption policies. The chapter will further examine the development of, and differences between the anti-corruption standards during the "big bang" period of enlargement, and during the pre-accession period of nation states in the Western Balkans. The tools for monitoring, measuring and reporting on the activities taken by the candidates for Membership will also be considered.

3 Strengthening the Criteria: Eastern Enlargement and EU Anti-corruption Standards

The EU accession process is widely perceived as one of the most powerful tools at the disposal of the European Union for the international promotion of democracy and the rule of law [32–34]. Both in Central and Eastern Europe, EU enlargement has been closely associated with the region's rapid movement towards stable democratic institutions, reducing corruption, increasing protection for minorities, and other political reforms [10, 14, 35]. Even though the enlargement process culminated with the admission to the EU of a total of twelve new Member States between May 2004 and January 2007, two fundamental concerns remained. First, despite their socioeconomic and political progress, many of the new Member States—in particular Bulgaria and Romania—had not reached EU governance standards at the time of their admission. The second concern was that further progress in governance reforms was uncertain in the post-accession period, in the absence of what had been one of the strongest reform incentives for Eastern European governments in the post-communist period—the reward of EU membership [14, 36].

This second concern is especially important in the context of the EU fight against corruption, and the monitoring mechanisms used during and after the pre-accession process, when the 'carrot' of EU Member State status had been achieved. A fundamental cornerstone of the EU anti-corruption strategy in external action is the requirement for the accessing countries to comply with the Union acquis on corruption. Compliance with the anti-corruption standards is inextricably linked to the fulfilment of the Copenhagen criteria, which trigger the very start of accession negotiations, in particular the criteria relating to democracy and the rule of law. According to the Copenhagen criteria, EU membership requires that the candidate country achieve three main goals: (1) the stability of institutions guaranteeing democracy, the rule of law, human rights, and respect for and protection of minorities (political criteria); (2) the existence of a functioning market economy and the capacity to cope with competitive pressures and market forces within the Union (economic criteria); and (3) the ability to take on the obligations of membership, including adherence to the aims of political, economic and monetary union. While the fulfilment of the political criteria was a condition for the opening of accession negotiations, the economic criteria and the adoption of the acquis were to be achieved before accession. Since the existing anti-corruption acquis in the EU is too narrow to serve as a model for anti-corruption policies in the candidate countries, the membership condition to prevent and combat corruption falls into the category of democratic conditionality applied by the EU [37].

Compliance with the anti-corruption standards is considered to be a prerequisite for candidate countries to assume the obligations of EU membership. The process of enlargement of the EU has been a key vehicle for driving major anti-corruption reforms within both the candidate countries, and potential candidates for EU membership. Among the most prominent features of the enlargement strategy to have contributed to the reforms has been the principle of conditionality [32, 38, 39]. The fight against corruption became an important membership condition for the first time during the 2004 enlargement, and it was one of the most difficult pre-accession requirements for Central and Eastern European countries to satisfy [37]. In its enlargement strategy for Central and Eastern European countries, the EU went beyond the formal democracy criteria formulated initially with Greece, Portugal and Spain. As candidate states, these nations had been required to have in place demonstrable substantive movement towards democracy, free elections and a multi-party democratic system, liberal-democratic constitutions, provisions for accountability, and participation in the fight against corruption [37]. Combating corruption was not mentioned in the Copenhagen criteria, but four years later in 1997, it was explicitly recognized as a membership condition in the Avis, on the application of Central and Eastern European countries for membership [40]. The Commission specified the fight against corruption as a requirement for EU membership and as an element of democracy and the rule of law.

During the accession process leading to the EU enlargements of 2004 and 2007, the candidate countries were required to comply with a series of specific anti-corruption standards, including measures relating to internal EU criminal law on corruption on

the one hand, and anti-corruption measures developed outside the EU in the international arena, on the other [1]. However, the pressure to comply with anti-corruption standards decreased after accession, when the former candidate countries were no longer monitored with the same rigour as previously happened during the accession process. As indicated earlier in this chapter, the EU Anti-Corruption Report was established as a sole monitoring mechanisms available to the EU, intended to serve as a specific monitoring and assessment mechanism to serve the European Union and its Member States in their efforts to monitor the implementation of anti-corruption measures. However, after the first report in 2014, the second report was never published. According to Szarek-Mason, this led to a situation in which "paradoxically, anti-corruption standards actually diminished once the Central and Eastern countries acceded to the EU" [37]. This unexpected loophole resulted in the insertion of "safeguard clauses" within the Accession Act: a general economic safeguard clause; a specific internal market safeguard clause; and a specific justice and home affairs safeguard clause. Hillion argues that these safeguard clauses establish a system of monitoring imported from the EU pre-accession strategy, which undermines the internal EU compliance principles applicable to the "old" Member States [41]. The specific justice and home affairs safeguard clause was provided to cover potential shortcomings in the implementation by newcomers of EU instruments relating to mutual recognition in criminal matters. In the event of serious shortcomings, or of an imminent risk of such shortcomings, in these matters the Commission may—after consulting with the Member States-, introduce safeguards including temporary suspension of the provisions on judicial co-operation in criminal matters [42]. The safeguard clause might have been invoked for three years following accession, but this never happened and the period has now expired.

3.1 The EU Enlargement with Bulgaria and Romania

According to Vachudova, the first eight post-communist countries to seek membership of the EU between 1997 and 2002 were subjected to the full force of the EU's conditionality, where the fight against corruption played a minor role [8]. Corruption was not identified as an issue for concern within the respective annual country reports. In the case of enlargement with Romania and Bulgaria, the Commission was critical of the pace of progress in the fields of justice and home affairs in general. Gaps in institutional capacity cast further doubt on the feasibility of the 2007 accession date for both countries. As the accession date drew closer, the Commission published a monitoring report which was highly critical of unresolved shortcomings in the two countries' judicial systems and of their anti-corruption efforts. Bulgaria's deficient measures to tackle organized crime and money laundering was also highlighted as a matter of particular concern [43]. Hence, although the Treaty of Accession for Bulgaria and Romania included the same three safeguard clauses as included in the

Accession Treaties of the ten states[1] that joined in 2004, it also included two new safeguard clauses. The first can be found in Article 39 of the Accession Treaty and was intended to permit the EU to postpone their membership for one year should they be adjudged to be "manifestly unprepared" for membership. However, this clause was not used. The second mechanism extended the EU's leverage past the moment of membership, by monitoring progress towards a series of benchmarks outlined in the Accession Treaty.

The safeguard clauses provide instruments for further control of the 2004 cohort of new Member States, but they have not been properly implemented. In Bulgaria's case, only one of these safeguard clauses was used, but notably, this concerned transport, a relatively minor issue. The Justice and Home Affairs (JHA) safeguard clause has never been used. Moreover, the safeguard clauses have a very short lifespan of three years. Once the safeguard clauses expire and monitoring and evaluation mechanisms are no longer available, as happened in the case of Hungary, Poland, and Romania, the EU is left with few reliable instruments to monitor progress in those areas that are of most concern.

Another instrument used in the post-accession period are transitional periods, or temporary arrangements, which are envisaged in accession treaties. They outline certain EU legal acts that will not be applicable to the new Member State for a period of time after accession. In some cases, the transitional periods are introduced at the requests of the newcomers, while in others they originate at the behest of the European Union. As an example, in the previous three accession rounds, the Accession Treaties provided for a 7-year transition for free movement of workers.

Another matter that merits attention are the procedural mechanisms for phasing in the full integration of newcomers into the Schengen area and Economic and Monetary Union. Within these mechanisms, a green light from the Council is needed for full integration; only when a new Member State meets the benchmark entry criteria can they integrate into Schengen area and Economic and Monetary Union.

Going further, on the legal basis of the Accession Treaty and the safeguard clauses within the Accession Act, the Commission adopted two Decisions establishing "a mechanism for co-operation and verification of progress" to check specific benchmarks in the areas of judicial reform, and the fight against corruption in both Bulgaria and Romania, and in Bulgaria, also organized crime [44]. This tailor-made mechanism designed by the Commission for Bulgaria and Romania is known as a cooperation and verification mechanism. It is an ex post monitoring mechanism which did not come into operation until after Bulgaria and Romania entered into the European Union. This meant that Bulgaria and Romania were subjected to greater levels of scrutiny and evaluation and monitoring in the criminal law sphere than was previously applied to any other EU Member State. The stringency of this process might be described as applying "double standards" to these particular newcomers, as the benchmarks address the implementation of specific EU criminal law standards, though their main purpose is the fulfilment of fundamental Copenhagen criteria. According to Mitsilegas, it is evident that the benchmarks are essentially targeted

[1] Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia and Slovenia.

towards broader institutional changes, rather than the implementation of specific legislation forming part of the EU criminal law acquis [1].

The two decisions establishing a mechanism for co-operation and verification of progress require Bulgaria and Romania to report once a year to the Commission on their progress in addressing each of these benchmarks. Moreover, there is a possibility for the Commission to gather and exchange information on the benchmarks and organize expert missions for that purpose. Should either Bulgaria and Romania fail to adequately address the benchmarks, the Commission may apply safeguards based on Articles 37 and 38 of the Accession Act, including the suspension of the Member States' obligation to recognize and execute—under the conditions laid down in Community law—judicial decisions from the two countries, such as European arrest warrants. The Cooperation and Verification Mechanism for Bulgaria and Romania remains in force today, fifteen years after its creation, and since 2007, the Commission has published regular progress reports [45, 46]. The final report on Bulgaria, published in 2019 [45], reaffirms the conclusion of provisionally closing the three benchmarks on judicial independence, the legal framework, organized crime. It further notes the imperative for Bulgaria to apply the recommendations of 2017 on the three other benchmarks which refer to continued judicial reform, high-level corruption and corruption in general, at the local level and on the borders. The final report on Romania [46] reassesses the developments in the country which, according to the Commission, have reversed or called into question the irreversibility of progress. What can be seen from these conclusions in the Commission reports on Bulgaria and Romania is that there remain some concerns over their willingness towards compliance, and the end of the Cooperation and Verification Mechanism for these two countries has still some way to go.

Bulgaria and Romania provide evidence that most of the pre-accession conditionality is based on very general concepts like the rule of law and the independence of judiciary, which are not regulated in acquis proper. Neither are they regulated in secondary legislation which limits the jurisdiction of the Court. These elisions help to provide explanations for the failure of the monitoring mechanisms. The Commission can only publish negative reports every six months, and that is the most that can be done.

As underlined by the cases of Bulgaria and Romania, the post-accession conditionality achieved very little, though it revealed many shortcomings in the area of democracy and the rule of law. The solution to the rule of law issues—among which is the issue of corruption—requires a difference of both approach and policies within the EU enlargement process. This is why the EU reconsidered its enlargement policy in the context of the countries of the Western Balkans, all of which still prompt concern over matters connected with the rule of law and the very high levels of corruption [47–49].

4 Pre-accession Conditionality Revisited: EU Anti-corruption Standards and Enlargement in the Western Balkans

Due to the serious shortcomings revealed in the assessments of the progress of Bulgaria and Romania prior to their accession in 2007, it was clear to both the EU Member States and the Commission that the mechanisms for monitoring and valuation were unfit for purpose in the post-accession period, and hence, the conditionality policy needed serious reform [39]. The EU had started the Stabilization and Association Process in 1999 with the countries of the Western Balkans: Albania, Bosnia and Herzegovina, Croatia, Macedonia and FR Yugoslavia [50]. Croatia was the frontrunner in this group, and became a Member State in 2013. The other six Western Balkan nations are moving towards EU membership but are at different stages of their integration. Starting in 2014 and 2012 respectively, Serbia and Montenegro opened negotiations with the EU, while the draft negotiating framework was presented to the Republic of North Macedonia and Albania in July 2020, following the decision of the Council in March 2020. Bosnia and Herzegovina and Kosovo are still in the very early stages of their EU integration as potential candidates, with the Stabilization and Association Agreements only entering into force in 2015 and 2016 respectively. It is clear that this new approach will require close monitoring if it is to succeed.

4.1 The Importance of the Rule of Law Criterion in the Fight Against Corruption

The Western Balkan countries are weak democracies, and the application of the rule of law criterion to the Western Balkans has emerged as one of the top priorities and key concerns in EU enlargement policies for the region. The gravity of the problem concerning the rule of law in the Western Balkan countries was understood by the EU, and received as a lesson learned through experience with the Cooperation and Verification Mechanism. Their previous experience with Bulgaria and Romania inspired the EU to develop pre-accession instruments and to build much stricter conditionality and benchmarking, which was especially emphasized in the areas of the judiciary, corruption and fundamental rights [51, 52].

The EU highlighted corruption as one of the most serious challenges confronting the young democracies of the Western Balkan countries. In 2007, the European Commission had noted in its Communication on the enlargement strategy [53] that: "in all Western Balkan countries, measures taken are not commensurate with the magnitude of the problem. Strong political will is needed to root out corruption and prosecute offenders, including in high profile cases" [53]. In its 2011 Communication on the enlargement strategy [54], the Commission placed great weight on the development of robust anti-corruption standards stressing that "the fight against

corruption is one of the key challenges for the rule of law in most enlargement countries" [54].The Commission particularly stressed corruption as a serious problem, which affected citizens' everyday material lives in vital areas such as healthcare and education. Moreover, they highlighted its serious negative impacts on investments and business activities, and the damage caused to national budgets, especially as an outcome of public procurement and privatization [54].

These regional observations are also prominently highlighted throughout the Council of Europe Group of States against Corruption (GRECO) reports for the Western Balkan countries [55]. All of the Western Balkan countries are members of the Council of Europe (CoE) and are therefore obliged to adjust their legislation in line with the GRECO's anti-corruption recommendations. This process is closely monitored by the European Commission in its yearly progress reports, which are issued to grade the candidate countries progress during their euro-integration process. Together with the GRECO anti-corruption recommendations, their compliance with the UN Convention against Corruption, as well as with the OECD Anti-Bribery Convention (to which all the Western Balkan countries are also parties), is closely monitored by the Commission within the progress reports.

The structural changes that were implemented in the pre-accession conditionality for the Western Balkan countries emphasized promotion of the rule of law, and issues connected with corruption were addressed as part of that approach. It became a condition *sine qua non* for further progress in the process of EU accession [56–67]. Since the state of the rule of law in the Western Balkan countries was very poor, the EU decided to add a "second generation" rule of law promotion strategy to the Copenhagen criteria. This set of rules highlighted the need to ensure the irreversibility of reforms. The 2006 Consensus on Enlargement indicated revisions of the rule of law strategy, by introducing enhanced rules governing the accession process, and the use of benchmarks for opening and closing individual chapters [68]. Issues that needed to be addressed early on in the accession process were judicial reform, administrative capacity, and the fight against corruption and organized crime. These steps would allow for a timely and detailed assessment, provide time-sensitive targets and thresholds of monitoring, and ensure linkages between evaluation and progress towards accession. The message of these reforms was that no country could climb the ladder of accession without first resolving the rule of law problem [69].

4.2 Remodelling of the Negotiation Process

The above-mentioned issues were in part responsible for the EU's remodelling of its negotiation process with Croatia. What was previously covered in the single Chapter 24 was now revised into two distinct separate negotiating chapters, with Chaps. 23 addressing the Judiciary and Fundamental Rights, and Chap. 24 concerned matters of Freedom, Security and Justice. Both chapters cover key rule of law issues, in particular reform of the judiciary and the fight to combat organized crime and corruption [70]. The fact that these chapters are going to be opened early on in

the negotiations and, in the case of Albania, the Republic of North Macedonia, Bosnia and Herzegovina and Kosovo, are at the heart of the pre-negotiation phase, and furthermore implies that the EU has learned lessons from its past experience. In this process, the candidates need continued guidance, monitoring and financial assistance.

The renewed Consensus on Enlargement, as endorsed by the 2006 European Council, has further strengthened the focus on the rule of law in the accession process and "accordingly, difficult issues such as administrative and judicial reforms and the fight against corruption will be addressed at an early stage" [68]. One important feature of the accession negotiations with Croatia was the heavy reliance on conditionality, which expressed itself in numerous opening and closing benchmarks. Croatia achieved a total of one hundred and four closing benchmarks in thirty-one out of thirty-five negotiating chapters. In actuality, the number of benchmarks was much higher, as the European Commission developed numerous further sub-benchmarks [71]. Towards the end of the accession negotiations, Chap. 23 was opened, and since it came with a package of rigorous compliance benchmarks, it made the task of the Croatian authorities much more challenging. In sum, EU enlargement with Croatia was secured through a special monitoring mechanism with particular focus on the candidate's commitment to effect improvements in the area of the judiciary and fundamental rights. These included enhancing its track record on judicial reform and efficiency, impartial handling of war crimes cases, and affirming its commitment to combating corruption, all provided for through Article 36 of the Accession Act, which became operational on the signing of the Accession Treaty [72]. This represented an additional pre-accession monitoring mechanism imposed upon Croatia, though in the event, it was s not followed by similar instrument for the post-accession period. It marked an important comparative difference to the pre-accession and post-accession instruments that had been put in place for Bulgaria and Romania.

Alongside this new mechanism, the Croatian Accession Treaty provided the same three safeguard clauses as the those included in the Accession Treaties of the 2004 enlargement: a general economic safeguard clause; a specific internal market safeguard clause; and a specific justice and home affairs safeguard clause. The monitoring mechanism that was specifically created for Croatia allowed the EU to rigorously scrutinize Croatia's compliance with the accession commitments, especially in terms of its progress with developing and implementing robust programmes to combat corruption [73].

The emphasis on the rule of law quickly spilled over onto EU relations with other Western Balkan countries. Although these countries are at different stages of their EU accession process, the judicial reforms and the fight against corruption are highly placed on their agenda. The Commission went even further to embed anti-corruption policies and programmes within these new accession agreements, adopting a "new approach" in its efforts to enhance the pre-accession policy in practice. This has been especially evident in the cases of Montenegro and Serbia, both already engaged in accession negotiations with the EU. The main focus is on rule of law issues, which are placed at the heart of the enlargement process. This development has translated into a new sequence of opening of negotiating chapters, as well as a more extensive and

robust use of benchmarks [74]. In the cases of Montenegro and Serbia, Chaps. 23 and 24 were the first to be opened, and the last to be closed, with detailed benchmarks developed, as in the case of Croatia. The candidate nations' compliance with EU anti-corruption standards assumes growing importance in this context. This new development of pre-accession conditionality gives the Commission an opportunity to examine compliance with anti-corruption standards in the framework of the chapter on the political criteria for membership—in particular democracy and the rule of law—as well as (in cases where negotiations are underway) within the framework of Chaps. 23 and 24 [75, 76].

In the cases of Albania and the Republic of North Macedonia [77–79], the Commission's opinion on these candidate nations' readiness to take on the obligations of membership provided a detailed examination of the state of the rule of law. Certainly, the decision to open accession negotiations was bound to the candidate nations' progress in the areas of the rule of law—an independent judiciary, commitment to fight against corruption and against organized crime—all pillars of the reinforced rule of law criterion of enlargement [80, 81]. The Stabilization and Association Agreements with Bosnia and Herzegovina and Kosovo also reflect the requirement for those countries to address the rule of law issues and the fight against corruption in that context, before allowed to proceed to the next steps of the EU accession process [82, 83].

These developments on the EU side are important due to the ongoing backsliding on the rule of law and democracy in the Western Balkans. State capture, a phenomenon in the Western Balkans (identified by the EU Commission as systemic political corruption in which politicians exploit their control over a country's decision-making processes to their own advantage), heavily undermines the EU enlargement process [84]. Tackling the unduly high levels of corruption and the related issues connected to backsliding on the rule of law and democracy requires further development of the EU pre-accession conditionality. Accordingly, in 2018 the EU adopted a new enlargement strategy for the Western Balkans, which paved the way for Serbia and Montenegro's accession to EU membership. It also outlined the future steps to be pursued for Albania, North Macedonia, Bosnia and Herzegovina and Kosovo. Six flagship initiatives were established, and these have helped to identify the main areas of common interest for the EU and the Western Balkans, with the rule of law being paramount. Under this initiative, the cornerstone of the new EU-Western Balkans strategy is the strengthening of the rule of law and fighting corruption and organized crime [85]. Tackling state capture and corruption by strengthening national institutions and increasing transparency is identified as a key priority for the future success of the EU enlargement process. To increase the effectiveness of EU conditionality and the credibility of the EU, a new framework for accession talks was introduced. The negotiating chapters will be grouped into six clusters, and all chapters within a cluster will be opened jointly but closed individually [86]. This will change the dynamics of the reform activities of future candidate countries which will have to focus simultaneously on all the chapters within the fundamental cluster, including issues of rule of law, democracy and the fight against corruption, in order to

open any of them. This will require more reflexive effort from the candidate countries during the negotiations process.

These reforms in the EU's enlargement strategy have once again confirmed that the only constant in the enlargement process is its change and adaptation. The enlargement process has undergone further re-examination, which has affected the commitment to reforms in the Western Balkans. The last reform was needed to identify and solve some of the burning issues in the area of serious corruption and organized crime, but there remains a need still to see significant progress in how these instruments are translated into concrete actions. It becomes evident in the Western Balkans that reforms related to the rule of law—and especially the fight against corruption—must be successfully implemented during the pre-accession period while the conditionality principle can still be put into practice. Moreover, the EU's tools for monitoring, measuring and reporting on the activities undertaken by the countries in the pre-accession period also need to be strengthened. The future success of reform is important, because stalling the enlargement process affects support for reforms in the candidate countries, which might lead to further backsliding in already fragile democratic processes.

5 Conclusions

The EU has embraced its enlargement policy as its most effective foreign policy tool. Nowadays, it is presented as the way forward to secure the stabilization and democratization of Western Balkan countries, building efficient public administration and reviving the economy, while also helping to bring ethnic reconciliation and reintegration to the post-conflict region. Corruption and organized crime in the Western Balkans remains entrenched and strongly intertwined with political parties, the civil service and state agencies, prompting the European Union to reconsider its pre-accession conditionality and to expand the instruments with which it has tackled corruption through the years.

The external EU anti-corruption standards have been increasing over the years, mainly due to the problems connected to the transitional societies of the new candidate countries. EU conditionality has been far stronger for Eastern European countries than for their Mediterranean predecessors such as Greece, Spain and Portugal. The Cooperation and Verification Mechanism as a permanent safeguard measure has remained in place for Bulgaria and Romania since the first day of their membership, setting up specific benchmarks in the areas of judicial reform, the fight against corruption and, in Bulgaria's case also, the fight against organized crime. Furthermore, to improve the anti-corruption record of new Western Balkan Member States, the European Commission had the pre-accession process redesigned, and strengthened even further the EU anti-corruption standards for the candidate countries, in comparison to the internal standards imposed on the Member States. There is asymmetry between the EU external standards and internal legislation in relation to combatting corruption. The limitations of the EU anti-corruption acquis lead to the salience of political

criteria in the enlargement process and the overall shortcomings of the conditionality policy. For as long as Member States are not willing to delegate more power to the EU's fight against corruption, the limited nature of the acquis will necessarily require the EU to increase its demands through its political criteria in external relations.

Despite the fact that the European Union has adopted a number of anti-corruption measures based on an extensive interpretation of the threat posed by corruption, EU intervention in this context has been diffuse, fragmented and limited. Most post-communist EU Member States are struggling to effectively address corruption. Several countries, including Hungary, Poland and Romania, have moved to undermine judicial independence, which weakens their capacity to prosecute cases of high-level corruption, and the EU has very few resources at its disposal to correct such a situation. There is a great deal more to be done in the fight against corruption both in the Union and in the Member States, for the EU to remain a credible exporter of values to third countries.

There needs to be further development of the EU powers in the field of Justice and Home Affairs in order to secure greater effectiveness of the anti-corruption measures within the conditionality policy. The emphasis on the institutionalization of the EU anti-corruption measures in the candidate countries—rather than mere transposition—is the key to reviving the conditionality method in the area. In its mandate to combat corruption, the EU's conditionality is weakened by the shortcomings of its own demand, meaning that more elaborate acquis in the area should contribute towards better results in the area.

References

1. Mitsilegas, V.: The aims and limits of European union anti-corruption law. In: Horder, J., Alldridge, P. (eds.) Part II—Bribery without Borders: Tackling Corruption in the EU and Beyond. Cambridge University Press (2013)
2. Mitsilegas, V.: EU Criminal Law. Hart (2009)
3. Chalmers, D., Davies, G., Monti, G.: EU Criminal Law in European Union Law: Text and Materials. Cambridge University Press (2014)
4. Peers, S.: The European community's criminal law competence: the plot thickens. Eur. Law Rev. 399 (2008)
5. Klip, A.: Substantive Criminal Law of the European Union. Maklu (2011)
6. Ambos, K.: Is the development of a common substantive criminal law for Europe possible? some preliminary reflections. Maastricht J. Eur. Comp. Law 173 (2005)
7. Mitsilegas, V.: EU Criminal Law after Lisbon—Rights, Trust and the Transformation of Justice in Europe. Hart (2016)
8. Vachudova, M.A.: Corruption and compliance in the EU's post-communist members and candidates. J. Common Market Stud. 43 et seq. (2009)
9. Ristei, M.: The politics of corruption: political will and the rule of law in post-communist. Rom. J. Communist Stud. Trans. Polit. 341 et seq. (2010)
10. Grigorescu, A.: The corruption eruption in East Central Europe: the increased salience of corruption and the role of intergovernmental organizations. East Eur. Polit. Soc. 516 et seq. (2006)
11. Holmes, L.T.: Rotten States? Corruption, Post-Communism and Neoliberalism. Duke University Press, Durham NC (2006)

12. Kainberger, H.: Corruption in EU candidate countries. Working Paper, Reuters Foundation Programme, University of Oxford (2003)
13. Stoyanov, A.: Administrative and political corruption in Bulgaria: status and dynamics (1998–2006). Rom. J. Polit. Sci. 5 et seq. (2008)
14. Ganev, V.: Post-accession hooliganism: democratic governance in Bulgaria and Romania after 2007. East Eur. Polit. Soc. 26 et seq. (2013)
15. Transparency International.: Corruption Perceptions Index 2018 (2019)
16. Kaiafa-Gbandi, M.: Punishing corruption in the public and the private sector: key issues on current EU policy and rule-of-law challenges. In: Mitsilegas, V., Bergström, M., Konstadinides, T. (eds.) Research Handbook on EU Criminal Law. Edward Elgar (2006)
17. Sicurella, R.: EU competence in criminal matters. In: Mitsilegas, V., Bergström, M., Konstadinides, T. (eds.) Research Handbook on EU Criminal Law. Edward Elgar (2006)
18. Miettinen, S.: Criminal Law and Policy in the European Union. Routledge (2012)
19. The Stockholm Programme (2010/C 115/01)—an open and secure Europe serving and protecting citizens
20. Communication COM.: Brussels, 308 final, 6 June 2011. Fighting Corruption in the EU (2011)
21. Directive 2017/1371 of 5 July 2017 on the fight against fraud to the Union's financial interests by means of criminal law
22. Framework Decision 2003/568/JHA of the Council of 22 July 2003 on combating corruption in the private sector. The post-Maastricht Joint Action adopted in 1998—Joint Action 98/742/JHA on corruption in the private sector was replaced in 2003 with this more clearly legally binding Framework Decision
23. Convention, OJ C 195 of 25 June 1997, on the Fight against Corruption Involving Officials of the European Communities or Officials of Member States of the European Union (drawn up on the basis of Article K.3(2)(c) of the Treaty on the European Union)
24. Kaiafa-Gbandi, M.: Punishing corruption in the public and the private sector: the legal framework of the European Union in the international scene and the greek legal order. Eur. J. Crime, Crim. Law Crim. Justice 139 (2010)
25. Directive (EU) 2015/849 of the European Parliament and of the Council of 20 May 2015 on the prevention of the use of the financial system for the purposes of money laundering or terrorist financing, amending Regulation (EU) No 648/2012 of the European Parliament and of the Council, and repealing Directive 2005/60/EC of the European Parliament and of the Council and Commission Directive 2006/70/EC, p. 73–117. The treatment of money laundering as a predicate offence contributes towards a complementary approach to the criminalization of corruption as such. As far back as 1991, and before the entry into force of the Maastricht Treaty which introduced the third pillar into the Union constitutional framework, Member States, acknowledging the potentially adverse impact of money laundering on the stability of the financial system and internal market, agreed the so-called First Money Laundering Directive
26. Mitsilegas, V., Gilmore, B.: The EU legislative framework against money laundering and terrorist finance: a critical analysis in the light of evolving global standards. Int. Comp. Law Quart. 119 (2007)
27. In addition to the criminalization of corruption at EU level, the protection of the internal market from corruption has been attempted via the indirect use of criminal law in the domestic systems under EU public procurement rules. The two major EU public procurement Directives contain certain provisions dealing with corruption. Directive 2014/24/EU of the European Parliament and of the Council of 26 February 2014 on public procurement, and Directive 2014/25/EU of the European Parliament and of the Council of 26 February 2014 on procurement by entities operating in the water, energy, transport and postal services sectors
28. According to Communication COM.: GRECO is the most inclusive international instrument relevant for the EU, in as much as all Member States participate. Through GRECO, the Council of Europe contributes to ensuring minimum standards in a pan-European legal area. However, given the limited visibility of the intergovernmental GRECO evaluation process and its follow-up mechanism, it has, so far, not generated the necessary political will in the Member States to tackle corruption effectively. Furthermore, GRECO monitors compliance with a spectrum

of anti-corruption standards established by the Council of Europe and accordingly focuses less on specific areas of the EU legislation, such as public procurement. The GRECO system, moreover, does not allow for comparative analysis and hence the identification of corruption trends in the EU, nor does it actively stimulate the exchange of best practices and peer learning (2011)

29. Established in 1994, the OECD Working Group on Bribery in International Business Transactions (Working Group) is responsible for monitoring the implementation and enforcement of the OECD Anti-Bribery Convention, the 2009 Recommendation on Further Combating Bribery of Foreign Bribery in International Business Transactions (2009 Anti-Bribery Recommendation) and related instruments. This peer-review monitoring system is conducted in successive phases and is considered by Transparency International to be the "gold standard" of monitoring. Made up of representatives from the States Parties to the Convention, the Working Group meets four times per year in Paris and publishes all of its country monitoring reports online. OECD. http://www.oecd.org/corruption/anti-bribery/anti-briberyconvention/oecdworkinggrouponbriberyininternationalbusinesstransactions.htm. However, the OECD's Anti-Bribery Convention focuses on the specific issue of bribery of foreign public officials in international business transactions, and cannot be extended to other areas of importance for the fight against corruption in the EU
30. The purpose of the Implementation Review Mechanism is to assist States parties in their implementation of the Convention. The Mechanism promotes the purposes of the Convention, provides the Conference of the States parties with information on measures taken by States parties in implementing the Convention and the difficulties encountered by them in doing so, and helps States parties to identify and substantiate specific needs for technical assistance and to promote and facilitate the provision of such assistance. In addition, the Mechanism promotes and facilitates international cooperation, provides the Conference with information on successes, good practices and challenges of States parties in implementing and using the Convention, and promotes and facilitates the exchange of information, practices and experiences gained in the implementation of the Convention. UNCAC. https://www.unodc.org/unodc/en/corruption/implementation-review-mechanism.html. However, the potential of the UNCAC review mechanism to address problems associated with corruption at EU level is limited by the fact that it is an intergovernmental instrument. The cross-review system is also likely to leave out policy areas of particular relevance to the EU; it includes States parties which may have lower anti-corruption standards than the EU; the review cycles will be of relatively long duration; and recommendations to States parties which are not implemented might be followed up only a limited number of times
31. According to Transparency International. https://transparency.eu/ac-report-shelved/. The announcement came at a time when hundreds of thousands were protesting against the weakening of anti-corruption standards in Romania, and there is evidence of backsliding on anti-corruption efforts in Hungary and Croatia. Mr. Timmermans has promised that this work will continue as part of the Commission's annual dialogue with Member States on economic reforms—the "European Semester". However, this process only addressed corruption in eight Member States in 2016
32. Schimmelfennig, F., Sedelmeier, U.: Governance by conditionality: EU rule transfer to the candidate countries of Central and Eastern Europe. J. Eur. Pub. Policy 669 (2004)
33. Schimmelfennig, F.: The international promotion of political norms in Eastern Europe: a qualitative comparative analysis. In: Center for European Studies Central and Eastern Europe Working Paper (2004)
34. Schimmelfennig, F., Engert, S., Knobel, H.: Costs, commitment and compliance: the impact of EU democratic conditionality on Latvia, Slovakia and Turkey. J. Common Market Stud. 495 (2003)
35. Holmes, L.: Political corruption in central and Eastern Europe. In: Bull, M.J., Newell, J.L. (eds.) Corruption in Contemporary Politics. Palgrave Macmillan, p. 193 (2003)
36. Levitz, P., Pop-Eleches, G.: Monitoring, money and migrants: countering post-accession backsliding in Bulgaria and Romania. Eur. Asia Stud. 461 (2010)

37. Szarek-Mason, P.: The European Union's Fight Against Corruption. The Evolving Policy towards Member States and Candidate Countries. Cambridge University Press (2010)
38. Anastasakis, O., Bechev, D.: EU conditionality in South East Europe: bringing commitment to the process. South East European Studies Programme, Oxford (2003)
39. Steunenberg, B. Dimitrova, A. Compliance in the EU Enlargement Process: The Limits of Conditionality. In European Integration Online Papers (2007)
40. As an example: Commission (EC), Commission opinion on Poland's application for membership of the European union (1997), at 14; EU Enlargement. http://ec.europa.eu/enlargement/archives/pdf/dwn/opinions/poland/po-op_en.pdf
41. Hillion, Ch.: The European union is dead. long live the European union… a commentary on the treaty of accession 2003. Eur. Law Rev. 583 (2004)
42. Article 39 of the Accession Treaty [2003] OJ L 236, p. 17
43. European Commission COM.: 549 final of 26 September 2006, monitoring report on the state of preparedness for EU membership of Bulgaria and Romania, p. 4 (2006)
44. OJ L 354, 14 December 2006, p.56 and p. 58 respectively
45. Report COM.: 498 final of 22 October 2019. On progress in Bulgaria under the cooperation and verification mechanism (2019)
46. Report COM.: 370 final of 8 June 2021. On progress in Romania under the cooperation and verification mechanism (2021)
47. Dimitrov, G., Haralampiev, K., Stoychev, S., Toneva-Metodieva, L.: The cooperation and verification mechanism: shared political irresponsibility between the European commission and the Bulgarian governments. St. Kliment Ohridski University Press
48. Dimitrov, G.: How and why did the laggards turn out to be the forerunners in a major transformation in the EU's integration strategy? Southeast. Eur. 28 (2019)
49. Trauner, F.: Post-accession compliance with EU law in Bulgaria and Romania: a comparative perspective. In: Schimmelfennig, F., Trauner, F. (eds.) Post-accession Compliance in the EU's New Member States, European Integration Online Papers (2009)
50. In 2003 FR Yugoslavia became the State Union of Serbia and Montenegro and in 2006 Montenegro declared its independence. Kosovo declared its independence in 2008. As of today, there are four candidate countries for EU membership: Albania, Montenegro, the Republic of North Macedonia and Serbia, and two potential candidate countries: Bosnia and Herzegovina and Kosovo. Croatia became an EU member on 1 July 2013
51. Trauner, F.: From membership conditionality to policy conditionality: EU external governance in South Eastern Europe. J. Eur. Pub. Policy 774 (2009)
52. Grubiša, D.: Anti-corruption policy in Croatia: benchmark for EU accession. Politička misao 69 (2010)
53. Communication COM.: 663 final of 6 November 2007, from the commission to the European parliament and the council. Enlarg. Strategy Main Chall. 2007–2008 (2007)
54. Communication COM.: 666 final of 12 October 2011, from the commission to the European parliament and the council. Enlarg. Strategy Main Chall. 2011–2012 (2011)
55. Opinions and analysis of GRECO reports. https://europeanwesternbalkans.com/?s=GRECO
56. Mendelski, M.: Where does the European Union make a difference: rule of law development in the Western Balkans and beyond. In: Elbasani, A. (ed.) European Integration and Transformation in the Western Balkans, Routledge (2013)
57. Mendelski, M.: The EU's pathological power: the failure of external rule of law promotion in South Eastern Europe. Southeast. Eur. 318 (2015)
58. Merkel, W.: Embedded and Defective Democracies. Democratization 33 (2014)
59. Mungiu-Pippidi, A.: Twenty years of post communism: the other transition. J. Democr. 120 (2010)
60. Nicolaidis, K., Kleinfeld, R.: Rethinking Europe's "rule of law" and enlargement agenda: the fundamental dilemma. Sigma Papers (2012)
61. Schimmelfennig, F.: European regional organizations, political conditionality, and democratic transformation in Eastern Europe. East Eur. Polit. Soc. 126 (2007)

62. Schimmelfennig, F., Sedelmeier, U.: Candidate countries and conditionality. In: Graziano, P., Vink, M.P. (eds.) Europeanization: New Research Agendas, Palgrave (2006)
63. Vachudova, M.A.: EU leverage and national interests in the Balkans: the puzzles of enlargement ten years on. J. Common Market Stud. 122 (2014)
64. Dimitrova, A.: The new member states of the EU in the aftermath of enlargement: do new European rules remain empty shells? J. Eur. Pub. Policy 137 (2010)
65. Elbasani, A.: EU administrative conditionality and domestic downloading. KFG Working Paper Series (2009)
66. Elbasani, A. (ed.): European Integration and Transformation in the Western Balkans: Europeanization or Business as Usual? Routledge (2013)
67. Eskisar, G.M.K., Komsuoglu, A.: A critical assessment of the transformative power of EU reforms on reducing corruption in the Balkans. Southeast Eur. Black Sea Stud. 301 (2015)
68. European Council Conclusions of 14/15 December 2006
69. Elbasani, A., Šabić, S.S.: Rule of law, corruption and democratic accountability in the course of EU enlargement. J. Eur. Pub. Policy (2017)
70. Giatzidis, E.: The challenge of organized crime in the Balkans and the political and economic implications. J. Communist. Stud. Trans. Polit. 327 (2007)
71. Łazowski, A.: EU criminal law and EU enlargement. In: Mitsilegas, V., Bergström, M., Konstadinides, T. (eds.) Research Handbook on EU Criminal Law Edward Elgar (2016)
72. Article 3(5) of the Accession Treaty, OJ L 112, 24 April 2012, p. 10
73. Łazowski, A.: European union do not worry, Croatia is behind you... CYELP **34** (2012)
74. Vlašić Feketija, M., Łazowski, A.: Seventh EU Enlargement and Beyond: Pre-Accession Policy vis-à-vis the Western Balkans Revisited CYELP 18 (2014)
75. Hillion, C.: Overseeing the rule of law mandate in the EU legal mandate and means. In: Carlos, C., Kochenov, D. (eds.) Reinforcing Rule of Law Oversight in the European Union Cambridge University Press (2016)
76. Džankić, J., Soeren, K., Kmezić, M. (eds.): The Europeanisation of the Western Balkans: A Failure of EU Conditionality? Palgrave Macmillan (2019)
77. Nechev, Z.: Bolstering the rule of law in the EU enlargement process towards the Western Balkans. Clingendael Institute Policy Brief (2013)
78. Gjevori, E.: Democratisation and institutional reform in Albania, Palgrave Macmillan (2018)
79. Fouere, E.: The EU's Re-engagement with the Western Balkans: a new chapter long overdue. CEPS Policy Briefs (2019)
80. European Commission SWD.: 351 final of 6 October 2020, North Macedonia 2020 Report (2020)
81. European Commission SWD.: 354 final of 6 October 2020, Albania 2020 Report (2020)
82. Stabilization and Association Agreement with Bosnia and Herzegovina (2015)
83. Stabilization and Association Agreement with Kosovo (2016)
84. Lemstra, M.: The destructive effects of state policy brief capture in the Western Balkans EU enlargement undermined. Clingendael Institute Policy Brief (2020)
85. Hoxhaj, A.: The EU rule of law initiative towards the Western Balkans. Hague J. Rule Law (2020)
86. European Commission Presents its Proposal for a New Enlargement Methodology, European Western Balkans, 5 September 2020

The Legal Nature of the Right to Build in Macedonian Legislation—Legal Transplant from the Legal Systems of EU Countries

Rodna Živkovska, Tina Pržeska, and Tea Lalevska

Abstract The paper analyzes the regulation of the *right to build* in Macedonian laws. The goal is to examine how the existing laws and regulations reflect the legal nature of the *right to build* and the consequences of it for investors and all other involved parties in the real estate market. The subject of the analysis is primarily the provisions of the basic Law on Ownership and Other Real Rights, the Law on Construction Land, and the Law on Construction all containing partial regulation concerning the *right to build*. As the paper will demonstrate, the legal nature of the *right to build* is determined by the provisions in these laws and it is significantly different from the nature of the *right to build* found in the laws of countries member of the EU (the Property Code of R. Slovenia, the Law on Ownership and Other Real Rights of R. Croatia). The main difference between the Macedonian *right to build* compared to the *right to build* regulated in the legal systems of EU countries is the fact that Macedonian laws do not treat this right as a real right. Due to this significant difference, the regulation concerning the *right to build* that was transplanted from the legal systems of EU countries in various Macedonian special laws is incompatible and has a disruptive effect on the cohesion of the Macedonian legal system. By examining the legal nature of the Macedonian *right to build* and explaining its practical effects the paper aims to aid in finding appropriate legal solutions viable to overcome the problems in the transfer and exercise of the *right to build*.

R. Živkovska · T. Pržeska (✉) · T. Lalevska
Faculty of Law Iustinianus Primus, "Ss. Cyril and Methodius" University in Skopje, Skopje, North Macedonia
e-mail: t.przeska@pf.ukim.edu.mk

R. Živkovska
e-mail: r.zivkovska@pf.ukim.edu.mk

T. Lalevska
e-mail: t.lalevska@pf.ukim.edu.mk

G. Pellat et al. (eds.), *Cooperation and Enlargement: Two Challenges to be Addressed in the European Projects - 2022*, Studies in Systems, Decision and Control 500,
https://doi.org/10.1007/978-3-031-42253-9_9

1 Introduction

1.1 Relevance

The construction industry has been on the constant rise, especially in the past two decades in North Macedonia. Construction activities haven't slowed down even in the times of post-COVID economic crisis, since people continue to invest in buying real estate instead of keeping their money in savings accounts or investing in other types of business opportunities. The high demand for newly built real estate has prompted the legislator to facilitate the procedures for obtaining building permits. In addition, land parcels initially planned for individual housing have been repurposed into parcels for condominium construction by the new zoning plans in all the so-called "attractive locations" that include the center of the city of Skopje and the surrounding municipalities.

Investors working in the area of real estate construction have also been lobbying for regulation that will enable them easy access to the construction land planned for the construction of condominiums or other major construction projects that bring greater profit margins for their businesses. One of the ways that the legislator has facilitated access to unbuilt construction land for investors is by making a legal transplant of the *right to build* found in the legal systems of EU countries (Slovenia and Croatia). However, this was not done as a simple legal transplant, so the nature of the *right to build* was not preserved. The Macedonian legislature made some changes and adjustments that altered the nature of the *right to build* and created a type of *sui generis* right. The essence of the legal construct called the *right to build* in Macedonian legislation is that it is extracted from the content of the right of ownership over construction land and transferred onto a third party as an independent right. This was done to enable that third party to build a building or other type of structure without owning the land where the building or structure is constructed. The intention is for the investor to get construction land to build on without having to buy the land, which will significantly lower the investor's construction costs. Although it makes sense in theory, the legal construct of the *right to build* wasn't made solid in the legislative sense of the word and once it was put into practice it began to "show cracks". Due to the shortcomings of the regulation concerning the *right to build,* there is an urgency to revisit and rethink the concept of the *right to build* so that all of the unintended negative consequences of its implementation can be alleviated since it is too late for those consequences to be eliminated.

1.2 Goals and Objectives

Considering the negative effects of the implementation of the *right to build* that took on the form of property disputes between investors and land owners, unresolved

relations between owners of condominiums, and unfinished construction projects, the paper aims to pinpoint the source of the problem.

Close analysis of the regulation concerning the *right to build* will demonstrate the origins of the legal construct surrounding it and it will shed light on the inconsistencies in that regulation. A comparative analysis will demonstrate that the concept of the *right to build* has been, to some extent, transplanted from the laws of EU countries that North Macedonia has shared legal history in the past. The comparative analysis will also show that the legal transplant hasn't been done right. By examining the legal nature of the *right to build* it will be shown why the practical implementation of the concept of the *right to build* as is, is not sustainable.

2 The Right to Build in the Law on Ownership and Other Real Rights

The basic property law—The Law on Ownership and Other Real Rights (Law on Ownership) [1] doesn't recognize the *right to build* to be one of the real rights in Macedonian property law. Instead, the Law only mentions the existence of a so-called *right to build* in the scope of regulating the acquisition of ownership over erected structures by way of construction.

As it is prescribed in Article 116 (1) of the Law on Ownership, the owner of construction land is entitled to erect a building or another structure on his or her land, and by doing so, he or she will acquire ownership over the erected building or structure. For the construction to be legal and for it to lead to the acquisition of ownership it must be conducted by the laws regulating construction. This means that the land owner must obtain a building permit to initiate the construction process and upon termination of the construction process the building or structure must be registered in the Real Estate Cadaster. According to Article 116 (2) of the Law on Ownership, the land owner is also entitled to give consent to another person for that person to erect a building or other structure on his or her land, in which case that other person will acquire ownership over the building or structure. For that other person to legally acquire ownership by way of construction the same conditions apply—the construction process must be conducted with a building permit and upon its termination the building or structure must be registered in the Real Estate Cadaster. What the provisions of Article 116 of the Law on Ownership regulate (even if it is not precisely specified) is the exercise of the *right to build*. As it can be noticed, there are two ways that the *right to build* can be exercised. First by the land owner personally, and second by another person to whom the land owner has ceded his or her *right to build*. When the land owner exercises the *right to build* personally it can be argued that he or she is exercising one of the compounding powers of the right of ownership—the power of use (*jus utendi*). Since the object of the right of ownership in question is construction land, the use (*jus utendi*) of that land entails building on it. Seen in this fashion the *right to build* does not represent a separate right, but a mere

manifestation of the use of construction land on the part of the landowner. However, when the landowner cedes his or her *right to build* to another person, in that case, we must accept that the *right to build* is "extracted" from the right of ownership on construction land and it gains the quality of a separate right. This is so in theory, but the Law itself doesn't contain precise articles regulating the *right to build* as a separate right, nor does it contain provisions about the manner and conditions under which it can be transferred.

Another issue related to the *right to build* is that it could circumvent the governing property law principle—*superficies solo cedit* [2, 3]. What the principle of *superficies solo cedit* expresses is the integrated relationship between the land and all the things planted or erected on that land. According to this principle, the land parcel is the principal object of ownership, while everything planted or erected on it is legally attached to the land parcel and belongs to the landowner. This principle originates from Roman law, although there are some exceptions, such as superficies, which according to the Roman law allowed for a person to erect and use a building on land owned by another as long as solarium was paid (rent for the use of the land) [4]. In Macedonian property law, the principle of *superficies solo cedit* is expressed in article 126 of the Law on Ownership and it has also been reaffirmed in all laws regulating the legal regime of the construction land passed after 2001 [5–7]. When the *right to build* is exercised by the landowner personally the principle of *superficies solo cedit* stands since it is the same person that owns and builds on the construction land. Upon termination of the construction process, the owner of the land becomes the owner of the building as well, and both things (land and building) form a legal unity where the land is the principal object and the building is its attachment. However, when the land owner cedes his or her *right to build* onto another person, then the principle of *superficies solo cedit* is excluded. This is so because ceding the *right to build* onto another person doesn't also include the transfer of ownership over the land and since the holder of the *right to build* doesn't own the land, he or she only acquires ownership over the erected building by way of construction. Taking this into account we ask what is the legal status of the erected building, does it become the principal object of ownership since it can't form a legal unity with the land it is built on, or should it be treated as an attachment of the *right to build*? The Law on Ownership left that question unanswered.

The Law on Ownership also regulates situations when the *right to build* has been exercised by another person without the consent of the landowner, as to say without the landowner having ceded his or her *right to build*. In such situations, the dispute relating to who will acquire ownership over the erected building is resolved based on the principle of good faith. The Law on Ownership recognizes three possible situations. First is the situation when the builder is the conscientious party, second is the situation when the landowner is the conscientious party and third is when both parties are conscientious.

The first situation (conscientious builder, unconscientious landowner) is regulated by Article 117 of the Law on Ownership. When the builder is the conscientious party, he or she has the priority in acquiring ownership of the land and the building. According to the Law, the builder can be considered as the conscientious

party if he or she didn't know, nor could have known, that the construction has been performed on land owned by another person and if the land owner was aware but did nothing to prevent it. The builder will become the owner of the land with the building attached to it, provided that he or she performed the construction legally, say with a building permit and in accordance with construction and safety standards. The fact that the issued building permit can be later annulled, due to faulty documentation or mistake on the part of authorities, has no bearing on the rights of the builder under the provisions of Article 117 assuming that he or she is not at fault regarding the annulment of the building permit. The land owner who was aware that somebody was building on his or her land without permission and did nothing to prevent it is considered to be the unconscientious party. Therefore, the landowner is only entitled to demand payment of the market value of the land under the provisions of Article 117.

Article 118 of the Law on Ownership regulates the second situation when the landowner is the conscientious party, while the builder is the unconscientious party. The landowner is considered to be a conscientious party if he or she demands for the construction to be stopped immediately after finding out that someone is building on his or her land without permission. As for the builder, he or she is considered as the unconscientious party if he or she performed the construction while being fully aware that the issued building permit is faulty and the land is owned by another person. In this situation, the landowner, as the conscientious party, enjoys preferential treatment by the Law. The landowner is entitled to choose one of the following options: demolition so that the land can be returned to its previous condition, ownership over the erected building, or payment of the market value for the land. If the landowner opts for demolition, the courts may not always award this kind of claim. According to the Law, the request of the landowner for the building to be demolished may be denied by the courts on the grounds that it is not socially justified. When assessing whether the demolition request of the landowner is justified or not the courts must take into consideration several factors such as the value of the building, the assets of the builder, and the assets of the landowner and their behavior during the performance of the construction work. It is not considered justifiable to demolish a building that is of great value and/or its demolition will be more costly than to leave it standing. It is also not considered justifiable if the demolition causes a great negative effect on the assets of the builder, while the assets of the landowner are not greatly affected or aren't affected at all. Deciding on the justifiability of demolition requests the courts also take into account the behavior of the affected parties (landowner and builder) while the construction was ongoing and whether one or both affected parties showed blatant disregard of the rights of the other. If the demolition request of the landowner is denied he is entitled to choose one of the two remaining options—ownership over the building or payment of the market value of the land. When the landowner opts for ownership over the building, it goes without saying, that he or she will be obligated to pay out the market value of the building to the builder. What we can take from these provisions is that the legislator aims to provide proportionality in the legal treatment of the affected parties, while affording preferential treatment to the landowner as the conscientious party.

The third situation of exercising the *right* to *build* without the consent of the landowner is the situation when both parties are conscientious meaning neither party acted in bad faith. This type of situation is regulated with the provisions of Article 119 of the Law on Ownership. The provisions state that in the case where both parties are conscientious, the courts need to rule on the basis of equity. When deciding to whom to award the overall ownership (ownership over the land and building) the Law instructs the courts to take into account criteria such as the value of the erected building compared with the value of the land, the needs of the builder and the landowner and their housing situation. On the basis of such criteria, the courts evaluate which of the affected parties is in a more dire need to acquire ownership over the land and the building.

The analysis of the provisions of Articles 117, 118, and 119 of the Law on Ownership shows that in all these situations when the *right to build* has been exercised by a third party, without the consent of the landowner, the Law views this right as an integral part of the right of ownership over the land, and not as a right that has gained separate existence. This in-lines with the concept of the legislator that the *right to build* can be extracted from the content of the right of ownership and gain separate existence only with the consent of the landowner. The unilateral act of exercising the landowners' *right to build* by a third party does not have the "effect of extraction", and therefore the third party doesn't actually acquire the *right to build*. Since in these situations, the *right to build* is an integral part of the right of ownership the legal unity between the land and the building isn't broken, meaning that they represent a single object of ownership. This is why all the provisions of articles 117, 118, and 119 regulate the acquisition of the right of ownership on the land and building as a whole in favor of one of the affected parties, instead of recognizing the right of ownership over the building to its builder, while allowing for the landowner to keep his or her ownership over the land.

Concerning the legal treatment of the *right to build* in the Law on Ownership we can conclude that the Law has not intended for this right to be one of the recognized real rights in the Macedonian property law system. What remains unclear is whether the legislator has intended for the *right to build* to exist as a separate right and not just a mere manifestation of the use (*jus utendi*) of construction land. Regarding the "extraction" of the *right to build* from the right of ownership and its transfer onto a third party the Law only makes a mention that the transfer results from the act of ceding the *right to build* to a third party on the part of the landowner. The Law does not go into regulating the further transfer of the *right to build* from one person to another, so it remains unclear if the legislator has intended for the *right to build* to be freely transferable once it has been extracted from the right of ownership. Another issue on which the Law on ownership is also unclear is how long can the extracted *right to build* exist. From the existing regulation in the Law on ownership we cannot derive whether the legislator intended the *right to build* to be a temporary right or a permanent one. The Law on Ownership has no provisions on the relationship between the landowner and the person holding the *right to build* during construction and after the construction process is terminated, so it remains unclear what, or if any rights can be granted to the holder of the *right to build* concerning the land where

the building or other structure is built on. It is logical to assume that the holder of the right to build should have some rights over the land since he or she will become the owner of the building or other structure and will need to use that land for access to the building and other necessities.

The lack of provisions in the basic Law on ownership about the legal nature, transferability, and duration of the *right to build*, whether intentional or not, created an opportunity for the *right to build* to be further regulated by special laws.

3 The Legal Treatment of the Right to Build in Special Laws

Although there aren't many directions given by the basic Law on ownership about the place that the *right to build* occupies in the Macedonian legal system, it stands to logic that it should be linked to the construction process and its effects concerning real property rights.

From a theoretical point of view, the *right to build* is an essential component of the construction process. If there is no *right to build*, as an integral part of the right of land ownership, or as a separate right, construction cannot be legally initiated. That is why we must consider that the *right to build* pre-exists, even before the construction process is initiated. So, when does the *right to build* emerge? Does it emerge at the same time as the right of ownership of the land or not? Even though the *right to build* emerges as an integral part of the content of the right of ownership on land, we cannot say that the *right to build* always exists within the right of ownership over the land. The *right to build* becomes an integral part of the content of the right of ownership of land as a result of the process of urban planning and development. Zoning plans and other urban planning and development acts are the ones that determine the particular land use. These plans determine which areas will have agricultural land and which areas will have construction land. The detailed zoning plans determine the degree of land development for each land parcel in a certain urban and rural area. Dependent on the degree of planned land development for a particular parcel of land is the extent of the *right to build*. If there is no land development planned, there is no *right to build* within the content of the right of ownership of land. On the basis of the urban planning and development acts a building permit can be issued confirming the existence and the possibility of exercising the *right to build*. The construction process that follows reflects the exercise of the existing *right to build*.

Many special laws contain provisions regulating different aspects of the construction process such as the Law on Construction Land, the Law on Urban Planning, the Law on Construction, the Law on Agricultural Land, the Law for the Protection of Cultural Heritage, the Law for Real Estate Cadaster and other laws and by-laws as well [8–11]. This paper will however focus on the two most relevant—the Law on Construction Land and the Law on Construction since they are the most relevant for examining the legal regime and legal nature of the *right to build*.

3.1 The Right to Build in the Law on Construction Land

The primary subject matter of regulation in the Law on Construction Land is the legal regime of construction lands as things of public interest for the Republic of North Macedonia. According to the provisions of the Law construction land is the land planned for construction according to the zoning plans determined by the Law on Urban Planning (Art. 4) [12]. By defining the nature of the construction land the Law on Construction Land also determines the manner of its use, meaning that the construction land by law is intended to be used primarily for erecting buildings and other structures of permanent nature. The determined use of the construction land undoubtedly leads to the possibility of exercising the *right to build.*

The Law on Construction Land considers the *right to build* to be an integral part of the right of ownership on construction land. That is why, when determining the content of the right of ownership on construction land, it is stated that the ownership of construction land includes a *right to build*, and the ability to transfer the *right to build* onto another person. What is peculiar about how the Law defines the content of the right of ownership on construction land is the fact that the definition varies dependending on whether the construction land is private, municipal, or owned by the State. Article 11 of the Law states that *"Private ownership on construction land includes also the right to build, use of the land and the right to transfer the right to build onto another person with accordance to this and other law"*. Further, in Article 12 the Law states that "*Municipal ownership of construction land includes right to build, use of the land and the right to transfer the right to build onto another person, as well as the right to sale the construction land with accordance to this or other law"*. The provisions of Article 13 of the Law refer to the ownership of the State on construction land, but there is no definition regarding the content of the right of ownership.

Defining the content of the right of ownership on construction land differently and depending on whether it is private, municipal, or State ownership, in the Law on Construction Land, is unusual, to say the least. According to civil doctrine, the right of ownership consists of three basic powers for the owner: the power of possession (jus utendi), the power to use one's property (jus fruendi), and the power to dispose with one's property (jus abutendi) [3, 13, 14]. The possession refers to the ability of the owner to keep possession of the object of ownership, the use is linked to the economic and other usage of the object of ownership and the disposition refers to the ability of the owner to sell, rent, loan or otherwise dispose of the property, even to destroy it (unless prohibited by law). The civil doctrine is also unanimous on the stand that the content of the right of ownership can't be different depending on whether it is private, municipal, or state ownership. Knowing the scientific view on the content and nature of the right of ownership we must agree that the provisions of the Law on Construction Land about the content of the state, municipal, and private ownership of construction land are poorly drafted and inappropriate. Those provisions don't do anything except confuse the nature of the right of ownership as a primary property right. There is no need for a special law such as the Law on

Construction Land to define the right of ownership and its content since it is already defined by the basic law—the Law on Ownership. More importantly, the Law on Ownership doesn't recognize any difference in the content of the right of ownership depending on the fact whether the owner is a natural or juridical person, municipality, or the State. Clearly, the provisions of the Law on Construction Land are contrary to the provisions of the Law on Ownership. What is more alarming is the tendency to use special laws as instruments to amend the content of the right of ownership in a manner that not only defies the basic principles of property law but common sense as well. If this practice persists and if it is adopted in other special laws, that may even undermine the constitutional guarantee of the right of ownership in Article 30 paragraph 1 of the Constitution of the Republic of North Macedonia since there will be no clear definition of what the right of ownership entails.

What we can gather from the cited provisions of Articles 11 and 12 of the Law on Construction Land regarding the *right to build* is that the Law identifies the *right to build* as a right originating from the right of ownership. As such, according to the provisions of the Law, it represents an integrated part of the content of the right of ownership on construction land, but it can also be "extracted" from it by the owner after which point it begins to exist as a separate right transferable onto another person. When the construction land is privately owned, then the *right to build* can be transferred from the land owner onto another person by way of contract, by a court decision, or by law. If the construction land is owned by a municipality the *right to build* may be transferred on the basis of a court decision or by way of contract for which a decision has to be rendered by the Municipality Council. There are no provisions in the Law regulating the bases for transfer of the *right to build* on construction land owned by the State nor it is defined that the right of ownership on construction land by the State includes the right to build. This is a mistake on the part of the legislator. In the draft of the Law on Construction Land, the legislator neglected to write a provision stating that the right of ownership on construction land of the State includes a *right to build*, the same as the right of ownership on construction land of private persons and municipalities does. If we consider the provisions about state ownership of construction land literally as they are drafted, it appears that the Law on Construction Land does not recognize the possibility for the State to exercise or transfer a *right to build* on the construction land that it owns. This is absurd since there are other provisions in the Law on Construction Land stating that the State may give municipalities and other public entities State-owned land to use for building structures of public interest (Art. 14). How can this be, if the State has no *right to build* in the first place? There are special laws as well, such as the Law on Concessions and Public–Private Partnerships [15], where the granted concession or public–private agreement includes the authorization for the concession holder or the private partner to undertake construction on the State-owned construction land and acquire ownership over the erected structure. This could be legally possible only under the assumption that the State can transfer its *right to build* onto the concession holder or the private partner. But how, when the manner of transfer of the *right to build* on part of the State is not regulated in the Law on Construction Land? Considering the obvious overlook on the part of the legislator regarding the regulation of the exercise

and transfer of the *right to build* by the State we propose that this legal gap is filled with adequate application of existing provisions. The provisions in question that we consider to be adequately applicable are the provisions regulating the exercise and transfer of the *right to build* by municipalities since they are public entities. Regarding the decision-making process of the State when transferring the *right to build* we consider that the provisions regulating the disposition of State-owned real estate are the most adequate to apply since construction land falls under the category of real estate. What we propose is a temporary solution to the existing problem, until the existing legal gap is resolved with amendments to the Law on Construction. The sooner that happens, the better.

Having the *right to build* enables the landowners, or the person to whom the landowner has ceded the right to build, to obtain the status of an investor according to the Law on Construction. The investor, being the person who holds the *right to build,* is entitled by law to file for a building permit for the particular parcel of construction land where the *right to build* can be exercised. If the investor is granted a building permit, he or she can start the construction process which will lead to him or her acquiring ownership over the erected building by way of construction. Upon termination of the construction process, the building or other structure is registered in the Real Estate Cadaster as ownership of the investor that built it. If the investor owns the land where the building or other structure is erected, the building or other structure forms legal unity with the land it stands on (principle of superficies solo cedit). However, if the investor was building under a transferred *right to build,* then the investor has no rights guaranteed by law over the land the building stands on. As a result, the land and the building or other structure cannot form a legal unity under the principle of superficies solo cedit. The lack of legal unity between the land and the erected building or other structures creates a complex legal relationship between the landowner, the investor holding the *right to build,* and third parties to whom ownership over the erected building has been transferred by the investor. The landowner is left holding the right of ownership over the construction land where the building or other structure stands but without any real possibility of exercising the right of ownership and collecting economic benefits from the use of the land. The owner of the building or other structure (the investor or third party to whom the investor has transferred ownership) has no legally guaranteed right to use the land where the building or other structure stands, which is absurd. Due to the unresolved issue regarding the relationship between the landowner and the owner or owners of the buildings or other structures, a lot of disputes emerged. At the core of the problem is the lack of foresight on the part of the legislator to predict and appropriately regulate the effects caused by the transfer of the *right to build* from the landowner onto another person. Compared to the regulation from where the right to build was transplanted (the Slovenian and Croatan laws) we find that in the foreign laws, the right of usufruct over the land is guaranteed by law in favor of the building owner who holds the *right to build* (Art. 259, Slovenian Property code [16], Art. 281, Croatian Law on Ownership and Other Real Rights [17]). However, since the Macedonian laws have no provisions regulating the relationship between the landowners and the building owner or owners, it is left up to the will of the parties to find a mutually aggregable

solution. Usually, to avoid any disputes over the use of the land surrounding the building, the investors ask the land owners for the power of attorney so that they can sell the land along with the apartments or offices in the building, or the land owners agree to cosign the sale contract with the investors so that the land will be sold along with the sale of the apartments or offices. What this practical solution enables is for the legal unity between the land and the building broken in the moment of transfer of the *right to build* to be reinstated by the simultaneous sale of the land and the building. Once the sale is completed the building owner and the landowner will become the same person or persons. When such agreements exist, it is an ideal solution to the problem of lack of legal unity. There are, however, situations where the investor and the landowner haven't reached an agreement to simultaneously sell the land and the building. When there were no agreements for the simultaneous sale of the land and the building, the investors sold the building separately, transferring to the buyer only the right of ownership over the building, without transferring any rights over the land the building stands on. The people who bought apartments and offices in buildings built under a transferred *right to build* found themselves in a precarious situation concerning the use of the land the building stands on. They were left to negotiate with the landowner the possibility of obtaining ownership over the land, assuming that the landowner was in a disposition to sell the land. Some landowners were prepared to sell parts of the land parcel to the building owners for additional compensation, but others were reluctant to do so. They preferred to maintain some type of control over land use. In cases when the landowner refused to sell the land to the building owners, they had the option to ask the courts to impose a predial servitude on the land enabling them the right of way over the land so that they could get in and out of the building. Imposing predial servitude may have resolved the problem with the everyday use of the land, but it didn't resolve other problems such as the difficulties that building owners had in further ownership transfers of the apartments and offices in the building or in mortgaging them. Byers were reluctant to buy an apartment or an office if they couldn't get ownership over the land as well. Mortgage creditors also insisted that the land be included in the mortgage contract, which was only possible if the mortgage debtor owned both the apartment/office and the land. Some building owners attempted to sue landowners for the right of ownership over the land claiming that they were entitled to a piece of land ownership based on the fact that they owned the building on that land. The courts rightfully denied such claims since there was no legal base to force the landowner to sell the land to the building owners. Landowners have a constitutionally guaranteed right of ownership that they cannot be deprived of unless it is in a public interest determined by law (Art. 30 of the Constitution of the Republic of North Macedonia). The disputes were concerning private interest, so therefore the courts had no legal authority to deprive landowners of their property in favor of other private individuals or legal entities. There were also lawsuits from building owners claiming ownership over the land where the building stands on the basis of *usucapio.* These claims were also denied by the courts since the building owners couldn't meet the standard of conscientious possession that is required for acquiring ownership by way of *usucapio* according to the Macedonian Law on Ownership. The standard of conscientious possession

presumes a lack of awareness on the part of the possessor that he or she is not the actual owner of the thing in his or her possession. Since building owners were aware from the start that they had not acquired ownership over the land where the building stands, they could not be considered conscientious possessors, and therefore could not be awarded ownership over the land by way of *usucapio.*

All these occurrences and disputes prompted the legislator to take action and to impose legislative measures to overcome the problem between landowners and building owners. Legal measures were implemented with the Law on Construction Land of 2015. The Law imposed a duty for building owners to sell a portion of the land along with the sale of an apartment or an office in the building (Art. 11-5). What was achieved with the legally imposed duty was for investors and landowners to have to agree on the simultaneous sale of the land and the building built under the transferred *right to build.* After the enforcement of the Law on Construction Land in 2015, investors refused to accept a transfer of the *right to build* from landowners if there was no agreement for the simultaneous sale of the land and the building beforehand. The Law on Construction of 2015 also granted the right of use of the land where the building stands to all building owners, as long as that use was for a designated purpose, say to use it to access the building (Art. 1-3) [6]. Notably, the Law on Construction Land of 2015 resolved some of the problems that building owners face as the result of the building under a transferred *right to build*, however, the solution was applicable from 2015 and in the future. It didn't apply to building owners who acquired ownership of buildings built under a transferred *right to build* before 2015. Building owners could not retroactively force the landowners to transfer the ownership over the land for sales that took place before 2015, they continued to depend on the good will of landowners to agree to the sale of the land. The Law on Construction Land of 2015 not only failed to aid the pre-existing problem but also made it worse. Building owners who didn't own the land where their bilging was located were unable to sell off the apartments or offices in the building because the Law on Construction Land of 2015 didn't allow sales of apartments and offices in buildings if the building owner is not able to transfer the right of ownership on the land as well. Consequently, they also couldn't mortgage such apartments and offices. This problem persists to this day, with no viable solution in sight.

The inconsistencies in regulating the *right to build* in the Law on Construction Land result from an improper legal transplant from legal systems of EU member States that regulate the *right to build* as a separate real right. The Macedonian legislator has decided to transplant this property law institute extracting from the provisions of the Slovenian Property Code and the Law on Ownership and Other Real Rights of Croatia. However, the legal transplant was not done consistently. The Macedonian legislator "borrowed" some of the characteristics of the Slovenian and the Croatian *right to build,* but did not preserve the nature of the *right to build* as a separate type of real right. Instead, the Macedonian legislator opted to not determine its legal nature. The Macedonian legislature also allowed the unlimited transfer of the *right to build* once it is extracted from the right of ownership, but without precisely determining the rules that would apply regarding the transfer of the *right to build.* In Slovenian and Croatian legislations, the *right to build* is transferred under the same

conditions for the transfer of ownership of real estate. In these legal systems, the *right to build* is presumed to be fictitious real estate, and as a result, all provisions about real estate are also applicable to the *right to build.* The Macedonian legislator however, has not "borrowed" this particular legal solution, and hasn't determined that the Macedonian *right to build* will be treated as fictitious real estate and it will be transferred in accordance with the regulation about transfer of real estate. Considering that there are no provisions to the effect of treating the *right to build* as fictitious real estate, we have to conclude that the *right to build* in the Macedonian legal system is transferrable under the same conditions as other civil law rights, while the provisions about property rights on the real estate do not apply. Some special laws did not observe the fact that the Macedonian *right to build* does not fall under the legal regime of real estate. One example is the Law on Enforcement. The Law on Enforcement regulates the forced sale of the *right to build* in enforcement proceedings by applying the rules regulating the forced sale of real estate (Art. 205-a), even though there is no base for such treatment in the substantive laws. What the Law on Enforcement does is take another legal transplant from Croatian Law on Ownership regulating the enforcement of the *right to build*, while ignoring the fact that the Macedonian substantive laws do not regulate all aspects of the *right to build* in the same manner as the Croatian Law. This is yet another testament to the lack of cohesion in the Macedonian property law system that causes nothing but problems in property relations. Considering that there is no consistency in the regulation of the *right to build* between the Law on Construction Land and the Law on Enforcement some enforcers have refused to conduct the forced sale of the *right to build* under the provisions of Article 205-a of the Law on Enforcement rightfully arguing that these provisions are contrary to the substantive law. These, and other inconsistencies regarding the legal nature and transfer of the *right to build* resulting from the improperly conducted legal transplantation of the *right to build* need to be addressed by the legislator. In our opinion, the entire concept of the *right to build* created by the Macedonian legislature needs to be reconsidered.

Another problematic issue with the concept of the *right to build* created by the Macedonian legislature is the status of the building (or other structure) erected under a transferred right to build. As we have previously pointed out when a building is erected under a transferred *right to build* the legal unity between the land and the building is broken and the principle of superficies solo cedit does not apply. This raises the question what is the status of the building erected under the transferred *right to build*? In the legal systems of the Republic of Slovenia and the Republic of Croatia, the status of the building is resolved by declaring that the building is legally attached to the *right to build*. This coincides with the treatment of the *right to build* as fictitious real estate [13, 18, 19]. The Slovenian and the Croatian legislator concluded that the building erected on the basis of the *right to build* needs to be attached to that right so that any transfer or the *right to build* will result in the transfer or the right of ownership of the building erected under the *right to build*. Unlike the Slovenian and Croatian laws, the Macedonian Law on Construction Land does not touch upon the status of the building (or other structure) erected under a transferred *right to build.* The Macedonian Law simply avoids regulating the issue altogether. Lack

of regulation on the issue of the status of the building erected under a transferred right to build represents a serious problem in the legal practice. Legal practitioners (lawyers, notary publics, judges, enforcers) do not know whether to treat the building as a separate and independent object of ownership or as an attachment to the *right to build*. From a scientific point of view, there is no legal base to treat the building erected under a transferred right to build as an attachment to the *right to build. Argumentum a contrario*, the building must be considered a separate and independent object of the right of ownership. We are aware that this is not in accordance with the established principles of property law that view buildings and other structures of permanent nature, not as primary and independent objects of ownership, but rather as attachments to the primary object of ownership and that is the land they are built on. Treating the building erected under a transferred *right to build* as a separate and independent object of ownership is the only possible solution because any other solution will defeat the purpose of transferring the *right to build*. If, for argument's sake, we say that the building is attached to the land it is built on, then that will mean that the building becomes the ownership of the land owner, which is not the intended effect when the landowner has transferred the *right to build* onto another person. The intended effect here is for the other person holding the transferred *right to build* to acquire ownership over the building (or other structure) by way of construction. Considering how the Macedonian legislator has regulated the *right to build* the only way we can get that desired effect is if we treat the building erected under the transferred *right to build* as a separate and independent object of ownership. Logically, the question arises why can't we treat the building erected under the transferred *right to build* as an attachment to the *right to build*, like it is treated in the Slovenian and Croatian laws? The answer is out of two reasons: first the Macedonian *right to build* is not regulated as a separate type of real right, and second—the *right to build* in the Macedonian legal system is not intended to last beyond the termination of the construction process. To our opinion, since the Macedonian *right to build* is not by nature the same as the *right to build* regulated in the Slovenian and Croatian laws, it requires a different type of legal solution regarding the legal status of the building erected under the transferred *right to build*.

The duration of the *right to build* is also an issue not precisely regulated by the Macedonian legislator. There are no explicit provisions determining how long the *right to build* is intended to last. In comparison, the Slovenian Property Code states that the *right to build* can be established for a fixed or undefined period (Art. 256-2). The Croatian Law on Ownership and Other Real Rights does not explicitly state for how long the *right to build* can be established. However, by analyzing all the provisions regulating the *right to build* in Croatian Law, we can determine that the right to build is permanent (like all types of real rights), but it can also be temporary if it was established with a predetermined deadline for its termination (Art. 292-1).

If we consider the fact that the *right to build* can eventually be terminated, we need to consider how that will affect the building erected under the *right to build.* According to the Slovenian Property Code, when the *right to build* is terminated, the legal unity between the land and the building is reestablished by law (Art. 263), meaning that the building becomes the ownership of the landowner. It is also stated

in the Slovenian Property Code that the landowner who acquired ownership over the building after the termination of the *right to build* is obligated to pay the holder of the *right to build* compensation in the amount of the increased value of the real estate, unless the landowner and the holder of the *right to build* have agreed otherwise or unless it is otherwise stipulated by other law. The Croatian Law on Ownership and Other Real Rights contains identical provisions. It states that the legal unity between the land and the building is reestablished upon the termination of the *right to build* (Art. 295). The landowner becomes the owner of the building as well, and the right to build is deleted from the land register. As in the Slovenian Property Code, the Croatian Law on Ownership and Other Real Rights imposes a duty for the landowner to pay compensation to the holder of the *right to build* in the amount of the increased value of the real estate. Unlike the Slovenian Property Code, the Croatian Law on Ownership and Other Real Rights does not allow for the landowner and the holder of the *right to build* to reach a different type of agreement, circumventing the law-imposed duty for compensation, nor other laws can determine otherwise. What we can gather from the provisions of the Croatian Law on Ownership and Other Real Rights is that compensation must be paid to the holder of the *right to build* upon the termination of the *right to build*. The Macedonian legislature has not considered it necessary to regulate the effects of the termination of the *right to build.*

Analyzing the differences between the regulation of the *right to build* in the Macedonian law vis-à-vis the regulation in the Slovenian and Croatian laws we conclude that the Macedonian legislator has transplanted the Slovenian and Croatian *right to build* in name only. When transplanting the *right to build* the Macedonian legislator has not observed that the *right to build* is intended to exist as a separate type of real right. Another thing that the Macedonian legislator failed to understand about the *right to build* regulated in the Slovenian and Croatian laws is that this right is intended to function as a base for acquiring ownership for the holder of the *right to build* over a building built on land owned by another person. By definition, the Slovenian and the Croatian *right to build* is a real right that enables its holder to own a building built on land owned by another person. This means that the Slovenian and Croatian legislators haven't tied the *right to build* to the construction process. As a result, acquiring a *right to build* under Slovenian and Croatian laws does not necessarily mean that the holder of the *right to build* will have to build the building to acquire ownership over it. On the contrary, under Slovenian and Croatian laws, the building could be erected by the landowner even before granting a *right to build* to another person. Essentially, the *right to build* in Slovenian and Croatian laws is a type of real right that landowners use as an instrument to circumvent the superficies solo cedit principle, by breaking the legal unity between the building and the land it is built on. This separation can be temporary or permanent dependent on the agreement between the landowner and the holder of the *right to build*.

Unlike the Slovenian and Croatian *right to build*, the *right to build* regulated in the Macedonian Law on Construction Land is not a separate type of real right, but rather it can exist as a separate right tied to the construction process. Under Macedonian law, the landowner can extract the *right to build* and transfer it onto another person only before or during the construction process, but not after termination of the

construction. Since the *right to build* in Macedonian law is tied to the construction process, the holder of the *right to build* must perform the construction to acquire ownership over the building (or other structure) built under the transferred *right to build*. Another thing that needs to be pointed out about the Macedonian *right to build* is that this right cannot exist beyond the termination of the construction process because its main function (as attributed by the legislator) is to enable the holder of the *right to build*, to perform construction on construction land owned by another and to acquire ownership over the erected building (or other structure) by way of construction.

Being aware of the crucial differences between the regulation of the *right to build* in the Slovenian and Croatian laws, vis-à-vis the regulation of the *right to build* in the Macedonian Law we strongly object to scholars and legal practitioners drawing a parallel between the two. As we have shown the Macedonian legislator hasn't transplanted the *right to build* from the Slovenian and the Croatian laws in full, which led to the *right to build* regulated in the Macedonian Law to have a different legal nature and to have a different effect on the established property relations between the landowners, the holder of the *right to build* and third parties. Due to these differences, we considered improper for the legal gaps that the Macedonian legislator has left in regulating the *right to build* to be filled by presuming that the same rules found in the Slovenian and Croatian laws should apply. To be more precise, we disagree with those who consider that the *right to build* should be treated as real estate, even though the Macedonian law does not attribute such quality to it. Furthermore, we disagree with those who consider that the building erected under a transferred *right to build* should be considered as an attachment to the *right to build* because the *right to build* is tied to the construction process and has no existence beyond that. The erroneous assumption that the *right to build* regulated in the Macedonian Law has the same characteristics as the Slovenian and the Croatian *right to build* will lead to even more inconsistencies in its regulation. This erroneous assumption has already led to the implementation of procedural provisions in the Law on Enforcement that, as we have shown, are contrary to the substantive laws regulating the *right to build*. If this trend continues, it will further erode the already unstable concept that the regulation of the *right to build* is based on in Macedonian Law. In return, this will negatively affect the exercise of the *right to build* in practice and it will lead to more disputes and infringement of rights.

Not understanding the true nature of the Slovenian and Croatian *right to build,* and the improper transplantation of that property law institute in the Macedonian legal system has already caused potentially unsolvable problems in the relations between landowners and owners of buildings erected under the transferred *right to build*. The existing problems in the relations between landowners and building owners, as we have pointed out, can only be resolved consensually, if and when the landowners are in disposition to reach an agreement with the building owners regarding the transfer of ownership over the land the building stands on. Since the laws cannot be implemented retroactively, any provision regulating those relations implemented after the fact can only affect future relations but cannot interfere with existing relations. Since the concept of the Macedonian *right to build* is flawed from

inception, we urge the Macedonian legislator to revise this concept in order to prevent further disruptions in property relations.

3.2 The Right to Build in the Law on Construction

As was previously stated, the exercise of the *right to build* includes undertaking construction so that the holder of the *right to build* may consequentially acquire ownership over a building or other structure by way of construction. The construction process, and therefore the exercise of the *right to build,* is mainly regulated by the Law on Construction of 2009 [6]. The Law, and its amendments, addressed many of the issues that were not sufficiently regulated by the previous Law on Construction of 2005 [5] and also implemented novelties concerning the building permits and the procedure for issuing building permits that directly affected the exercise of the *right to build*.

In general, the Law on Construction regulates all aspects of the construction process such as determining the scope of construction, determining basic standards for construction, and the necessary steps and required documentation for undertaking construction. The Law also regulates how buildings and other structures should be used and maintained once they are built. When defining what construction is, the Law on Construction gives a broad definition stating that construction includes: preliminary activities, drafting of blueprints and other documentation, preparatory works, erecting the building, construction on existing buildings (annexes and upgrades), reconstruction and adaptation of existing buildings and other activities involving or linked to construction. Taking about construction it is important to note that the Law on Construction makes a point of being clear about the distinction between construction and placement of structures (Art. 2-1). Construction entails erecting buildings or other structures of permanent nature on the construction land, while placement entails placing temporary structures and urban equipment on the construction land. The distinction is not of minor relevance since the Law on Construction attributes different consequences for each of the two processes. Since the construction process leads to the creation of buildings and other structures of a permanent nature, once the construction process is terminated the construction land changes in status, it turns from undeveloped into developed construction land. This transformation raises the value of the construction land and the land taxes as well. The process of placement of temporary structures or urban equipment does not have the same legal effect on the status of the land. The placement of temporary structures or urban equipment cannot change the status of the construction land, on the contrary, it depends on the status of the construction land whether a temporary structure or a piece of urban equipment can be placed. Temporary structures can only be placed on undeveloped construction land, while urban equipment is placed on developed construction land (Arts. 79 and 80, Law on Construction). Another difference in the legal effect between construction and placement is the status of the structures. Buildings and other structures that have been created through a construction process become structures of permanent

nature and are considered real estate. The temporary structures or urban equipment that have been placed on construction land are for temporary use only, after which they can be removed from the construction land. Therefore, these types of structures are considered movable things and not real estate. The third difference in the legal effect between construction and placement is reflected in how these processes affect the exercise of one's *right to build*. Undertaking construction without a doubt constitutes exercising one's *right to build,* and ultimately leads to acquiring ownership by way of construction. Unlike construction, the placement does not lead to acquiring ownership over the placed temporary structure or urban equipment. Actually, the opposite is true, one has to own a temporary structure or an urban piece of equipment before he or she is allowed to place that structure on construction land. For these reasons, the placement of temporary structures or urban equipment cannot be considered as exercising one's *right to build.*

Once we have made the distinction between what is and what isn't considered as exercising one's *right to build* in light of the provisions of the Law on Construction, it is important to elaborate on the manner and scope that the *right to build* can be exercised according to this Law. As we have previously stated, the right to build becomes an integral part of landownership as a result of urban planning and development. Once a land parcel gets planned for construction by the construction and development acts the *right to build* emerges primarily belonging to the landowner. The landowner can then exercise the *right to build* by undertaking construction personally or he or she can transfer that right to another person. Either way, the existence and the possibility of exercising the *right to build* need to be confirmed by the public authorities with the issuing of a building permit. The building permit determines the manner and scope in which the *right to build* can be exercised in each separate case, or, in other words, the building permit determines the extent to which one's *right to build* can be exercised.

Since the building permit is intended to be the document used to confirm the existence of the *right to build,* only a person holding a *right to build* can successfully file for a building permit to be issued. The Law on Construction identifies the person holding the *right to build* as the investor. According to the provisions of Article 13 of the Law on Construction, an investor is a person who is either: a landowner, holder of the right of a long-term lease, holder of a concession contract, holder of the right of servitude for construction, holder of a transferred *right to build* by the landowner or the holder of the right of a long-term lease, a person who acquired the *right to build* in bankruptcy proceedings and a person that acquired the *right to build* by law. Additionally, with the amendments to the Law on Construction of 2013 government bodies, public enterprises, and other entities founded by the Government, Parliament, or municipalities were also included in the list of persons that may be afforded the status of an investor, if they were previously afforded a right of usage for construction by the Government (Art. 13-a) [6].

By analyzing the provision of Articles 13 and 13-a of the Law on Construction we note that the legislator has no clear concept of how to treat the *right to build*, as a separate right, or as an integral part of the content of other rights such as the right of ownership, the right to a long-term lease, right of servitude for construction, right

of usage for construction or concession contract. This confusion, as we have stated previously, results from unclear and contradictory provisions both in the basic Law on Ownership and the special Law on Construction Land that introduces the *right to build* as an integral part of ownership on construction land, and as a right that can be extracted from construction land ownership and gain separate existence. The Law on Construction seems to go a step further by treating the *right to build* as an integral part of the content of many other rights such as the right to a long-term lease, right of servitude for construction, right of usage for construction, and concession. It also seems that the Law on Construction views the possibility for the *right to build* to be extracted from all these rights and gain separate existence. This position that the Law on Construction has taken regarding the *right to build* is very debatable. If the *right to build* is extracted from all these other rights different from the right of ownership, then we pose the question of what will remain in the content of these rights. For example, if we extract the *right to build* from the content of the right to a long-term lease, this right will be left with no content, since the right to a long-term lease is a real right that enables its holder to erect a building or other structure on foreign land. The same applies to all these other rights mentioned in the Law on Construction except the right of ownership. For this reason, we consider it more logical for the provisions to be interpreted in the sense that the right to a long-term lease, the right of servitude for construction, etc. are being transferred as such, and with that transfer the *right to build* is also transferred as their integrated component.

Regardless of how a person comes to hold a *right to build*, whether it is by holding a right that incorporates the *right to build* in its content, or whether the *right to build* has been transferred to him or her as a separate right, that person is entitled to exercise the *right to build* once a building permit has been issued in his or her name. We point out that the *right to build* can be exercised after a building permit has been issued because any exercise of the *right to build* without a building permit or contrary to the issued permit is deemed illegal. According to the Law on Construction (Art. 56) undertaking construction without a valid building permit or contrary to the issued building permit won't lead to acquiring ownership over the building by way of construction, and the issued building permit (if it was issued) will be invalidated. The goal of such strict provisions is to discourage frivolous exercise of the *right to build*. There is also criminal liability for persons exercising the *right to build* without having been issued a building permit. Exercising the *right to build* without a building permit, or in other words building illegally, is a crime according to the Macedonian Penal Code [20]. This type of crime is punishable by a prison sentence of 3 up to 8 years of prison (Art. 244-a). If building illegally was done to sell the illegally built structure, or if the person has reconstructed an existing structure without a proper project or contrary to that project or has compromised the security and seismic stability of the structure, then the crime is punishable with no less than 4 years of prison.

Even though, in general, exercising the *right to build* without a building permit, or contrary to that permit, is considered illegal and brings serious consequences, we also have to consider that the Macedonian legislature has made some exceptions. If the illegal exercise of the *right to build* occurred before March 2011, then there is no

criminal or other liability for the person who has built illegally. This is so because in March 2011 came into force the Law on Treatment of Illegally Built Structures. This Law was enforced to legitimize illegal construction undertaken before it come into force. The so-called "legalization" included all illegally built structures, illegal annexes, illegal upgrades, illegal reconstruction, adaptations, and other changes made to structures without a proper building permit. However, for the legalization of the illegal structure to be approved, there must have been an existing *right to build*. Having an existing *right to build* means having an urban planning and development act that plans for construction to be undertaken on a particular land parcel. If the illegal structure can be incorporated into the planned land development, then the exercise of the *right to build* that is in line with the planned land development can be legitimized even though it has been performed without a building permit. If there is no existing *right to build*, or in other words, if the construction is not in line with the planned land development, then the legalization request will be denied, and the illegal structure will need to be demolished. The Law on Legal Treatment of Illegally Built Structures was enforced until March 2020, after this date, there is no longer a possibility for someone to exercise the *right to build* illegally, without suffering the consequences of illegal construction, at least according to current regulations. In reality, the phenomenon of illegal exercise of the *right to build* continues, while public authorities show no diligence in sanctioning the practice.

Another thing that characterizes the exercise of the *right to build* in Macedonian law is that the exercise of this right is subjected to publicity. For the sake of publicity, the Law on Construction (Art. 62-a) imposes a duty for the public authorities that issue building permits to inform the owners of the adjacent land parcels about the fact that the building permit has been issued and to advise them of their rights. The investor on his part is also obligated to provide publicity to the exercise of the *right to build* by placing an informational sign in front of the construction ground publicizing the number of the issued building permit and other pertinent information about the construction project. Also, for the sake of publicity, the public authorities issuing building permits must digitally deliver the issued building permit and the construction project to the Agency for Real Estate Cadaster where the ongoing construction process is registered. All ongoing construction must be registered in a so-called "pre-registration sheet for structures under construction" (Art. 59-d) [6]. The pre-registration sheet for structures under construction contains information about the investor (i.e., holder of the *right to build)*, the land parcel where construction is in progress, a detailed description of the structure based on the construction project and information about mortgages and concluded pre-sale contracts for the building, or other structure under construction (Art. 158) [11]. The fact that there is a pre-registration sheet is also noted in the property sheet for the land where construction is in progress. The data entered in the pre-registration sheet, as well as the data entered in the property sheet are a matter of public record. As a result of implementing mandatory publicity regarding the exercise of the *right to build*, nowadays every person can obtain detailed information for every ongoing construction. The publicity in exercising the *right to build* plays a very important role in protecting people looking to buy a building under construction from fraudulent behavior on the part of investors

and/or landowners. Publicity also protects mortgage creditors accepting mortgages on buildings under construction. What is unfortunate is the story behind the reason why nowadays the exercise of the *right to build* is subjected to publicity by registration in the Real Estate Cadaster. The pre-registration sheet was introduced in the regulation in 2008 when the first modern Law on Real Estate Cadaster was enforced. Its introduction was a response to many cases of fraudulent behavior on the part of investors concerning the sales of buildings under construction. Before there was a pre-registration sheet for buildings and other structures under construction, the exercise of the *right to build* i.e., the construction was pretty much a non-transparent process. Even less transparent were the sales of buildings under construction since all the documentation was in sole possession of the investor. The lack of transparency made it easy for some investors to conclude multiple sales contracts for the same apartment or office in the building they were building. In the end, not all buyers of buildings under construction got to own what they pre-paid for. The disputes concerning ownership rights were dragged in courts for more than a decade and not all plaintiffs managed to receive an effective remedy for the infringement of their rights. Investors who committed the fraudulent acts were also criminally persecuted and punished, but that did little for the civil claims against them since they were not financially capable to respond for those claims. Due to the mandatory publicity of the exercise of the *right to build*, nowadays is less likely that investors can resort to fraudulent practices that include multiple sales of the same building or building unit (apartment or office) under construction.

The exercise of the *right to build,* not only needs to be legal and public, but it also needs to be conducted within the legal timeline. According to the Law on Construction (Art. 66) after the issued building permit becomes final (meaning it can no longer be contested by anyone) the investor is obligated to start construction in a period no later than two years. If the investor, for whatever reason, fails to initiate construction in that time, the building permit is invalidated. Once construction has been initiated, the investor is obligated to finish the construction process no later than 10 years according to the Law on Construction, if not, the building permit is no longer valid (Art. 68). Failing to meet the designated timelines leads to invalidation of the issued building permit, which in return makes the exercise of the *right to build* to become illegal. If the exercise of the *right to build* turns illegal, then it will not result in acquiring the right of ownership over the erected building by way of construction.

Although the Law on Construction imposes duties for investors to provide publicity and transparency while exercising the *right to build* and to meet the designated deadlines for construction, the Law is not restrictive but rather accommodating for investors. Considering the needs of investors in exercising the *right to build* the Law on Construction allows for a certain flexibility. To accommodate the needs of investors it is possible for the *right to build* to be exercised gradually in stages. If the investor wishes to exercise the *right to build* gradually in stages, he or she may ask for the building permit to be issued for part of the structure. These types of requests on the part of investors are accepted by the public authorities issuing building permits if the part of the structure for which the permit is issued represents a separate technical and functional unit in reference to the entirety of the planned structure (Art. 62) [6].

Another way to accommodate investors is the possibility of division of the *right to build* between the investors if multiple investors hold the same *right to build*. When several investors hold together the same *right to build,* they may ask for a building permit to be issued where it is specified what share or what part of the structure will belong to which investor (Art. 59-d) [6]. These types of building permits, especially the ones where it is specified what parts of the structure will belong to which investor are very practical for investors. When the building permit is issued predetermining what shares or parts will belong to which investor, upon termination of the construction process each investor will get his or her property sheet for the part of the building intended for him or her. This saves costs for division proceedings that the investors would need to conduct if the building permit was issued without predetermined shares or parts of the structure for the investors. Another benefit of issuing building permits with predetermined shares or parts is that it decreases the possibility of disputes among the investors about the ownership rights over the structures that are costly and time-consuming.

The Law on Construction also regulates the transfer of the *right to build* from one investor to another, although it doesn't call it a transfer of the *right to build* but a change of investor (Arts. 69, 70, 70-a) [6]. According to the Law on Construction, the change of investor can be consensual or court-ordered.

The consensual change of investor is a matter of agreement between the initial and the new investor. Once the initial and the new investor reach an agreement on the change, they are obligated to report the agreement. The agreement for change of investor is reported before the public authority that has issued the building permit to the initial investor. When reporting the change of investor, the investors submit the agreement for the change of investor along with a statement given by the new investor. The statement of the new investor expresses his or her intent to assume all rights and duties concerning third parties from the initial investor. Upon receiving a report for the desired change of investor, the public authority needs to render a decision on the matter approving or denying the change. The decision is constitutive, meaning that the change of investor will only take effect if the public authority approves it with the rendered decision. It needs to be pointed out that the change of investor can take place until such time that a permit for use of the building is issued (Art. 87-95) [6]. The issuing of the permit for the use of the building (or corresponding act for other structures) marks the end of the construction process. At that moment the building or other structure is considered finished and it may be registered in a property sheet in the Real Estate Cadaster. After the completion of the construction process and the registration of the building or other structure in the Real Estate Cadaster, the *right to build* can be considered fully exercised and terminated. This is why beyond this point the transfer of the *right to build* from one investor to another (i.e., change in investor) is no longer possible.

The court-ordered change of investor was implemented with the amendments to the Law on Construction of 2014 [6]. According to the added provisions (article 70-a), the change of investor may occur if a person has obtained the *right to build* in bankruptcy proceedings. This type of change of investor is also officiated by the public authority that issued the building permit. The decision of the public authority

officiating the change of investor is rendered on the basis of the court decision delivered in bankruptcy proceedings. In this case, the new investor is the person to whom the court awarded the *right to build* initially belonging to the investor who filed for bankruptcy. Even though the *right to build* was awarded in court proceedings, the new investor still must give a statement before the public authority expressing the intent to assume all rights and duties concerning third parties from the initial investor.

The reason that instigated the amendment of 2014 allowing for the court-ordered transfer of the *right to build* (i.e., change of investor) was the large number of bankruptcies filed against construction companies. Before these amendments came into force the courts in bankruptcy proceedings had no legal base for ordering the transfer of the *right to build* from the investor (the construction company under bankruptcy) to another interested party. Before 2014 the Law on Construction only recognized the voluntary change of investor on the basis of an agreement between the initial and the new investor. As a result of the legal barrier the *right to build* was lost, or more precisely extinguished, once the construction company under bankruptcy ceased to exit. This left a lot of construction processes to come to a halt, with no legal possibility for them to be reinitiated. This naturally affected the rights of third parties, especially people who concluded pre-sale contracts for the building under construction and mortgage creditors who mortgaged the building under construction. They were left unable to realize their rights. Once the amendments to the Law on Construction of 2014 came into force, this legal barrier was removed and the courts began transferring the *right to build* during the bankruptcy proceedings.

Transfer of the *right to build* is also regulated by the Law on Enforcement [21]. The regulation however is not in accordance with the Law on Construction and it is rather confusing. What the Law on Enforcement prescribes is a public sale of the building under construction according to the rules for the sale of real estate (Art. 205-a). Along with the sale of the building under construction, the *right to build* is transferred (sold) as well, as if it is attached to the building under construction. This doesn't align with the concept of the *right to build* promoted by the Law on Construction Land and the Law on Construction according to which the building is a result of the exercise of the *right to build* and not the principal object to which the *right to build* is attached to. The provisions of the Law on Enforcement regulating the sale of buildings under construction as real estate, combined with the transfer of the *right to build,* were strongly criticized by scholars as illogical and incompatible with the bases on which the property law system stands, however, despite that, they remain in force.

4 The Right to Build—Twice Transplanted

By analyzing the origins and the legal nature of the Macedonian *right to build*, we have concluded that the concept of the *right to build* has been borrowed from the Slovenian and Croatian laws in the form of a legal transplant. We also concluded

that the legal transplantation was done inconsistently, borrowing some features of the Slovenian and the Croatian *right to build*, while leaving other features out. As a result, the Macedonian *right to build* hasn't been adopted as being a separate type of real right. The Macedonian legislator has failed to determine the nature of the Macedonian *right to build* clearly, leaving a legal gap in the regulation and leaving the true nature of the right to build open to interpretation.

For the sake of being pragmatic, we must accept that in the Macedonian legal system, the *right to build* is by nature a *sui generis* right. It is a type of right that can exist as an integral part of the content of the right of ownership or it can gain separate existence. The *right to build* gains a separate existence at the moment when it is "extracted" from the content of the right of ownership and transferred onto another person. Viewing the *right to build* in this manner is the only way we can make any sense of all the provisions regulating the *right to build* in the basic Law on Ownership and in the special laws such as the Law on Construction Land and the Law on Construction.

As for the relation between the transferred *right to build* and the building (or other structure) built under the transferred *right to build* we can only derive that the building (or other structure) is a product of exercising the *right to build*. Beyond that, there seems to be no other legal connection explicitly determined by law. Speculative conclusions that the building is attached to the *right to build*, or that the *right to build* is attached to the building have no legal base.

Regarding the duration and termination of the *right to build* no precise provision can be found in the existing legislation. Booth, the Law on Ownership, and the Law on Construction Land have no provisions related to the matter. Looking into the Law on Construction we noted that there are determined deadlines for exercising the *right to build,* once a building permit has been issued. Those provisions state that the breach of those deadlines will lead to the invalidation of the issued building permit, making the further exercise of the *right to build* illegal. However, the question remains whether that means that the *right to build* will be terminated. We can't make that kind of conclusion since there is no legal impediment for the investor to refile for a building permit after the previous one has been invalidated. So, when can we say that the *right to build* has been terminated? It is our opinion that the *right to build* in the Macedonian legal system is terminated upon termination of the construction process, as to say when the building under construction will be completed and registered as real estate in a property sheet in the Real Estate Cadaster. At that moment the investor's *right to build* is terminated because in that moment the *right to build* has fulfilled its intended function and that is to enable the investor to acquire ownership over the erected building by way of construction.

All the specific features that we have identified in the Macedonian *right to build* that are not found in the Slovenian and the Croatian *right to build* lead to the obvious conclusion that the Macedonian *right to build* is essentially different. The legal transplant of the *right to build*, which we have shown is a legal transplant in name only, brought nothing but confusion between scholars and legal practitioners. The confusion caused many of them to erroneously conclude that the Macedonian *right to build* is by all accounts the same *right to build* regulated in the Slovenian and

the Croatian legal system. So, what is the way out of this confusion? Should the Macedonian legislator proceed to fully transplant the Slovenian and the Croatian *right to build* with all its features, or should he completely abandon the idea of transplanting the *right to build*?

Proceeding to a full transplant of the Slovenian and the Croatian *right to build* is completely unnecessary. What the Macedonian legislator overlooked, when introducing the Macedonian *right to build* in the Law on Construction based on a concept "borrowed" from the Slovenian and Croatian laws, is the fact that the Law on Construction already had regulated a real right equal to the Slovenian and Croatian *right to build,* but under a different name—the *right to a long-term lease.*

In the Macedonian legal system, *the right to a long-term lease* was introduced for the first time in the Law on Construction Land of 2001 [7]. The provisions regulating the *right to a long-term lease* on construction land in the Law on Construction from 2001 were a clear transplant from the Slovenian and Croatian laws. However, on that occasion, the legislator opted not to use the term "*right to build*" and opted instead for using the term "*right to a long-term lease*". Other than the use of different terms, there was no other significant difference between the Macedonian *right to a long-term lease* and the Slovenian and Croatian *right to build*. The reason why at that time the legislator opted not to use the term "*right to build*" was in fact to avoid any confusion with the *right to build* as an integral part of the content of the right of ownership on construction land. During the draft of the Law on Construction Land of 2001, there was no intention for the *right to build* to be considered as a right that could be extracted from the right of ownership and gain separate existence.

Starting from the Law on Construction Land of 2001 the *right to a long-term lease* was continually included in all the legal text of the Laws on Construction Land that followed (the Law on Construction Land of 2008 [22], the Law on Construction Land of 2011, and the Law on Construction Land of 2015). Because the *right to a long-term lease* has existed in the Macedonian legal system since 2001 as a legal transplant from Slovenian and Croatian *right to build,* it is completely baffling how the legislator could have made the mistake of transplanting it twice. The second time transplanting the term "*right to build*" and leaving the main features of the *right to build* out of the regulation. The mistake was made when drafting the Law on Construction Land of 2008. This Law regulated both the *right to build* and the *right to a long-term lease*, both based on the same legal construct found in the Slovenian and Croatian laws, although transplanted to a different degree. The same was done while drafting the Law on Construction Land of 2011 [23] and in the currently applicable Law on Construction Land of 2015.

If we make a comparison of the Slovenian and the Croatian *right to build* with the Macedonian *right to a long-term lease* as it is currently regulated by the Law on Construction Land of 2015, we can immediately notice the similarities. According to Article 21 of the Law on Construction Land, "*the right to a long-term lease is a right that enables its holder to erect his building (structure) on the surface or beneath the surface of a construction land owned by another and the land owner is obligated to tolerate it*". From the definition of the *right to a long-term lease,* we can see that it enables a person to build and own a structure on foreign land, the same as

the Slovenian and Croatian *rights to build*. Regarding the relationship between the landowner and the holder of the *right to a long-term lease,* the Law on Construction Land states that the holder of the *right to a long-term lease* is guaranteed the right of usufruct over the construction land. This is another similarity between the *right to a long-term lease* and the Slovenian and the Croatian *right to build*. For the use of the land the holder of the *right to a long-term lease* is obligated to pay rent to the landowner (Arts. 20, 22) [24], same as the holder of the *right to build*, according to the Slovenian and the Croatian laws. When the building (or other structure) has been erected on the basis of the *right to a long-term lease* the building is by law treated as an attachment to the *right to a long-term lease*, identical to the relation between the *right to build* and the building according to Slovenian and Croatian laws. Regarding the transfer or the *right to a long-term lease,* the Law on Construction Land states that the transfer of the right also includes the transfer of ownership over the building attached to the *right to a long-term lease.* (Art. 25) [24]. The effects of the transfer of the Macedonian *right to a long-term lease* are the same as the effects of the transfer of the Slovenian and the Croatian *right to build.* When the *right to a long-term lease* is terminated the legal unity between the land and the building is reestablished and as a result, the building becomes the ownership of the landowner. The same consequences arise from the termination of the Slovenian and the Croatian *right to build.* As for the overall legal regime of the *right to a long-term lease*, the Law on Construction Land states that the *right to a long-term lease* falls under the same legal regime as real estate does, which is another similarity with the Slovenian and Croatian *right to build.*

As we have demonstrated, the Macedonian *right to a long-term lease* has all the key features of the Slovenian and the Croatian *right to build*, making those rights identical by nature. However, we have to note that there are some differences as well. The Macedonian *right to a long-term lease* is strictly time-limited, unlike the Slovenian and the Croatian *right to build* which can be both time-limited or unlimited. Regarding the time limit for the *right to a long-term lease,* the Law on Construction Land states that it could last no less than 5 years and no more than 99 years (Art. 19) [24]. The Slovenian and Croatian laws have no legally determined timelines for the duration of the *right to build*. After the termination of the Macedonian *right to a long-term lease* the landowner is not obligated to pay any kind of compensation to the holder or the *right to a long-term lease* (Art. 36) [24]. Unlike the Macedonian Law, the Slovenian and Croatian laws impose a duty for the landowner to compensate the holder or the terminated *right to build* in the amount of the increased value of the real estate.

Comparing the Macedonian *right to a long-term lease* with the Slovenian and the Croatian *right to build* we have evidenced the fact that they are essentially the same. This validates the argument that introducing a *right to build* in Macedonian laws as a second transplant of the Slovenian and the Croatian *right to build* is redundant. Another issue is whether the *right to build* that currently exists in the Macedonian legal system should be kept as such. To our opinion, the answer is no. The concept of *sui generis right,* such as the current *right to build* in the Macedonian laws, which can exist both as an integral part of the right of ownership on construction land or as

a separate right extracted from the right of ownership contradicts the basic principles of property law. Not only is the concept of the Macedonian *right to build* flawed but its application in practice is littered with problems and difficulties. For these reasons, we think that the concept needs to be abandoned altogether.

5 Conclusion

From the overall analysis of the regulation concerning the *right to build,* we can conclude that the legislator has no clear concept of its legal nature. Although the *right to build* is a legal transplant from the legal systems of EU countries (Slovenia and Croatia) the modifications that the Macedonian legislator inserted in the regulation of the *right to build* made its legal nature different from the legal nature that it is attributed to it in the legal systems of the EU countries.

The basic property Law—the Law on Ownership and Other Real Rights doesn't consider the *right to build* to be a real right, but implies that it can exist as a separate right. The unclear regulation concerning the *right to build* in the basic property law left the question about the legal regime of the structure erected as a result of the exercise of this right unanswered.

The special Law on Construction Land is equally vague on the issue concerning the legal nature of the *right to build*. In its provisions, the Law only states that the *right to build* originates from the content of the right of ownership. The Law also states that the *right to build* can be extracted from the content of the right of ownership and transferred to another person, but does not regulate the manner of transfer or its consequences.

The special law regulating construction—the Law on Construction does not address the nature of the *right to build* either. It focuses only on the exercise and transfer of the right to build. According to the Law, the person to whom the *right to build* has been transferred can get a building permit, perform construction on someone else's land, and acquire ownership over the structure. The Law also allows for the *right to build* to be transferred mid-construction under the condition that the new investor assumes all rights and responsibilities of his or her predecessor.

Taking into consideration all the provisions regulating the *right to build* we can conclude that the idea of extracting a *right to build* from the content of the right of ownership after which it continues to exist as a separate right is adopted from the Slovenian and Croatian laws regulating property relations. The Macedonian legislator adopts the idea but doesn't follow the concept. Slovenian and Croatian laws regulate the *right to build* as a real right that persists after construction is finished and holds the erected structure as its attachment. According to Macedonian law, after construction is finished the *right to build* is terminated leaving the owner of the erected structure with no clear rights over the land where the structure is built. As a result of this disputes emerge between the land owners and the building owners about who and to what extent can use the land the building is erected on.

As for the legal nature of the *right to build* in the Macedonian legal system, we conclude that this "separate right" does not go further than being a mere obligation between two or more parties involved in the construction process. Treating it as a "separate right" holds no obvious advantages, on the contrary, only causes confusion and disputes in practice. Therefore, we propose that the relations between land owners and investors regarding construction be regulated by partnership contact, rather than this unsustainable and contradictory concept of the *right to build* to be perpetuated.

References

1. Law on Ownership and Other Real Rights (North Macedonia). Official Gazette of the Republic of Macedonia number 18/01, 92/08, 139/09 and 35/10
2. Kovačević Kuštrimović R., Lazić, M.: Stvarno parvo (Property Law). Zograf, Niš (2004)
3. Живковска, Р.: Стварно право (Property Law). Европа 92, Скопје (2005)
4. Stanojević, O.: Gaj: Institucije (Gaius: Institutions). Nolit, Beograd (1982)
5. Law on Construction.: Official Gazette of the Republic of Macedonia number 51/05, 44/06, 72/07, 82/08, 106/08 and 117/09 (2005)
6. Law on Construction.: Official Gazette of the Republic of Macedonia number 130/09, 124/10, 18/11, 18/11, 36/11, 49/11, 54/11, 13/12, 144/12, 25/13, 79/13, 137/13, 163/13, 27/14, 28/14, 42/14, 115/14, 149/14, 187/14, 44/15, 129/15, 129/15, 217/15, 226/15, 30/16, 31/16, 39/16, 71/16, 103/16, 132/16, 35/18, 64/18, 168/18, Official Gazette of the Republic of North Macedonia number 244/19, 18/20, 279/20 and 96/21 (2009)
7. Law on Construction Land.: Official Gazette of the Republic of Macedonia number 53/01, 97/01, 4/03 and 3/06 (2001)
8. Law for Protection of Cultural Heritage. Official Gazette of the Republic of Macedonia number 20/2004, 71/04, 115/07, 18/11, 148/11, 23/13, 137/13, 164/13, 38/14, 44/14, 199/14, 104/15, 154/15, 192/15, 39/16, 11/18 and Official Gazette of the Republic of North Macedonia number 20/19
9. Law on Agricultural Lands. Official Gazette of the Republic of Macedonia number 135/07, 17/08, 18/11, 42/11, 148/11, 95/12, 79/13, 87/13, 106/13, 164/13, 187/13, 39/14, 130/14, 166/14, 72/15, 98/15, 154/15, 215/15, 7/16, 39/16, Official Gazette of the Republic of North Macedonia number 161/19 and 178/21
10. Law on Urban Planning. Official Gazette of the Republic of North Macedonia number 32/20
11. Law for Real Estate Cadaster. Official Gazette of the Republic of Macedonia number 55/13, 41/14, 101/14, 115/14, 116/15, 153/15, 192/15, 61/16, 172/16, 64/18 and Official Gazette of the Republic of North Macedonia number 124/19
12. Law on Legal Treatment of Illegally Built Structures. Official Gazette of the Republic of Macedonia number 23/11, 54/11, 155/12, 53/13, 72/13, 44/14, 115/14, 199/14, 124/15, 129/15, 217/15, 31/16, 190/17 and Official Gazette of the Republic of North Macedonia number 174/2021
13. Gavella, N., Gliha, I., Jospović, T., Stipković, Z.: Odbrane teme iz stvarnog prava (Selected Topics from Property Law). Pravni fakultet u Zagrebu, Zagreb (1992)
14. Gavella, N., Josipović, T., Gliha, I., Belaj, V., Stipković, Z.: Stvarno parvo (Property Law). Svezak drugi, Narodne Novine, Zagreb (2007)
15. Law on concession and public-private partnership. Official Gazette of the Republic of Macedonia number 6/12, 144/14, 33/15, 104/15, 215/15, Official Gazette of the Republic of North Macedonia number 153/19, 261/19, 89/22 and 65/23
16. Property Code (Slovenia). Official Gazette of the number 87/02, 91/13 and 23/20
17. Law on Ownership and Other Real Right (Croatia). Official Gazette of the Republic of Croatia 91/96, 68/98, 137/99, 22/00, 73/00, 129/00, 114/01, 79/06, 141/06, 146/08, 38/09, 153/09, 143/12 and 152/14

18. Simonetti, P.: Pravo građenja - trajanje i prestanak (Right to Build—duration and termination). Rijeka Zb. Prav. fak. Rij. (1991) v. 32, br. 1, 1–29, avable at. file:///C:/Users/t/AppData/Local/Temp/Petar_Simonetti.pdf (2011)
19. Simonetti, P.: Odlike prava građenja i superficijarnog prava (Characteristics of the Right to Build and Superficies). Zb. Prav. fak. Sveuč. Rij. (1991) v. 34, br. 1, 3–35 (2013)
20. Penal Code. Official Gazette of the Republic of Macedonia number 37/96, 80/99, 48/01, 4/02, 16/02, 43/03, 19/2004, 40/04, 81/05, 50/06, 60/06, 73/06, 87/07, 7/08, 139/08, 114/09, 51/11, 51/11, 135/11, 185/11, 142/12, 143/2012, 166/12, 55/13, 82/13, 14/14, 27/14, 28/14, 41/14, 41/14, 115/14, 132/14, 160/14, 199/14, 196/15, 226/2015, 97/17, 170/17 and 248/18
21. Law of Enforcement. Official Gazette of the Republic of Macedonia number 72/16, 142/16, 178/17, 26/18, 233/18, Official Gazette of the Republic of North Macedonia number 14/20 and 136/20
22. Law on Construction Land.: Official Gazette of the Republic of Macedonia number 82/08, 143/008, and 56/2010 (2008)
23. Law on Construction Land.: Official Gazette of the Republic of Macedonia number 17/11, 53/11, 144/12, 153/12, 25/13, 59/13, 137/13, 163/13, 44/15, 193/15, 226/15 and 30/16 (2011)
24. Law on Construction Land.: Official Gazette of the Republic of Macedonia number 15/15, 98/15, 193/15, 226/15, 31/16, 142/16, 190/16, Official Gazette of the Republic of North Macedonia number 275/19 and 101/21 (2015)

Analysis of Macedonian Legislation Related to Viticultural Geographical Indications

Mirjana Polenak Akimovska, Goce Naumovski, Dimitri Chapkanov, Boris Nedelkovski, and Sasho Zlatev

Abstract The research was conducted with the aim of determining the characteristics of the legislation related to wine *geographical indications* and their importance for the Macedonian economy, especially for the wine industry. Applied methods: normative, legal, historical. The authors also assessed the differences and similarities between *trademarks, appellations of origin, and geographical indications* for distinct types of goods and services. The article points out that, from an economic point of view, geographical indications for wine create value because consumers are ready to pay a higher price since the product is linked to a specific geographical region. The results indicated the importance of the continuous education of organizations, the business community, and other factors to boost the protection of geographical indications in Macedonia.

1 Introduction

The function of protected *geographical indications (GIs)* is to mark products originating from a specific region while simultaneously promoting and advertising the product, and emphasizing the particular characteristics of the product which are the result of the natural conditions and the traditional know-how of the producers of this region. Geographical indications, considered as particular type of intellectual property right and differentiated from other intellectual property rights, have not only legal significance but also enormous economic significance.

As a method for marking the origin of goods and services, the designation of the product's origin and its geographical indication enable the promotion of specific products with special characteristics and quality in commerce by informing the consumer. Furthermore, they could be perceived as industrial property right that enables the linking of culture and production. The indication of the product's name

M. P. Akimovska · G. Naumovski (✉) · D. Chapkanov · B. Nedelkovski · S. Zlatev
SS. Cyril and Methodius University Skopje, Goce Delchev 9B, Skopje 1000, MK, North Macedonia
e-mail: gocenaum@gmail.com

G. Pellat et al. (eds.), *Cooperation and Enlargement: Two Challenges to be Addressed in the European Projects - 2022*, Studies in Systems, Decision and Control 500,
https://doi.org/10.1007/978-3-031-42253-9_10

represents a strong instrument for promotion of traditional products, such as food, wine, handicrafts, etc. From the aspect of consumers' behavior, it is believed that geographical indications have a double manifestation: they represent a reflection of the consumers' interest in a particular "regional" product but also an affiliation with the quality of the product. From a macroeconomic aspect, however, geographic indications are often viewed as a tool for facilitating the development of rural areas.

There are multiple experiences in this field, especially in agricultural and wine tourism. Apart from their economic function, geographical indications also have a cultural function, which is linked to the provision in Article 4 (4) of the UNESCO Convention on the Protection and Promotion of the Diversity of Cultural Expressions. According to the Convention, "cultural activities, goods, and services refers to those activities, goods, and services that, at the time they are considered to have a specific attribute, use, or purpose, embody or convey cultural expressions, irrespective of the commercial value they may have. Cultural activities may be an end in themselves, or they may contribute to the production of cultural goods and services" [1].

There are widely known examples of geographical indications throughout the world, such as Champagne, Cognac, Roquefort, Parmigiano, Porto, Havana, Tequila, etc. [1].

Success on the market is possible through the high quality of the products and the consistency of this quality. The starring role of geographical indications is to inform consumers that the indicated products have particular characteristics and a specific quality.

Thus, *geographical indications* are a pledge of quality, which implies that they have an additional function of guarantee. Countries in transition in the Southeast European region, including the Republic of North Macedonia, have a particular interest in geographical indications, especially regarding the food and wine industries. The specific products, which Macedonia has in abundance, and which are the result of natural conditions and traditional know-how, can be competitive not only on the national market but also in foreign markets, thanks to the protected geographical indications [1].

Taking into consideration the elements mentioned, the table according to the findings of Sylvander [1] indicates the differences and similarities between *trademarks, appellations of origin, and geographical indications,* established according to different criteria, which is also acceptable for the Macedonian legislation (Table 1).

In the Macedonian legislation, particularly in the *Law on Industrial Property* (LIP) [2], the most evident relation of GI regulations to other *intellectual property rights* refers to trademarks, specifically regarding the absolute grounds for refusal of registration in the case where the trademark contains or consists of a geographic sign that serves to signify wines or other strong alcoholic drinks if the reported sign refers to wines or alcoholic drinks that are not from that geographical area. Furthermore, LIP refers to other situations where the sign for which a trademark application has been submitted infringes earlier acquired *industrial property rights*, as well as where the *trademark* infringes the rights of an owner that holds copyright on the work that is identical with or similar to the published sign [2]. In this context, it is beneficial for intellectual property practitioners, including examiners, the judiciary, attorneys, and

Table 1 Differences and similarities between trademarks (TM) including collective trademarks (CTM) and certification trademarks (CerTM) and geographical indications based on the considerations of Sylvander applied on Macedonian Legislation (based on [1])

Characteristics	Trademark	Geographical indications
Distinctive sign	Creation: Fancy or new name TM is distinctive	Determined by the existing geographical features and human know-how
Quality	No necessary link to quality, unless search of reputation	Identifier guaranteed by the State, quality linked with origin
Ownership	Owner (individual or collective in the CTM case) Transfer is possible (in certain limits for CTM)	Public ownership Unalienable Cannot become generic
Registration	First in time, first in rights (Qui prior est tempore potior est iure)	Procedures, claims, oppositions, register
Use	Mostly private (unless collective TM and Certification TM)	Mostly collective
Conditions of use	Free, but not deceptive Rules for CerTM and CTM: Closed (TM and CTM) Open (CertTM)	Comply with the conditions stated in the Codes of practices
Duration of use	Limited in time (10 to 20 years) Must be renewed	Permanent
Protection	Private Passing off (the plaintiff has the proof burden)	Public Ex officio protection

enforcement agencies, to consider other relevant legal sources relevant to intellectual property rights protection.

Potential controversies between *trademarks* and *geographical names* arise from cases of collision between registered trademarks that are similar to geographical names, and which cause consumer confusion, particularly when the trademark is registered before the protected geographical indication. In the EU, some opinions exist on the recognition of the right of the owner of the trademark to prevent its use as a geographical indication or appellation of origin, where this may mislead consumers [1].

1.1 International Legislative Framework on Geographical Indications Relevant for the Macedonian Legislation

The international legislative framework on geographical names includes the following international conventions and texts (implemented in the Macedonian legislation):

- *The Paris Convention of 1883* and the revisions to the Paris Convention allow products to be marked, but geographical indications are in this sense equal to trademarks, i.e., there is no distinction between the two types of signs to differentiate them. Article 1 of the Paris Convention indicates the provenance or appellation of origin of the product, for example: wines, grains, tobacco leaves, fruits, cattle, minerals, mineral waters, beers, flowers, and other products. The important principles of the Convention are national treatment and the right to priority. The Paris Convention requires member countries to seize imported goods bearing a logo indicating the direct or indirect false source of the goods. The Paris Convention prohibits the use of false or erroneous indications of provenance to prevent unfair competition. Article 10 bis prohibits any claims about the characteristics of the product if they mislead the public.
- *The Madrid Agreement for the Repression of False or Deceptive Indications of Source on Goods of 1891* and its revisions are also important legal sources. The text stipulates that any product bearing a false or misleading indication of a source logo, by which a signatory state or a place located there would be directly or indirectly indicated as a country or as a place of origin, will be seized during importation, or this import will be prohibited, or other actions and sanctions will be applied with respect to this import.
- *The Lisbon Agreement for the Protection of Appellations of Origin and Their International Registration of 1958*, revised and supplemented, is also a valuable text regarding geographical indications. This Agreement stipulates the protection of the appellation of origin and the geographical name of a country, region, or locality serving to designate a product originating therein and whose quality or characteristics are due exclusively or essentially to the geographical environment, including natural and human factors. The names are registered by the International Bureau of the World Intellectual Property Organization in Geneva at the request of the competent bodies of the signatory members concerned.
- *The TRIPS Agreement—Agreement on Trade-Related Aspects of Intellectual Property Rights of 1994*—determines the categories covered by the notion of intellectual property and makes the distinction between trademark and geographical indication. It is particularly significant with regard to the obligations of the Member States, that have to provide the legal means enabling interested parties to prevent the use, in the description or presentation of a product, of any means that indicates or suggests that the product in question originates from a geographic region other than the accurate place of origin in a manner that misleads the public as to the geographic origin of the product, as well as any use that constitutes an act of unfair competition within the meaning of Article 10 bis of the Paris Convention. Similarly, it provides that the registration of a trademark may be invalidated or refused if it contains or consists of a geographical indication for products that do not originate in the said territory and if the use of these indications in the trademark for such products is likely to mislead the public as to the true place of origin of the product.

The country is also a party to the Central European Free Trade Agreement (CEFTA) from 2006 [1].

1.2 European Union Legislation Quality Schemes on Food and Agricultural Products, Wines and Spirit Drinks

From the aspects of the European Union legislation, the subsequent regulations on applications of quality schemes are of particular importance for geographical indications for food and agricultural products, wines, and spirit drinks that are, among others, relevant for the EU membership aspirations of North Macedonia [1]:

- Regulation (EU) No 1151/2012 of the European Parliament and of the Council of November 21, 2012, on *quality schemes for agricultural products and foodstuffs.*
- Commission Delegated Regulation (EU) No 664/2014 of December 18, 2013, supplementing Regulation (EU) No 1151/2012 of the European Parliament and of the Council with regard to the establishment of the Union symbols for protected designations of origin, protected geographical indications, and traditional specialties guaranteed and with regard to certain rules on sourcing, certain procedural rules, and certain additional transitional rules.
- Commission Implementing Regulation (EU) No 668/2014 of June 13, 2014, laying down rules for the application of Regulation (EU) No 1151/2012 of the European Parliament and of the Council on quality schemes for agricultural products and foodstuffs.
- Commission Communication: Guidelines on the *Labeling of Foodstuffs Using Protected Designations of Origin (PDOs) or Protected Geographical Indications (PGIs)* as Ingredients.
- Commission Implementing Regulation (EU) 2019/34 of October 17, 2018 laying down rules for the application of Regulation (EU) No 1308/2013 of the European Parliament and of the Council as regards applications for protection of *designations of origin, geographical indications, and traditional terms in the wine sector*, the objection procedure, amendments to product specifications, the register of protected names, cancellation of protection, and use of symbols, and of Regulation (EU) No 1306/2013 of the European Parliament and of the Council as regards an appropriate system of checks.
- Commission Delegated Regulation (EU) 2019/33 of October 17, 2018, supplementing Regulation (EU) No 1308/2013 of the European Parliament and of the Council as regards applications for protection of designations of origin, geographical indications, and traditional terms in the wine sector, the objection procedure, restrictions of use, amendments to product specifications, cancellation of protection, and labeling and presentation.
- Regulation (EU) No 1308/2013 of the European Parliament and of the Council of December 17, 2013, establishing a common organization of the markets in

agricultural products and repealing Council Regulations (EEC) No 922/72, (EEC) No 234/79, (EC) No 1037/2001, and (EC) No 1234/2007.

- Commission Regulation (EC) No 555/2008 of June 27, 2008, laying down detailed rules for implementing Council Regulation (EC) No 479/2008 on the common organization of the market in wine as regards support programs, trade with third countries, production potential, and controls in the wine sector.
- Regulation (EU) No 1306/2013 of the European Parliament and of the Council of December 17, 2013, on the financing, management, and monitoring of the *common agricultural policy* and repealing Council Regulations (EEC) No 352/78, (EC) No 165/94, (EC) No 2799/98, (EC) No 814/2000, (EC) No 1290/2005, and (EC) No 485/2008.
- Commission Delegated Regulation (EU) 2018/273 of 11 December 2017 supplementing Regulation (EU) No 1308/2013 of the European Parliament and of the Council as regards the scheme of authorizations for *vine plantings,* the vineyard register, accompanying documents and certification, the inward and outward register, compulsory declarations, notifications and publication of notified information, and supplementing Regulation (EU) No 1306/2013 of the European Parliament and of the Council as regards the relevant checks and penalties, amending Commission Regulations (EC) No 555/2008, (EC) No 606/2009 and (EC) No 607/2009 and repealing Commission Regulation (EC) No 436/2009 and Commission Delegated Regulation (EU) 2015/560. Commission Regulation (EC) No 555/2008 of June 27, 2008, laying down detailed rules for implementing Council Regulation (EC) No 479/2008 on the common organization of the market in wine as regards support programs, trade with third countries, production potential, and controls in the wine sector.
- Regulation (EU) 2019/787 of the European Parliament and of the Council of April 17, 2019, on the definition, description, presentation, and labeling of *spirit drinks*; the use of the names of spirit drinks in the presentation and labeling of other foodstuffs; the protection of geographical indications for spirit drinks; the use of ethyl alcohol and distillates of agricultural origin in alcoholic beverages; and repealing Regulation (EC) No 110/2008.
- Commission Delegated Regulation (EU) 2021/1235 of May 12, 2021, supplementing Regulation (EU) 2019/787 of the European Parliament and of the Council with rules concerning applications for registration of geographical indications of spirit drinks, amendments to product specifications, cancellation of the registration, and the register.
- Commission Implementing Regulation (EU) 2021/1236 of May 12, 2021, laying down rules for the application of Regulation (EU) 2019/787 of the European Parliament and of the Council concerning applications for registration of geographical indications of spirit drinks, the opposition procedure, amendments to product specifications, cancellation of the registration, use of symbols, and control.

2 Primary and Secondary Legislation

The main sources on geographical indications and appellations of origin in the Macedonian legislation include the *Law on Industrial Property* (LIP) [2], the *Law on the Quality of Agricultural Products* (LQAP) [3], the Law on Wine [4], as well as *the Law on Agricultural and Rural Development* (LARD) [5].

As noted above, with regard to international conventions and agreements relating to geographical indications and appellations of origin, Macedonia has acceded to the Lisbon Agreement for the Protection of Appellations of Origin and Their International Registration and its Stockholm Act on July 6, 2010. The country is a party to the 1994 Agreement on Trade in Aspects Related to Intellectual Property Rights (TRIPS Agreement) as well as the 2006 Central European Free Trade Agreement (CEFTA).

The LIP uses the term "geographical names" (Macedonian*: geografski nazivi*), which emphasizes: (1) appellations of origin (Macedonian: *oznaki na poteklo*) and (2) geographical indications (Macedonian: geografski oznaki).

Since 1993, the LIP has stipulated the appellation of origin, which is considered a superior type of protection. From 2002, the LIP introduced, in addition to the appellation of origin, a new, so-called "lower protection" through a new institute: the geographical indication, adopted under the influence of European Union legal terminology.

In October 2010, a special LQAP was adopted [5] in order to promote the national and international registration of protected geographical indications and protected appellations of origin for agricultural products. This law also introduced the Traditional Guaranteed Specialty (Macedonian*: oznaka za garantiran tradicionalen specijalitet)* for traditional agricultural and food products with recognized special characteristics. The LQAP has been amended to align with EU Regulation 1151/2012.

From the point of view of the economic importance and functions of geographical indications and appellations of origin, the provisions of the LARD are also relevant. In this sense, LARD stipulates that superior-quality agricultural products are those resulting from the application of standards for guaranteed traditional uniqueness, geographical indications, and protection of appellations of origin and wines of geographical origin [5] (Sect. 74.10). LARD also provides mechanisms for *state financial assistance* for the introduction of higher quality standards for the manufacture of these products [5] (Article 106).

As far as the secondary legislation is concerned, the bylaws and rulebooks of particular relevance that have been adopted are presented in Table 2.

Table 2 Secondary Legislation on Geographical Indications (Based on [6–15])

Product	Document	Enacted by
Non-Agricultural	Regulation on Appellations of Origin and Geographical Indications	State Office of Industrial Property
Agricultural/Food	Regulation on the form and content of the application for registration of a designation of origin or geographical indication	Ministry of Agriculture, Forestry and Water of the Republic of Macedonia
Agricultural/Food	Regulation on the form and content of the elaborate contained in the application for registration of a designation of origin or geographical indication	Ministry of Agriculture, Forestry and Water of the Republic of Macedonia
Agricultural/Food	Regulation on the form and content of the single document from the application for registration of a designation of origin or geographical indication	Ministry of Agriculture, Forestry and Water of the Republic of Macedonia
Agricultural/Food	Regulation on the costs in the procedure for registration and use of the designation of origin, the geographical indication and the designation for guaranteed traditional specialty	Ministry of Agriculture, Forestry and Water of the Republic of Macedonia
Agricultural/Food	Regulation on the form, content, size and use of the marks and marks "protected designation of origin", "protected geographical indication" and "designation of a guaranteed traditional specialty"	Ministry of Agriculture, Forestry and Water of the Republic of Macedonia
Agricultural/Food	Decision for determination of the agricultural and food products that are protected on national and international level by protection of the geographical name with designation of origin or geographical indication and protection of the traditional name with designation of guaranteed traditional speciality	Ministry of Agriculture, Forestry and Water of the Republic of Macedonia
Agricultural/Food	Regulation on the form of the objection to the proposed name from the request for registration of a designation of origin, geographical indication or designation for a guaranteed traditional specialty and the form for submission of information from the settlement procedure,	Ministry of Agriculture, Forestry and Water of the Republic of Macedonia

(continued)

Table 2 (continued)

Product	Document	Enacted by
Agricultural/Food	Regulation on the form, content, and manner of submitting the request for annulment of the registration decision	Ministry of Agriculture, Forestry and Water of the Republic of Macedonia
Agricultural/Food	Regulation on the manner of submitting the request and the form and content of the application form for amendment and supplementation of the report or specification,	Ministry of Agriculture, Forestry and Water of the Republic of Macedonia
Wines	Regulation on the form and content of the register of authorized verification bodies	Ministry of Agriculture, Forestry and Water of the Republic of Macedonia
Wines	The Rules on indication of the geographical areas suitable for production of wine with geographical name	Ministry of Agriculture, Forestry and Water of the Republic of Macedonia
Wines	Rules on classification of recommended and approved grape varieties for production of every vineyard area for production of wine, as well documents concerning the procedure	Ministry of Agriculture, Forestry and Water of the Republic of Macedonia
Wines	Rules for Content and form for the Elaboration of Production and Labelling of Wine with Geographical Name	Ministry of Agriculture, Forestry and Water of the Republic of Macedonia
Wines	Rules on the content and form of the Register of Wine with Protected Geographical Names and of Users of the Geographical Names, the Form of the Application, the Procedure for Inscription, and the Required Documentation	Ministry of Agriculture, Forestry and Water of the Republic of Macedonia

2.1 Concept and Terminology

In article 226, LIP specifies that the geographical name (in Macedonian: *geografski naziv*) shall be protected by an appellation of origin of the product and a geographical indication. The geographical name is indicated on the products produced by natural or legal persons in a certain geographical area [2].

LIP (Article 227) describes the appellation of origin (in Macedonian: *oznaka na potekloto)* as the geographical name of the country, region, or place indicated on the product originating from that area and having quality and particular characteristics exclusively or mostly conditioned by the geographical environment, including the natural and human factors and the production, processing, and preparation that are entirely carried out in the certain limited region of origin [2]. Excluding wine and other alcoholic drinks, the product may be indicated with an appellation of origin even if raw materials for its production originate from a wider area or out of the area of processing, provided that: (1) the defined area for raw materials production is limited or if there are special conditions for raw materials production; and (2) the traditional method of production, i.e., the human factor, is crucial for the quality and special characteristics of the product [2].

According to article 228 of LIP [2], the geographical indication (in Macedonian: *geografska oznaka*) is the geographical name of the country, region, or place indicated on the product having quality, reputation, or other characteristics that may be essentially attributed to the geographical origin. The geographical indication of a product can be protected, provided that production, procedure, and/or preparation of the product are carried out in a certain place of origin. Geographical names that do not meet the requirements for protection as appellations of origin may be protected as geographical indications.

LIP also encompasses a provision on traditional names. In this sense, even if the name does not contain a geographical name of a certain country, region, or place, in the case if for a prolonged period the name has become known as a traditional name for a product originating from that territory, it can be considered as a geographical name. Same applies to the historical name of a territory referring to a definite origin of the product if it fulfills the requirements for geographical indication and appellation of origin [2].

Regarding the scope of protection, according to LIP, a geographical name may be used for marking natural products, agricultural products, industrial products, handicraft products, and homemade handicrafts [2].

As about article 1 of LQAP, the protection and registration of the geographical or traditional name of the agricultural and food products are possible with a designation of origin (Macedonian: *oznaka na poteklo*) or a geographical indication (Macedonian: *geografska oznaka*), while traditional names are protected by guaranteed traditional specialty (Macedonian: *garantiran tradicionalen specijalitet*). [3, 16].

3 Requirements for Protection

3.1 LIP Provisions

A geographical indication i.e. appellation of origin may not protect the product name which: (1) does not fulfill the *requirements under LIP*; (2) is *contrary to the law and morality*; (3) by its content may *misleading* as to the kind, origin, quality, manner of production or other properties of the product; (4) is equal to the name of a *plant variety or animal breed*, in case when it might mislead the public regarding the geographical origin; (5) although presents exact *name of the country*, region or place of product it may provoke false impression to the customer that the product originates from other country, region or place; (6) is not protected in the *country of origin* or ceased to be used in the country of origin, and (7) is *identical or similar* to the geographical name or trademark registered previously for identical or similar products, when there is probability to mislead the customer [2].

Additionally, geographical indication, i.e., appellation of origin, may not protect the name of the place of origin initially used for indicating products of that place of origin, but after long market sale, it has become generic, i.e., generally known for indicating a definite kind of product [2].

The name of the place of origin protected by geographical indication, or an appellation of origin, may not become generic (Article 233) [2].

Regarding the homonyms, LIP in article 234 prescribes that if the names of two or more places of origin of products are identical or almost identical in their written form, the protection of such names with geographical indication or appellation of origin shall be approved to all persons that meet the requirements under LIP and if these names are used in accordance with good business practices as well as on the principle of equality of the producers at the market and truthful informing of the customer, except if it might mislead the public regarding the geographical origin [2].

Concerning *international protection*, a geographical name that is already protected by a geographical indication, i.e., an appellation of origin in the Republic of Macedonia, may be protected abroad on the basis of a bilateral agreement for mutual protection or international agreements ratified by the Republic of Macedonia.

The application for protection outside the country may be submitted merely by users of geographical names registered in the register of protected geographical names of SOIP.

A geographical name may also be protected by a foreign natural or legal person or a group of producers by registering an *authorized user* of the protected geographical name when it results from international agreements ratified by the Republic of Macedonia or based on bilateral agreements for mutual protection if it is provided in the legislation of the country of origin of that person. The above conditions are prescribed in Article 235 of LIP [2, 16].

3.2 LQAP Provisions

Given the LQAP definitions of geographical names for agricultural products and foodstuffs, "*geographical name* "is the name and/or landmark of the *place, region, or country* with which they are associated, indicating that the product originates in that area. LAQP in Article 2 defines "geographical indication" as the name of a region, a specific place, or, in exceptional cases, a country, which is used to denote agricultural or food products whose production and/or processing and/or preparation take place in that geographical area [3].

Therefore, according to Article 142 of the LQAP, the designation of origin may protect the name of the agricultural and food product that are:

- *originating* from a specific place, region, or, in exceptional cases, country.
- whose *quality or characteristics*, for the most part or exclusively, are influenced by special natural human factors in a particular geographical area; and
- all *production processes* take place entirely in a defined geographical area.

On the other hand, the name of agricultural and food products can be protected with a geographical indication for products:

- originating from a *specific place,* region, or country;
- having a *specific quality, reputation, or other feature* that is attributed to the geographical origin; and
- at least *one of the production processes* takes place in a defined geographical area [3].

Regarding the relations with trademarks, LQAP in Article 157 promulgates that when the application for registration of a trademark is submitted after the day of submission and the application for registration of the designation of origin and the geographical indication are registered in accordance with the provisions of LQAP and the regulations adopted on the basis thereof, the request for trademark registration will be denied.

However, the trademark registered on the territory of the Republic of Macedonia in accordance with special regulations before the date of submission of the application for registration of designation of origin or geographical indication may continue to be used [LQAP] [3, 16].

3.3 The Specific Approach for Geographical Indications (GIs) for Wines

An important basis for GIs for wines is the *Law on Wine* (LW), which includes additional regulations ("classification of wines, production, designation, and protection of wines with geographical indications"). LW has a "lex specialis" character; that is, it replaces LIP and LQAP as far as geographical indications for wines are concerned [16].

Regarding geographical indications for wines, the LW defines geographical indications (GI) as "the name and/or designation of the country, region, or place indicating that the product originates from this area" (LW, Article 3 (27) [1]. In addition, LW classifies wine in terms of quality into four categories: (1) *table wine*; (2) *regional wine* (or table wine with geographical indication (WGI)); (3) *wine of controlled origin* (WOC); and (4) *wine of controlled and guaranteed origin* (WOCG). Thus, according to LW, WGI, WOC, and WOCG are considered "*wines with geographical indication*". LW classifies areas suitable for "wines with geographical indication" into regions, vineyards and localities, habitats, and delimited wine-growing units (LW, Article 39(2)) [4, 16].

The Regulations on Indication of the Geographical Areas Suitable for Production of Wine with a Geographical Name prescribe the designation of the geographical area for production of wines with a geographical name according to a List of Geographical Areas in the following way: (1) *Region*, as a geographical area of origin of regional wine or table wine with geographical indication (WGI), which is the entire territory of the Republic of Macedonia; (2) *Vineyards,* as a geographical area for wine with controlled origin (WCO); and (3) *Localities, habitats, and limited vine-growing units*, as geographical areas suitable for production of wine with controlled and guaranteed origin (WCGO) [6, 7, 16].

In this sense, according to the rules, wines produced from wine-growing areas located in the territory of the Republic of Macedonia can have the protected name "*Macedonia*" and be designated as "regional wine of Macedonia" and/or "*REGIONAL WINE OF MACEDONIA*"(in Macedonian: *заштитено име: Македонија*, usage: *регионално Вино Македонија* and/or *македонско регионално вино).*

In addition, WCO can be produced in one of the sixteen (geographical) wine areas (Skopje, Veles, Tikvesh, Gevgelija-Valandovo, Strumica-Radovish, Ovhe pole, Kochani-Vinica, Kumanovo, Kratovo, Pijanec, Prilep, Bitola, Prespa, Ohird, Kichevo and Tetovo). As for WOCG, they are native to many localities, habitats, and limited viticultural units [7, 16].

Examples of WCO and WCGO wines are presented in Figs. 1 and 2 respectively.

Although Macedonian GI legislation follows international and European standards, IP academia and practitioners in Macedonia have reiterated on several occasions that the provisions of the LW and different bylaws, enacted on the basis of LW do not offer particularly clear legal position concerning the regulation of GIs for wines. These authors have also outlined that there is a need for further clarification and elaboration of applicable rules [7, 16].

Fig. 1 Example of wine with controlled origin (WCO) from the Tikvesh area (BOVIN Muscat Temjanika Wine, Source: Authors' Archive)

4 Procedures for Acquiring Protection

4.1 LIP Route

4.1.1 Geographical Names

The procedure for geographical name protection is initiated by an application that contains a "Request for geographical name protection", i.e., a request for granting the right to use the protected geographical name, and other supplements provided for by LIP in Article 236 [2].

A foreign person can also submit the application. In this case, article 237 foresees that with the request for protection of a geographical name, the applicant has to enclose a copy of a certificate or other legal act in the official language of the country of origin, issued by the competent authority in the country of origin, as an evidence that the geographical name is protected in that country, in accordance with the national legislation in the country of origin, as well as a certified translation in Macedonian language [2].

The exploration of the LIP provisions [2], i.e., articles 238–242, indicates that one application may refer to the protection of only one geographical name relating to only one type of product.

Moreover, the application for protection of geographical name may be filed by:

Fig. 2 Example of wine with controlled and guaranteed origin (WCGO) from the Lepovo locality in Tikvesh (BOVIN Winery Vranec Wine, Source: Authors' Archive)

- natural or legal persons producing, in a certain geographical area, a product indicated by the name of that area, and a group of producers and manufacturers of the same products irrespective of the composition and form of their union.
- state administrative body, local self-government unit and chambers interested in protection of geographical names in the field of their activity.
- foreign natural and legal persons i.e., foreign groups of producers, only if the right of authorized user for the protected geographical name has been granted in the countries of origin and if they fulfill the requirements under this LIP.

Additionally, an application for protection of a geographical name shall contain a request for protection of the geographical name with a designation, whether protection with an appellation of origin or with a geographical indication is requested.

An application for protection of a geographical name with an appellation of origin or with a geographical indication, besides the request for protection of a geographical name, shall contain a study (elaborate) on the production which the product should be indicated with the geographical name.

The contents and form of the application referred to, the study, and the other components and supplements shall be prescribed in a regulation adopted by the director of SOIP.

The control of the special characteristics of the product may be carried out by the institution that has elaborated the study or, on the request of one party, by another institution that fulfills the requirements provided for in a regulation adopted by the director of SOIP, for which evidence is issued.

The institution that has elaborated the study within 90 days of protecting the geographical name should constitute a commission for controlling the quality and the special characteristics of the product that will be indicated with the geographical name. The Commission referred to shall consist of five members who have participated in elaborating the study and/or other people having knowledge in the field of the product concerned. At least one member of the commission should be a manufacturer.

If the institution that has elaborated the study within the prescribed period cannot constitute a commission for controlling the quality and the special characteristics of the product, it shall propose another relevant institution no later than 90 days after the date of protecting the geographical name.

If the institution that has elaborated the study within the prescribed time limit fails to act, SOIP shall request an opinion from professional institutions depending on the kind of product or from a group of producers of the relevant product for a proposal for a new institution for product control [2].

Modifying the study is also possible, i.e., natural or legal persons and associations of legal and natural persons that fulfill the requirements for an applicant according to LIP and have legal interest may request amending the study as a result of changes arising from the development of science and technical knowledge or because of redefining the borders of the geographical area.

The request for amending the study shall be submitted to the institution that has elaborated it or to another institution that fulfills the requirements prescribed in a regulation adopted by the director of SOIP. The request for amending the study should contain the reasons for the requested changes. The applicant should submit the amendment to the study to SOIP. A change of study shall also be considered a change of institution for product control.

SOIP possesses a register of applications for protection of geographical names, a register of applications for using the protected geographical names, a register of protected geographical names, and a register of users of protected geographical names. The contents and method of keeping the registers are prescribed by a regulation on appellations of origin and geographical indications. On a written request of the persons concerned, SOIP shall issue copies of documents, certificates, and extracts from the registers [2].

The acquisition of the right to the name of the place of origin for products with geographical indication, i.e., appellation of the origin, is made by a positive decision and by registering the geographical name of the product and the kind of product the name refers to in the Register of Protected Geographical Names.

The publication of a protected geographical name in the official newsletter of SOIP is ex officio, as prescribed by the Regulation on Appellations of Origin and Geographical Indications [2, 16].

4.1.2 Awarding the Right of Authorized User

Given that the appellations of origin and the geographical indications are collective rights, their use is granted in a procedure that, if successful, results in the granting of the rights of authorized users of registered geographical names, i.e., authorized users of appellations of origin and users of geographical indications.

The appellation of origin shall be a collective right and may be used exclusively by legal and natural persons and associations of legal and natural persons who:

- produce or process a product whose geographical name is protected by an appellation of origin;
- carry out the whole process of production in a geographical area that is precisely defined in the study; and
- are registered in the register of users as users of that appellation of origin.

The geographical indication shall be a collective right and may be used by legal and natural persons that:

- produce a product with a geographical name protected by a geographical indication;
- perform production, processing, and/or preparation of the product in a geographical area that is precisely defined in the study; and
- are registered in the register of users as users of that geographical indication.

The application for granting the right of usage contains:

- a request for granting the right to use protected geographical names;
- evidence for performing specific activities; and
- evidence for performing control.

The contents and form of the application are prescribed in the Regulation on Appellations of Origin and Geographical Indications [2].

In the event that SOIP determines that the application does not meet the requirements for protection of the geographical name, it shall, in writing, inform the applicant of the reasons for not approving the application within 90 days from the date of receiving the notification to explain the reasons. Upon elaborated request from the applicant, for justified reasons, the time limit may be renewed for another 90 days at latest.

If the applicant within the prescribed time limit doesn't provide an explanation at all or provides an explanation and SOIP determines that the geographical name cannot be protected, SOIP shall by decision reject the application for protection of the geographical name, i.e., the application for granting the right of authorized user of the geographical name.

Additionally, if there is an application for protection of a geographical name with an appellation of origin and SOIP finds that the criteria for an appellation of origin are not fulfilled but the requirements to be protected by a geographical indication are satisfied, the office shall inform the applicant and, with his consent, shall protect the geographical name by a geographical indication.

When the application is in accordance with LIP and the regulations, SOIP further examines it in order to check if it fulfills the requirements for granting the right of authorized user.

If the application for granting the right of authorized user of the geographical name fulfills the requirements provided for in this Law, SOIP shall advise the applicant within 30 days to pay the fee for granting the right of authorized user of the geographical name for the first five years, the costs for publishing the information for the granted right to use the protected geographical name, as well as for issuing a certificate, and to submit evidence for the services performed. If the applicant submits evidence for the payments, SOIP shall decide to grant the right of authorized user and shall register it in the register of users of protected geographical names and in the register for protected geographical names.

Following the payment of the costs of publication by the holder of the right of authorized user, SOIP shall publish the information for granting the right of authorized user in the newsletter. SOIP issues the authorized user of a protected geographical name a certificate for granting the right of authorized user within six months from the date of the decision [2, 16].

4.2 Geographical Names for Agricultural Products

The method for protection of geographical indications and appellations of origin for agricultural products is under the competence of the Ministry of Agriculture, Forestry, and Water Economy, in accordance with the provisions of LQAP (articles 145–159 [3]) and the "Regulation on the form and content of the elaborate contained in the application for registration of a designation of origin or geographical indication" [15].

The Elaborate contains the following elements:

- the name of the agricultural or food product that contains a designation of origin or geographical indication;
- description of the agricultural or food product's raw material as well as the main physical, chemical, microbiological, or organoleptic characteristics of the agricultural or food product;
- definition of the geographical area;
- proof that the agricultural or food product originates from the determined geographical area;
- description of the production method, including the way of packaging if the same is compulsorily performed in the defined geographical area, for the needs of protection of the quality and origin of the product and its control of agricultural or food products, and, if necessary, the authentic and immutable local production method;
- data on connection between the quality or the characteristics of the agricultural or food product and the geographical area or connection between the specific

quality, reputation, or other characteristics of the agricultural or food product with the geographical area referred to;
- the name and address of the authorized bodies that verify the conformity of the product with the report; and
- specific rules for labeling agricultural or food products.

A request for registration can be submitted by an interested group of operators who are engaged in the production, processing, or trade of the same agricultural or food product, regardless of its legal form or composition.

LQAP regulates in more detail the following issues:

- the procedure for review of the application by a special committee;
- the opposition procedure (including settlement procedures;
- the decision for protection and registration;
- the geographical names' registers;
- the initial and additional/subsequent right of use;
- amendments and supplements to the Elaboration;
- annulment of registration decisions;
- the use of the indications (*Protected designation of origin-PDO; Protected geographical indication-PDI, and Traditional speciality guaranteed-TSG; Macedonian: Zaštitena oznaka na poteklo; Zaštitena geografska oznaka; Oznaka za garantiran tradicionalen specijalite*t); and
- the costs of the procedure.

Certification organizations recognized by the Institute of Accreditation of Macedonia implement the necessary compliance standards.

The LQAP also governs the international registration of geographical names based on bilateral agreements for mutual protection or international agreements ratified by the Republic of Macedonia, as well as the registration of geographical names at the EU level [3, 16] and on the basis of a submitted request for protection in accordance with the laws of the country in which it is performed.

4.3 Geographical Names Procedures and Practices for Wines

4.3.1 Registering Wines with Protected Geographical Indications

The procedure is initiated when applying for registration in the Register of Wines with Protected Geographical Indications. The application must contain an elaboration in which the following matters are determined:

- geographical area of production;
- sorting and cultivation methods of the vine;
- maximum yield per hectare;
- winemaking areas and methods;

- appropriate parameters of *physical, chemical, and organoleptic characteristics* [4] (Article 42).

Within thirty days of receipt of the application for registration, the Ministry issues a decision approving the application for registration in the register or a decision rejecting the application [4] [Article 42-a (1–2)].

For other procedural questions relating to registration, the provisions of the LQAP are applied concerning:

- the availability of *geographical names;*
- the application examination procedure;
- the opposition procedure;
- the decision to approve or reject the application;
- acquisition and subsequent right of use;
- modification and completion of the elaborate;,
- revocation of registration, negative rights, and
- symbols for protected appellations of origin [3] [Article 141, 142, 144, 147–154, 156].

When the application for registration of a geographical name in the Register has been approved, the winegrowers who submitted the application (applicants with an approved application) have the right to use the registered geographical name [3] [Article 42-a (4)]. In other words, those winegrowers are authorized users of the geographical name.

In addition, any other wine producer who, by production, subsequently proves that the wine is produced according to the conditions for producing wine under a protected geographical name, may become a user of the registered geographical name [3] (Article 42–1(5)).

The procedure is governed by the Regulation on Content and Form of the Register of Wines with Protected Geographical Indications and Users of Geographical Indications, Application Form, Registration Procedure, and Required Documentation [8].

The LW provisions also include a reference that wines and other wine grape products on the market must be labeled to ensure the protection of consumer interests and the protection of competition, as well as clear provisions on the definition and elements of the label, in particular when it comes to the labels of wines bearing geographical names [4] [49 (1)].

LW further notes that, in accordance with Articles 23, 24, and 25 of the Trade-Related Aspects of Intellectual Property Rights, as well as Article 4 of Annex 2 of the Additional Protocol for Wine and the Agreement of Stabilization and Association [9], in the Republic of Macedonia, the use of the geographical name of the wine that does not come from the place indicated by the geographical indication or the appellation of origin in question is prohibited. This is the case even when the true origin of the goods is indicated, if the geographical name is used in translation or accompanied by expressions such as "kind," "type," "style," "imitation," or "similar." [4] Article 55.

The right to use a protected geographical name may not be assigned, derogated, or pledged by an agreement. If the protected geographical name is the subject of a previously applied or registered trademark, such trademark may not be assigned, derogated, or pledged [2, 16].

5 Range of Exclusive Rights

The user of a protected geographical name shall have the *right to use it exclusively and to indicate that the product* has been registered in the Register of Protected Geographical Names of SOIP.

The right of use shall also refer to the usage of the protected geographical name on the packaging, advertising materials, business identification documents, and other business documentation, as well as the import and export of products indicated by a geographical name.

Authorized users of protected geographical names shall have the *exclusive right* to indicate their products as "*appellation of origin controlled"* if authorized for using an appellation of origin or "*geographical indication controlled"* if authorized for using a geographical indication [2].

The users of the geographical names may *request prohibition* of:

- direct or indirect unauthorized use of the protected geographical name for equal or similar products for acquiring proprietary benefit;
- marking the products not originating from the place of origin indicated by the protected geographical name even when real origin is indicated, its translation used, or when used associated with additional expressions like "style", "type", "by method", "as produced in", "imitation", etc.
- any kind of use of the protected geographical name that harms or misuses the reputation of the protected geographical name;
- any kind of use of false information that might mislead the consumer regarding the geographical origin, quality, or properties of the product and is put on the packaging, business identification documents, or other documents, which gives the wrong impression of the real origin; and
- each other application that might mislead the consumer regarding the geographical origin of the product.

The decision to grant the *right to use* the protected geographical name may be revoked if it is determined that the requirements for granting the right to use the protected geographical name have ceased to have effect.

In the procedure, on request for revoking the decision for granting the right to use a protected geographical name, the authorized user of the protected geographical name shall be bound to prove that there are requirements for granting the right.

The decision to grant the right to use the protected geographical name may be revoked ex officio or on the request of an interested entity or association (authorized

to apply for registration of a geographical name), as well as on a proposal from the public prosecutor.

Evidence should be attached to the request for revoking a decision. Within fifteen days from the receipt of the revoking request, SOIP forwards it to the holder of the right to use and invites him to declare himself thereon within thirty days from the date of receiving the notification. In the event of a decision for revoking, the right to use a protected geographical name shall cease to have effect for the person registered as an authorized user in the appropriate registers on the day following the date of the effective decision for revoking that right [2].

A similar provision on *revoking the right* to protected designation of origin and protected geographical indications for agricultural products is contained in Article 153 of the LQAP. Namely, if the verification bodies determine that the production of an agricultural or food product is not in accordance with the conditions set out in the elaboration or specification, the Minister of Agriculture, Forestry, and Water Economy (on the proposal of the special committee for applications) adopts a decision for deletion of the subject from the respective register [3, 16].

6 Violation of Rights and Sanctions

Violation of geographical indications and appellations of origin rights has consequences with civil remedies and/or criminal sanctions. Additionally, administrative law protection is provided through the supervision provided by the competent state organ as well as through the rules of the misdemeanor procedure.

Concerning the *civil remedies*, any unauthorized use, availability, restriction, imitation, association, harassment of rights, and the like contrary to the provisions of LIP is considered as an infringement of the rights. A civil penalty is likewise prescribed in LIP in cases of infringement, no matter if done intentionally or with ultimate negligence.

Regarding the *interim measures*, the court can order them when the plaintiff proposes them if he provides evidence that will prove that the right has been violated or will be violated [16].

Regarding the *criminal sanctions* [12], the Criminal Code of Macedonia [13] prescribes sanctions in the case of violations of industrial property rights. Border measures are also part of Macedonian legislation, as stipulated by the Law on Customs Measures for the Protection of Intellectual Property Rights (LCM) [14]. Considering administrative law protection, LIP prescribes supervision by the State Market Inspectorate.

Other relevant provisions for the above issues are also present in LIP (Article 291–307) [2]. For instance, LIP contains a specific provision on imitation, which is deemed if the average consumer of goods or services, regardless of the type of products, may notice the difference only if he pays special attention or if the trademark is for the translation or transcript, i.e., transliteration.

A *civil action* for GI infringement can be launched by the person who has submitted the application for acquisition of the GI right or the holder of the GI right on the basis of a legal matter or law. The civil action for infringement may be filed within the deadline of three years from the date when the plaintiff became aware of the infringement and the offender, however not later than five years from the date of the infringement.

Regarding the *content of the action*, the person whose right is infringed may demand from the court:

- to determine if there is a violation of the right;
- to ban the actions set in the lawsuit that are violating the right;
- to claim reimbursement occurred by the infringement of rights intentionally or by negligence;
- to confiscate or destroy the products produced or in circulation by violation of the right and assets used for their production;
- to impose to the defendant to provide information about the identity of third parties involved in production and distribution of goods or services infringing the rights, as well as about their distribution channels;
- to submit the documentation and the data of the person infringing the right;
- to impose civil punishment;
- publication of the verdict on the expense of the defendant; and
- other requirements.

The GI right infringer is responsible for the loss according to the general rules for compensation of damages in the Law on Obligations.

A *civil action* can also be launched by a legal or natural person that can ask the court to establish whether the sign used in circulation for marking the goods or services is identical or similar to the GI used by another legal or natural person for marking their goods or services of the same or similar kind and that this sign was well known within the meaning of Article 6 bis of the Paris Convention as a sign of the goods or services of the plaintiff before the defendant submits the GI application. The deadline for such action is five years from the date of registration of the GI in the GI register. This action, however, will be rejected if the defendant or the holder of the GI proves that before the submission of the application, he had used the disputable sign for the same or similar kind of goods or services for the same or longer period than the plaintiff.

Furthermore, a plaintiff may ask the court to pronounce him as the holder of a GI.

Other cases of disputing the GI right are also regulated by LIP. Hence, the person who, at the time of filing the application for recognition of the right to GI or company (i.e., name identical to the GI of another person), may dispute this GI for the same or similar kind of goods or services unless the holder of the GI, who was aware at the time the application was submitted, had the same company or name.

A *civil penalty is* also prescribed in LIP in cases of infringement, no matter if done intentionally or with ultimate negligence. In other words, the holder of the right may ask for payment of the regular compensation increased to 200%, irrespective of whether, due to the violation, he had suffered property loss in this amount. When

deciding upon the request for paying the civil penalty and the estimation of its amount, the court takes into consideration all the circumstances of the case, especially the level of culpability of the defendant, the amount, the regular reimbursement, and the preventive aim of the penalty. If the property loss is greater than the punishment, the holder of the right shall be entitled to demand the difference up to full reimbursement [2].

Considering the *interim measures*, the court can order them when they are proposed by the plaintiff if he provides evidence that will prove that his right has been violated or will be violated. The measures may include a ban on all actions of violation and their continuation; confiscation, removal from circulation, and keeping of samples, means, equipment, and related documents; and adoption of other similar measures. In addition to the interim measures, the court may order a *guarantee (confiscation* of movable and immovable assets owned by the defendant and assets that are not directly related to the violation). The court may also set a ban on the availability of finances on the accounts within the financial institutions and the availability of other property. The court determines the time period of this measure within the decision for an interim measure.

In case if the measure is determined prior to the submitting of the lawsuit, the time limit within which the one proposing the guarantee must submit a lawsuit for proving the justification of these measures may not be longer than 20 days following the date of submitting the decision to the one proposing it [2]. LIP also stipulates measures to provide evidence such as: preparation of a detailed description of the goods proving that they have violated a specific right with or without taking a sample; confiscation of the goods believed to violate a specific right; confiscation of materials and means used for preparation and distribution of goods believed to violate a specific right; as well as related documentation [2].

Regarding the publication of the judgment, the court decides on the media in which it will be published as well as whether to publish it fully or partially. If the court decides to announce only part of the judgment, then at least the purview and, if necessary, the part of the verdict clearly showing the type of the infringement and the person that has committed the infringement shall be published.

The consequences of the judgment are changes in the register, done upon a request by the plaintiff, within 90 days of the date of submitting the legally effective judgment accepting the lawsuit, i.e., the registration of the plaintiff as a holder of the appropriate right as well as the issuance of the appropriate document by SOIP. Failure to submit such a request by the plaintiff results in the deletion of the recognized right from the relevant register [2].

Border measures for counterfeited GIs are also part of the Macedonian legislation in the framework of the implementation of Article 51 of the TRIPS agreement. In this context, the *Law on Customs Measures for the Protection of Intellectual Property Rights* (LCM) [14] entitles GI right holders or their authorized representatives to request customs action to implement the protection of the GI right in cases of infringement, providing the customs administration information, data, and proof needed to enable the goods in question to be readily recognized by the customs authorities [14].

If the request is approved, the central customs administration determines a deadline for the customs organs to act on the request. Upon approval of the request, the customs office can suspend the release of the merchandise or deter the goods suspected of infringing an intellectual property right. Before suspending the release of or detaining the goods, the customs authority may ask the rightful owner to provide them with any relevant information with respect to the goods. Such suspension or detention may also be conducted 'ex officio' even for goods not covered at the request of the right holder (except in the case of perishable goods) [14].

The customs authority provides the right holder and the declarant, the holder of the goods or the person who is the owner of the goods, with the opportunity to inspect the goods whose release has been suspended or which have been detained [14].

The right holder, within ten working days of receipt of notification of suspension of release or detention of the goods, is bound to inform the customs authority if the goods have infringed the intellectual property right. Goods suspected of infringing an intellectual property right may be destroyed under customs control when the following conditions are met (cumulative):

- the right holder has confirmed in writing to the customs authorities that an intellectual property right has been infringed, within ten working days, or three working days in the case of perishable goods;
- the right holder has confirmed in writing to the customs authority his consent for the destruction of the goods within ten working days, or three working days in the case of perishable goods;
- the declarant, the holder of the goods or the person who is the owner of the goods has confirmed in writing to the customs authority his agreement to the destruction of the goods within ten working days, or three working days in the case of perishable goods;

The above deadlines are calculated from the day of notification on the suspension of the release or the detention of the goods.

Where the declarant or the holder of the goods has not confirmed his agreement to the destruction of the goods nor notified his opposition thereto to the customs authority within those deadlines, the customs authority may deem the declarant or the holder of the goods to have confirmed his agreement to the destruction of those goods.

The destruction of the goods shall be carried out under customs control and under the responsibility of the rightful owner. Samples may be taken by competent authorities prior to the destruction of the goods, and they may be used for educational purposes [14].

Absence of confirmation from the right holder regarding infringement or lack of his approval or destruction results in a release of the goods or termination of the detention immediately after completion of all customs formalities. An exception to this is the situation where the customs authority has been duly notified of the initiation of proceedings before a competent court or other authority to determine infringement of the GI right [14].

The goods found to infringe GI rights and expected to be destroyed cannot be:

- released for free circulation, unless customs authorities, with the agreement of the right holder, decide that it is necessary in the event that the goods are to be disposed of or recycled outside of free circulation, including for awareness-raising, training, and educational purposes;
- brought out of the customs territory of the Republic of Macedonia;
- exported;
- re-exported;
- placed under a suspensive procedure; or
- placed in a free zone or free warehouse [14, 16].

The customs authority may allow the goods to be moved under customs supervision between different places within the customs territory of the Republic of Macedonia with a view to their destruction under customs control.

LCM also provides a possibility for the Government of the Republic of Macedonia to enact a decision requiring that he goods that are found to infringe intellectual property rights be handed over free of charge to the state authority in cases of mitigating the consequences of natural disasters, as well as to social welfare beneficiaries and to families whose total monthly income does not exceed a certain amount related to the minimum wage established for the last year [14].

The *Criminal Code* of Macedonia [13] prescribes sanctions in the case of violations of industrial property rights, including GI rights.

The provision refers to activities with "*intent to deceive buyers and users of services*" as well as intent to deceive consumers, It refers to situations where these activities are conducted without authorization and include production, release in trade, import, export, offer for sale, or keeping of objects subject to the protection of the rights. The sanction includes imprisonment for at least three years. The unauthorized use of GI or unlawful inclusion of marks, designs, or geographical indications owned by other right holders in a company name is also sanctioned in the criminal code with a fine or imprisonment of up to three years [13].

As an administrative law protection, LIP prescribes supervision by the *State Market Inspectorate* in matters of unauthorized use or imitation of protected GIs. The measures include the withdrawal of the products, equipment, means, or related documentation from circulation or appropriate measures for preventing further violations of the GI right [2].

The inspector also informs the holder of the violated right so that he can submit a *request for action.* The holder whose GI right has been violated may submit a request in writing to the Inspectorate for action to protect the GI right, providing the following with the request:

- *evidence* that the relevant industrial property right is protected;
- a *statement* that he will be fully responsible towards the persons involved in the procedure for the purpose of action or omission by the holder of the right, or if it is established that the goods in question do not violate the industrial property right;
- a precise and detailed *technical description* of the goods;
- the *valu*e of the original goods in the Republic of Macedonia;

- the location of the goods;
- *details* for the importer of the goods; and
- the *manufacturing country or countries.*

In misdemeanor cases, according to LIP Article 321, a fine in the amount of EUR 4,000 to 8,000 in denars (MKD) counter-value is foreseen for the legal person in cases of violation through unauthorized use or imitation of a registered or protected GI [2, 16].

7 Conclusion

Geographical indications are a unique type of industrial property right.

Geographical indications, similarly to trademarks, entice consumers, which is even more evident in the case of wines. The use of the protected geographical indications for marking the products that originate from a certain area also propagates and advertises the product and points to the *special attributes of the product* as a result of the natural conditions and the traditional knowledge of the producers in that area. The protection of products for which the origin represents a *special guarantee* for quality is done by international and domestic sources, and they are characterized by constant changes [11].

Taking into consideration the above opinions about wine geographical indications, we can see that their strategic role in Macedonia encompasses at least four dimensions.

Firstly, viticultural geographical indications allow differentiation of products on the market due to their *attractiveness and quality.* This signals a certain "extra-territoriality" when promoting them outside the national market, which represents an advantage in comparison with other industrial property rights.

Secondly, from an economic point of view, Macedonian wine geographical indications *create value* because consumers are willing to pay a higher price since the product is linked to a specific geographical region.

Thirdly, they contribute to the *preservation of biodiversity, local know-how, and natural resources.* They also have a positive impact on tourism.

Fourthly, the significance of the geographical indications playing an important role for the Macedonian wine industry is indisputable, especially regarding wineries that are trying to *improve and broaden their production*, such as family-owned wineries.

Thus, in addition to economic measures, it is necessary to work to stimulate the protection of geographical indications. Ongoing education of organizations, the business community, and other factors is a crucial tool and one of the measures, not only as a form of raising awareness of the importance of this issue but also as a means of *acquiring knowledge* about who will be directed to each individual producer [10, 11].

Having in mind the dispersed approach to geographical indications and appellation of origin regulations in the Law on Industrial Property [2], the Law on the

Quality of Agricultural Products [3], and the Law on Wine [4], it would be crucial to develop a more consistent legal framework that would foster the benefits of the use of geographical indications and applications of origin for all sectors.

References

1. Polenak Akimovska, M., Buchkovski, V., Naumovski, G.: La signification des dénominations juridique dans le droit de la République de Macédoine. Deuxième journée de droit compare franco-macédonien, Skopje (2013)
2. Law on Industrial Property (LIP) Official Gazette of the Republic of Macedonia, 21/09, 24/11, 12/14, 41/14, 152/15, 53/16, 83/18, 31/20
3. Law on Quality of Agricultural Products, Official Gazette of the Republic of Macedonia 140/10, 53/11, 55/12, 106/13, 116/15, 149/15,.193/15, 39/16
4. Law on Wine, Official Gazette of the Republic of Macedonia 50/10, 53/11, 6/12, 23/13, 106/13, 188/13, 149/15, 39/16, 172/16
5. Law on Agricultural and Rural Development, Official Gazette of the Republic of Macedonia ,49/10, 53/11, 126/12, 15/13, 69/13, 106/13, 177/14, 25/15, 73/15, 83/15, 154/15, 11/16, 53/16, 120/16, 163/16
6. Regulation on the Indication of Geographical Areas Suitable for the Production of Wines with Geographical Indication, Official Gazette of the Republic of Macedonia, 48 /11, 113/11
7. Buchkovski, V., Naumovski, G., Gavrilovic N., Vuchen, F.: Geographical indications protection in the Republic of Macedonia with reference to wines. Collection with Papers of the Fifth National Seminar with International Participation 26th April 2017, University of Library Studies and Information Technologies, University Youth Knowledge Academy. Sofia, pp. 41-52
8. Regulation on Content and Form of Register of Wines with Protected Geographical Indications and Users of Geographical Indications, Application Form, Registration Procedure and Required Documentation, Official Gazette of the Republic of Macedonia, 72/11, 61/14
9. Accord de stabilisation et d'association entre les Communautés européennes et leurs États membres, d'une part, et l'ancienne République yougoslave de Macédoine, d'autre part, Journal officiel de l'Union européenne L 084, 20/03/2004 P. 0013–0197
10. Naumovski, G.: Geographical Indications in Macedonian Law WIPO Research Papers from the WIPO-WTO Colloquium for Teachers of Intellectual Property Law. Geneva, pp. 69–79
11. Reboul, Y., Polenak-Akimovska, M., Naumovski, G.: Introduction to Trademarks and Geographical Indications, Faculty of Law Iustinianus Primus. Skopje
12. Naumovski, G., Gruevska, A., Stefanovski, L.: Krivično-pravna zaštita intelektualne svojine u Makedoniji. Pravni život, Časopis za pravnu teoriju i praksu, Kopaonička škola prirodnog prava Udruženja pravnika Srbije **11**(1), 917–931 (2006)
13. Criminal Code, Article 285, Official Journal of the Republic of Macedonia 37/96, 80/99, 48/01, 4/02, 16/02, 43/03,19/04, 40/2004, 81/05,50/06, 60/06, ЗЗ73/06, 87/07, 7/08, 139/08, 114/09, 51/11–3, 51/11–79,135/11, 185/11,142/12, 143/12 166/12, 55/13,82/13, .14/14, 27/14, 28/14, 41/14,.115/14, 132/14,160/14, 199/14, З бр.196/15, бр.226/15, 7/17,170/17,248/18
14. Law on Customs Measures for the Protection of Intellectual Property Rights. Official Journal of the Republic of Macedonia ,88/15, 154/15, 192/15, 23/16, 110/21
15. Regulation on the Form and Content of the Elaborate Contained in The Application For Registration of a Designation of Origin or Geographical Indication, Official Journal No. 100/2012
16. Naumovski, G., Kambovska, M.: Intellectual property law in Macedonia, Wolters Kluwer. Aalphen aan den Rijn

Taxing the Big Tech in the European Union

Jovan Zafiroski and Elena Neshovska Kjoseva

Abstract In order to ensure a fairer and more efficient tax world, international tax rules should be adapted to the globalization/regionalization of business and the digitalization of economic activities. In recent years, numbers of reform proposals were developed to address the tax challenges of the digital economy. Additionally, major tax scandals over the past few years have shown that it has never been easier for large multinationals to virtually locate their operations in jurisdictions where the corporate tax system is more favorable, even if companies still have physical stores, factories, or warehouses in other countries. Therefore, the tax question of the twenty-first century is not *whether* they pay taxes, but *where* they are paid. The tax challenges of the digitalized economy are global, and need global solutions. The introduced unilateral and country-specific tax measures fragment the European digital single market, increase competitive distortions, compliance burden and double taxation disputes. Therefore, a European solution is required for a problem that goes beyond national borders. But, is there any way toward European digital tax environment where tech giants would pay their fair share of taxes and contribute to national economies, for the benefit of all?

Keywords Digitalization · Digital economy · Taxation · European Union · Digital service tax

J. Zafiroski (✉) · E. N. Kjoseva
Department of Financial Law, Iustinianus Primus Faculty of Law, Bul. Goce Delcev 9B, Ss. Cyril and Methodius University, 1000 Skopje, Republic of North Macedonia
e-mail: j.zafiroski@pf.ukim.edu.mk

E. N. Kjoseva
e-mail: e.neshovska@pf.ukim.edu.mk

G. Pellat et al. (eds.), *Cooperation and Enlargement: Two Challenges to be Addressed in the European Projects - 2022*, Studies in Systems, Decision and Control 500,
https://doi.org/10.1007/978-3-031-42253-9_11

1 Introduction

The broad process of digitalization and the digital economy in particular are rapidly changing the traditional society and affect every aspect of living, working, business activities and state functioning. Also, this intensive process has shaken the international tax system which supports a fair competitive environment. As a result, there is a large tax inequity globally and domestically between traditional companies with permanent establishments that pay taxes in the market jurisdiction and companies that carry out digital business without having permanent establishments while transferring intangible assets to no or low-tax jurisdictions.

In order to ensure a fairer and more efficient tax world, international tax rules should be adapted to the globalization/regionalization of business and the digitalization of economic activities. In recent years, numbers of reform proposals were developed to address the tax challenges of the digital economy. Additionally, major tax scandals over the past few years have shown that it has never been easier for large multinationals to virtually locate their operations in jurisdictions where the corporate tax system is more favorable, even if companies still have physical stores, factories, or warehouses in other countries. Therefore, the tax question of the twenty-first century is not *whether* the multinational companies pay taxes, but *where* taxes are paid.

The sentiment that ageing tax rules are inadequate to capture the way that the digital business now works culminated in March 2018, when the European Commission published a "digital tax package" presenting two tax measures directly targeting digital corporations. The first one proposes a short-term solution to ensure large digital companies to pay a minimum level of 3% Digital Service Tax (DST). The second, long-term measure aims to ensure the tax system is fit for purpose in our digitalized age by establishing a "virtual PE" standard.

The tax challenges of the digitalized economy are global, and need global solutions. The introduced unilateral and country-specific tax measures fragment the European digital single market, increase competitive distortions, compliance burden and double taxation disputes. Therefore, a European solution is required for a problem that goes beyond national borders. But, *is there any way toward European digital tax environment where tech giants would pay their fair share of taxes and contribute to national economies, for the benefit of all*?

1.1 Relevance

The rapid advance of the IT technologies and the ongoing process of digitalization have given rise to the digital economy, as one of the most attractive opportunities for business growth. Recent studies have shown that the digital economy "grows seven times faster than any other branch of economy and creates almost five new jobs for every two that are lost in the "offline" economy" [1]. Therefore, digitalization is a very important process, due to the fact that it goes along with range of factors such

as increased connectivity through faster and cheaper internet, networking, mobility, e-commerce and new business models.

Digitalization of everyday life and digital economy are changing the traditional society, and affect every aspect of living, working, conducting business and state functioning. Meanwhile, this intensive process has shaken the international tax system which supports a fair competitive environment. The international income and corporate tax rules have not followed these developments. As a result, there is a large tax inequity globally and domestically between traditional companies with permanent establishments that pay taxes in the market jurisdiction and companies that carry out digital business without having permanent establishments while transferring intangible assets to no or low-tax jurisdictions. Despite the innovative character of most digital business models and their positive contribution to economic growth, digital firms have been repeatedly subject to intensive public critique and political assumption that they are keen in undertaking harmful tax practices in order to maximize their profits and minimize the taxes paid.

Current tax rules, developed in the 1920s, are struggling to cope with the emerging realities of these new business models. Attempts to fit in the digital economy into existing, conventional tax rules are not sufficient. Pierre Moscovici, Commissioner of Taxation, stated: "Digital taxation is no longer a question of 'if'—this ship has sailed" [2]. Thus, the international tax system calls for an urgent reform. In order to ensure a fairer and more efficient tax world, international tax rules should be adapted to the globalization/regionalization of business and the digitalization of economic activities. In recent years, numbers of reform proposals were developed to address the tax challenges of the digital economy.

Being able to appropriately tax the companies operating in the digital economy is a major challenge for the European Union. Many European tax authorities believe Google, Apple, Facebook, and Amazon (often referred to as GAFA) do not pay their fair share of corporate income taxes in the European market. In its Communication from 2017 for "Fair and Efficient Tax System in the European Union for the Digital Single Market", the European Commission claimed that the current failure to "fairly tax" digital corporations leads to more opportunities for tax avoidance, which negatively impact on social fairness and "puts at risk EU competitiveness, fair taxation and sustainability of Member States' budgets." Additionally, the Commission has once declared that "digital businesses pay an average effective tax rate of just 9.5%, compared with the 23.3% that traditional businesses pay" [3].

Major tax scandals over the past few years have shown that it has never been easier for large multinationals to virtually locate their operations in jurisdictions where the corporate tax system is more favorable, even if companies still have physical stores, factories, or warehouses in other countries.

One of the most outstanding tax scandals is the 13 billion euro in unpaid taxes to Ireland requested to Apple [4]. Following an in-depth state aid investigation launched in June 2014, the European Commission has concluded that two tax rulings issued by Ireland to Apple have substantially and artificially lowered the tax paid by Apple in Ireland since 1991. The rulings endorsed a way to establish the taxable profits for two Irish incorporated companies of the Apple group (Apple Sales International and

Apple Operations Europe), which did not correspond to economic reality: almost all sales profits recorded by the two companies were internally attributed to a "head office". The Commission's assessment showed that these "head offices" existed only on paper and could not have generated such profits. These profits allocated to the "head offices" were not subject to tax in any country under specific provisions of the Irish tax law, which are no longer in force. As a result of the allocation method endorsed in the tax rulings, Apple only paid an effective corporate tax rate that declined from 1% in 2003 to 0.005% in 2014 on the profits of Apple Sales International. This selective tax treatment of Apple in Ireland is illegal under EU state aid rules, because it gives Apple a significant tax advantage over other businesses that are subject to the same national taxation rules. In fact, the favorable tax treatment in Ireland facilitated Apple to avoid taxation on almost all profits generated by sales of Apple products in the entire EU Single Market due to company's decision to document all sales in Ireland rather than in the countries where the products were sold.

In the second case, the Commission has accused Luxembourg of having provided Amazon with similar tax benefits [5]. The European Commission has argued that a tax ruling issued by Luxembourg in 2003, and prolonged in 2011, lowered the tax paid by Amazon in Luxembourg without any valid justification. The tax ruling enabled Amazon to shift the vast majority of its profits from an Amazon group company that is subject to tax in Luxembourg (Amazon EU) to a company which is not subject to tax (Amazon Europe Holding Technologies). In particular, the tax ruling endorsed the payment of a royalty from Amazon EU to Amazon Europe Holding Technologies, which significantly reduced Amazon EU's taxable profits. The Commission's investigation showed that the level of the royalty payments, endorsed by the tax ruling, was inflated and did not reflect economic reality. Due to this fact, the Commission concluded that the specific tax ruling granted a selective economic advantage to Amazon by allowing the group to pay less tax than other companies subject to the same national tax rules. In fact, the ruling enabled Amazon to avoid taxation on three quarters of the profits it made from all Amazon sales in the EU.

Therefore, the tax question of the twenty-first century is not *whether* these big tech companies pay taxes, but *where* their taxes are paid. The sentiment that ageing tax rules are inadequate to capture the way that the digital businesses now work culminated in March 2018, when the European Commission published a "digital tax package" presenting two tax measures directly targeting digital corporations. The first one proposes a short-term solution to ensure large digital companies to pay a minimum level of 3% Digital Service Tax (DST). The second, long-term measure aims to ensure the tax system is fit for purpose in our digitalized age by establishing a "virtual PE" standard.

Despite the European Commission's effort to gain political agreement on the DST proposal as a prompt reparation for the international tax system, Member States could not reach a common agreement on the draft directives since the cooperation and coordination actions are in contrast to the autonomous state's right to rule taxation. Yet, the EU authorities recommended member states to use the DST proposal as a framework for legislative actions at the national level. In this context, several member

states (France, Italy, Spain, Austria, Czech Republic, Belgium and Poland) have taken the initiative to introduce a DST at the unilateral level.

The tax challenges of the digitalized economy are global, and need global solutions. The introduced unilateral and country-specific tax measures fragment the European digital single market, increase competitive distortions, compliance burden and double taxation disputes. Therefore, a European solution is required for a problem that goes beyond national borders. This effort is especially relevant in times of the COVID-19 pandemic crisis, when countries are facing an unprecedented fiscal deficit while e-commerce is increasing worldwide. But, is there any way toward European digital tax environment where tech giants would pay their fair share of taxes and contribute to national economies, for the benefit of all?

The main aim of this paper is to analyze some crucial problems arising from taxing the digital economy and to give an overview of the more recent policy initiatives to cope with these issues, proposed or implemented at both the EU's and national level. Thus, the authors examine the European Commission's proposal of a digital services tax by highlighting its key elements alongside with the unilateral measures to tax the digital economy adopted by an individual EU Member State. This legal analysis is accompanied with critical assessment of the digital tax's features that could complicate its future implementation. The conclusion follows.

2 Taxation in Era of Digitalization: Issues and Challenges

Digitalization has managed to (re)shape the twenty-first century more than any other phenomenon. The rise of the information and communications technology has a major impact on the process of transformation of the world economy enabling businesses to expand their commercial activities to the global market by using advanced communication and data processes [6]. According to the OECD, "the digital economy is "the result of a transformative process" that has created economic growth and promoted societal change to the extent that nowadays it is impossible to isolate the digital economy as a separate concept to the broad economy" [7].

Although enormous, the digital economy is still growing. At the moment, seven tech giants are among the top 10 public companies by market capitalization. The value of transactions facilitated by digital platforms is projected to grow by 35% per year in the upcoming period. Additionally, the top five e-commerce retailers have sustained annual revenue growth rates of around 32% between 2008 and 2016; while the entire EU retail sector registered on average just 1% annual growth rate in revenue in the same period [8]. The period just before the COVID-19 pandemic and during the pandemic brought big challenges, but also bigger revenues. Traditionally, major digital companies ranging from Apple and Google to Netflix are all announcing their revenues after the winter holiday season and, as has been the case for more or less the last decade, Big Tech has been making big revenues. Despite the ongoing COVID-19

pandemic, the fluctuating economy and job market, supply chain issues, semiconductor shortages, and other socioeconomic issues, major tech firms managed to experienced some of the biggest annual revenue increases ever [9]. And in the 2021 fiscal year, big tech saw a 27% growth in combined revenue, year-over-year. According the analyst Dan Ives "We saw three to four years of growth get pulled forward in the course of 12 to 18 months, and the biggest beneficiary of that was the like of Amazon, Netflix, Facebook, Google, and Apple." Thus, Google had a momentous revenue growth of about 41% as a best increase since 2010. Alphabet follows with similar revenue performances. Meanwhile, Twitter, Meta (the company formerly known as Facebook) and Apple generated around 35,6% year-on-year revenue increase during the same period. All in all, 2021 — at least in terms of sheer money brought in by major tech companies—may have been the most lucrative year in the history of the industry.

From a tax perspective, a key feature that is relevant in the area of the digital economy is the mobility with respect to the intangibles on which the digital economy heavily relies, users, and business function as a consequence of the decreased need for local personnel to perform certain functions as well as the flexibility in many cases to choose the location of servers and other resources. Regarding the tax rules, the rights to intangibles can often be easily assigned and transferred among associated enterprises, with the result that the legal ownership of the assets may be separated from the activities that resulted in the development of those assets. In addition to intangibles, users and customers also play an important role. They can easily conduct cross-border commercial activities. For example, they reside in one country, purchase an application in a second country and use the application from a third country.

The expansion of digital technologies and new models of performing business activities have imposed new challenges for tax policy that must be adjusted to the so-called „digital age" [10]. As acknowledged by the OECD, because the digital economy is increasingly becoming the economy itself, it would be difficult, if not impossible, to ring-fence the digital economy from the rest of the economy for tax purposes [11]. The impact of the digitalization on businesses has challenged the international tax system, as the rules for allocating taxing rights amongst states are more than a century old. They are no longer entirely appropriate since the existing international taxation framework was created for a less globalised economy and based on two main criteria to allocate taxation power: "residency" (the country in which the company has its seat or place of establishment and where it normally pays its corporate tax) and "source" (the country in which the company actually perform business activity). This distinction is adequate when we have traditional value chains, based on tangible assets. However, when the digital economy is at stake, these conventional models are outdated. Namely, their application is not relevant when value is generated by intangible assets, facilitating tax base erosion and profit-shifting practices [12].

Moreover, tax rules have been traditionally based on the principle of "permanent establishment": the right to tax is allocated to the country where all or parts of business activities are physically carried out. However, in the era of digitalization the application of this principle is questionable at least for three reasons.

First, digitalization enables companies to engage in significant business activities without fulfilling the requirement for a permanent establishment in any given jurisdiction (so-called scale without mass), while the current tax rules were designed for "bricks and mortar" businesses having a permanent establishment in a specific tax jurisdiction. More specifically, market jurisdictions where foreign digital companies operate without any physical presence have started to claim new taxing rights over the income arising from digital activity conducted within their territory [13]. Such tax claims are intimately linked to both the notion of permanent establishment (taxable presence) and the notion of source taxation (taxable source). These jurisdictions aim to replace the physical nexus with a new value creation paradigm in which value is created within the market territory by users who contribute data and digital content.

Second, highly digitalized business models rely greatly on the use of data and user-generated content. As a result, it is difficult to determine to what extent the users, who allow platforms to use their data in exchange for free access, contribute to value creation.

And third, the growing dependence of digital businesses on unique intangible assets, such as databases, software and algorithms, and marketing activities, make use of brands and trademarks that are specific and valuable only to a certain enterprise. As such, a comparable, free-market price is often difficult to determine, which weaken the application of the arm's length principle. Consequently, tax authorities have a problem to determine how the income is generated by intangible assets and how that income is allocated among different entities in one multinational company.

At international and national level, policy makers struggle to find solutions which would ensure fair and effective taxation of the digital economy since the economic efficiency, tax fairness and states' right to tax are jeopardized. Therefore, discussions concerning the appliance of the present international tax system in the digital age considerably take account of disputes regarding the tax-avoidance, aggressive tax-planning, harmful tax practices, as well as the assumed global "undertaxation" of well-known technology corporations.

3 Legal Actions Toward Taxing the EU Digital Economy

Within the EU single market, companies can easily shift profits to more favorable tax jurisdictions with no or low corporate taxes by exploiting the gaps and mismatches in the national tax legislation. As a result, the European Union has been witnessing aggressive tax planning and harmful tax strategies. Over the last few years, the European Commission has started to carefully investigate these practices. The difficulties that national governments face in taxing digital companies under the current international system have been vividly illustrated in a long-running legal dispute between the European Commission and both the Irish Government and the multinational Apple [14].

In September 2017, the European Commission published a Communication on "A Fair and Efficient Tax System in the European Union for the Digital Single

Market", addressing background issues, objectives, and a range of possible both long and short term solutions. The Commission has once again urged "for a strong and ambitious EU position on taxing the digital economy", which would either feed into ongoing international work or occur within the EU Single Market. However, this policy document emphasized and was focused on two important questions: first, the question of nexus or how to establish and protect taxing rights in a country where businesses can provide services digitally with little or no physical presence despite having a commercial presence (i.e. "where to tax?"), and second, the question of value creation or "how to attribute profit in new digitalized business models driven by intangible assets, data and knowledge' (i.e. "what to tax?").

The EU determination to tax digital activities is based on the novel concept that digital users, merely by accessing online platforms, create a taxable economic activity for the jurisdiction where the user is located [15]. Respectively, the Commission pointed out three main arguments to support the proposals for possible legislative changes in the taxation of the digital economy, by the so-called digital tax: tax fairness and level playing field, loss of tax revenues and the key role of the EU users in increasing the value of the platforms.

To give proper response to the tax challenges posed by the digitization, the Commission favored a long-term approach that would "entail reform of international tax rules on permanent establishment, transfer pricing and profit attribution applicable to digital technologies", including the identification of '[a]lternative indicators for significant economic presence [that] are therefore required in order to establish and protect taxing rights in relation to the new digitalized business models" [3]. This stand is a reflection of a dual aspiration: to mitigate the risk of fragmentation of the single market elevated by the emergence of unilateral national measures, and to plan introduction of measures regarding taxation of digital economy that would be consistent with the OECD work under the BEPS Project.

Consequently, the EU Commission presented three proposals for Council Directives: Proposal for a Council Directive on the common system of a digital services tax on revenues resulting from the provision of certain digital services (Digital Service Tax Directive proposal) [16] as an interim solution; Proposal for a Council Directive on a common system of digital advertising tax on revenues resulting from the provision of digital advertising services (Digital Advertising Tax Directive proposal) as a compromise solution, and finally the Proposal for a Council Directive laying down rules relating to the corporate taxation of a significant digital presence (Significant Digital Presence Directive proposal") as a possible comprehensive (long term) solution adopted at the level of EU [17].

The interim measures to tax the digital economy should be a prompt solution to ensure tax fairness and equality among market players until a comprehensive solution is adopted. On the other side, the long-term solution requires two common reforms of national corporate income tax rules which are (1) new thresholds for the existence of a digital permanent establishment in a given jurisdiction and (2) new profit attribution rules for such establishment. The proposed common EU approach aimed, *inter alia*, to prevent the creation of obstacles for start-ups, scale-ups and small and medium enterprises, avoid fragmentation of the single internal market through the gradual

adoption of unilateral measures by individual states and minimize negative impacts on investments, innovation and ultimately growth.

3.1 Overview of the "Digital Service Tax" Proposal

The interim proposal was for a Council directive (*Proposal for a Council Directive on the common system of a digital services tax on revenues resulting from the provision of certain digital services)* [16] that would tax gross revenues, as a replacement for the universal principle of taxing profits, created by certain digital activities that are currently untaxed. This proposal is targeting digital business models where there is high reliance on intellectual property rights and intangibles, or the users value creation is crucial, in the sense that the service would not exist if the user did not contribute to it (such as the advertising model and marketplaces/intermediary platforms). While such general criteria can be applied across a number of sectors, the Commission proposed a single rate of 3% to tax revenues obtained by the following exhaustively enumerated taxable services: online advertising, multi-sided marketplaces (services that connect independent sellers and customers, or peer-to-peer activities) and business activities that relate to the use of user data. However, it is important to note that the subject to taxation is not the user participation itself but the revenues obtained from the valuation of this participation.

The first taxable service, i.e. online advertising covers the making available space for online advertising by a taxable person and is aimed at users located in the territory of a Member State. This service will be taxable regardless of ownership of the digital interface. Thus, the decisive aspect is not whether or not the digital interface is owned by the entity responsible for placing the advertisement. The provider of this service is deemed to be entity responsible for placing the advertisement on the digital interface. Revenues resulting from placing the advertisement will be divided among Member States in proportion to the number of times the advertisement is appeared on the user´s device during the tax period. Advertisements that have appeared to users from third countries will be taken into account to determine the proportional distribution of revenue between Member States, but will of course not be taxable subsequently.

As regard the second taxable service, making available to users of a multi-sided digital interface which allows users to find other users and to interact with them, and which may also facilitate the provision of underlying supplies of goods or services directly between users, for determining the place of taxation it is decisive that the user uses the device in a given Member State during a given tax period for access to the digital interface and closes the transaction through this device. Revenues resulting from the provision of intermediary services shall be distributed among the Member States in proportion to the number of users who have entered into a digital interface transaction in a given tax period.

According the Directive proposal, the third taxable service is the transmission of data collected about users and generated from user´s activities on digital interfaces. For the place of taxation, it is decisive that the user used the device in that Member

State in order to access the digital interface, whether in a given or previous tax period and that the generated data were transferred in a given tax period. In relation to this digital service, it should be emphasized that the collection of data in itself is not a taxable event. The data collected may also be used exclusively for the company´s internal purposes and may not be transferred at all. The digital services tax applies to the transfer of data obtained from the specific activity of users of the digital interface. The proportion of total taxable revenues per Member State shall be determined by the number of users whose data have been generated.

The short-term proposal would only apply to enterprises operating above two thresholds: total annual worldwide revenues above €750 million, and total annual EU revenues exceeding €50 million, although there is no real justification of these thresholds [18]. It would apply to both non-resident and domestic businesses and to domestic and cross-border transactions. Tax revenues would be allocated to each Member State proportionately to the number of users of the taxable service. As the Commission announced, this tax would be a temporary solution until the implementation of the comprehensive reform from the second proposal.

The long-term proposal should determine *where* and *what* to tax in the digital economy. It provided a definition of the "significant digital presence" that could be applicable even when there is no physical presence in a Member State's territory. Companies would be taxed if they met at least one of the following criteria in a taxable year: (1) annual revenue exceeding €7 million; (2) over 100 000 users in a Member State; and (3) more than 3 000 business-to-business contracts for digital services concluded by the digital company. A proportionate share of profits would then be taxable in the Member State in which the business had a taxable digital presence. The rate would be equivalent to "bricks and mortar" establishments. The tax would cover not only corporate taxpayers incorporated or established in the Union, but also those incorporated or established in a non-EU jurisdiction which has no double taxation treaty with the Member State in which a significant digital presence of the taxpayer is identified.

3.2 Obstacles for Successful Implementation of the EU Proposals

It is assumed that several key elements of the short-term solution proposed by the Commission could cause significant tax problems.

– Measures proposed by the Commission, including a 3% turnover tax on large tech businesses, only target a handful of big tech companies. Some authors argue that this legal solution will not prevent businesses exploiting the outdated tax rules to systematically avoid paying billions of euros in tax every year. There is no doubt that the tech giants' are more keen to tax avoidance strategies, and, according the European Commission's estimation, they pay an average effective tax rate of just 9.5%, compared with the 23.3% that traditional businesses pay. On the other

hand, it is clear fact that the entire economy is currently being digitalized. Even companies in more traditional sectors can quickly shift their profits or relocate intangible assets, such as patents to tax havens, in order to avoid paying their fair share of tax.

– The digital tax proposal prescribes double revenue thresholds that must be exceeded for a company to be subject to taxation. Tax thresholds may serve different functions. For example, they may segment taxpayers into different tax regimes (simplified tax obligations for smaller businesses, enhanced reporting obligations for specific sectors of activity, tax registration duties by type of business) to facilitate tax compliance and make tax enforcement more efficient, or they may introduce an additional layer of tax progressivity by excluding certain taxpayers from the obligation to pay taxes, similar to an exemption or fiscal benefit [19]. However, the use of these tax thresholds as a key element to determine the scope of application of such tax measures is controversial. The double revenue threshold mechanism exempts from taxation all digital companies that do not meet both thresholds. If the company only meets one threshold, it falls outside the scope of taxation, which becomes a powerful tool to exempt local digital companies that are successful only or primarily in the domestic market, but do not reach the highest global revenue threshold set for operations worldwide. De facto, the use of double revenue thresholds is discriminatory against digital companies with global operations. Furthermore, these thresholds do not make difference between domestic and foreign businesses. However, the digital service tax will mostly burden foreign digital companies resulting with indirect discrimination against foreign businesses which is violation of the freedom of establishment the free movement of persons within the EU [20].
– In respect to the principle of non-discrimination, the Commission proposal is discriminatory against certain digital business models due to the limited material scope of the digital tax. Therefore, it is most likely that the EC proposed solution will contribute toward more unfair taxation between traditional and digital business models by introducing differing tax treatment of particular digital services and companies of different sizes.
– The introduction of tax on the revenues generated from the use of digital business models could discourage traditional businesses from launching digital transformation processes in their businesses [21]. Additionally, this circumstance hampers the competitiveness of digital companies located in member states that introduced digital service tax or digital advertising tax as unilateral measure to tax the digital economy, thereby threatening the EU Single Market.
– The unilateral measures undertaken in several EU member states have been introduced with one purpose, to contribute to "leveling the playing field" by ensuring the fair taxation of revenues/profits earned from the use of digital business models. However, not any unilateral measure includes a provision that would trigger the tax only if gained revenues are not sufficiently taxed. Thus, the digital tax is levied regardless of whether these revenues are "undertaxed".

3.3 OECD Perspective on Digital Taxation

For more than two decades the OECD has been a leading international organization to enable countries to prevent tax evasion and corporate tax avoidance. However, 2013 was the crucial year when the OECD launched the BEPS Project in order to eliminate gaps and mismatches in the international tax system that facilitate the profit shifting practices of the multinational companies.

Regarding the digital transformation, a key part of the OECD BEPS Project is the work carried out under Action 1 on "Addressing the Tax Challenges of the Digital Economy". The ongoing issues concerning the ability of the existing tax rules to meet the needs of a rapidly digitalizing economy have made an additional pressure on the OECD and G20. Following years of detailed and intensive work, political negotiations and series of consultations with business, academia and civil society aimed at identifying the key issues and possible solutions, the "Interim Report on the Tax Challenges Arising from Digitalisation" was issued [11].

The OECD/G20 Inclusive Framework on Base Erosion and Profit Shifting has agreed a two-pillar solution to address the tax challenges arising from the digitalisation of the economy. Each pillar addresses a different gap in the existing international tax rules that helps the multinational companies to avoid paying taxes. First, Pillar One applies to about 100 of the biggest and most profitable multinational companies and re-allocates part of their profit to the countries where they sell their products and provide their services, where their consumers are. Without this rule, these companies can earn significant profits in a market without paying much tax there. Under Pillar Two, a much larger group of multinational enterprises (any company with over EUR 750 million of annual revenue) would now be subject to a global minimum corporate tax. With the new rules, companies that operate in a tax jurisdiction where their profits are subject to an effective tax rate lower than the minimum rate would still be taxed at a minimum rate of 15% [22].

As mentioned, the Two-Pillar Solution is comprised of Pillar One and Pillar Two. It is expected that Pillar One would bring dated international tax rules into the twenty-first century, by offering market jurisdictions new taxing rights over multinational companies, whether or not there is a physical presence. Pillar One aims to ensure a fairer distribution of profits and taxing rights among countries with respect to the largest multinational companies, which are usually perceived as the winners of globalization [11]. The solutions established in Pillar One target companies that are multinational enterprises with global turnover above EUR 20 billion and profitability above 10% (i.e. profit before tax/revenue) calculated using an averaging mechanism with the turnover threshold to be reduced to EUR 10 billion. Having in mind the nature of the business activity, the Regulated Financial Services are excluded.

The agreement to re-allocate profit under Pillar One includes the removal and standstill of Digital Services Taxes (DST) and other relevant, similar measures, bringing an end to trade tensions resulting from the instability of the international tax system. It will also provide a simplified and modernized approach to the application of the arm's length principle in specific circumstances, with a particular focus on

the needs of low capacity countries. There will be a new special purpose nexus rule permitting allocation of Amount A to a market jurisdiction when the in-scope multinational company derives at least EUR 1 million in revenue from that jurisdiction. For smaller jurisdictions with GDP lower than EUR 40 billion, the nexus will be set at EUR 250 000. The special purpose nexus rule applies solely to determine whether a jurisdiction qualifies for the Amount A allocation. Revenue will be sourced to the end market jurisdictions where goods or services are used or consumed. To facilitate the application of this principle, detailed source rules for specific categories of transactions will be developed.

Pillar Two consists of: (I) two interlocking domestic rules (together the Global anti-Base Erosion Rules (GloBE) rules): (i) an Income Inclusion Rule (IIR), which imposes top-up tax on a parent entity in respect of the low taxed income of a constituent entity; and (ii) an Undertaxed Payment Rule (UTPR), which denies deductions or requires an equivalent adjustment to the extent the low tax income of a constituent entity is not subject to tax under an IIR; and (II) a treaty-based rule (the Subject to tax rule (STTR)) that allows source jurisdictions to impose limited source taxation on certain related party payments subject to tax below a minimum rate. The GloBE rules will have the status of a common approach, meaning that Inclusive Framework members:

(i) are not required to adopt the GloBE rules, but, if they choose to do so, they will implement and administer the rules in a way that is consistent with the outcomes provided for under Pillar Two, including in light of model rules and guidance agreed to by the Inclusive Framework;
(ii) accept the application of the GloBE rules applied by other Inclusive Framework members including agreement as to rule order and the application of any agreed safe harbours.

The GloBE rules will apply to multinational companies that meet the EUR 750 million threshold as determined under BEPS Action 13 (country by country reporting). Countries are free to apply the IIR to MNEs headquartered in their country even if they do not meet the threshold. Government entities, international organisations, non-profit organisations, pension funds or investment funds that are Ultimate Parent Entities (UPE) of a Multinational Group or any holding vehicles used by such entities, organisations or funds are not subject to the GloBE rules. Pillar Two puts a floor on tax competition on corporate income tax through the introduction of a global minimum corporate tax at a rate of 15% that countries can use to protect their tax bases (the GloBE rules). Pillar Two does not eliminate tax competition, but it does set multilaterally agreed limitations on it. Tax incentives provided to spur substantial economic activity will be accommodated through a carve-out. Pillar Two also protects the right of developing countries to tax certain base-eroding payments (like interest and royalties) when they are not taxed up to the minimum rate of 9%, through a "Subject to tax rule" (STTR).

At the moment, 136 countries and jurisdictions (of 140 members of the OECD/G20 BEPS Inclusive Framework), representing more than 90% of global GDP, have joined the Two-Pillar Solution establishing a new framework for international tax

and agreed a Detailed Implementation Plan that envisages implementation of the new rules by 2023 [11].

4 National Digital Taxes as Unilateral Measures

Until today, the debate on the topic of taxing the digital economy has largely taken place within the EU institutions. However, so far the EC tax package has failed to reach political support due to the resistance of some large member states. Countries, like the Netherlands, Ireland and Luxembourg, strongly opposed both short-term and long-term proposals. These countries manage to benefit from the current tax asymmetry within the Single Market, attracting large multinationals with lower corporate tax rates in a sort of race-to-the-bottom. According to the independent international network Tax Justice, in 2017 more than 44 billion US dollars in profits of US large multinationals were declared in the Netherlands rather than in the EU country in which they were generated, producing significant tax losses at a national level: 2.7 billion US dollars in France, 1.5 billion in Italy and Germany and 1 billion in Spain [23]. The report found that, due to the tax benefits granted by the Netherlands, for every 1 dollar Amsterdam collected from the shifted profits of US corporations, the other EU member states lost nearly 4 dollars in corporate tax. As a result, in recent years they are often referred as creators of harmful tax competition.

Other member states, like the Scandinavian countries, are cautious on a digital tax because they believe it could slow down innovation and damage their own digital multinationals since the countries from this region are home to several large digital multinational enterprises, such as Spotify. Therefore, they have refused to support an EU-wide initiative.

Thus far, there has been no consensus regarding the issue of fair taxation of the digital economy at the EU level. From an EU perspective, moreover, '[d]ivergent national approaches within the EU can fragment the Single Market, increase tax uncertainty, destabilize the level playing field and open new loopholes for tax abuse' [24].

Despite attempts to reach an agreement, EU Member States have been unable to reach a compromise on the tax proposals. As European policymakers have been experiencing evident political pressure to take actions toward taxing the digital economy, and while the EU struggles for consensus on multilateral solution, several EU countries have gone even further and have decided to introduce their own unilateral measures to ensure they receive a fair share of the tax revenues pie. These initiatives for national taxes on digital businesses would include the so-called "sunset clauses", meaning that they would be withdrawn if an agreement is reached at international or EU level [25]. However, there is a risk that these introduced or proposed national measures may lead to double taxation and differing views of the digital activities covered and the applicable thresholds. As a result, the world has already felt the increased political tensions due to implemented unilateral digital taxes.

The proposed and implemented unilateral tax measures can be categorized as one of the following three types:

(1) Digital services taxes that usually refer to the same three kinds of digital business models as the proposed ones, targeted advertising, the processing of user data and the provision of online marketplaces. Policymakers and scholars mostly classify these digital taxes as "hybrid taxes" because they combine elements of income and consumption taxes [26]. In other words, on one hand, their general purpose is to level the playing field and function as a substitute for corporate taxation And, on the other, the national digital service taxes are linked to the provision of digital services, and since consumption is calculated using gross revenues excluding the VAT, they are prone to be passed on to customers. Given the broad media coverage of the French digital service tax, it might be considered as the most popular example;
(2) Digital advertising taxes—with restricted scope, targeting only a single digital business model, i.e. the online advertising services. These types of unilateral tax measures are based on gross revenues excluding the VAT. Since they are considered as consumption or transaction taxes, they do not fall under the scope of double tax treaties. Nowadays, only Austria and Hungary have implemented national digital advertising taxes; and
(3) Unilateral modification to "permanent establishment" definitions in the national tax legislature—may refer to a small or variety of digital business models. If a concrete digital company meets the criteria of the digital permanent establishment, the profit in the particular country is subject to taxation under the national corporate tax rules as the same way as traditional businesses with physical presence. Contrary to the previous two types of digital taxes, corporate taxes are based on net profits [27]. At this moment, only Slovakia has unilaterally modified the PE definition in order to adapt the traditional PE concept to the contemporary digitalized economic activities.

The following Table summarizes the implemented national digital taxes in the EU member states and their key features.

The situation in the other Member States differs. Belgium first introduced the national digital tax in January 2019, but it was rejected in March 2019. A new, adjusted proposal was reintroduced in June 2020, but later that year, the new government, decided to hold out until a global solution is found. The discussions on the Czech tax solution are postponed due to the COVID-19 pandemic. In September 2021, the Latvian Parliament decided to consider a Law to introduce the 3% digital services tax. In Slovenia, the Ministry of Finance announced a government proposal to submit a draft bill to the National Assembly introducing a digital services tax by April 1, 2020, but this proposal was defeated in the Parliament in October 2020.

5 Conclusion

In the last few years, the growing importance of the digital business models has reshaped the international tax landscape. The traditional tax rules could not meet the states‘ need to properly tax the income and profit generated by digital companies. Under the veil of under-taxation of digital companies and risks of losing more tax base and potential tax revenues, the European Commission and small number of Member States have either proposed or already implemented new measures to tax economic activities linked to digital platforms.

In respect to the efforts to tax the digital economy at several levels (at the international OECD level, at the EU level and at the national level of selected states), European Commission insists on reaching multilateral international solution and global consensus on digital taxation issues as an ideal approach. As stated in the so-called “Digital Compass”, the EU will support contribute to common solutions such as the ongoing work at the G20 and the OECD with respect to a global consensus to address the taxation of the digital economy.

Currently, there is no consent within the EU on the *raison d’être* and need for establishing new initiatives to tax certain digital activities. On the one hand, smaller states with lower tax rates, such as Luxembourg and Ireland, which host large US multinationals, want the EU changes to come together with a global reform of digital taxation. On the other hand, larger states, such as France and Italy, which claim to suffer large tax losses due to digital companies shifting profits to lower-tax countries, are pushing for a quick solution.

In response to this deadlock, few EU countries have moved forward and introduced national digital taxes in order to achieve two main goals, namely to allocate an appropriate share of tax revenues from digital services to particular country and to reduce tax inequality between domestic and digital business models. The national digital taxes implemented within the EU territory can be classified in three groups, including the tax type (income vs. consumption/hybrid taxes), the tax scope (single vs. multiple digital business models) and the tax base (gross revenues vs. net profits).

As a significant number of digital companies are active in more than one jurisdiction, an increasing number of unilateral and country specific measures increase competitive distortions, compliance burden and double taxation disputes. It is possible that digital taxes will slow the digitalization of the EU economy. Additionally, the EC proposal covering specific digital activities and only businesses with turnovers above thresholds will also cause potentially significant market distortions. Therefore, reaching a wide-accepted solution requires multilateral cooperation rather than uncoordinated unilateral measures. On the path toward effective and efficient taxation of the digital economy, policy makers should have in mind following key principles: avoid tax uncertainty, adopt proportionate rules to avoid harming small and medium enterprises and start-ups, promote legal and regulatory certainty and mitigate the impact on small countries.

Table 1 Digital taxes at EU member state level

Country	Tax rate (%)	Scope of taxation	Thresholds	Entry into force
Austria	5	Online advertising	(1) global turnover of €750 million or more, and (2) national turnover of at least €25 million	January 2019
France	3	Online advertising, the management and sale of user data for advertising and the connection of users through digital platforms	(1) global digital turnover of more than €750 million and (2) digital turnover of more than €25 million in France	2014 (temporarily, the advertisement tax rate has been reduced to 0%, effective from July 1, 2019 through December 31, 2022)
Hungary	7.5	Advertising revenue	HUF 100 million	1 January 2020
Italy	3	Advertising on a digital interface, linking users of multi-sided digital interfaces, and transmitting user data generated from the use of platforms	(1) total worldwide revenues of €750 million and (2) revenues of at least €5.5 million obtained from digital services provided in Italy	1 July 2020
Poland	1.5	Audiovisual media service and audiovisual commercial communication	/	February 2021
Portugal	4 1	Audiovisual commercial communication on video-sharing platforms (4%), subscriptions for video-on-demand services		1 January 2018
Slovakia	21	Digital platforms and websites for intermediating services in transport and accommodation	Changed the PE definition	16 January 2021
Spain	3	Online advertising services (when they appear on a device used in Spain), online intermediation services (when at least one user is located in the country), and the data transfer services for sale of user data (when it has been generated in Spain)	Global net turnover exceeds €750 million, and which generate at least €3 million a year from providing those services that are subject to the tax, in Spain	January 2019

Source Authors' assessment based on available national tax legislations

References

1. Mondekar, Daniel: The digital economy in Southeast Europe: opportunities and challenges, Friedrich Ebert Stiftung Analysis, Zagreb (2017)
2. European Commission: Time to Establish a modern, fair and efficient taxation standard for the digital economy (COM/2018/146) (2018)
3. EU Communication on 'A Fair and Efficient Tax System in the European Union for the Digital Single Market' (2017)
4. European Commission, State Aid: Ireland Gave Illegal Tax Benefits to Apple Worth Up to €13 Billion (2016)
5. European Commission, State Aid: Commission Finds Luxembourg Gave Illegal Tax Benefits to Amazon Worth Around €250 Million (2017)
6. Lee-Makiyama, Hosuk: The cost of fiscal unilateralism: Potential retaliation against the EU Digital Services Tax (DST), ECIPE Occasional Paper, No. 05/2018, European Centre for International Political Economy (ECIPE), Brussels (2018)
7. OECD, Action 1- 2015 Final Report, Addressing the Tax Challenges of the Digital Economy, OECD/G20 Base Erosion and Profit Shifting Project, OECD Publishing (2019)
8. Iacob, Nadina, Simonelli, Felice: Taxing the digital economy, CEPS (2019)
9. Gartenberg, Chaim: Big Tech's 2021 earnings were off the chat, The Verge (2022)
10. Neshovska Kjoseva, Elena: Taxation in Era of globalization and digitalization- issues and challenges on national Tax Sovereignty, Neshovska Kjoseva, Elena, Proceedings of the 2021 Annual International Conference, "Law, Socio-Economic and Politics in Troubled Times", Publisher: Faculty of Law "Iustinianus Primus"- Skopje, Iustinianus Primus Law Review, Special Issue Year (2021)
11. OECD: Statement on a Two-Pillar Solution to Address the Tax Challenges Arising from the Digitalisation of the Economy, OECD Publishing, Paris (2021)
12. Gastaldi, Francesca, Zanardi, Alberto: The digital services tax: EU harmonisation and unilateral measures, workshop on public finance, Banca d'Italia, Rome (2019)
13. Coelho Nogueira, Lara: European commission's proposal to implement a new permanent establishment nexus based on significant digital presence, Is it compliant with the EU Law and international tax principles?, Lund University (2018)
14. Seely, Antony: Digital services tax, Commons Library Research Briefing (2022)
15. Næss- Schmidt, Helge, Martin H. Thelle, Dr Bruno Basalisco, Dr Palle Sørensen, Bjarke Modvig Lumby: The proposed EU digital services tax: Effects on welfare, growth and revenues, Copenhagen Economics (2018)
16. European Commission: Proposal for a Council Directive on the common system of a digital services tax on revenues resulting from the provision of certain digital services of 21 March 2018 COM/2018/0148 final - 2018/073 (CNS)
17. European Commission, Proposal for a Council Directive laying down rules relating to the corporate taxation of a significant digital presence of 21 March 2018, COM/2018/0147 final - 2018/072 (CNS)
18. Simić Soňa: Regulation and taxation of digital services in accordance with the initiatives of the European Union, financial law review, No. 24 (4)/2021, University Of Gdańsk, pp. 195–214
19. Lucas-Mas, Cristian Óliver, Raúl Félix Junquera-Varela: Tax theory applied to the digital economy: a proposal for a digital data tax and a global internet tax agency, World Bank Group, Washington (2021)
20. Hufbauer and Lu: The European Union's proposed digital services tax: a De Facto Tariff (2018)
21. Elliffe, C.: Taxing the digital economy. Policy and Practice, Cambridge University Press, Theory (2021)
22. Hanappi, T., González Cabral, A.: The impact of the pillar one and pillar two proposals on MNE's investment costs: An analysis using forward-looking effective tax rates, OECD Taxation Working Papers, No. 50, OECD Publishing, Paris (2020)

23. Bilotta, Nicola: Beyond the digital tax: the challenges of the EU's scramble for technological sovereignty, Istituto Affari Internazionali papers, Issue 20/14, Rome, (2020). ISBN/ISSN/DOI: 978-88-9368-135-3
24. Kofler Georg, Sinnig Julia: Equalization Taxes and the EU's 'Digital Services Tax'. Intertax, Vol. 47, Issue 2, Kluwer Law International, pp.176–183 (2019)
25. Szczepański, Marcin: Taxing the digital economy: new developments and the way forward, European Parliamentary Research Service (2021)
26. Geringer, S.: National digital taxes – lessons from Europe. South African J. Acc. Res. **35**, 1 (2021)
27. Hongler, P., Pistone, P., Blueprints for a new PE nexus to tax business income in the era of the digital economy, WU International Taxation Research Paper, no. 15 (2015)

Internal EU: Actions to Increase European Activities

Digital Innovation Hubs as Examples of Cooperation to Foster the Digital Skills of Employees in SMEs

Žaneta Lacová, Anna Vallušová, and Ivana Kuráková

Abstract The digital transformation of European economies represents one of the main challenges for public and private entities in the EU member states. To face this challenge, new forms of cooperation among companies are needed, and thus support by public funding is required. In our paper, we focus on the Slovak experience of digital innovation hubs presenting an offer of services to businesses, in particular to SMEs, for developing the digital skills of their employees. The European Commission's initiative of European Digital Innovation Hubs (2021) is based on the idea that the hubs function as one-stop shops that help companies dynamically respond to digital challenges, thus becoming more competitive. Firstly, the theoretical concept explaining the necessity of these platforms in the European Member States is presented. Secondly, we analyse several case studies of existing hubs and candidate digital innovation hubs in Slovakia. Finally, we set out chosen challenges of the European Digital Innovation Hubs network in the context of the Next Generation Europe and the Digital Europe Programme in the Slovak environment.

1 Introduction

Digital transformation is an irreversible process worldwide; however, countries differ in the achieved level of their digital transformation, giving some countries competitive advantages. In Europe, the continent is facing gaps when comparing its digital transformation to other regions in the world. For this reason, the European Commission is launching a set of initiatives to foster the digitalisation processes in the EU

Ž. Lacová (✉) · A. Vallušová · I. Kuráková
Matej Bel University in Banská Bystrica, Národná 12, 97401 Banská Bystrica, Slovakia
e-mail: zaneta.lacova@umb.sk

A. Vallušová
e-mail: anna.vallusova@umb.sk

I. Kuráková
e-mail: ivana.kurakova@umb.sk

G. Pellat et al. (eds.), *Cooperation and Enlargement: Two Challenges to be Addressed in the European Projects - 2022*, Studies in Systems, Decision and Control 500,
https://doi.org/10.1007/978-3-031-42253-9_12

Member States. As in the case of other sectors, EU leadership in the digital transformation process is welcomed and necessary (see for example [1]). Besides the implementation of technologies, the differences in the digital skills of the individuals can play a crucial role in fostering the digitalisation process. None of the technology is implemented by itself, and therefore the knowledge and skills of employees in the private and public sectors are important [2]. An unequal distribution of digital skills is apparent among EU Members States and different social groups and, as in the case of other inequalities, some entities are more privileged than others. In the case of the business sector, large companies can benefit from access to a wider range of resources (access to finance, human capital, etc.) to digitalise their businesses and apply more advanced technologies. The situation is different in small and medium-sized enterprises (SMEs), which have limited access to the necessary resources for digitalisation. For this reason, various initiatives to support digitalisation processes within SMEs occur at different levels (local, national, and supranational). These initiatives can focus on some aspects of digitalisation preconditions (like digital skills improvement), but because of the complexity of the processes the initiatives focussing on various aspects of digitalisation operations have a greater chance of bringing effective solutions for SMEs. In our paper, we take a closer look at the initiative of the European Commission to develop a network of European Digital Innovation Hubs. We present this initiative from the perspective of one EU Member State—Slovakia—which has very little experience with this specific tool. We aim to map the current situation, experiences and challenges linked to the establishment of digital innovation hubs in Slovakia, with a special emphasis on identifying the potential of these hubs in the digital up-skilling of the Slovak workforce.

2 Theoretical Background

At the present time companies, especially SMEs, are facing the new challenge of digital transformation, which can be defined as transformation precipitated by transformational information technology [3]. Digitalisation, as an innovation enabler, has a proven impact on the economy and society by improving productivity, quality of life, and boosting access to knowledge and public services [4]. Digitalisation is also a critical driver for companies and the public sector to accelerate business growth and enhance operations [5]. SMEs must be prepared to adapt to the new environment very quickly and they must be capable of adopting new information, knowledge, and skills. Openness to external knowledge becomes even more relevant in this context, which is recognised as a new strategic imperative that is changing the basis of firms' competitive advantage [6]. Despite the progress, however, SMEs in the EU do not appear to reap all the benefits digitalisation has to offer when compared to larger enterprises, and the level of digitalisation in European SMEs remains highly uneven per country, sector, or size [4].

The graph below illustrates the share of all enterprises (excluding the financial sector) with a very low digital intensity index. This index is based on the annual Eurostat model questionnaires on ICT usage (Information and Communication Technologies) and e-commerce in enterprises. The characteristics provided are drawn from the following list of subjects: ICT systems and their usage in enterprises, the use of the internet and other electronic networks by enterprises, e-commerce, e-business processes and organisational aspects, ICT competence in enterprises and the need for ICT skills, barriers to the use of ICT, the internet and other electronic networks, e-commerce and e-business processes, ICT security and trust, access to and use of the internet and other network technologies for connecting objects and devices (Internet of Things), access to and use of technologies providing the ability to connect to the internet or other networks from anywhere at any time (ubiquitous connectivity), use of big data analysis, use of 3D printing, use of robotics, use of artificial intelligence (AI), and use of cloud computing. The survey population consists of enterprises—excluding the financial sector—with 10 or more employees, or enterprises comprising of self-employed persons. There are considerable differences among countries, and almost all central and eastern European countries are below the average (Fig. 1).

Due to the characteristics of SMEs, there is a need for tailored approaches based on integration strategies, as well as cooperation with other firms along the value-added chain [7]. One of these approaches is digital innovation hubs, which are a European means of supporting businesses, mainly SMEs, under the Digitising European Industry strategy launched in 2016 [8]. Their role is to support SMEs in benefiting from advanced digital technologies, including artificial intelligence and cyber security [4]. Scientists and practitioners are highly motivated to consider digital innovation hubs as important platforms for streamlining production processes, products and services by implementing digital technologies in Europe [9], as underlined by [10], who states 'the DIHs provide their stakeholders with several assets that help companies to become more competitive by improving their business/production processes by means of digital technology'. DIHs offer four main types of functions: 1. test before invest ('to raise awareness and provide, or ensure access to, digital transformation expertise, know-how and services, including testing and experimentation facilities'); 2. skills and training ('to provide support in the area of advanced digital skills'); 3. support to find investments ('to support companies, especially SMEs and start-ups, organisations and public administrations to become more competitive and improve their business models through the use of new technologies); and 4. innovation ecosystem and networking ('to act as facilitator to bring together industry, businesses and administrations which are in need of new technological solutions on one side, with companies—notably start-ups and SMEs—that have market-ready solutions on the other').

Over the past decade, the term 'hub' has emerged in various sectors and organisations as an alternative way of organising work [11]. The hub has become a ubiquitous idea connoting a dynamic bringing together of diverse talents, disciplines, and skills to intensify innovation [12]—in other words, they can be seen as co-working spaces for many reasons pursuing many goals. Since their inception several types of hubs have emerged; one type is the innovation hub, which has become very popular in

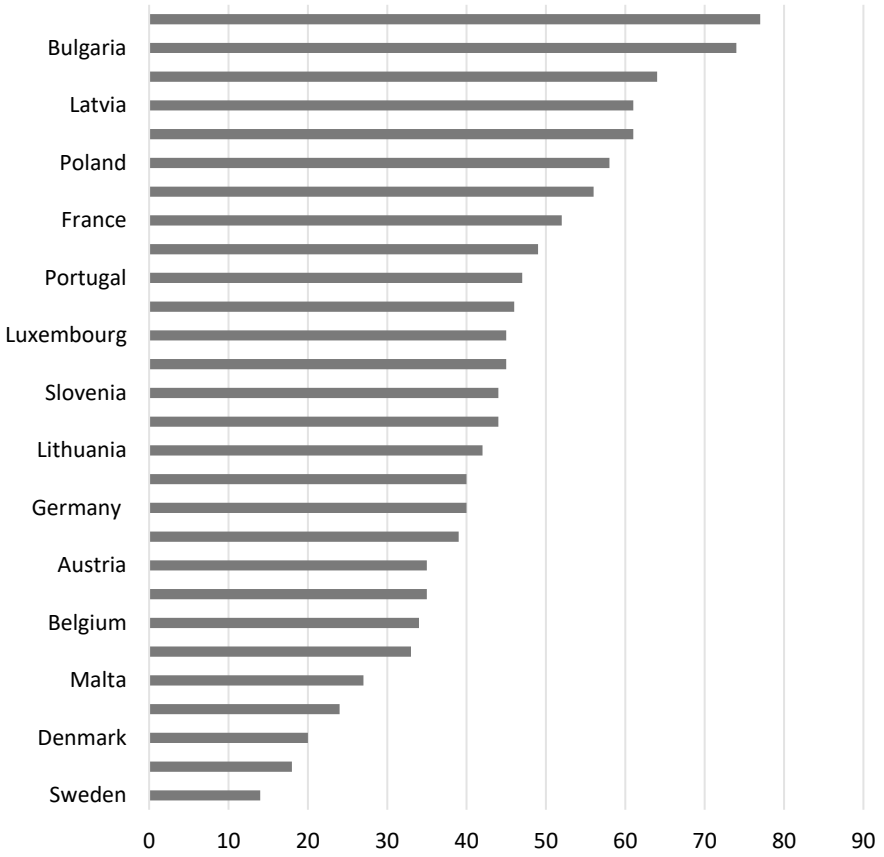


Fig. 1 Percentage of enterprises with a very low digital intensity index

many European countries [13]. Innovation hubs are defined as centres for learning, ideas, co-creation, and community that nurture innovative ideas and market disruption and support creative ways of solving problems through offering on-the-ground support across the entirety of the start-up lifecycle. Nowadays, many policymakers and academics are using the term 'digital innovation hub' as a special case of, or a superstructure of, innovation hubs and present their roles in the European, national and regional innovation ecosystems [14].

Digital innovation hubs are defined as one-stop shops that can help companies become more competitive in their business/production processes, products, or services by using digital technologies [8, 15] and [16]. A very similar definition is used by Virkunnen et al. [5]. According to them, digital innovation hubs are multi-actor ecosystems that support companies, particularly SMEs, in their digital transformation by providing a broad variety of services from a one-stop-shop.

Digital hubs encompass a range of functions, including: coworking or networking spaces; innovation spaces in specific economic development contexts; spaces for

emergent technology demonstrations; and points for public broadband access [15]. Beyond core activities, such as experimenting and developing new digital technologies or training, these new platforms for collaboration perform other activities to facilitate the transition into Industry 4.0, such as removing institutional barriers that may constrain Industry 4.0, aligning interests of local/regional industries, negotiating with policymakers, selecting leading actors to test digital technologies, or even co-designing new initiatives on digitalisation with policymakers, among many other activities [17].

Digital hubs comprise one of a range of solutions that policymakers can implement, including in the less well-served rural regions, to promote digital engagement among communities and businesses [18]. Digital innovation hubs provide a number of opportunities, including strengthening the ability for digital transformation in European rural society, especially by creating a common area for digital services in a rural area, strengthening the competitiveness of rural business through digitalisation, and enhancing the digital single market in Europe [9].

European DIHs also have an important place in the Recovery and Resilience Plan prepared by the Slovak Republic, which is a key document for the rapid implementation of reforms and investments. It contains five main areas, one of which is Effective Public Administration and Digitalisation. It includes the Digital Slovakia component, the aim of which is a functioning digital economy and a society ready for ongoing technological changes in the field of digitalisation. DIHs have an important position in the area of SMEs, including the provision of services such as increasing the level of digital skills of employees. The status of the number of DIHs is shown in the tables below.

In Fig. 2 (below) the number of fully operational DIHs is depicted in selected EU member states as of May 2022. As we can see, the leaders in DIHs implementation are Spain and Italy; Slovakia is among the countries with the fewest fully operational DIHs with only two. In May 2022, three further DIHs were in preparation.

All the DIHs from Fig. 2 are funded by H2020, ERDF, or other sources. The European Commission has decided that DIHs funded by the new Digital Europe Programme (2021–2027) will get the label 'European Digital Innovation Hubs' (EDIHs). All EDIHs are currently in the selection phase; the applications were submitted in February 2022 and are awaiting funding approval. The EDIHs are able to use the monies received for improvement of facilities (hardware and software) and to employ more personnel to provide services to SMEs and the public sector [4]. The European Commission has evaluated the proposals and selected the EDIHs based on quality, relevance, and geographical coverage. Figure 3 (below) depicts the number of candidate EDIHs in selected EU member states, as of May 2022. As we can see, the leaders in the number of candidate EDIHs are Spain and Italy again. As far as Slovakia is concerned, the number of candidate EDIHs has increased compared to the number of DIHs.

Evaluation results were published in June 2022. The total budget allocated was 240 900 000 EUR. However, the total budget requested is 481 189 508 EUR. The number of proposals that can ultimately be funded will depend on the final budget and the formal selection by the Commission.

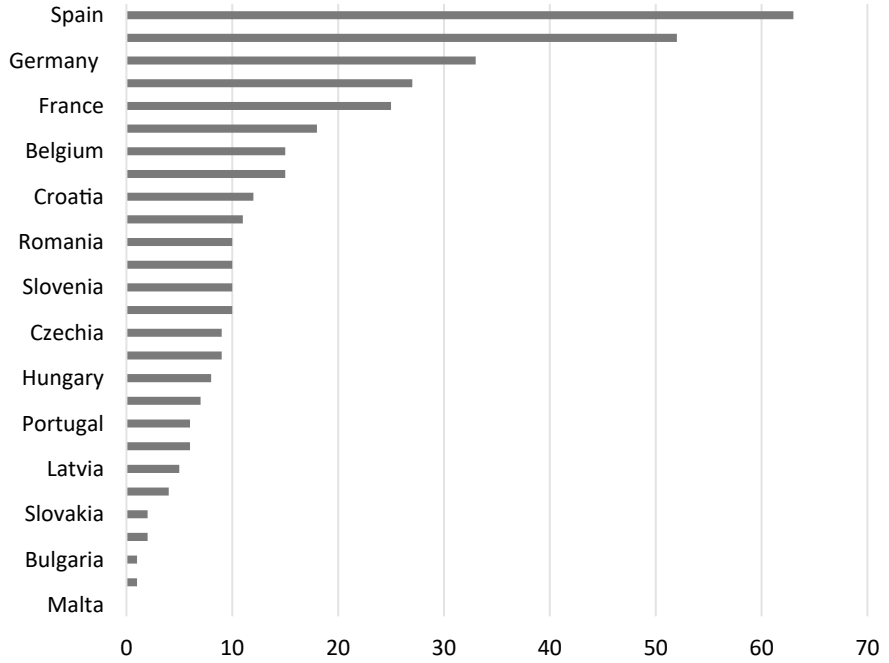


Fig. 2 Number of fully operational DIHs in selected EU member states (Own elaboration according to https://s3platform.jrc.ec.europa.eu/digital-innovation-hubs-too)

The presentation of the proposal submission and approval rates (June 2022) is shown in Table 1. We can observe that in some countries a relatively high level of approval among EDIHs proposals was manifested; the lowest success rate of 53,85% can be observed in Greece, which had almost twice as many project proposals as the planned number of EDIHs.

On the other hand, the success rate of 100% is presented in the majority of countries (15 from 27 countries—EU Member States without Luxembourg + Norway + Iceland). The data also show that the number of above-threshold proposals is not linked to the same budget requested. For example, five EDIHs in Slovakia (Table 2) requested 8 857 689,97 EUR while the same number of EDIHs in Denmark requested only 6 127 254,60 EUR. In some cases, the difference can be explained by different price levels in the EU Member States, but not in all.

In addition, Table 1 shows that the different EU countries are heterogeneously presented in the total budget requested for EDIHs, with Italy applying for the largest share (73 881 736,91 EUR). According to [8], Italian digital innovation hubs act not only as knowledge brokers but also as knowledge sources; they support the exchange and integration of knowledge between SMEs and the partners of the digital innovation hubs, who are chosen as digital technology providers for the SMEs. In addition, implementation of digital hubs can enhance the local digital environment [18]. This

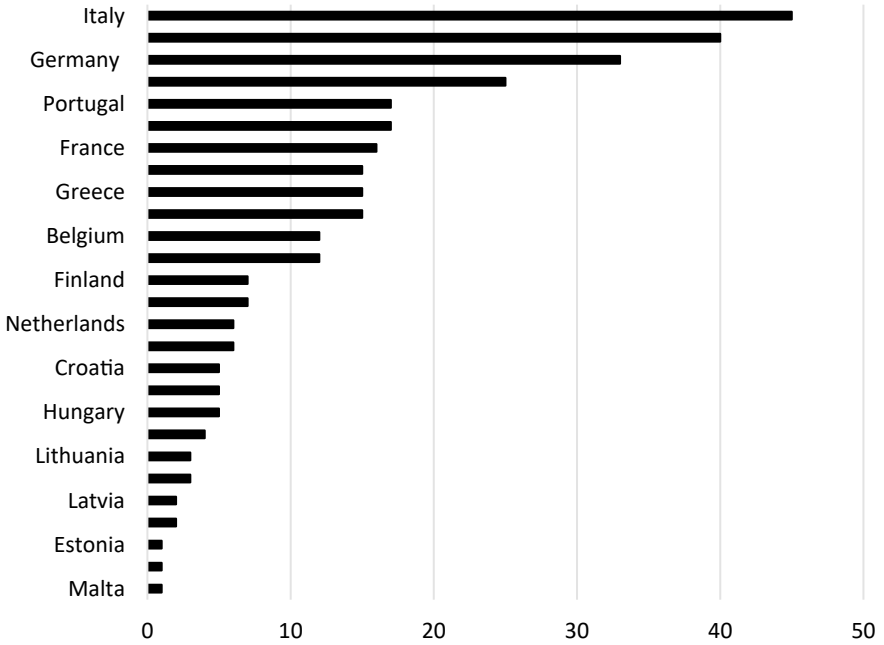


Fig. 3 Number of candidate DIHs in selected EU member states (Own elaboration according to https://s3platform.jrc.ec.europa.eu/web/guest/digital-innovation-hubs-tool)

approach can be also an inspiration for other European countries and contribute to the reduction of the European digital gap.

One could estimate that the creation of EDIHs would be more supported in those EU Member States countries that are further behind in the SMEs digitalisation transformation process. According to the data presented in Graph 1 and in Table 1, it is obvious that neither the number of above-threshold EDIHs proposals nor the country-specific budgets requested for above-threshold proposals are in a relationship with the current situation in the EU Member States presented by the digital intensity index version 3 (enterprises with very low digital intensity index, graph 1). The calculated correlation coefficients are 0.0075 and 0.03 respectively. They demonstrate no direct relationship between the variables. Thus, it seems the EU is not relying on the convergence approach, which would support the countries with the weakest performance in the digital transformation process; other criteria are being applied in supporting the countries, and the calculation is probably that the faster progress of already better-performing countries will be beneficial to the whole EU due to possible positive spillover effects.

Table 1 Evaluation results of the proposals and approvals of EDIHs (June 2022). Source: Own elaboration according to https://digital-strategy.ec.europa.eu/en/library/evaluation-results-calls-included-call-1-digital-europe-programme

Country	Proposals submitted	Number of above-threshold proposals	Success rate of proposals	Total budget requested for above-threshold proposals (in EUR)
IT	41	30	73,17%	73 881 736,91
ES	26	23	88,46%	50 134 915,72
DE	27	19	70,37%	48 410 274,91
PL	25	18	72,00%	36 848 066,45
PT	16	12	75,00%	32 490 558,28
FR	15	12	80,00%	27 024 836,80
BG	17	12	70,59%	20,199,151,53
BE	11	11	100,00%	17 104 744,83
SE	13	10	76,92%	23 194 812,18
EL	13	7	53,85%	16 370 775,79
AT	9	7	77,78%	15 131 421,02
RO	10	7	70,00%	13 695 758,41
FI	7	7	100,00%	10 597 398,10
NL	6	6	100,00%	12 705 511,88
CZ	6	6	100,00%	8 872 872,76
SK	7	5	71,43%	8 857 689,97
HR	5	5	100,00%	6 457 973,68
DK	5	5	100,00%	6 127 254,60
IE	4	4	100,00%	11 296 665,14
HU	5	4	80,00%	8 394 027,85
SI	3	3	100,00%	5 942 102,62
LT	3	3	100,00%	5 017 400,06
NO	2	2	100,00%	6 190 590,38
CY	2	2	100,00%	5 245 565,80
LV	2	2	100,00%	3 225 639,64
EE	1	1	100,00%	3 000 000,00
MT	1	1	100,00%	2 649 774,21
IS	1	1	100,00%	2 121 988,15

Table 2 List of Slovak EDIHs selected by the European Commission. Source: Own elaboration according to https://european-digital-innovation-hubs.ec.europa.eu/edih-catalogue?f%5B0%5D=country%3ASlovakia

Name	Technologies/Services	Sectors
EDCASS	Artificial intelligence, cyber security, robotics, CPS and IoT, nanotechnology and micro/nanoelectronics, sensory systems, additive manufacturing, communication networks, simulation, modelling and digital twins, software systems, virtual, augmented and extended reality (strong capacity)	All
HOPERO (SKAI-eDIH)	AI maturity assessment, identification opportunities for AI technology adoption, qualitative analysis of data sources, applied research, testing and evaluation of methods and models in real environment, analysis and identification of suitable technological tools for specific needs, assessment of ethical impacts of AI application and use, testing facilities, additive manufacturing, communication networks, simulation, modelling and digital twins, software systems, virtual, augmented and extended reality (strong capacity), trainings and networking events, funding strategies	Consumer products, cultural and creative economy, education, electricity, energy, environment, financial, health care,
ITAPA (CENTER FOR INNOVATIVE HEALTHCARE)	Integration, adaptation, and customisation of various advanced digital technologies (such as AI, robotics, IoT, telemedicine, 3D printing etc.), AI development (vision for AI, data analysis, pilot implementation, machine learning, testing), pre-evaluation of the benefits of innovation, testing of innovation in the real-life conditions in healthcare providers, testing on hospital twin, access to high-performance computing, access to testing and experimentation facilities for advanced digital technologies and biomedical facilities, AI training in the areas of innovative diagnostics, patient journey, telemedicine, cyber security in healthcare, mental health, long-term care, use of AI in healthcare, support access for start-ups and spinoffs to public and private financial institutions and investors	Health care

(continued)

Table 2 (continued)

Name	Technologies/Services	Sectors
EXPANDI 4.0	Strategic advisory for top and middle management and executives, deployment of digitalisation concepts and proposals and verification of solutions using available testing equipment and software, design of solutions for digital data acquisition, expertise in choosing analysis systems using advanced analytics tools, AI and ML, expertise in advanced I4.0 technologies (robots, digital design, creation and use of digital twins, vertical and horizontal integration of digital systems and processes, logistics simulation along value chains, etc.), expertise in cyber security issues, specialised staff trainings	All
SCDI - Slovak Centre of Digital Innovations (*Seal of Excellence)	Digital maturity assessment, individual trainings for experts and management, advisory services, testbed services, grant management, personnel training, knowledge transfer workshop, embedded systems and Internet of Things, artificial intelligence & high-performance computing, smart industrial processes and technologies, smart energy, cyber security	Agricultural, automotive, construction education, energy, manufacturing and processing, metalworking and industrial production

3 Research Methodology

The goal of our paper is to map the Slovak experience with digital innovation hubs, present their offer of services to businesses (in particular their offer to SMEs) for developing the digital skills of their employees, identify some inspiring best practice, and identify the challenges, to enable the positive future development of these hubs. To meet this goal, we prepared the following eleven open questions, which we distributed to digital innovation hubs in Slovakia: 1. What is the main goal of your existence? 2. Who are the main actors involved in your organisation? 3. Which entities most often use your services (or plan to use your services)? 4. How common are SMEs in your day-to-day activities? How do you get in touch with them? 5. What specific activities do you implement which are focussed on SMEs? 6. Are you involved in raising the level of digital skills of SME employees? 7. If so, what form do these trainings take? 8. What is the financial contribution of SMEs to the training activities of its employees via the hub? 9. What problems do you encounter in your activities? 10. What problems have been identified in increasing employees' digital skills? 11. What tools/measures do you think could help you to do your job better? We sent this set of questions to all nine digital innovation hubs (both fully operational DIHs and candidate European DIHs). Three organisations (33%) reacted positively, and the online guided interviews were conducted in May 2022. In addition, the regulatory view was also sought and identified via an online interview with the

country contact points for EDIHs—Ms. Lucia Martišková (who had responsibility in 2022) and Ms. Zuzana Letková (who had responsibility in 2023) from the Ministry of Investments, Regional Development and Informatization of the Slovak Republic. Both Ms Martišková and Ms Letková work for the Department of Digital Innovation and Projects (Digital Agenda Section) and had, at the time of the interview, responsibility for managing the implementation of digital projects. The regulatory view was achieved by the method of a structural interview, based on the following set of questions: 1. What goals does Slovakia want to achieve through EDIHs (in the field of company informatisation, etc.)? 2. What role can EDIHs expect in terms of increasing digital skills in society? 3. Are there any concerns about the state providing aid to privately founded EDIHs? 4. What further concrete steps towards the establishment and effective operation of the network of EDIHs in Slovakia are planned? 5. Does the Ministry of Investments, Regional Development and Informatization plan to coordinate the activities of EDIHs in Slovakia? 6. What supporting activities for the activity of EDIHs (e.g., central verification of the eligibility of participants…) are planned? 7. Slovakia draws on experience from other countries; is it likely to coordinate its activities with them? The above-mentioned questions were discussed in an online interview conducted via MS Teams. Our findings are presented in the following individual subchapters in the form of three case studies and a presentation of the regulatory view.

4 Research Results and Discussion

Three case studies based on the results of the guided online interviews were developed. One existing (fully operational) digital innovation hub—National Centre of Robotics (represented by Prof. Ing. František Duchoň, PhD.)—as well as two candidate EDIHs—Zintech Slovakia (represented by Michal Janovčík) and EDIH BA (represented by Tamasz Szoke). The following sub-chapters set forth the summary of our guided interview.

4.1 National Centre of Robotics

The National Centre of Robotics (NCR) is a non-profit making organisation established in 2014 under the patronage of the Faculty of Electrical Engineering and Information Technology, at the Slovak Technical University in Bratislava. The National Centre of Robotics was established for several reasons—to research, support, and develop the field of robotics in universities and society-wide environments based on cooperation between academic and non-academic entities. The members of the National Centre of Robotics are internationally accepted professionals in the field of robotics, cybernetics, and automation, and they are located in three Slovak cities—Bratislava, Košice, and Žilina. The innovation ecosystem potential is very strong,

enhanced by existing international research projects (e.g., Horizon 2020). The centre supports the technology transfer programme from the academic environment to local SMEs, identifying research and development solutions for them.

International cooperation was at the origin of the 'digital innovation hub status' of this organisation. In 2018, a Finnish partner contacted the NCR after analysing the information offered on the organisation's website; the result of the analysis was that the Finnish partner considered that the NCR met the requirements of a digital innovation hub concept, and consequently they invited the NCR to cooperate in an international project. Later they offered to assist them in getting listed as a digital innovation hub. Up to that moment, the NCR had not been listed on the European map of digital hubs. Their current status as a 'digital innovation hub' enables other parties in Slovakia (SMEs) to help finance their innovation activities.

A very important aspect of the functioning of this hub is based on the staff and students at the university being involved in finding robotics solutions for SMEs (although this is not their exclusive work). In general, the experience of the NCR is the following: SMEs are not well oriented in the current trends in robotics because of a lack of capacities (time, staff, financial resources, etc.). Usually, SMEs start to look for robotics solutions in the case of ad-hoc problems. When this happens, cooperation with a digital innovation hub can be very beneficial reciprocally. A concrete example of best practice involving knowledge sharing can be found in the project IZVAR, realized with the company VUEZ Levice (approximately 100 employees). At the beginning of the cooperation, the company had limited knowledge in the field of robotics. The academic experts were the initiators and catalysts of the company's digitalisation processes. After three years of the project, the company´s knowledge of the application of robotics evolved considerably, enabling the implementation of robotics solutions. This implementation is currently inspiring the academics as they are benefitting from reverse knowledge transfer.

Cooperation with companies can take different forms, including common innovation labs at the university. These labs enable not only knowledge sharing between academia and companies, but also inside the business sector—the experts at the hubs facilitate the integration of existing solutions and the occurrence of synergies. These common labs (for example, the Lab Schneider Electric) offer, among other things, training and the elaboration and exploration of final theses by students, etc. The idea is based on technology sharing; students, academics, and professionals bring together their know-how and they mutually enrich each other.

The experience of NCR shows that cooperation between universities and the business sector can be effective and successful only when a company is directly involved in the search for solutions. If a team for innovation solutions implementation is formed in companies from the beginning of the cooperation, and the company is not dismissive of hub experts' proposals, the innovation process has a high chance of success. In addition, the company employees' overall digital skills are consistently improving while being guided and preparing the specific solutions for a company. If a company justs asks the hub for the solutions—and the company is not involved in identifying the solutions itself—the experience is rather negative; the solutions do not

meet the expectations of the company, the solutions are not properly implemented, and the implementation of the solution is not sustainable.

Companies' resources are usually limited in regard to the financial coverage of innovation in SMEs. When a technical solution to a problem is identified the companies need a means of financing it, such as a grant or a funding scheme; the hubs can become catalysts in the funding identification process. It is not standard procedure to use company resources to finance the consultancy and expert service provided by this hub although, according to the experience of the NCR, the administrative burden of funding schemes can represent a very important barrier to the innovation processes of SMEs. In extreme cases, the administrative procedures requiring the employment of specific administrative staff are not profitable and sustainable for small companies. As a consequence, the number of grant applicants is very low, and a healthy competitive environment is not created. Moreover, scrutiny of the funding for such projects is usually oriented to the formal requirements and paperwork. Inspection of the project results (the actual impact and improvement on processes, production or social effects) are rather limited in Slovakia.

Besides engaging in consultancy activities and professional expertise assessments for private entities, the hub organises introductory training for SME employees willing to apply robotics solutions in their companies to increase their digital skills. The hub is planning to organise up-skilling courses for improving the knowledge of the latest technologies more systematically. As an example, the hub experts recommend the program 'Engineer 4.0' (Ingenjör4.0—Upskilling for Future Manufacturing (ingenjor40.se)), a 16-module program developed in cooperation with 13 Swedish Universities. The modules give information about the current technologies that are available (without specifying the exact products and brands). In general, as in the case of this hub, the training for a selected product (for example, training to use a specific type of robot) is excluded due to the existence of commercial training possibilities, which the hub has no need to replace.

According to the experience of the NCR, the existence of local digital innovation hubs in EU Member States is beneficial for everybody. A vast range of facilitators and catalysts could foster the innovation process in large companies, and especially multinational companies. However, the existing Slovak digital innovation hubs more effectively boost the innovation process in Slovak SMEs. The existence of innovative firms, which are subsequently becoming more competitive, brings positive spillover and multiplication effects for the whole economy and society. In addition, the increasing need for innovative firms creates pressure to improve the quality of education and to increase the position of education and science in the value ranking of society.

4.2 Zintech Slovakia

Zintech is the Digital Technology Hub of north-western Slovakia, with the status of a candidate European Digital Innovation Hub. The Hub will integrate the innovation

eco-systems of existing partners—the University of Žilina, the Alexander Dubček University in Trenčín, the Central European Institute of Technology (an experienced partner with expertise in digitalisation feasibility studies and audits), and the Z@ict cluster (an experienced cluster of ITC with application potential in digitalisation solutions for companies: https://www.zait.sk/). Zintech will provide services that make a significant contribution to supporting the regional private sector (approximately 65% of all activities) and public sectors (approximately 35% of all activities) with their digital and green transformation. The emphasis on public administration and self-government entities is unique to this hub project.

Zintech focusses on testing before investing and introducing digital technologies, with the aim of digital transformation and increasing digital competencies. It concentrates on the SME sector, but also works with public administration organisations that do not have sufficient internal capacity and resources to further digitalise their processes and operations. The specificity of this hub consists of public administration organisation involvement in digitalisation processes.

Zintech pursue direct and personal contact with the SMEs (rather than holding events and awareness-raising activities). To this end, a small group of 'traders' is planned whose role will be to contact the eventual 'clients'. An introductory workshop will be organised by the hub for each client which will detail the expected benefits of digitalisation processes for the client (SME), the capacities of the hub experts, their experience, and their expertise at the application level of digital transformation of SMEs. After the introductory workshop some training will be proposed, and then an introductory digital audit will be developed. Other services could be also provided by the hub to specific clients in respect of the client's needs and the hub´s competencies (high-speed computational processes, big data processing, optimisation analytical data processing, real-time decision support, advanced intelligence, industrial internet and IoT, sensors, simulations, augmented and virtual reality, cloud solutions, cyber security, artificial intelligence, intelligent transport systems, autonomous mobility, business information systems, smart and virtual solutions, energy management, machine learning, mobile application development, IT security, industrial automation, robotics, intelligent systems, digital and smart enterprise, digital twin, dynamic simulation and emulation, process optimisation using ICT diagnostics of industrial important materials and composites, numerical analysis and simulations of technological processes, digitalisation of processes and design of SMART solutions in culture, and social services, education, healthcare or sports in a regional context). The list of services that the hub is planning to offer is as follows: awareness creation, ecosystem building, scouting, brokerage, networking, collaborative research, concept validation and prototyping, commercial infrastructure, digital maturity assessment, incubator/accelerator support, support in access to funding (EU funding, bank funding, risk financing, regional networking funding, etc.) and investor readiness services, mentoring, education, and skills development. Thus, both the consultancy support services, as well as the R&D solutions activities, are included. The price list of services was prepared and presented to the European Commission (one of the requirements presented in the EU´s request for EDIH applications). The key element of the hub activities consists of the fact that cooperation

between the hub and company stops at the 'test before invest' phase. At this point, the company has a choice to continue to cooperate with the hub (employ some additional commercial activities of the hub experts) or to go with some other chosen entity. In case the hub is not able to provide the appropriate concrete solution, the client will receive information about other hubs in Slovakia with experience in offering solutions; failing this, EDIHs in other EU Member States would be recommended.

The client (SMEs or an eligible public entity) will not pay for the services (de minimis rule of the state aid) provided by the hub until the 'test before invest' phase, and the costs to the hub up to this point will be covered by the EU funding of the EDIHs (Digital European Programme). The hub will document the services it provides to the clients and detail the prices of further hub services. Zintech is defining the geographical coverage of its activities as intended for clients from north-western Slovakia.

One of the services provided by this hub will consist of skills development and capacity building. This activity is perceived as an additional activity, not the primary one. The hub is planning to propose client-oriented education activities, respecting the specific needs of the company. However, the hub representative is expecting a relatively high level of competition between digital innovation hubs in Slovakia; in addition to EDIHs, local innovation centres exist in the main cities of Slovakia, including one established in Žilina in 2021 (https://inovia.sk/). There is potential for such innovation centres to be active and involved in the digitalisation process and thus be direct competitors.

The potential of SMEs with at least a partial need for digitalisation of their activities is limited at the national level. In addition, the need for digitalisation could be marginalised by the SMEs in times of input price fluctuations, labour cost increases and deterioration of the local labour markets, increased inflation expectations, and general pessimism for business activities. In principle, digitalisation represents an investment; some initial services, however, could be provided free of charge to companies, thanks to the establishment of the EDIH network.

Another doubt about the functioning of the Slovak hubs is linked to the negative experience of the high level of bureaucracy and administrative costs. 50% of the payment to EDIHs will be funded by the European Commission and 50% will be provided by the Ministry of Investments, Regional Development, and Informatization of the Slovak Republic. The necessity of a more flexible and less costly system was underlined by the hub representative during our interview. For example, an obligation to verify the support recipient (the eligibility of the SME) represents an unnecessary additional cost for hubs.

4.3 EDIH BA

The European Digital Innovation Hub Bratislava (hereinafter referred to as 'EDIH BA') is a consortium of six entities that will jointly provide services in the field of digital transformation and digital innovation for SMEs and public entities in the

creative and cultural industries. The EDIH BA consortium brings together members with rich experience in fostering innovation in SMEs (Slovak Centre of Scientific and Technical Information, Faculty of Electrical Engineering and Information Technology at Slovak Technical University, Faculty of Mathematics, Physics and Informatics at Comenius University), as well as creative centres as public entities (EGTC Via Carpatia and Slovak National Gallery). Individual members (such as FABLAB) already provide SME and public sector services aimed at experimenting with and testing digital innovations to better understand their opportunities and return on investment. They also offer training and skills development, support in finding grants (Grantexpert portal) and investment and access to innovative ecosystems.

The specificity of this hub consists of a focus on creative and cultural industry institutions (CCI sector), with a high growth potential concentrated in bigger cities. According to a study conducted by the hub, the CCI sector consists of almost 50 thousand legal entities, of which approximately 2% represent the public sector. The private legal entities are mostly micro-enterprises (98% of all entities). The demand from these entities for the digitalisation of their activities exists.

To communicate with potential clients the hub is firstly planning to use the list of existing contacts of the Slovak Centre of Scientific and Technical Information, enlarged by its database of companies registered on the Grant Expert Platform (around 20 000 SMEs visit this platform monthly: https://www.grantexpert.sk/). They consider a digital channel as being the most appropriate way to communicate with, and eventually acquire, clients interested in digitalisation.

In terms of content, the consortium covers the full range of activities (workshops, digital assessment, digital training, funding info management, matchmaking events, etc.) in the areas of digital solutions for their clients. Digital training is planned to be delivered mostly in cooperation with two universities in the consortium. In this context, the hub perceives a very high topicality of the 'digital skills' theme, manifested at all levels without a systematic approach. Challenges to the business model could occur because of the establishment of regional innovation centres (planned by the strategic document Slovakia Digital), which will exist in addition to standard digital innovation hubs and be pursuing the same client base. Other entities are also fostered to provide digital skills education, such as the Slovak Business Agency and universities (micro-credentials concepts), etc. In addition, there already exists profit-oriented market players providing digital education as their commercial activities. It seems that the impact of all the supporting activities (such as EU funding) on the existing market players is not taken into consideration when assessing the roles of the new EDIHs. It adds urgency to the fact that it is necessary to apply a strategic approach at the national level and to prepare an action plan for digital re-skilling and up-skilling to specify the roles of the different parties, to achieve the dynamism and sustainability of digital skills education for the future and make a real impact on education, on the economy and on society.

The hub is expecting a discussion between EDIHs and regulation entities (national and/or supranational entities) about how to ensure financial sustainability in regard to the pricing of their services, since it is envisaged that it will eventually be necessary to apply some charges in relation to, for example, the size of the company. Alternatively,

the clients could be asked to pay a kind of 'membership fee' for their participation in hub activities; these fee payments will be accumulated in a sustainability fund which would then be used when the EU funding resources are consumed.

The hub also raised another doubt about problems hindering the efficient functioning of digital innovation hubs in Slovakia in regard to the high level of administrative procedures requested at the national level (e.g., verification of the eligibility of beneficiaries); this concern was underlined during this interview and interviews with the other hubs.

4.4 Regulatory View: Ministry of Investments, Regional Development, and Informatization of the Slovak Republic, Department of Digital Innovation and Projects (Digital Agenda Section)

The goal of creating digital innovation hubs is to build capacities to facilitate the access of SMEs to digital technologies in order to foster their digitalisation processes. The gaps in access to modern and advanced technologies between companies (according to their size, their country of operation, etc.) are enormous and the European Commission's initiative of digital innovation hubs is working to reduce these gaps, thus contributing to increasing the competitiveness of the EU Member States in this area. This primary goal is enlarged by the attempts to also improve the access of public entities to these technologies via the network of EDIHs.

The timeline of the creation of EDIHs in Slovakia started when the European Commission's call for DIH applications closed on February 2022. The results of the proposals prepared by the candidate EDIHs were communicated to the national authority, as well as to applicants, in June 2022. 50% of the financing for successful candidates is financed at the European level (Digital Europe Programme) and 50% will rely on national financing (Recovery and Resilience Plan for the first 36 months). In the case of an EDIH candidate obtaining a Seal of Excellence, national financing could be raised to account for up to 100%. The goal was to create a network of five Slovak EDIHs by the end of September 2022. In autumn 2022, the signing of contracts in lieu of grants from the European Commission to successful EDIHs was achieved. The context of synergic grants (European and Slovak financing) should motivate national authorities to adapt to the European timeline.

Slovakia has a limited experience in the function of digital innovation hubs and takes its inspiration from the German experience. For example, the Fraunhofer Institutes model (https://www.fraunhofer.de/) is a good example of the world's leading applied research organisation, and its model is inspiring for building innovation ecosystems in other countries. Cooperation and coordination between Slovakia and the Czech authorities is also well-developed; thus, the cooperation at the national authorities' level is mostly based on economic and geographical proximity principles and increases the probability of success. On the other hand, the Ministry opines

that sharing best practice with Scandinavian partners—based on the 'convergence to the best' strategy—is not always beneficial in inspiring solutions since the reality and problems of Scandinavian society are very different to the ones in Slovakia [19].

The cooperation and coordination of activities among EDIHs is left to the hubs themselves and is not regulated by the authorities; however, it is highly encouraged. For example, a national hub located close to the borders of another Member State is free to communicate with potential clients from a country other than the one it is situated in. If necessary, this hub can also coordinate its activities with a EDIH in the neighbouring country. The European Commission is planning to coordinate the function of EDIHs via the creation of a Digital Transformation Accelerator for the network of EDIHs to accelerate the digital transformation of the European economy (the request for applicants was closed in March 2022) and to utilise and maximise the efficiency of the individual EDIHs. According to the European Commission (https://digital-strategy.ec.europa.eu/en/funding/digital-transformation-accelerator-network-edih-cnect2021op0004), the main objectives of the DTA will be to provide the following services: (1) community building and training, including guidance for hubs, provisioning of training services and materials, community-building events; (2) connection to relevant initiatives, providing the possibility to engage with regional, national and European relevant initiatives to interested EDIHs; (3) impact assessment and road mapping: collection and analysis of the key performance indicators (KPI) defined for the EDIHs; (4) online presence, external communication, tools, and support; (5) management of the interactive catalogue of European Digital Innovation Hubs and other digital capacities funded by the Digital Europe Programme.

Concerning the doubts of the Slovak EDIHs´ representatives about the demanding administrative and bureaucratic procedures, there are discussions within the Ministry of Investments, Regional Development, and Informatization, as well as with other entities (Antimonopoly Office of the Slovak Republic, the European Commission) about how to facilitate the setup of the procedures as easily as possible to allow to EDIHs to concentrate on their core activities. There is a very strong will among the national authorities to support SMEs, which will be the eventual benefactors of the hubs.

In November 2022, the Slovak government adopted a new tool—the Minimum Aid Scheme—from the funds of the Recovery and Resilience Plan of the Slovak Republic, to enable the support of the digitisation of micro, small and medium-sized enterprises, small companies with medium market capitalisation, and public sector organisations (De Minimis Aid). According to this regulation, the main areas of support focus on: (1) raising awareness and providing or securing access to professional knowledge, know-how and services in the field of digital transformation, including the provision of test and experimental equipment; (2) providing support in the area of advanced digital skills (e.g., by coordinating with education providers in providing short-term training for workers and apprenticeships for students); (3) support for SMEs and small companies with medium market capitalisation to became more competitive and improve their business, organisational or operating models using new technologies; (4) support in connecting industry, businesses and administration that need new

technological solutions with companies that have solutions ready for application into practice.

At the national level, a strategic document (the National Digital Skills Strategy, which focusses on building and fostering digital skills) was adopted at the end of 2022. This complex document sets out the priorities and aims in the area of digital skills. From the national point of view, the role of EDIHs in digital skills improvement is one of the four main pillars of the EDIHs' activities. Their functioning should be based on providing a portfolio of services tailored to the specific company, including education, digital up-skilling training, and workshops. Some EDIHs are planning to propose only client-based activities; other EDIHs are planning to propose training for groups of companies with similar needs, according to the capacity of the relevant EDIH.

5 Conclusion

We aimed to map the current situation, experiences and challenges linked to the establishment of digital innovation hubs in Slovakia, with a special emphasis on identifying the potential of these hubs in the digital up-skilling of the Slovak population. Firstly, we presented the theoretical aspects of the digitalisation processes in SMEs in the European context; then we presented the results of interviews with three representatives of digital innovation hubs which are in the early stages of their creation in Slovakia, allowing us to identify the most important challenges of this creation. Finally, we presented the regulatory view, based on individual interviews with the representatives of the Ministry of Investments, Regional Development, and Informatization of the Slovak Republic. The Ministry is the country's contact point for EDIHs and has responsibility for the coordination of the European Commission initiative in Slovakia.

We identified the first challenge as the fact that ambition to increase digital skills is currently very urgent, vital, and thus very spontaneous—non-conceptual and non-systematic approaches in boosting digital skills through several actors, supports and initiatives occur and the result is a fragmented system. For this reason, the need for systematisation of roles of different parties (from elementary schools to life-long education activities in companies and elsewhere) needs to be precise to allow synergies and to avoid duplicities and frictions. An action plan at the national level for the development of digital skills is an essential tool to define the priorities and clarify the roles of different actors, enabling the whole system of re-skilling and up-skilling strategies to be efficient and productive. These findings are in line with the conclusions of [20], who underlined that the critical challenge for the development of the DIHs ecosystem is the assessment of the ability of the DIHs and partners to interoperate together.

The second challenge concerns the risk of disrupting existing market relations and market forces in the digitalisation of SMEs. If services for SMEs are provided completely free of charge, the question of the sustainability of such solutions remains

open. However, the low price or the zero price of digital solutions identification assured by digital innovation hubs can be efficient only if this support provokes internal changes in the organisation and processes of SMEs. It is crucial that SMEs adopt an active approach in digital solutions implementation. In the ideal case, the solutions proposed by the hubs will serve as initiators and catalysts for final more complex solutions best suited to an individual SME.

In circumstances appertaining to Slovakia, another challenge highlighted in all of our case studies was the burdensome administration and bureaucracy, which prevents or demotivates the hubs from concentrating on their core activities. Based on previous negative experiences with the European funding administration [21], there is an increased necessity to make the administration at the national level more flexible. The national authority should be engaged in the identification administration system in order to keep control of the costs and respond quickly when needed, empowering the confidence of the companies involved in public funding schemes.

We conclude that the potential for DIH's contribution to the development of digital skills is enormous and the initiatives are well-anchored. The reference models for their functioning have been analysed and tested by the current authors (for example Sassanelli and Terzi [22]). Further research will be needed to observe and analyse whether this initiative is actually contributing to speeding up the process of effective digitalisation of companies, and thus the development of digital skills in companies. Eventually, some spillover effects on the whole population (outside of the companies) should be evident. These results should be observed within the next three years by qualitative observation methods, as well as by quantitative indicators outcomes (e.g., the DESI index dimensions).

Acknowledgements This research paper originated in partial fulfillment, and with the support of, the project VEGA 1/0668/20, 'Digital Inequality and Digital Exclusion as a Challenge for Human Resources Management in the Company', the project KEGA 040UMB-4/2021, 'Diversification of Content and Didactic Forms for Teaching Economic Subjects in the Slovak Language and World Languages' and the project APVV-20-0338, 'Driving Forces of Economic Growth and Survival of Firms in the Sixth K-Wave' at the Faculty of Economics, Matej Bel University in Slovakia.

References

1. Cini, M., Šuplata, M.: Policy leadership in the European commission: the regulation of EU mobile roaming charges. J. Eur. Integr. **2**(2017), 143–156 (2017)
2. Schulz, W.T.: The economic importance of human capital in modernization. Educ. Econ. **1**(1), 13–19 (1993)
3. Li, L., Su, F., Zhang, W., Mao, J.Y.: Digital transformation by SME entrepreneurs: A capability perspective. Inf. Syst. J. **28**, 1129–1157 (2018)
4. Kalpaka, A., Sörvik, J., Tasigiorgou A.: Digital Innovation Hubs as policy instruments to boost digitalization of SMEs, Kalpaka, A., Rissola, G. (Eds.), EUR 30337 EN, Publications Office of the European Union, Luxembourg, (2020), ISBN 978–92–76–21405–2, doi:https://doi.org/10.2760/085193, JRC121604

5. Virkkunen, R., Still, K., Rosso, L.: Digital innovation hubs in Finland, Finland: ministry of economic affairs and employment, (2019). ISBN 978–952–327–423–5
6. Fitzgerald, M., Kruschwitz, N., Bonnet, D., Welch, M.: Embracing digital technology: a new strategic imperative, MIT Sloan Management Review, 2, (2013)
7. Müller, J.M., Buliga, O., Voigt, K.I.: Fortune favors the prepared: How SMEs approach business model innovations in Industry 4.0, Technol. Forecast. Soc. Chang., July (2018), pp. 2–17
8. Crupi, A., Del Sarto, N., Di Minin, A., Gregori, G.L., Lepore, D., Marinelli, L., Spigarelli, F.: The digital transformation of SMEs—a new knowledge broker called the digital innovation hub. J. Knowl. Manag. **6**, 1263–1288 (2020)
9. Gernego, I., Dyba, M., Onikiienko, S.: Challenges and opportunities for digital innovative hubs development in Europe. Manag. Theory Stud. Rural. Bus. Infrastruct. Dev. **43**, 298–306 (2021)
10. Sassanelli, C., Terzi, S., Panetto, H., Doumeingts, G.: Digital innovation hubs supporting SMEs digital transformation, In: 2021 IEEE International Conference on Engineering, Technology and Innovation, ICE/ITMC 2021—Proceedings, (2021), ISBN: 978–166544963–2
11. Chaloupková, M., Kunc, J.: Locality selection matters. Investigating creative hubs in the Czech urban environment, City, Culture, and Society, 28, (2022).
12. Dovey, J., Pratt, A.C., Moreton, S., Virani, T., Merkel, J., Lansdowne, J.: The Creative hubs report: (2016) UK: British Council
13. Afrilab, Briter Bridges.: 2019. Building a conducive setting for innovators to thrive: A qualitative and quantitative study of a hundred hubs across Africa. Accessed January 28, (2021). https://www.afrilabs.com/wp-content/uploads/2019/11/AfriLabs-Innovation-Ecosystem-Report.pdf
14. Butter, M., Gijsbers, G., Goetheer, A., Karanikolova, K.: Digital Innovation Hubs and Their Position in the European, National and Regional Innovation Ecosystems. In: Feldner, D. (eds) Redesigning Organizations. Springer, (2020). Cham. https://doi.org/10.1007/978-3-030-27957-8_3
15. Afacan, G., Er, E., Arifoglu, A.: Public internet points (PIAPs) and their social impact: a case study from Turkey. Behav. Inf. Technol. **32**, 14–23 (2013)
16. Dalmarco, G., Teles, V., Uguen, O., Barros, A.C.: Digital Innovation Hubs: One Business Model Fits All? Smart and Sustainable Collaborative Networks 4.0, n°629, (2021), pp.441–448
17. Hervas-Oliver, J.L., Gonzalez-Alcaide, G., Rojas-Alvarado, R., Monto-Mompo, S.: Emerging regional innovation policies for industry 4.0: analyzing the digital innovation hub program in European regions, Compet. Rev., 1, (2021), pp.106–129
18. Price, L., Deville, J., Ashmore, F.: A guide to developing rural digital hub, Local Economy: J. Local Econ. Policy Unit, March (2022)
19. European Commission, Joint Research Centre, Rissola,G., Sörvik, J.: Digital innovation hubs in smart specialisation strategies: Early lessons from European regions, publications office, (2018), https://data.europa.eu/doi/https://doi.org/10.2760/475335
20. Semeraro, C., Panetto, H., Da Silva Serapiao Leal,G., Guédria, W.: Interoperability maturity assessment of the digital innovation hubs (2021). In: Proceedings of the 2nd International Conference on Innovative Intelligent Industrial Production and Logistics, IN4PL 2021, pp. 67–74. https://www.scitepress.org/ProceedingsDetails.aspx?ID=XMoHeOiibxw=&t=1, ISBN: 978–989758535–7, https://doi.org/10.5220/0010653800003062
21. Lesáková, Ľ., Laco, P.: Main attributes of SME´s innovation activity in Slovakia. In TEAM 2015: Proceedings of 7th International Scientific and Expert Conference of the International TEAM Society, Belgrade, Serbia, 15—19th October 2015, Belgrade : University of Belgrade, Faculty of Mechanical Engineering, (2015), ISBN 978–86–7083–877–2, pp. 353–358
22. Sassanelli, C., Terzi, S.: The D-BEST reference model: A flexible and sustainable support for the digital transformation of small and medium enterprises. Glob. J. Flex. Syst. Manag. **23**(3), 345–370 (2022). https://doi.org/10.1109/ICE/ITMC52061.2021.9570273

Exploiting International Partnerships to Promote Innovative Investments

Anita Tregner-Mlinaric, Alessia Melasecche Germini, and Andrea Di Anselmo

Abstract Smart specialisation is changing the way regions design their innovation strategies, creating or reinforcing cooperation at all levels. Smart Specialisation Strategies (S3) contribute to prioritising and aligning efforts between public and private players and to allocating funds in a focused and efficient way. In the last years, S3s expanded to interregional and international levels with the creation of Smart Specialisation Partnerships (S3P). The S3P-Industry partnerships (S3P-Industry) is one of them. Over the past years, it has come a long way from a loose structural set-up to the development of joint investment projects. This was possible thanks to the Technical Assistance provided by the European Commission to help partnerships develop and evolve. The Technical Assistance Facility for Industrial Modernisation and Investment (TAF) was part of this support. This paper reports on the experience so far on such international partnerships and presents lessons learned and recommendations for future actions by policy makers to support and accelerate such strategic processes (The Smart Specialisation Platform for Industrial Modernisation (S3P-Industry) aims to support EU regions committed to generate a pipeline of industrial investment projects following a bottom-up approach—implemented through interregional cooperation, cluster participation and industry involvement. It supports industrial modernisation across the EU by facilitating the emergence of inter-regional partnerships focused on shared investment projects).

A. Tregner-Mlinaric (✉) · A. Melasecche Germini · A. Di Anselmo
META Group, Avenue Des Arts, 6, 1210 Saint-Josse-Ten-Noode, Brussels, Belgium
e-mail: a.mlinaric@meta-group.com

A. Melasecche Germini
e-mail: a.melasecche@meta-group.com

A. Di Anselmo
e-mail: a.dianselmo@meta-group.com

G. Pellat et al. (eds.), *Cooperation and Enlargement: Two Challenges to be Addressed in the European Projects - 2022*, Studies in Systems, Decision and Control 500,
https://doi.org/10.1007/978-3-031-42253-9_13

1 The Context

Smart specialisation[1] [1, 2] has made a difference in the way European regions design and implement their innovation strategies, bringing in the importance of creating, or reinforcing cooperation at all levels [3]. Smart Specialisation Strategies (S3) helped to prioritise and align efforts between public and private stakeholders and to allocate EU and regional funds in a more focused and efficient way [4]. Over the last 8 years, S3s expanded at interregional and international levels with the creation of Smart Specialisation Partnerships (S3P). These partnerships have contributed to further mobilising collaborative and joint projects and ensure a more active participation of the private sector alongside research institutions, academia, and civil society. Such partnerships were clustered into Thematic Platforms to facilitate collaboration and create critical mass. The S3P-Industry partnerships (S3P-Industry),[2] active in the related Thematic Smart Specialisation Platform,[3] are an example of this type of collaboration [5]. Over the past years, S3P-Industry has come a long way from loose project-oriented activities to structured exchanges, capacity building, and development of joint investment projects. This evolution was also possible thanks to the assistance provided by the European Commission.

One example of this support is the Technical Assistance Facility for Industrial Modernisation and Investment (TAF[4]), active from December 2019 to December 2021, which assisted 19 projects. The general objective of TAF was to support projects developed within the Smart Specialisation Platform for Industrial Modernisation in overcoming obstacles on the path to investment readiness and bankability.

During 3 years of operations, TAF [6] managed to fill a gap of advisory services that was non-existent and not tailored to the specific needs of the S3P-Industry partnerships. In terms of international collaboration, the most typical projects supported were shared service facilities (joint international centres for provision of services, 7 projects) or large-scale projects (projects promoted by a single company but involving international value chains, 6 projects).

---

[1] Developed as part of the reformed Cohesion policy of the European Commission, Smart Specialisation is a place-based approach characterised by the identification of strategic areas for intervention based both on the analysis of the strengths and potential of the economy and on an Entrepreneurial Discovery Process (EDP) with wide stakeholder involvement. It is outward-looking and embraces a broad view of innovation including but certainly not limited to technology-driven approaches supported by effective monitoring mechanisms.

[2] The Smart Specialisation Platform for Industrial Modernisation (S3P-Industry) aims to support EU regions committed to generating a pipeline of industrial investment projects following a bottom-up approach—implemented through interregional cooperation, cluster participation and industry involvement. It supports industrial modernisation across the EU by facilitating the emergence of inter-regional partnerships focused on shared investment projects.

[3] The Thematic Smart Specialisation Platforms are joint initiatives between several Directorate Generals of the European Commission that encourage regions and their innovation actors across the EU to build strategic partnerships, promoting complementarity of regional funding for innovation in specific smart specialisation areas.

[4] TAF was delivered by a consortium formed by META Group and BDO under the leadership of Ecorys.

Concerning territorial coverage, on average, TAF-supported consortia were composed of organisations coming from four different regions. The volume of foreseen investment varied across projects, starting from up to €1 million for small-scale platform projects to up to €40 million for the scale-up of the production process.

TAF demonstrated that there is potential for interregional investment projects and cross-border collaboration. It highlighted how Partnerships lacked full ownership of their project and business skills/approach to develop investment projects. It showed how important it is for the successful development of investment projects to assign project promoters with the right profile and full ownership to take their projects forward.

2 Thematic Smart Specialisation Platforms to Promote Interregional Cooperation

In 2015, the European Commission launched three thematic smart specialisation (S3) platforms (TSSP Agri-Food, TSSP Energy and TSSP Industrial Modernisation). A fourth platform with a focus on the Blue Economy was announced in March of 2022 (Fig. 1).

The aim and rationale behind establishing TSSPs was to encourage regions and Member States to build coalitions through the form of S3 partnerships, to support the creation and development of new European value chains in areas associated with strategic growth. The S3 partnerships become the launchpad for promoting

Fig. 1 S3 Thematic platforms [8]

innovative investments and complementary use of regional funding in specific smart specialisation areas.

TSSPs offer a structured framework to exploit synergies across partnerships and across sectors, to mobilise the potential of European Structural and Investment Funds (ESIF) and to build strategic interregional public private investments. Adopting a bottom-up approach, the ambition is to mobilise the regional innovation and investment potential along EU strategic priorities.

The innovation driver of the TSSPs is the aspiration to support both the validation (demonstration of solutions that are new to the market) and the deployment (commercialisation, tech, and adoption of innovations) of self-sustainable initiatives backed by public–private collaboration. Thanks to TSSPs, since 2015, 37 S3 partnerships have been established.

The primary goal set for the partnerships is to deliver interregional investments, establishing European ecosystems for transnational and interregional collaboration in regions and countries with similar or complementary S3 priorities.

While they are following the proposed methodology and adapting it to their partnership context, partner regions analyse and tackle various obstacles related to the implementation of joint investment projects in the framework of their smart specialisation strategies.

Partnerships are a powerful tool for taking advantage of the S3 prioritisation conducted by European regions and Member States. The benefits of working in partnership are multiple, but making different organisations and territories work together towards a common aim is complex.

The ability to work effectively within these structures is an important requirement for the successful implementation of the cooperation methodology and for converting efforts into successful innovation initiatives. The latter became a specific challenge which was very difficult to overcome, and because of this the European Commission decided to launch tailored technical and expert assistance schemes and funding instruments.

The TSSPs bottom-up, problem-led approach presumes active involvement of all relevant Quadruple Helix actors (University-industry-government-public [7]). Moreover, TSSP S3 Partnerships were encouraged to follow a methodology based on the maturity level (from start-up and learning phase, towards demonstration and piloting) and in line with a workflow based on the following steps: Learn, Connect, Demonstrate, Commercialise, and Scale-up.

This workflow follows an iterative and non-linear process which can be understood as a dynamic flow of activities requiring continuous monitoring and review (Fig. 2):

The monitoring of the progress of the S3 partnerships made evident that stakeholders involved in the process face a number of challenges at the *partnership, business case,* and *the interregional investments level.*

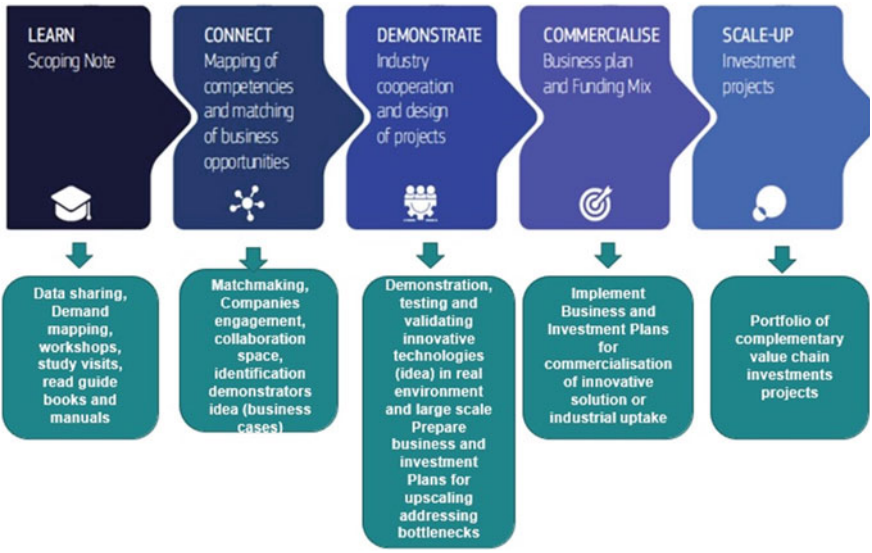


Fig. 2 5-steps TSSP methodology [9]

Key identified challenges at the partnership level:

- Strategic vision and perspective for the partnership to set clear goals and objectives, and define the process;
- Establishment of the proper governance scheme as an enabler for the facilitation and coordination of partnership activities. Resources are needed to secure active governance and support;
- Securing funding to ensure continuity and sustainability;
- Facing difficulties in navigating the complex landscape of EU funding programmes and instruments;
- Complexity of regulatory frameworks for cross-border operations and actions;
- Fragmentation between regional, national and EU funding, public and private resources;
- Misalignment of national and regional funds and intervention schemes caused by the disparity of ERDF availability among European regions, including difficulty in using regional funds for cross-regional collaboration;
- Political discontinuity affects the degree of involvement and leadership in partnerships.

Key identified challenges at the business case level:

- The shift from exchange and mutual learning to a market- and investment-oriented set-up;
- Identification and development of pilot projects with common interest for multiple regions;

- Establishment of investment collaboration opportunities between so-called "more developed" and "less developed" European regions;
- Overcoming administrative and regulatory barriers in the process of development and implementation of the cross-border investment projects;
- The expertise needed to develop demand-driven business.

Key identified challenges at the interregional investment level:

- The need to go from broad themes to more granular collaboration areas and interregional investment niches;
- The institutional orientation with a low involvement of "non-public" players;
- The grip of TSSPs when compared to other initiatives funded by public grants, and identification of the added value of TSSPs in comparison with other innovation structures or partnerships;
- Possible disconnection from S3 priorities "back home".

The gap related to the capacity of the partnerships to develop and implement interregional investments became even more evident with the launch of the ERDF Interregional Innovation Investments (I3) instrument.[5]

The aim of I3 was to close the existing funding gap and support interregional innovation projects in their commercialisation and scale-up phases by providing them with tools to overcome regulatory and other barriers and bring the projects to investment level.

TAF became instrumental in providing the initial assessment and expert support for shaping the investment proposition of the partnerships and for the funding application, primarily in the context of the above noted I3 instrument.

3 Objective of the Technical Assistance Facility (TAF) Support

TAF was launched as a response to the challenge of modernising European industry and creating new cross-border value chains to ensure future global competitiveness of the EU economy aimed at the creation of concrete cross-border investment projects.

The general objective of TAF was thus to support project promoters in overcoming obstacles on the path to achieving investment readiness and bankability of such projects, and thus to contribute to fostering public and private investments across the EU in the area of industrial modernisation (Fig. 3).

[5] The Interregional innovation investments instrument as part of the European Regional and Development Fund (ERDF) aims at supporting interregional innovation projects in their commercialisation and scale-up phases giving them the tools to overcome regulatory and other barriers and bring their project to investment level. https://eismea.ec.europa.eu/programmes/interregional-innovation-investments-i3-instrument_en.

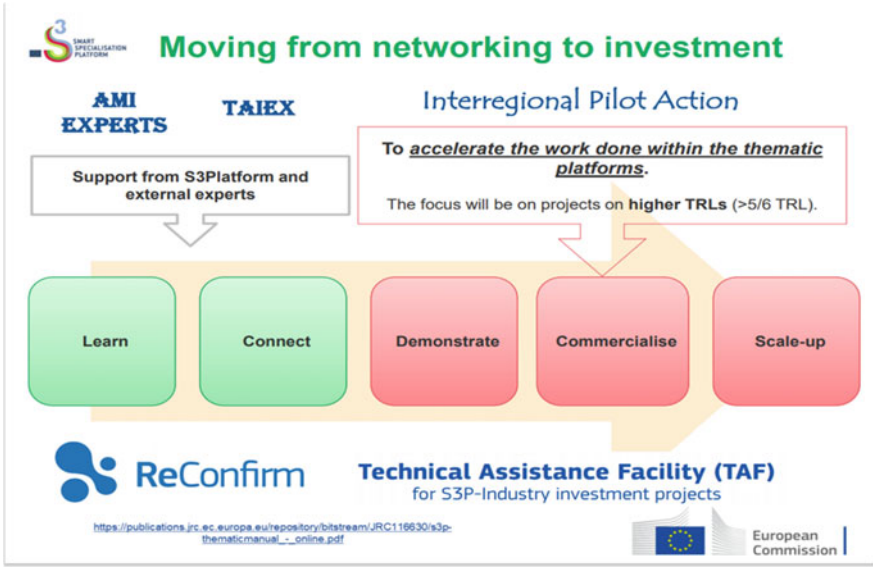


Fig. 3 From networking to investment [10]

Given its general objective, business advisory services constituted 85% of TAF support services. The most common types of specific support actions delivered to projects in terms of business advisory services were the validation of the product/service or market, followed by revision or definition of revenues, definition of the business models, and review of the investment plans and of marketing and sales channels (Fig. 4).

The business advisory was followed by the legal advisory services, which constituted 15% of TAF support services. The most common types of specific support actions delivered to projects in terms of legal advisory services were related to the definition of investment vehicles and industry-specific regulations.

4 TAF Implementation Process

The TAF implementation was a learning experience which further revealed the challenges that project promotors are facing. Most of the S3P partnerships do not possess professional business or legal background, thus TAF offered them a unique opportunity to work with renowned experts in the field Thus, the ultimate results of the TAF support were not only the business plans and the interregional investment plans but also the capacity building, which came as an important side effect of the support provided. The project promoters used the business plans and documents developed to apply for different types of EU funding. Several TAF beneficiaries succeeded in

Fig. 4 Provision of TAF support services [10]

achieving this goal and have successfully applied for the I3 instrument. The latter is another important outcome achieved by TAF.

The support actions delivered through the implementation process can be divided into three main categories, with respective typologies of impact (earlier-stage projects, projects at mid-way advanced stages, projects at advanced stages of maturity).

For **earlier-stage projects**, the core of the support consisted of further defining the concept to make it more business-oriented, identifying the initiative's UVP and validating this and other basic components of the offer with the wider project consortia. It also consisted of defining a project governance model, conducting early market analyses to identify the respective industry/market needs, validating the (potential) existence of market demand for the offer, and exploring the state of competition. This type of support was delivered to projects developing products/services at the late research/early development stages and usually had low-complexity or medium-complexity levels. This enabled beneficiaries to emerge from the TAF support programme with **stronger investment propositions**, which will enable them to continue developing their projects whilst remaining aware of the needs and requirements for their projects to become bankable at future development stages.

A second category of support actions is aimed at **projects that are in mid-way advanced stages of development**. In this case, the support focused on the validation of the products/services from a market perspective, either through direct engagement with potential customers/partners, or by revising specific aspects of the projects' existing business model that were particularly challenging for promoting organisations. The beneficiaries of these types of support actions included early stage projects in terms of technical development that had therefore not yet developed comprehensive business plans, but that were able to attract interest from funding stakeholders/investors because of the innovativeness of the technology offered/business idea. They

also included projects (especially cross border platforms or service facilities) that were relatively advanced in terms of service/product development and that often had basic business plans but were facing difficulties in making their business models attractive to receive funding.

The output of TAF services to this category of projects was normally a comprehensive business plan document that included details on specific components of the business model, explored through TAF legal and business support activities. The last category encompasses support services delivered to projects at **advanced stages of maturity**, and includes actions oriented towards planning for investment implementation, accessing and securing funds, and roadmaps for market access.

This category was a minority under TAF and comprised projects that already had initial customers, close-to-market investments, and a development roadmap in place. These projects benefited from advanced business expert support aimed at assisting projects in advancing their technology readiness level (TRL), which at the same time faced major bottlenecks in terms of operations or financial planning. TAF helped these projects to finetune specific components of their business models, set the bases for additional service offerings, and become more attractive to investors and customers (Fig. 5).

In addition, **TAF services helped projects advance their level of investment readiness (IRL)**. The below chart shows that most projects were at a medium–low IRL at the time of applying to TAF. The latter is confirmed by the beneficiaries in the self-assessment of their projects' IRLs, which also confirm that TAF helped their projects reach a medium–high level: the average IRL of projects was 4 at the time of receiving the TAF support; after the TAF service delivery, the average raised to IRL 6. TAF services contributed to products/service market fit validation

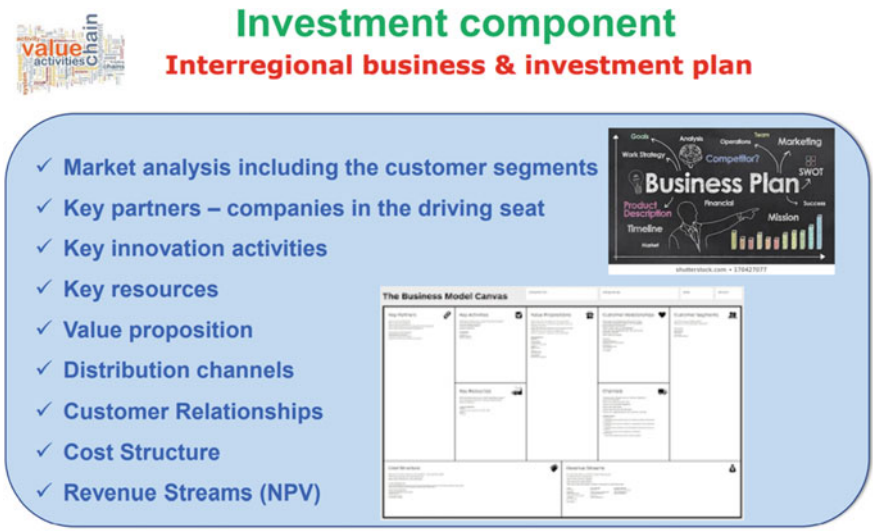


Fig. 5 Business plan modelling approach used by TAF [10]

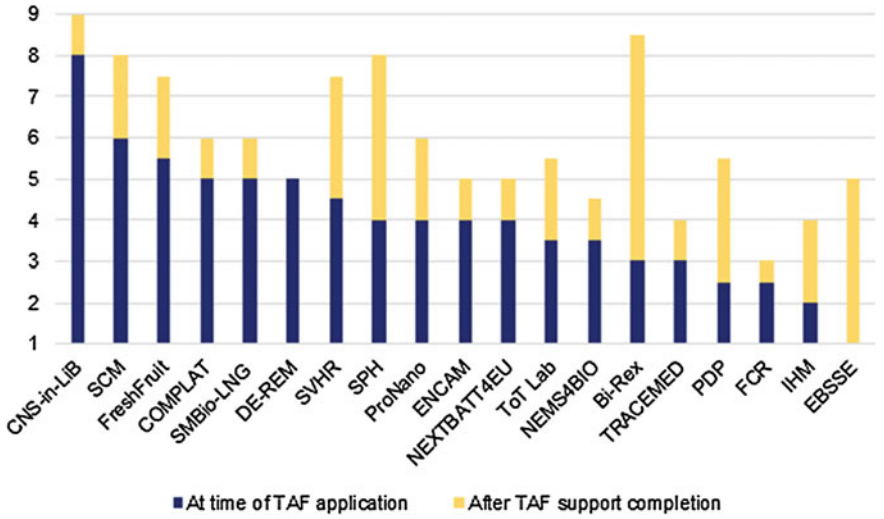


Fig. 6 IRL's of TAF supported projects [10]

for more advanced projects (IRL 5) and enabled all supported projects in reaching a low-fidelity Minimum Viable Product (MVP) (Fig. 6).

5 TAF Assessment Process

The TAF pre-assessment approach focussed on identifying, summarising and clarifying key project information and assessing the "TAFability" of projects (i.e. to what extent they are suitable for TAF support). This process included the development of assessment guidelines and tools. The below figure presents an overview of the TAF application, assessment and selection process. Therefore, the assessment and selection of projects to be supported by TAF was conducted in two steps:

- Pre-assessment—conducted by the TAF team;
- Evaluation by the Selection Committee (SC) and submission of selected projects for support for the approval of the European Commission (Fig. 7).

The projects had to fulfil the admissibility criteria as shown in the below figure to be considered for the TAF assessment process (Fig. 8).

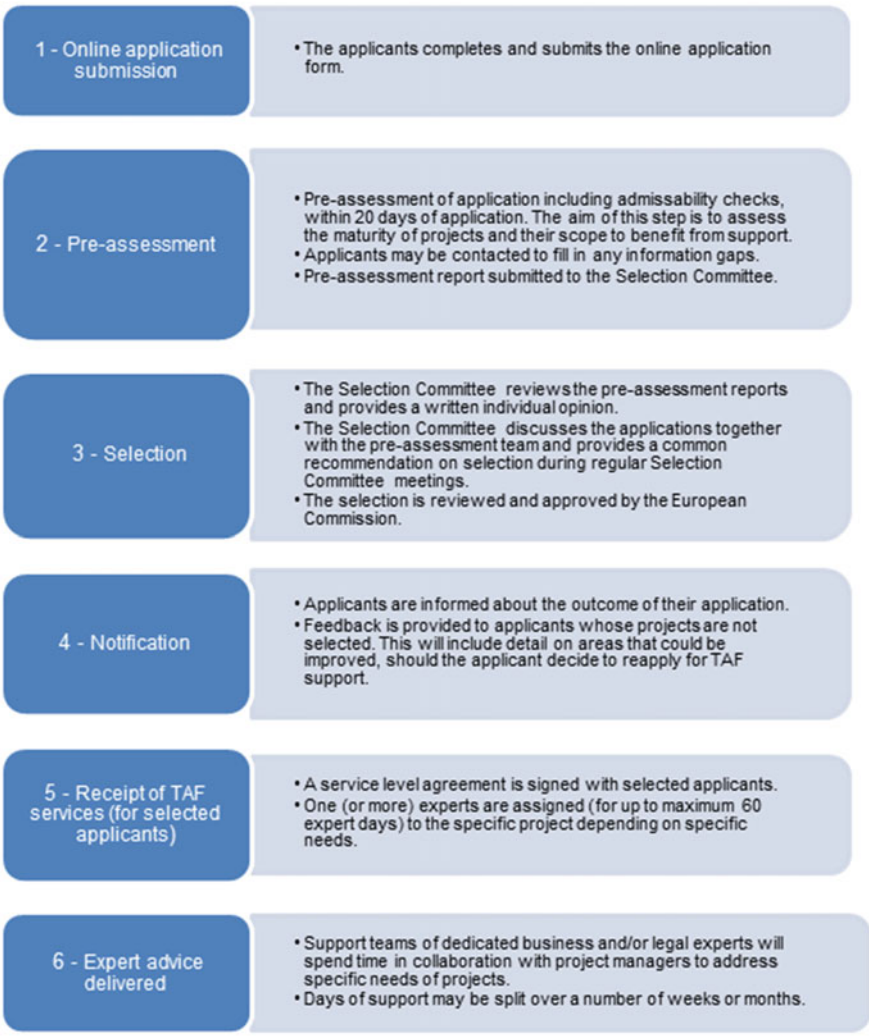


Fig. 7 Overview of the TAF application and assessment process [10]

6 TAF as Interregional Capacity Building Catalyzer

The TAF implementation revealed a number of challenges that S3 partnerships are facing when developing interregional investments and bankable business plans. The unique opportunity provided by TAF was enabling project promotors to closely engage with business and legal experts. Secondly, the issues identified as weaknesses in terms of project promotor's ability to lead and implement the business strategy were used as a base for the capacity building process for S3P community. This

Fig. 8 Overview of the TAF admissibility criteria [10]

resulted in capacity-building sessions called *TAF Talks,* that consisted in one-hour virtual workshops with TAF experts explaining in detail the most relevant elements related to the topic of interest and providing examples on how to address it.

The topics covered concerned the establishment of the Special Purposes Vehicle (SPV), funding opportunities and the funding mix for the interregional investments, business planning and business modeling.

To enable project promoters to successfully present their investment proposals to public and/or private investors, TAF has also organised a number of pitching sessions during which project promoters were prepared on how to pitch. TAF capacity building sessions had good attendance and helped the S3P community build their knowledge on the topics that were relevant for the interregional investment development but also helped the community to understand what investor readiness entails and what elements they need to take into account for successful implementation of their investments.

7 TAF Toolbox

The implementation process and the capacity building sessions have targeted identified needs of the S3P Community, and this led towards making available tools. The toolbox is a set of guidelines on key topics like financing modelling, funding mix, how to define the offer (business model validation), how to undertake the market research, inter-regional and collaborative governance all aspects that proved to be the most challenging for the project promoters to address. The choice of topics covered was made based on the TAF experience, namely drawing upon the most common challenges encountered by project promoters and from the case study briefs of projects supported by TAF.

The toolbox offers operational guidance on the key elements needed by project promoters to develop investment projects, and on the core components of a project business plan. It provides tips, methods, best practices and common fallacies to be avoided when working on investment projects, drawing from the experience of TAF experts and beneficiaries.

The objective of the toolbox was to make the development of the core elements of a basic business plan as a simple and practical exercise for project promoters and other stakeholders that have limited business or legal background/experience. For each of the selected tools, the rationale, relevance, key steps and methods for implementation, as well as do's and don'ts are included. TAF has also developed a series of case studies showcasing the investment proposals receiving TAF support that were in further process of securing funding and the business implementation activities (Figs. 9, 10, 11).

8 Lessons Learnt

The TAF implementation process was a learning experience for all, the TAF implementation team, the experts involved, beneficiaries and policy makers (Fig. 12).

9 Recommendations to Promoters of Inter-Regional Investment Projects

Every investment proposition is different, and every project promoter requires a specific set of recommendations. As a result of the TAF initiative and the involvement with the S3P-Industry, the following recommendations for project promoters to follow were identified:

- *Conduct self-assessment of market readiness:* Project promoters should use available tools to structure a business model that identifies what type of actions they are aiming to implement. Is it really an investment project or rather a learning platform? Or is it a research project? If the outcome does not generate potentially marketable value at its current state, they should think whether there is an opportunity to pivot, broaden or deepen the scope to generate such value.
- *Design a workable governance structure at the business case level:* Project promoters should assess the value, role and responsibility of each partner involved. Clear decision-making mechanisms need to be established between all partners that are of value and are willing to engage in the project. While setting up the governance structure at the business case level, it is advisable to think of the potential governance structure/legal entity at the level of investment implementation. The project promoters should have the capability and capacity of spending

Technical Assistance Facility (TAF) for Industrial Modernisation and Investment

TOOL #3 Funding mix

Sources of public-private financing for successful implementation and market placement

What is the tool about?

Finding the **optimal mix of financing**—the **capital structure that results in maximum value**—is a key challenge to face in starting and operating your business. Depending on the stage of development, if it is at the level of R&D, start-up or scale-up life cycle, a wide array of diverse financing methods such as debt financing and equity funding, including grants can be tailored according to your needs. Thus, the **important step in business planning process** is to **identify the matching sources of financing** that will **secure implementation** of your investment idea as well **its sustainability long-term.** Often the best approach is to look for different type of funding sources, so called funding mix (public-private type of financing), as **the financial instrument differs pending on the stage of the investment development process**. Therefore, this tool provides insights on the potential funding mix streams to be considered for the implementation of your investment/business.

Why is it important?

If the **funding mix is not tailored to the stage of the investment cycle**, your **business may be put in danger and result in higher costs,** which may have **a significant impact at the deployment of the products and services to be placed in the market.** The risk financing may not be the best option to consider at the R&D development stage as well as you cannot build your business based on the continuous grant schemes when the focus shall be on the revenues and cash flow instead.

Typology of funding mix per investment development stage

Checklist/key steps:

- **Align funding streams with the goal setting:** the business planning usually covers the 5-year investment period emphasising needs as well as goals to be met during each single stage in the process. As already noted, it is crucial that the funding mix is planned and elaborated throughout that process to ensure the investment development and deployment, including its short-term as well as long-term financial viability.
- **Validate your assumptions with the financial (experts) intermediaries:** even if there is a financial in-house expertise available, it is recommended to consult the third-party financial consultant and/or intermediary to validate the identified funding mix assumptions as they could provide a valid and objective point of view on the presented case.
- **Get closer to potential investors (public, private) by involving them in your business activities:** invest early (and make it continuous activity) in promotion of your business case among target actors, and engage them into your business activities by inviting them into the advisory board seats, committees, groups of interest etc.
- **Identify the proper legal entity/special purpose vehicle (SPV):** the SPV must have a legal form enabling the management of the different types of funds that will support the investment/business case in question.

Fig. 9 TAF Toolbox on Basics on Funding Modelling [10]

Methods

Online search tools: European Investment Fund sources: The EIF pages provide information on access to finance per country. By clicking on a country on the interactive map, the search offers an option to look for the financial intermediaries for loans and guarantees that are financed through the European Structural and Investment funds, a full list of VC/PE funds active per country, EFSI funding sources per country.

Provision of advice via partners and experts: If you are struggling with identification of the proper funding mix, the best is to seek for advice via partners and relevant networks as they may be a good source of information as well as mediators in introducing matching funding sources. If at certain stages this becomes the complex issue, the expert advice shall be sought to match the stage of development with the proper funding source.

Do's and don'ts for interregional investment initiative development:

Do's:

- **Identify timely the resources needed for the implementation and make short and long-term financial projections accordingly.** The identified financial gap(s) pending of the stage of the investment development should then be assessed in terms of finding the proper funding mix.
- **Use the available online search tools for the preliminary identification of the potential funding mix but** reach the final decision upon discussing with experienced partners, experts, intermediaries in the field.
- **Engage potential financiers in your business activities** such as committees, board seats and other to: secure potential financing from them (Business Angels, corporates, family offices, other private and public investors) as well as to get the provision of the expert advice on the subject.

Don'ts:

- **Pick the funding instrument just because it is available and accessible** instead of making sure the instrument will match the actual needs and will result in positive balance.
- **"One size does fit all" is not the right approach when deciding about the funding mix** but the careful assessment according to the overall financial projections, estimated cash flow and revenues aligned to the needed resources and the identified financial gap(s).

Case study:

- Tourism of Tomorrow Lab *(link)*.

More resources:

VC/PE funding sources per country

European Investment bank

European Fund for Strategic Investments (EFSI)

InvestEU Programme

European Innovation Council (EIC)

Fig. 10 TAF Toolbox on Basics on Funding Modelling [10]

sufficient time on the project, and to speak on behalf of the project consortium. They should have experience in fund raising and in bringing ideas into life.

- *Mobilise the right people:* if specific capabilities are not yet included in the consortium, partners need to be identified and integrated. Particular attention should be given to the skills and availability of the people and not merely the organisations. Regular meetings with clear milestones are advisable to guarantee personal engagement and progress. With the right skills present in the consortium, the engagement of the target stakeholders shall take place, in particular regional

European Commission

SMART SPECIALISATION PLATFORM

Technical Assistance Facility (TAF) for Industrial Modernisation and Investment

CASE STUDY: DEVELOPMENT OF AN INTEGRATED BUSINESS MODEL TARGETING MULTIPLE MARKET SEGMENTS

Project name: DE-RE Manufacturing for Circular Economy

Partnership name: Efficient and Sustainable Manufacturing

Geographical coverage: Lombardy (IT), Flanders (BE), Saxony (DE), Basque Country (ES), Tampere (FI), Emilia-Romagna (IT), Norte (PT), Scotland (UK)

Estimated investment volume: EUR 7 million

TAF support extended: business expert support

© Shutterstock

Project objective

The De & Re-manufacturing investment project (DERE-M) aims at developing a network of demonstration and service infrastructure to support circular economy innovations and new investments in the field of composite materials, focusing on glass and carbon-reinforced plastic recovered from the disused wind energy systems.

Impact of TAF services

- ✓ The project received TAF business expert support between March and September 2020. The main outcome of the support was the validation of the project business case and the **development of an integrated business model** for the pilot action.
- ✓ The original business plan encompassed several fields of application represented by the use cases. The TAF team supported the project promoter in the validation of the business opportunities of the initiative, by **restricting the application sectors to a specific market segment** - wind-turbines - with potential for replication.
- ✓ The validation of the wind-turbines business case led to the development of **two diverse business models**, for diverse customers, stakeholders, and types of actions including development, pre-competitive and competitive elements and associated types of financing sources.
- ✓ Based on the two business models the DERE-M Business Initiative-DEREMBI was conceived to integrate three pillars: ecosystem development in fiber re-use, de-risking (test-before-invest), and ready-to-launch business initiatives.
- ✓ DEREMBI is foreseen to be managed under a single management unit, a Special Purpose Vehicle (SPV). The concretisation of a business-driven model through the DEREMBI initiative enabled the extraction of market value from the technicality of the proposed idea, bringing it closer to future bankability.
- ✓ After the completion of the TAF support, the project has progressed into application stage for **external financing.**

Lessons learnt for other S3P-Industry projects

The delivery of TAF services highlighted the importance of clearly defining the end-users and placing them at the centre of the project rationale. It showed how crucial it is to comprehensively identify and assess the preferences of the actors involved in the prospective value chain(s), as well as the multiple elements that feature the target market sectors.

Whereas the DERE-M experience demonstrated that the **development of multiple value chains for different types of offerings can be achieved under a single, integrated business model; the validation of such model on all targeted subsegments is the foundation for the establishment of a solid and sustainable business model**.

Fig. 11 TAF case study DE-REM [10]

Weaknesses at the Partnership level:	Weaknesses at the investment proposition (business case) level:
▸ Tendency to keep the collaboration at the level of research projects and exchange of good practices, ▸ Governance and coordination failures due to lack of resources, both human and financial, ▸ Little knowledge of how to set up and efficiently run the partnership, ▸ Low motivation on behalf of partners to stay committed since examples of successful interregional cooperation are limited, ▸ A certain degree of 'fatigue' in the communication with the partners, ▸ Low level of ownership and commitment among partners to the activities at both partnership and business case level.	▸ Few stakeholders from the private sector, ▸ Lack of internal funding to set up small feasibility studies needed to arrive at a full demonstrator, ▸ Poor market-oriented approach that does not help to raise interest among business actors, ▸ Funding priorities that do not privilege financing innovative investments in their early stages, ▸ Low skills in addressing business planning, bankability and access to private investors, ▸ Difficulties in formalising agreements and special purpose vehicles to reach commercialise and scale-up, ▸ Low skills in addressing IPR and other related legal matters.

Fig. 12 Identified weakness at the S3P Partnership and investment proposition level [10]

authorities, as well as those that would be important actors in the investment implementation later on. The sooner they are engaged, the better the chances for the successful investment deployment are.

- *Assess the interregional nature of the investment:* interregional activities are by definition more complex in their structure. It is therefore important to clearly understand what the added value of the interregional dimension is. Is the project a joint project or more of a coordination or cross-learning activity? Whatever it is, it must be clear to all participants and the governance and decision structures, and project ownership structures must be aligned with the level of them being interregional.
- *Take ownership:* promoters should not outsource the development of their investment idea to third parties, experts or intermediaries. Such organisations are well suited to support the project promoter. The ownership of every successful project belongs however to the project promoter itself.
- *Start somewhere:* the complexity of the task might scare project promoters and invites them to delay the process. For every project it is however more important to start somewhere than to find the perfect starting point. Project promoters should remain flexible about their project and accept to use all developed new insights to reshape and adjust the project.

10 Recommendations to Policy Makers

Over the past years, it has been observed that the S3P-Industry partnerships have come a long way from loose structures to regular exchanges and brainstorming sessions, to common capacity building and development of investment projects. The community has demonstrated that there is a potential for interregional investment projects and that it is willing to work on them in line with their S3 priorities. It is important that

policy makers don't miss the momentum that has been created over the last years by shifting their attention away to other initiatives.

Based on the analysis of the case studies of TAF and the S3P-Industry, the following key recommendations have been identified.

- *Encourage involvement of the private sector:* for many years the S3P-Industry partnerships argued that they would not want to 'scare the private sector away' with early-stage projects. While there might be some truth in this statement, private sector must be involved if projects are supposed to be industry-driven and self-sustainable, generating value. This does not mean that regional representatives or clusters cannot conduct a large share of the work in support of the private sector. Regular touchpoints and exchanges and commitments to the overall project must however be secured as early as possible.
- *Keep it simple and enforce integrated communication:* At times, stakeholders were confused by the set-up and structure of the S3P-Industry and the inconsistent communication about it. The outcome was large partnerships with diverging interests, a lack of common clear objectives and a project approach, rather than an investment vision. Keeping a smaller set of criteria, communicating them clearly and enforcing them could reduce the costs of communication and delays substantially. External progress deadlines for partnerships on the S3P-Industry should be set by the EC to increase willingness to accelerate their development. The European Commission should also make clear from the onset to Partnerships that the objective of the S3P-Industry is to develop co-investment projects and provide them with the support tools needed to secure their progress and implementation process (ReConfirm, TAF).
- *Focus on outputs:* support services such as TAF should be demand-driven and responsive services focusing on outputs and not inputs. Project progress does not easily conform to rigid timetables, and implementation targets are subject to the influence of external factors such as political events and the conflicting personal/professional obligations of individuals.
- *Implement projects in the form of a fixed number of application rounds:* a key challenge of TAF was that potential applicants always had the possibility to postpone their application. This uncertainty was challenging to communicate and led to a delay of potential project support. A structure with one round (or potentially two rounds) of applications and a given number of projects that will be selected in that round would facilitate the communication and push potential applicants to deliver at that time.
- *Further invest in capacity building related to business modelling:* Webinars, working sessions, pitching and one-day expert support were much valued and high-impact activities that helped to upskill the stakeholders involved in the S3P-Industry. This community, which tends to first think about public investment or grants, should be further trained in how to identify room for public private partnerships and mobilisation of private investment to leverage on their political ambitions. Such support should also invest in further synergies and coordination with related other initiatives to avoid duplication and confusion.

- *Provide further support to S3P-Industry partnerships:* while vague at times and with its highs and lows in commitment, the S3P-Industry partnerships have come a long way from loose structures to regular exchanges and brainstorming sessions, to common capacity building and the ambition of co-developing investment projects. Many of the activities launched have stopped or led to different paths such as Horizon or Interreg. However, the community itself has demonstrated that there is potential for interregional investment projects and that it is willing to work on them in line with their S3 priorities. It would be important to avoid losing the momentum that has been created over the last years by turning their attention away to other initiatives. Additional support should build on the business and legal support provided and could incorporate further technical/sector expertise. A multidisciplinary mix of experts could bring projects to the next level.

11 Conclusions

The objective of the post 2020 Cohesion Policy of the European Commission, "*Europe closer to citizens",* is to further foster investment involving Q-helix actors and with focus on local communities. The S3P Partnerships under the Thematic Smart Specialisation Platforms are well positioned to contribute to this objective. The raising number of the S3P Partnerships shows the interest for close collaboration between European regions and the European Commission through cross-border investments. The war in Ukraine and the energy crisis are a clear manifesto for stronger unity of the European Member States and finding of common solutions for current and future challenges.

Further technical assistance by the European Commission to the S3P Partnerships is on the way to bring their investment propositions into life as well as to steer the process for actors that are just starting this journey. Previous technical assistance schemes, ReConfirm and the Technical Assistance Facility provided evidence on how effective expert support can be. It is also important to emphasise the relevance of Smart Specialisation, which is the common denominator for international cooperation, for building innovation driven value chains, and for organising supporting ecosystems.

The described practice and tools represent examples that can be considered for adoption in Central and Eastern Europe. They can act as a driver for strengthening international cooperation in specific sectors and industries. Tailor-made (business) expert support can foster the development of cross-border investments and unleash competitiveness in the single market.

Mobilisation of Q-helix stakeholders, update of skills, activation of roles, and commitment can only be obtained with a specific set of actions. Proper governance setting, good management and clear milestones are also crucial factors to consider.

The presented practice and tools are the result of an evidence-based implementation of actions to support the cross-border cooperation among Q-helix actors.

As the ERECO (European Research Community PGV)[6] community is a strong supporter of the EU enlargement, the countries that are in the process of the EU accession could strongly benefit from the presented practice and tools and make them part of their (successful) cohesion journey and participation to the international (S3) driven partnerships.

References

1. Retrieved from : https://s3platform.jrc.ec.europa.eu/documents/portlet_file_entry/20125/Factsheet+%E2%80%93+What+is+Smart+specialisation.pdf/48da2521-e4bd-1c5f-6de9-17859b7ae427
2. Fact Sheet – What is Smart Specialisation. (2022). Retrieved from European Commission: https://s3platform.jrc.ec.europa.eu/documents/portlet_file_entry/20125/Factsheet+%E2%80%93+What+is+Smart+specialisation.pdf/48da2521-e4bd-1c5f-6de9-17859b7ae427
3. Pilot action: Regions in Industrial Transition, (2018). Retrieved from European Commission: https://ec.europa.eu/regional_policy/sources/docgener/informat/industrial_transition/pilot_industrial_transition.pdf
4. European Commission.: Communication from the commission to the European parliament, the council, the European Economic and social committee and the committee of the regions, strengthening innovation in Europe's regions: strategies for resilient, inclusive and sustainable growth, COM(2017) 376 final, 18 July 2017, (2017) https://ec.europa.eu/regional_policy/sources/docoffic/2014/com_2017_376_2_en.pdf
5. Smart Specialisation Platform. (2022). Retrieved from European commission: https://s3platform.jrc.ec.europa.eu/s3-thematic-platforms
6. Retrieved from: https://s3platform.jrc.ec.europa.eu/taf
7. Carayannis, E.G., Campbell, D.F.J.: Mode 3' and 'Quadruple Helix': toward a 21st century fractal innovation ecosystem. Int. J. Technol. Manage. **46**(3/4), 201 (2009). https://doi.org/10.1504/IJTM.2009.023374.ISSN0267-5730
8. Ganan de Molina, C., Tregner, A., JRC.: Revision of Self-assessment toolbox for interregional thematic S3 partnerships originally published by JRC in 2020. European commission (2022).
9. S3 Thematic Platforms (2022). Retrieved from European commission: https://s3platform.jrc.ec.europa.eu/s3-thematic-platforms
10. TAF internal working documents

Anita Tregner-Mlinaric Senior Expert at META Group, Senior Advisor of the European Commission in charge of provision of advice to the S3 Thematic Smart Specialisation Platforms on behalf of Directorate-General for Regional and Urban policy.

Alessia Melasecche Germini Director, CEO and Senior Expert at META Group. President of Laboratorio Athena.

Andrea Di Anselmo Founder, President and Senior Expert at META Group.

[6] https://www.ereco.eu/en/a-propos-de-ereco-pgv-chercheurs-universitaires/

The Key Elements of Business Models of Slovak Retail Companies as a Basis for Their Ability to Respond to European Challenges in Terms of Environmental, Social, and Economic Aspects of Their Value Offer for the Customer

Pavol Kita, Marta Žambochová, Marián Čvirik, and Veronika Kitová Mazalánová

Abstract The business model or economic model is a key element in the success of any business. It determines how a company generates profits to be profitable. The article focuses on identifying key elements of business models of Slovak retail companies, which characterize the change in the way they do business. The article provides an overview of the above issues in terms of selected forms of retail stores in Bratislava, whose sales area exceeds 700 m^2 and which supply most of the population of the capital. The article presents the results of the primary research carried out in 2022. At the same time, it lists as major retailers the ways in which they seek to revive demand in the economy in the context of pandemic SARS-CoV-2. The article uses methods of logical deduction based on a critical analysis of available secondary resources and quantitative research findings. The article also provides suggestions for further research into new business models of Slovak retail stores. The article is a follow-up to the project VEGA 1/0012/22 Innovative business models of retail outlets based on geomarketing data and their influence on the creation of the value base offer and food retail chains in the digital period.

P. Kita (✉) · V. K. Mazalánová
University of Comenius Bratislava, Šafarikovo nám.1, 811 04 Bratislava, Slovakia
e-mail: kita3@uniba.sk

V. K. Mazalánová
e-mail: veronika.mazalanova@uniba.sk

M. Žambochová
University of J. E. Purkyně in Usti nad Labem, Moskevská 54, 400 Ústí nad Labem, Czechia
e-mail: marta.zambochova@ujep.cz

M. Čvirik
University of Economics in Bratislava, Dolnozemská cesta 1, 852 35 Bratislava, Slovakia
e-mail: marian.cvirik@euba.sk

G. Pellat et al. (eds.), *Cooperation and Enlargement: Two Challenges to be Addressed in the European Projects - 2022*, Studies in Systems, Decision and Control 500,
https://doi.org/10.1007/978-3-031-42253-9_14

1 Introduction

The European Union's challenges regarding the European Green Deal, including the Farm to Fork strategy and the Digital Europe Program, require retail managers to adapt in their business models the elements and the relationships between them to consider the environmental, social and economic aspects of the value proposition. The European Green Deal is a major environmental agreement that will improve the quality of life and health of citizens and future generations by promoting more sustainable food consumption and healthy eating. This will make sustainable products the norm, support new business models and strengthen the position of consumers for green transformation. Implementing the Green Agreement mean rethinking technology and the broader ethical, philosophical, engineering, political aspects of digitization, artificial intelligence and other aspects related to the regeneration of natural resources. According to the European Economic and Social Committee, the green transformation of retail provides an opportunity to help consumers make more sustainable decisions about their consumption [1].

Pandemic SARS-CoV-2 pointed to the fragility of current retail business models and the need to link a healthy environment, human health, and food value. It is important that retail business models are transformed into more sustainable and environmentally friendly business models that can effectively combat climate change, ecosystem degradation and biodiversity loss. The Digital Europe program 2021–2027 offers a great chance to deploy digital innovation and use advanced digital technologies in business. The focus of digital transformation is shifting from product to customer, combining Customer Experience with Operational Excellence. To meet this goal, retailers should make the best use of their capabilities, supported by digital solutions, to help boost demand in the economy. The green transformation is an opportunity to rethink the way retail units sell their goods. It is therefore useful to have an overview of the business models of Slovak retail businesses as a basis for their ability to respond to European challenges in terms of environmental, social, and economic aspects of their sustainable value offer for the customer and the elements that characterize the current level of digitization.

The article is based on the opinions of managers of 49 retail food units, whose sales area exceeds 700 m^2 and which supply the majority of its inhabitants in the territory of Bratislava, the capital of Slovakia.

1.1 Theoretical Framework

Responding to these challenges of the European Union requires the orientation of business models of retail units to environmental, social, and economic aspects of their value offer for the customer to ensure quality and safe food using modern technology.

A business model can be defined as the way firms create and capture value [2]. The business model is: about the value that the company offers to its customers;

about the customer segment targeted by the multiple value offer; about the range of products and services it offers; about the sources of income; about product prices; about the activities it must carry out in offering this value; about the network of food suppliers and partners that are essential for the functioning of the business model; about the distribution channels through which it supplies its value offer to customer segments; about the customer relationships it creates with each specific customer segment.

A business model is not only a system of components but also a function of the relationships between components. In addition to the relationships between the components of a company's business model, there is also a relationship between the business model and its environment. A good business model always tries to take advantage of any opportunities from the area in which it is implanted and at the same time tries to mitigate the effects of the risks arising from this location. The geographical, economic, and other realities associated with consumer behaviour are the subject of specific analyses by retail managers and should be integrated into economic, strategic and managerial considerations. Each territory as a geographical area has its natural, cultural, and economic specifics [3]. The business model is therefore an appropriate analytical tool, as it creates a link between the territory and its key components (such as consumers, suppliers, local authorities, etc.) and explains how retail units work. Linking the territory with the concept of the retail unit's business model allows us to understand the basic elements of its business strategy, share the business vision with other stakeholders, analyse and innovate its basic parameters (costs, resources, value offer, etc.). For many theorists, the business model describes the way in which a firm creates and commercializes value [4] to ensure its sustainability [5] which makes it easier to understand the logic of value creation. It follows that a positive result of a retail business, which is reflected in the creation of value for the customer, is related to the activities of retailers creating this value at four levels: selection of goods for sale (visible mark of the retailer), aggregation of demand (ability to concentrate end customers in one, or in several points of sale), sales consulting (the role of merchandising and marketing communication) and the physical movement of goods from production to points of sale, either by monitoring the movement of stocks throughout the value chain via electronic connection or by physically taking over the product from the manufacturer. At the same time, the retail business model makes money through these activities. The business model approach basically focuses on breaking down a company into elements that interact to create value for the customer. Several authors deal with the definition of the elements that make up a business model and that determine the originality of its configuration. Depending on the context of their research, different authors present specific elements of the business model. The definition of a specific definition of a business model depends on the context of the use of the term and the purpose of the research. The specificity of retail is that it is not enough to define it as a simple intermediary that buys and sells goods to customers.

Sorescu et al. [6] emphasize two specifics of the retail business model:

- a narrow focus on the product range does not lead to a long-term competitive advantage, as comparable products may be easily available in other retail units;
- direct interactions of retailers with final consumers, which influences the importance of marketing communication [7].

Due to direct relationships with customers and suppliers, retail acts as a coordinator of bilateral platforms that serve as ecosystems in which value is created for the customer and subsequently acquired by retailers and its partners. Teece [8] understands the ecosystem as a community of several stakeholders and as a framework for analysis or an area in which new opportunities arise, but there are also limitations. Businesses, regardless of their size, must strive to use a set of competencies and available resources in their ecosystem. The tool or rather an intermediate element of the ecosystem [9] that provides access to some resources is a mutually supportive platform [10] around which actors are organized to create value for the customer. The ecosystem and the platform are linked to the business model. Each actor is characterized by specific competencies capable of acting to varying degrees in the collective value creation process. Platforms can take the form of a virtual workspace on the Internet, within which the public is organized into a network or communities, respectively. Brings together organizations for a reciprocal network of knowledge exchange. The SARS-CoV-2 pandemic has shown that many traditional retailers now need to completely rethink their business model as soon as possible. The challenge is to find the right balance between digital and physical commerce to respond to changes in demand. Finally, the choices available to retailers are not that complicated: they have to adapt, otherwise they run the risk of disappearing.

1.2 Goal and Research Questions of Survey

The theoretical part of the paper was based on a search of knowledge from scientific and professional literature, respectively specialized internet resources. The aim of this study is to identify the elements of business models used by retailers in food market. Therefore, the research part is focused on the identification of key elements of business models and was based on the following methods: study of documents and their content analysis, semi-structured interview, questionnaire survey, business modelling. The methods used made it possible to identify which elements of existing business models should be left behind and replaced by new elements.

The research part provided an answer to the research questions:

RQ1: To what extent do retail unit formats with sales area of and 700 m^2 implement the activity components studied?

RQ2: How can the components be categorised for the purpose of developing a business model for retail outlets with a sales area of over 700 m^2 in the context of the relationship between the components based on cluster analysis in terms of the environmental, social and economic aspects of their value proposition and digital innovation?

RQ3: How can the convenience store segment be profiled in the context of the components of the business models developed?

2 Theoretical and Conceptual Background

The aim of the study of documents and their content analysis is to identify the elements of business models. Some sources of element identification are listed in Table 1.

It can be stated that researchers generally accept the definition of a business model, the number of parameters of this model and its elements that correspond to the purpose of their research. From this fact stems a great variability of parameters and elements of the business model (Table 1).

The components of the business model, which are generated based on the study of text documents, have been identified differently by different authors. Some authors used case studies to identify them [11–13], other authors used market research [14]. Others suggested possible elements of business models resulting from the analysis of the issue [15–17], more precious from analysis of the relevant sector [18], or rather region [19]. In addition, elements of the business model and their interconnections were at the forefront of some authors' interest [20]. Configuration of business model

Table 1 Sources of parameters and elements of the business model

The number of parameters and elements of business model	Author	Year
4/13	Hamel, G.	2000
6/98	Volle, P., Dion, D., Sabbah, S.	2008
4/17	Gołębiewski, Dudzik, Lewandowska, Witek-Hajduk	2008
5/55	Sławinska, M.	2010
3/24	Verstraete, T., Kremer, F., Jouison-Laffitte, E.	2012
6/77	Demil, Lecocq, Warnier	2013
3/10	Lehmann-Ortega, L. Musikas, H., Schoettl, J.-M.	2017
9/63	Kita, J. a kol.	2017
5/44	Konštiak, P.	2018
3/7	Mandli, Y., Taoufik, D.	2019
9/32	Šimberova, I., Kita, P.	2020

Source Results of the project VEGA 1/0012/22 innovative business models of retail outlets based on geomarketing data and their influence on the creation of the value base offer and food retail chains in the digital period

parameters [21, 22], more precious defining the parameters of the business model has been at the forefront of the interest of many authors [6, 23].

Based on these sources supplemented by a study of the literature dealing with trends in business model development [24], business model creation [25] and value creation for customers [26–29] a set of potential elements of new business models was compiled.

Semi-structured interviews

Semi-structured interviews are often used in practice in interviews with experts in a particular area [30]. The aim of the semi-structured interview was to assess the elements of the business model, which were obtained from the study of documents and content analysis by selected managers of retail units in Bratislava. The assessed elements formed the basis for the identification of key elements of retail stores in Bratislava, whose sales area exceeds 700 m^2. Based on a semi-structured interview, 40 elements of business models were identified, which according to experts were considered important. These 40 elements were divided into six groups in terms of environmental, social, economic, customer relations, service diversity, product diversity and sales. Each group has been assigned an appropriate code.

Questionnaire survey

The questionnaire survey was conducted in the period March–June 2022 in the form of a direct interview with the managers of retail stores with a sales area exceeding 700 m^2. The questionnaire consisted of closed questions that offered ready-made alternative answers. The questions were formulated in such a way as to allow concise, concrete and unambiguous answers and also consider the duration of the questionnaire. They needed to be concise and comprehensive. The aim of the questionnaire survey was to create an overview of the use of selected elements of business models of retail stores. This overview was the basis for the identification of key elements of retail stores in Bratislava, whose sales area exceeds 700 m^2 and the creation of a majority and minority model in the context of digitization.

The research object was 49 retail units with a sales area of over 700 m^2 out of a total of 70 identified retail units with a sales area of over 700 m^2. These stores were identified from the database of business entities in the capital city of Bratislava. Wide range of grocery stores are now real factories for sale that meet the demand for food at competitive prices. The number and structure of stores that have been the subject of research is illustrated in Fig. 1.

Business modelling

Business modelling [31] is a technique of creating a visual representation of the business process. It is implemented based on modelling tools. It is used to identify improvements in the business process, as it allows companies to simulate different options before making a specific investment [8]. The most well-known graphical presentation of the business model is Osterwalder and Pigneur's "canvas" business model [32], which consists of nine parameters and relationships between them: key partners, key activities, key resources, value offer, customer relations, marketing

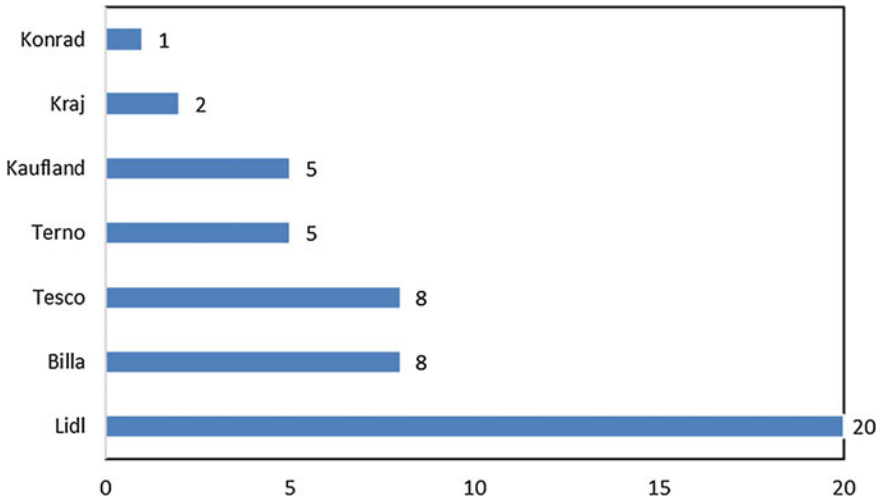


Fig. 1 The number of retail stores with sales area over 700 m^2. *Source* Results of the project VEGA 1/0012/22 innovative business models of retail outlets based on geomarketing data and their influence on the creation of the value base offer and food retail chains in the digital period

channels, customer segments, costs and revenue streams. The display method used effectively expresses the business logic of a particular company and is the basis for real business models. The method allows a shift from orientation exclusively to financial results to orientation in a broader system of environmental and social relations, as well as a shift from traditional trade to an online channel in the field of food.

3 Results and Discussion

The environmental challenges contained in the European Green Agreement and the processes of digital transformation require a complete overhaul of retail business models. New technologies transform business operations and give rise to new elements of business models in addition to traditional business models [33].

This part of the research answered RQ1: To what extent do retail units with a sales area of and 700 m^2 implement the components under study?

The investigation identified 40 components constructed on the basis of literature and consulted with experts from the practice, which are related to the environmental, social and economic aspects of their value proposition for the customer and digital innovation. The frequency of each activity is recorded in Table 2.

From Table 1, it is possible to identify the components that are strongly represented by their frequency of implementation of retail store formats above 700 m^2. The high percentage of implementation of components in the business model of these retail

Table 2 Frequency table of the examined components, which are in the category of stores of 700 m^2

Code and element	Share in %
Q1—offer of e-delivery of goods to your home	19.61
Q2—providing information about the offer for elderly and disabled customers	86.27
Q3—online ordering and in-store collection	5.88
Q4—providing free support services	86.27
Q5—using data to respond quickly and anticipate demand	100.00
Q6—running customer promotions	100.00
Q7—evaluating consumer purchasing trends for future pricing	100.00
Q8—working with small and medium-sized suppliers	98.04
Q9—price as a tool for building customer trust	100.00
Q10—packaging size influences the sale of goods	100.00
Q11—use of new technologies in logistics and supplier relations	100.00
Q12—local consumer acceptance based on store activities	98.04
Q13—involvement of consumers in design	0.00
Q14—expanding purchasing from local suppliers	98.04
Q15—cooperation with charities	100.00
Q16—sharing customer information and experiences online	1.96
Q17—extending store opening hours	0.00
Q18—implementing customer loyalty programmes	100.00
Q19—cybersecurity of processed data	100.00
Q20—improving current online offers and sales	74.51
Q21—removing sources of customer dissatisfaction	100.00
Q22—quality of personal contact	100.00
Q23—shopping via mobile apps	3.92
Q24—collaboration with consumer organisations and schools	1.96
Q25—sales of new products are moving to social networks and social media	0.00
Q26—dissemination of a responsible eco-range branded with a relevant logo	98.04
Q27—use of geo-location system	15.69
Q28—customer feedback system	100.00
Q29—digital technology costs are high for the store	100.00
Q30—sending sms advertising to customers	9.80
Q31—implementation of digital technologies to optimise inventory	100.00
Q32—revenue mainly from healthy food sales	0.00
Q33—revenue from the sale of plant-based foods	17.65
Q34—revenue from online sales	60.78
Q35—focus on organically produced food	98.04

(continued)

Table 2 (continued)

Code and element	Share in %
Q36—investing in training and retraining of staff	100.00
Q37—facilitating the development of new packaging for own brand products	100.00
Q38—new technologies in store heating	5.88
Q39—use of energy efficient lighting	100.00
Q40—use of automated temperature and humidity measurement systems in the store's refrigeration and storage areas	100.00

Source Results of the project VEGA 1/0012/22 innovative business models of retail outlets based on geomarketing data and their influence on the creation of the value base offer and food retail chains in the digital period

unit formats represents their standard activity in creating value for the customer and constitutes the core elements of their business model. These components can represent a significant source of differentiation, provided they are accepted by the market. This differentiation can serve as a basis for creating a competitive advantage in the market.

This part of the research answered RQ2: How can components be categorised for the purpose of creating a business model for stores with a sales area of over 700 m^2 in the context of the relationship between the individual elements based on cluster analysis in terms of the environmental, social and economic aspects of their value proposition and digital innovation?

Cluster analysis was used to evaluate, identify the components of the models, matching the entities, in our case the factors, where most of the stores answered similarly. The following figure contains the resulting dendrogram, i.e. the graphical output of the hierarchical cluster analysis, which can be used to identify the belonging of each factor to each group. The dendrogram (Fig. 2) is the result of the clustering for the size group of stores with a sales area of more than 700 m^2.

In the context of Fig. 2, where the dendrogram is plotted, two significant (internally consistent) groups of factors can be noted. After careful analysis, it can be concluded that these two groups represent the "majority" and "minority" groups of factors, and hence the need for two business models can be established. The majority model included elements that had an incidence of more than 50% of the total number of stores. The minority business model represents the set of components that have an incidence of less than 50% of the number of incidents in a given category of stores. An illustration of the cluster analysis is the majoritarian (Fig. 3) and minoritarian canvas model (Fig. 4) according to the relationship between the elements based on the cluster analysis.

The minority canvas model is characterized in Fig. 4 by the relationship between the elements based on cluster analysis. In terms of creating multiple value for the customer, they represent a set of differentiating elements that fulfill environmental and social and customer expectations. In relation to the majoritarian model, its

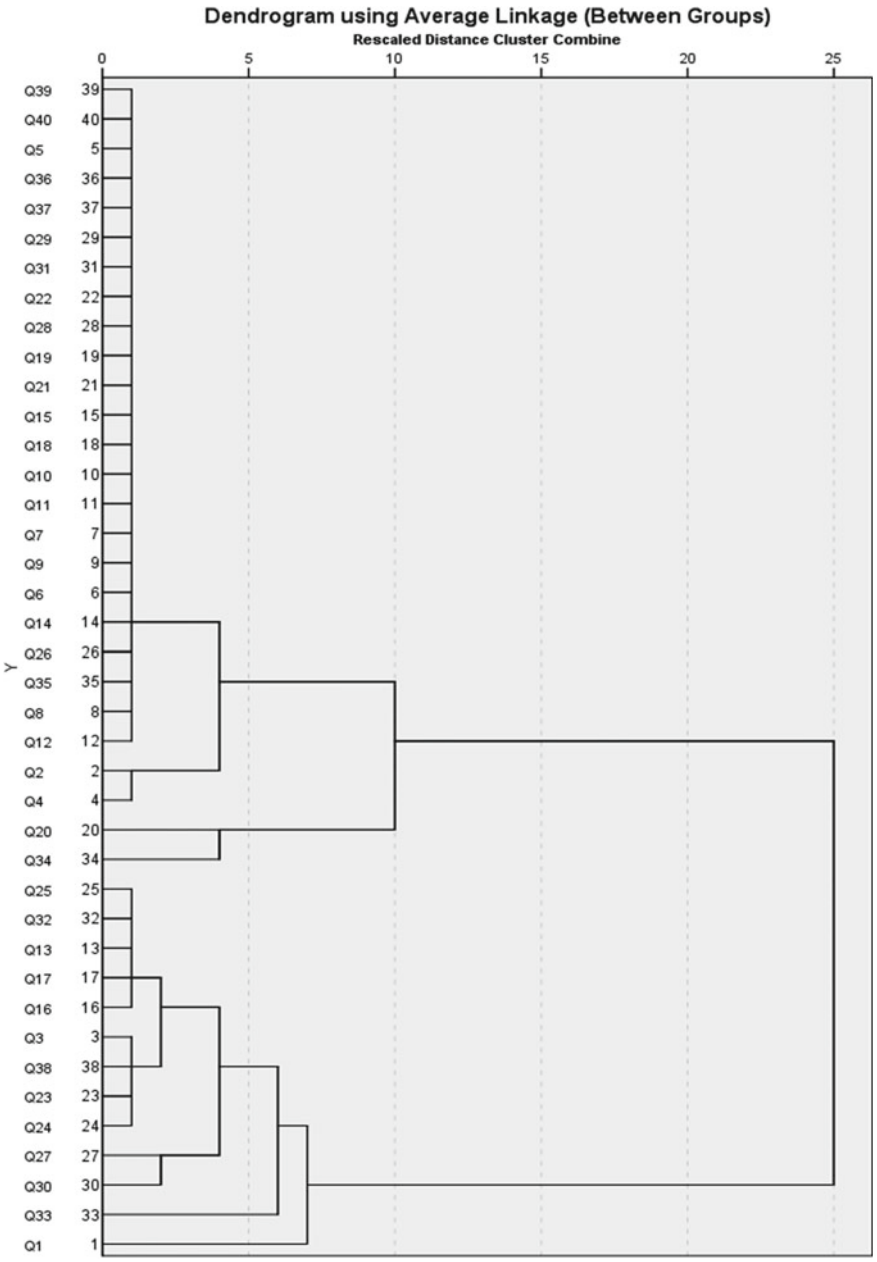


Fig. 2 Dendrogram for the size group of stores over 700 m^2. *Source* Results of the project VEGA 1/0012/22 innovative business models of retail outlets based on geomarketing data and their influence on the creation of the value base offer and food retail chains in the digital period

<table>
<tr><td rowspan="2">Key partners

Q8
Q15</td><td>Key activity

Q5
Q19
Q7</td><td rowspan="2">Offer value

Q4
Q6
Q9
Q10
Q26
Q35</td><td>Relationships with customers
Q12
Q18
Q21
Q22
Q28</td><td rowspan="2">Customer segments

Q2</td></tr>
<tr><td>Key source

Q14
Q11
Q31</td><td>Marketing channels
Q20</td></tr>
<tr><td colspan="2">Source of costs
Q37
Q36
Q29</td><td colspan="3">Source of revenues
Q34
Q39
Q40</td></tr>
</table>

Fig. 3 Majority business model of stores with sales area over 700 m^2 according to cluster analysis. *Source* Based on the "canvas" model by Osterwaldera a Pigneura (2010, p. 44) and results of results of the project VEGA 1/0012/22 innovative business models of retail outlets based on geomarketing data and their influence on the creation of the value base offer and food retail chains in the digital period

elements augment it with these characteristics. It can be argued that the minority model consists of a set of elements that can potentially be used in the context of retailing to create new business models [34].

As the majority and minority model shows, the cluster analysis identified the components of the canvas model according to its 9 categories within the studied activities in the location of the capital city Bratislava. This model was the basis for segmenting the formats of stores with a sales area of over 700 m^2 using cluster analysis. The formation of the majority and minority model takes into account the frequency of each component. Focusing on retail unit formats with sales area over 700 m^2 completes the overall picture of the business models of this category of retail outlets. The identification of individual components points to causality explaining managerial thinking and subsequent innovation of business models.

The presented majority and minority business model, based on the basic canvas model, has several theoretical and practical contributions that allow to illustrate the profiling of a given format of retail units.

<table>
<tr><td rowspan="2">Key partners

Q24</td><td>Key activity</td><td rowspan="2">Offer value

Q17</td><td>Relationships with customers
Q13
Q16</td><td rowspan="2">Customer segments</td></tr>
<tr><td>Key source</td><td>Marketing channels
Q1
Q23
Q3
Q25
Q27
Q30</td></tr>
<tr><td colspan="3">Source of costs</td><td colspan="2">Source of revenues
Q38
Q32
Q33</td></tr>
</table>

Fig. 4 Minority business model of stores with sales area over 700 m^2 according to cluster analysis. *Source* Based on the "canvas" model by Osterwaldera a Pigneura (2010, p. 44) and results of Results of the project VEGA 1/0012/22 innovative business models of retail outlets based on geomarketing data and their influence on the creation of the value base offer and food retail chains in the digital period

This part of the research answered RQ3: How can the store segment be profiled in the context of the components of the business models developed? Based on the findings from RQ2, a new one is being developed that focuses on individual outlets in the context of the identified and presented models. It is important to note that the models presented are generic and cover all outlets. However, we know from practice that it is the specification and differentiation at the operational level that delivers value to customers, potential competitive advantage and therefore differentiation in the context of the business model. It is therefore necessary to specify the operational

level of business models in the context of profiling. In this context, profiling (segmentation) needs to be carried out at two levels, namely for the majority business model and the minority business model. For profiling purposes, cluster analysis was used, with the Two-Steps clustering method. This method contains the advantages of both hierarchical and non-hierarchical methods, and therefore appears to be suitable for the purpose of solving the profiling problem. Due to the nature of the data, the Log-likelihood method was used as a distance measure. The BIC algorithm was chosen in the clustering framework, which also helps in optimization.

3.1 Minoritný Biznis Model

Forty-nine retail outlets were examined as part of the analysis (see Fig. 1). The key outputs of the cluster analysis in the context of the minority business model of the retail units under study have been compiled into Fig. 5.

As Fig. 5 shows, 13 components of the identified (minority) business model were examined, resulting in 4 clusters of stores. It can also be noted that cluster 1 represents roughly 18.4% of the outlets; cluster 2 roughly 51% of the outlets; cluster three roughly 16.3% of the outlets and cluster 4 roughly 14.3% of the outlets. Another important finding is the quality of the cluster analysis, based on the silhouette measure of cohesion and separation, which indicates the high quality of the clustering structure. Exploring the importance of clustering predictors is important for the interpretation of cluster analysis. Since we have 13 items, each item represents a predictor. For the interpretation, we will only look at the most important ones in detail, as these are the predictors that have predictive power in terms of inter-cluster differences. In this context, we only chose predictors with an intensity above 0.8, and these were namely Q1; Q27; Q33 and Q30 (predictors are listed in order of importance).

Cluster 1

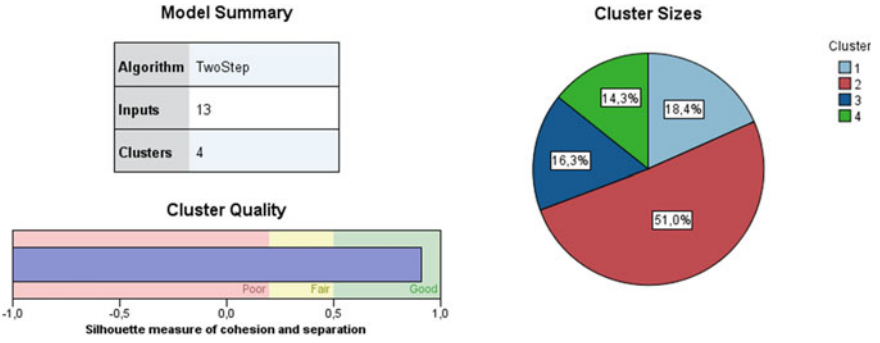


Fig. 5 Two-step analysis for minority business model. *Source* Results of the project VEGA 1/0012/22 innovative business models of retail outlets based on geomarketing data and their influence on the creation of the value base offer and food retail chains in the digital period

Represents stores with a high orientation towards offering e-delivery to the home (Q1 activity predominance). In the studied location (Bratislava), these are specifically Tesco and KonRAD retail stores. Thus, it can be concluded that these retail chains have similarities in the context of the minority business model. We refer to this cluster as the 'Digitalist Model' (the minority business model is differentiated in this area).

Cluster 2

Represents establishments whose minority business model is characterized by passivity (none of the activities have been applied). It can therefore be noted that these outlets do not have any distinctive activity that brings significant value in the context of the minority factors examined. This fact may suggest a certain strategy of concentrating on the majority business model and focusing on delivering value in terms of core business. These are the Lidl and Kaufland outlets, which we refer to as the "Core business model" in the context of cluster analysis.

Cluster 3

Cluster three represents a group of outlets that focus on the sale of plant-based foods (predominant activity Q33). This is a specification of a (minority) business model oriented predominantly towards vegans, vegetarians and the like, delivering customer value to this particular segment. These are the operations of the Billa chain. In this sense, we refer to this segment and its minority business model as the 'VEGA model'.

Cluster 4

This group of establishments presents itself as establishments using geo-marketing and SMS advertising system (predominant activity Q27 and Q30). In the context of the studied location (Bratislava), these are the Kraj and Terno operations. These chains represent local retailers, while their minority business model focuses on identifying and addressing the target market. In this context, this segment as well as its minority business model is referred to as the 'Geomarketing Innovators Model'.

3.2 Majority Business Model

The analysis examined 49 retail outlets, and in this section we focus on their majority business model. We reuse cluster analysis for the purpose of systematising the models and profiling individual outlets. We elaborate the key outputs of the cluster analysis in the context of the minority business model of the studied retail units in Fig. 6.

As Fig. 4 indicates, three clusters emerged in the context of the 27 components of the (majoritarian) business model examined. In the context of Fig. 4, it can be noted that cluster 1 represents roughly 59.2% of the outlets; cluster 2 roughly 26.5% of the outlets and cluster 3 roughly 16.3% of the outlets. Another important observation is the quality of the cluster analysis, which based on the silhouette measure of cohesion and separation indicates a high quality of the clustering structure. Exploring the importance of clustering predictors is important for the interpretation of cluster

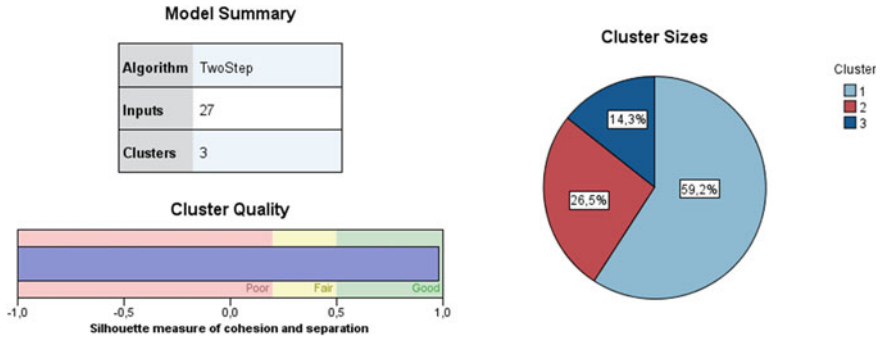


Fig. 6 Two-step analysis for majority business model. *Source* Results of the project VEGA 1/0012/22 innovative business models of retail outlets based on geomarketing data and their influence on the creation of the value base offer and food retail chains in the digital period

analysis. In the majoritarian business model we have 27 items, each representing a predictor. For the interpretation, we will only look at the most important ones in more detail, as these are the predictors that have predictive power in terms of inter-cluster differences. In this context, we only chose predictors with an intensity above 0.8, and these were namely Q2; Q20; Q34 and Q4 (predictors are listed in order of importance).

Cluster 1

Represents the cluster that engages in and performs all of the differentiation activities in question (Q2; Q20; Q34 and Q4) within its business model. Within the identification, it is the Tesco, Lidl and KonRAD store chains. It is this segment that represents a broad spectrum business model focused on maximum focus on activities that add value to the masses of customers through various means of communication, with an emphasis on online. In this context, we can speak of a business model focused on covering the entire market with an emphasis on activities.

Cluster 2

Cluster 2 focuses on the support of disadvantaged consumers, preferably elderly consumers(Q2), people with disabilities (Q2) or consumers with low purchasing power (Q4). In this context, we can speak of certain specialists specifically for these target segments and activities adapted to this. Business models are primarily customer-oriented and value-creating, which this majority business model clearly specifies. These are the Kaufland and Billa operations.

Cluster 3

Represented by the Terno and Kraj operations. In the context of the specification of this segment, as well as its majority business model, the focus is on improving offers (value creation in the range of assortment offerings) as well as an emphasis on online sales. It is this differentiation that can create added value in the context of

customer segments, leading to market differentiation and opportunity for competitive advantage.

3.3 Limitations of Research

In the context of the activities, we examine the activity or inactivity of the retail outlets under study in Bratislava. The concept of dichometrics can be considered as one of the possible limitations of the work. In the future, it would be more appropriate to investigate the extent of these activities, or their frequency, to obtain more accurate data. In the future, it would also be appropriate to investigate more activities and characteristics of retail establishments as possible influences on their operations. The thesis focuses on the location of Bratislava (the capital city of Slovakia). In the future, it would be appropriate to investigate other locations as well. In the context of the methodology, it should be noted that "the vast majority of attempts at factor analysis do not yield clear-cut results" [35]. In this context, not only maximising the potential of loadings, but also factual and expert interpretation must be taken into account.

4 Conclusion

Traditional food retail is based on product sales, customer needs, merchandising and customer service that support brand loyalty. The new reality shaped by the European Union's challenges regarding the European Green Deal and the Digital Europe program requires a modification of the thinking of retail managers, new technologies and new skills to achieve the goals of these challenges offline and online. The new business models enable a shift from focusing exclusively on financial results to focusing on a broader system of environmental and social relations. The majority business model contains elements that are the most numerous for retail units with a sales area of over 700 m^2 in the capital Bratislava and characterize the mainstream business models in terms of environmental, social and economic aspects of their value offer for the customer in food. The minority business model depicts those elements that arise or are typical only for a small part of the enterprises. Looking deeper, the cluster analysis refines the components of the majority and minority models that are most relevant for the retail units of a given category of outlets compared to an approach based on percentages of components depending on a threshold of 50%.

By describing 40 components of an innovative business model, this study challenges the assumption that changing one component of a business model is sufficient to innovate the business model. Instead, business model innovation must focus on activating multiple business model themes.

All of the retail store formats included in the study changed the weight of different components in their business model innovations. The empirical cases suggest that

these changes are still insufficient to innovate the business model of retail units. The retail units studied have adopted digital technology as part of the innovation and in different ways. No retail outlet format achieved 100% across all 40 innovation elements examined.

This paper makes a unique contribution to the literature on the business model of retail store formats by providing insight into the changes in the business model components of grocery retail unit formats. All of the retail store formats studied use differentiated approaches in business model development to find a viable value proposition in a new way to meet the demands of digitalization and sustainability.

Within the differentiation of the outlets, their specifications and differentiations were examined in the context of identifying minority and majority business models. It can be noted that seven brands of retail outlets participated in the survey. In terms of the minority business model, four groups of outlets were identified, namely the "Digitalist Model", "Core business model", "VEGA model" and "Geomarketing innovators model". In the context of the Majority Business Model, three groups of operations were identified, namely the 'Corporate Business Model', the 'Disadvantaged Customer Oriented Business Model' and the 'Online Sales Oriented Model'.

Retailers that adopt the innovative visions set out in the European Union's calls for a healthy environment and food value and accept changes in elements of the business model have access to new market opportunities. The accelerating digital transformation and increasing digital maturity are effectively paving the way for new and growing opportunities. Digital capabilities in the industry are or will soon be a strategic priority for the trader.

References

1. European Economic and Social Committee: Digital Transformation Opportunities for Retail Companies and Its Advantages for European Consumers. INT/946, pp. 1–8. EU, Bruxelles (2021). https://webapi2016.eesc.europa.eu/v1/documents/EESC-2021-02711-00-00-APA-TRA-EN.docx/pdf. Accessed 4 April 2022
2. Björkdahl, J., Fallahi, S., Holmén, M.: Explaining business model innovation processes: a problem formulation and problem solving perspective. Ind. Mark. Manag. **10**(5) (2022)
3. Debarbieux, B.: Territoire. Dictionnaire de la géographie et de l'espace des sociétés. Belin, Paris (2003)
4. Ostenwalder, A., Pigneur, Y., Tucci, C.: Clarifying business models: origins, present, and future of the concept. Commun. AIS **16** (2005)
5. Fellag, D.: Le "Business Model" comme nouvel outil d´analyse strategique du territoire. In: Nobile, D., Marin, A. (eds.) Management de la dynamique territoriale. PUN-Presses Universitaires de Lorraine, Nancy (2018)
6. Sorescu, A., Frambach, R., Singh, J., Arvind, Bridges, C.R.: Innovations in retail business models. J. Retail. **87**(1) (2011)
7. Taranko, T.: Marketing Communication. The Essence of Conditioning, Effects. Oficyna Wolters Kluwer Business, Warszawa (2015)
8. Teece, D.J.: Business models, business strategy and innovation. Long Range Plan. **43** (2010)
9. Latour, B.: War and peace in an age of ecological conflicts. Revue Juridique de l'Environnement **39**(1) (2014)

10. Geraudel, M., Jaouen, A.: Ecosystème d'affaires et PME. Lavoidier, Paris (2012)
11. Lehmann-Ortega, L., Musikas, H., Schoettl, J.M.: (Ré)inventez votre Business Model. Dunod, Paris (2017)
12. Kita, J.: Sustainable business models in social entreprise: case study. Pristupy k obchodnym modelom v kontexte udrzatelneho rozvoja. In: Kita, P. (ed.) Proceedings of VEGA. Vydavateľstvo EKONÓM, Bratislava (2017)
13. Šimberová, I., Kita, P.: New business models based on multiple value creation for the customer: a case study in the chemical industry. Sustainability **12**(9) (2020)
14. Konštiak, P., Kita, P., Kita, J.: Merchandising Management in the Context of Active Sale and Sustainable Development. Foundation of the Cracow University of Economics, Cracow (2016)
15. Verstraete, T., Kremer, F., Jouison-Laffitte, E.: Le business model: une théorie pour des pratiques. Entreprendre Innover **1**(13) (2012)
16. Demil, B., Lecocq, X., Warnier, V.: Stratégie et business models. Pearson, Paris (2013)
17. Volle, P., Dion, D., Sabbah, S.: Les business models dans la distribution. Revue Francaise de Gestion **34**(1) (2008)
18. Sławinska, M.: Modele biznesu w handlu detalicznym. WUEP, Poznan (2010)
19. Gołębiewski, T., Dudzik, T.M., Lewandowska, M., Witek-Hajduk, M.: Modele biznesu polskich przedsiębiorstw. Oficyna Wydawnicza Szkoły Głównej Handlowej, Warszawa (2008)
20. Hamel, G.: Leading the Revolution. Harvard Business School Press, Boston (2000)
21. Mandli, Y., Taoufik, D.: The business model literature: literature review and research perspectives. Revue Internationale des Sciences de Gestion **3**(2) (2019)
22. Jabłoński, M.: Kszaltowanie modeli biznesu w procesie kreacji wartości przedsiebiorstw. Difin, Warszawa (2013)
23. Afuah, A., Tucci, C.: Biznes internetowy. Strategie i modele. Oficyna Ekonomiczna Kraków (2003)
24. Benyaer, L.D.: Les nouveaux business models de la distribution, pp. 1–43 (2013). https://fr.slideshare.net/Louis-David/nouveaux-business-models-de-la-distribution. Accessed 4 April 2022
25. Muehlhausen, J.: Modele biznesowe dla bystrzaków. HELION, Gliwice (2018)
26. MIT Technology Review Insights. New Business Models, Big Opportunity: Retail. 12. https://www.technologyreview.com/2021/04/12/1022290/new-business-models-big-opportunity-retail/. Accessed 4 April 2022
27. Kita, P.: Obchodné modely v maloobchode – explikatívny faktor vývoja hodnotovej ponuky formátov predajní a rozvoja maloobchodnej siete. Vydavateľstvo EKONÓM, Bratislava (2018)
28. Joyce, A., Paquin, R.: The triple layered business model canvas: a tool to design more sustainable business models. J. Clean. Prod. **13**(5) (2016)
29. Brabec, M.: Business Model Vert. Dunod, Paris (2010)
30. Diefenbach, T.: Are case studies more than sophisticated storytelling? Methodological problems of qualitative empirical research mainly based on semi-structured interviews. Qual. Quant. **43**(6) (2009)
31. Bridgeland, D.M., Zahavi, R.: Business Modeling. Morgan Kaufmann, Milford (2008)
32. Osterwalder, A., Pigneur, Y.: Tvorba Business Modelu. Albatros Media a. s., Brno (2010)
33. Schmuck, R.: The use of online business models. Procedia Manuf. **54**(1) (2021)
34. Kita, P.: Nové obchodné modely se zřetelem na udržitelné vytváření mnohonásobné hodnoty pro zákazníka. University of Technology, Brno (2018)
35. Johnson, R.A., Wichern, D.W.: Applied Multivariate Statistical Analysis, 6th ed. Pearson (2007)

Future of the European Policies

Investing in Social and Intellectual Capital: A Public–Private Partnership Issue

Laura Mariana Cismas and Cornelia Dumitru

Abstract Social and intellectual capital are relatively new concepts in assessing the overall competitiveness of global and European economies. As intangible capitals they represent the superior outcome of interactions between traditional economics, business administration, behavioral and institutional economics. Based on reviewing the main models, our paper proposes a somewhat extended, different framework on three dimensions: (a) good governance, (b) the relationship education—business environment, as initial 'point of contact' between the public and business environment interests, and (c) the capacity to form meaningful coalitions and partnerships between the public and the private sector. A slight focus-shift regarding the contents and purposes of public–private partnerships is necessary by "thinking outside the box" regarding what public–private partnerships are currently. Based on our methodology and statistical-mathematic analysis, it might be observed that creating and developing these intangible capitals in public–private partnership cooperation forms is strongly related to beneficial labor market and societal outcomes.

L. M. Cismas
Faculty of Economics and Business Administration, West University of Timisoara, 16 Johann Heinrich Pestalozzi Street, 300115 Timisoara, Romania
e-mail: laura.cismas@e-uvt.ro

C. Dumitru (✉)
Romanian Academy, Institute of National Economy, 13 Calea 13 Septembrie, 050711 Bucharest, Romania
e-mail: cornelia.dumitru@gmail.com

G. Pellat et al. (eds.), *Cooperation and Enlargement: Two Challenges to be Addressed in the European Projects - 2022*, Studies in Systems, Decision and Control 500,
https://doi.org/10.1007/978-3-031-42253-9_15

1 Introduction

1.1 Changing Perspectives and Frameworks for Social and Intellectual Capital

The twenty-first century may be called the century when economies and societies turn into very complex systems dominated by digitalization, automation, and Artificial Intelligence. Nowadays, economic and social sectors interrelate and interact in unprecedented ways and effects spillover at all levels of global societies. The effects are visible in all economic sectors and activities, with changes at more rapid paces. The current evolutions pose new challenges to decision-factors, employers, and employees alike, spreading out in public and private life of the entire society.

The main stakeholders continue to be the public and private sector, and their interactions need to be coordinated, and balanced, for ensuring the general equilibrium not only for the economies of world countries but also for their societies.

Moreover, each of the two main stakeholders is faced, because of the processes accompanying developments at economic, technological and social level, with new challenges: Decision-factors, at governmental/central or regional/local level need to review, improve, or propose and implement new policies that meet the demands of the economic sector, by also considering the interests of the workers in all sectors, especially in those most at risk due to technological changes and pressures, and of the wider public. At the same time, stakeholders of the private sector are faced with the natural temptation of maximizing benefits and minimizing costs, as automation, digitalization and AI offer new ways to save costs, while obtaining superior products and delivering better services. In their role of employers, in this new environment, characterized by the need of higher and improved skills, they are in search, and sometimes even in competition with the public sector in attracting high-skilled labor force, respectively individuals with competences, skills and talents required by the highly competitive digital and AI-driven environment. However, these technological interventions have accelerated some processes that might lead on one hand to increased social unrest, as the world of workers adjusts at slower pace to changes and, on the other hand, as experience has shown, to more social polarization resulting in increased inequity and decreasing social cohesion.

The entire society is caught in the middle of the frictions generated by rapid changes, and the ways in which individuals adjust to scientific, economic, and social changes define the resilience capacity of nations and regions. Each of these considerations sum up some of the components required to generate the relevant intangible capitals dealt with in this paper: the social and the intellectual capital which are in the current economy and society increasingly more relevant for world nations, and at EU level the factors that make a member-state competitive and able to identify and generate innovative, new competitive advantages providing for resilience and sustainability for the respective member-state, but also for the other member-states, and even states outside the EU-27.

Virtual environments, business and social clouds are penetrating all spheres of human life, economic and social activities, and interactions. Their impact becomes increasingly more detectable in politics, economy, society, and culture. Moreover, evidence points out that all relevant international and regional bodies (WB, IMF, OECD, Eurostat, etc.) begin to pay more attention to how these augmented technological transformations influence not only economic growth, but also the lives of individuals. This was one of the reasons for monitoring experimentally at first, either by direct or indirect measurements, these two new types of intangible capital that will play a decisive role for competitiveness, and performance of national, and regional economies.

1.2 Theoretical Background

Mincer's [1] and Becker's [2] works have competed in highlighting how human capital is created and how education and other forms of training have a relative relevance in determining incomes and labor market perspectives, while a more recent approach [3] adds to these components the history, and the culture in which the formation of human capital occurs.

The labor market is, in our opinion, one of the most relevant melting pots as the conditions in which it operates are indicative for the economic and social state of a country, and of the relationships governing coordination and cooperation between the public and the private sector. It is the place influencing and determining individual decisions with impact on demographics at localities', regions', and countries' level. It contributes to decisions regarding educational and vocational-training options and, finally, the adherence to specific economic and social beliefs, and to assuming a certain individual or collective attitude towards the transformative changes occurring in all spheres of life. It is the place where human capital's potential is operationalized, as it encapsulates and puts to good use all knowledge, skills, competences, abilities, and aptitudes/talents available to the individual and, in aggregated form, to the society to use in performing profitable and meaningful activities in all sectors of the economy [4, 5]. A more recent perspective underpins that human capital is, in fact, the result of the forms in which individuals associate and that the estimated productivity of human capital is rather a social trait, based on the fact that it relies on networks, network hierarchies that are established either ad-hoc, or built and perpetuated over time, and here is where the roots for individual incomes are to be found, when explaining converging or diverging conditions on labor markets [4, 6, 7].

Taking into account existing and potential human capital is a necessary step in defining and estimating the social capital which might be explained as the aggregated expression of individual and collective options, of the historical period associated with the political, economic, and cultural environment in which, and when networks were and continue to be created, enabling the functioning of the society in an effective manner, and as close to the optimum as possible regarding collective welfare.

The theory of social capital [8–12] structures the main characteristics and dimensions of social capital, defining it as the resource that might be gained, accessed and used based on the social networks created in various contexts: from family and friends' networks to network relationships established at work, or in professional or other configurations based on shared interests that determine the shape and goals of the respective network. The functioning of these networks is ensured based on the same economic criteria of productivity and profitability when taking the decision to associate with, and maintain the respective network. The network perspective, based on economic criteria of productivity and efficiency, is linked intrinsically to social characteristics, and provides for two broad social network types, respectively closed or open ones. The first type is the bonding social capital which is present predominantly in closed networks, whereas the second is the bridging capital which ensures, by being open, links to other networks, facilitating wider-scale communication and cooperation [11].

The main difference between the two is resides in the ties they generate: bonding capital has strong ties with economic implications as it is based on trust, information and rational choice. This means it contributes to facilitating, and creating premises for potential reduced transaction costs [8, 9]. The ties of bridging capital have the 'strength' of flexibility. This bridging social capital ensures communication and cooperation across various socioeconomic groups and has the capacity of providing room for tradeoffs and agreements between the public and the private sector. This is essential for three crucial aspects: employment, overall welfare, and sustainable development. It relies more on information about volunteering, trust in outcomes and information about economic growth, education, health and the general state of the society and the ability of the latter to cope with rapid changes and development, in general. This type of capital contains also other qualitative components like satisfaction with life and work, happiness, all of these factors contributing to how the society evolves in time.

A third, and more discreet type has formed due to the interactions generated by the bridging social capital, respectively the linking social capital defined as accountable for providing social norms related to respect, manner of interaction, and degree of trust between people involved in activities across explicit, formal, institutionalized or informal/non-formal, but beginning to create own mechanisms towards formalization networks, in the attempt to meet challenges posed by technological pressures, for instance, reconciling human work with the increased presence of digitalization and artificial intelligence. Hence, it might be regarded, to a certain extent, as a derivative of the bridging social capital [13, 14].

Another insight gained over time is that bonding social capital—though important—is more restrictive, in that it has a slightly higher potential to, and might even be accountable for building barriers and restrictions in certain instances because it is characterized mainly by closed networks. It is regarded as primarily responsible for setting-up the framework for links and connections like those of family, and friendship/neighborhood, and from here it widened its sphere to economic relationships where it is accountable for the emergence, build up and consolidation of specific and dedicated professional and business links. This means that it creates the framework

for access to and benefits from being part of a specific group of professional and/or business interests.

This might also explain from the spatial perspective why some regions of development remain behind the others, as they bear more features related to ethnic or other economic, social, and cultural reasons contributing to, and conditioning the creation of bonding social capital. A case in point could be the low rate of spillover from a developed or more developed region of development/county to its immediate proximity characterized by less developed regions/counties. For instance, the disparities between counties like Ilfov, Timis, Cluj, Brasov, Sibiu, and Iasi which are grouped near developed cities and the other regions of development/counties and cities of the country could be explained by using this perspective. The above-mentioned counties have high economic dynamics, they are all in different regions of development, and benefit from their proximity to dynamic cities regarding specific indicators like income, and workers in knowledge-intensive sectors. In all of them, incomes vary around 4,601 RON, and they have a share by 5.5% for those employed in knowledge-intensive sectors in average for the period 2019/2020. It is easily noticeable, that their results are not impacting (still) the other counties with which they share at least one county border. These other counties are what could be classified as the 'rural Romania'. Here incomes are around 3,593 RON, and the share of workers in knowledge-intensive sectors has values only between 3.1% and 3.4% (Tempo online database, NIS). The underlying, spatial explanations and reasonings might also be identified in the inner workings of the bridging social capital and would need an analysis specifically dedicated to it. However, these finer distinctions and their economic impact are not part of the goals of the present paper.

The theory of intellectual capital is even newer, and the result of inquiries into the evolution of the economy and society in the post-modern world. Initially developed for understanding developments at the microlevel, while analyzing the premises and conditions for success or failure at enterprises' level, it underwent numerous changes allowing for a hypothesis according to which, if aggregated it can be translated into current and potential national intellectual capital. At first, it was intended to identify and estimate knowledge, know-how, skills, and competences embedded in an organization, as these are key assets for ensuring competitive advantage. Competitive advantage, in its turn, is expressed often as product or process innovation, in all economic sectors, implicitly for innovation in the field of services.

In the current context, an economy is defined increasingly more by its potential to encourage the development of intellectual capital at economic and even social entities' level, due to accelerated interaction processes between humans and technologies. The increased potential of putting to good use skills, competences and talents, required by cognitive and skill-driven economic activities, reveals (national) intellectual capital as most relevant for the future. Hence, it may be assumed that its aggregated form will trigger internal and external effects [15, 16] with impact in all major spheres of economic and social life and important for the future sustainability and resilience.

At microlevel, the internal intellectual capital helps in taking the right management decisions, while the external intellectual capital is used in management decisions to

influence market instruments [17]. Therefore, at firm level it is the discriminating factor between the market value and the accounting value of most corporations [7, 18–20] and one of the most relevant key assets for ensuring performance as it is specific to the human resource [21].

Another particularity of intellectual capital is that it embeds human capital, structural (or organizational) capital, and relational capital, which shows that it might have strong bonds to social capital, if we take into account its structural, cognitive, and relational characteristics. In brief, the structural capital embedded is the one representing the networking, relationships and institutions based on which people interact, while the less investigated cognitive part [22] is responsible for how shared values, attitudes, beliefs and a common understanding of the norms, roles, and rules included in the structural social capital are understood based on the shared language of the people involved in various types of relationships. Finally, the relational capital contained by the intellectual capital may define the nature and quality of all these relationships [23].

Intellectual capital gained increased attention as the knowledge economy became fact and exited its emergent phase, and several approaches were made to define it, together with its key performance indicators, relating it to organizational and knowledge management [24] because knowledge represented increasingly more the 'new' competitive advantage.

The most referenced perspective is the Skandia Model, based on the works of Edvinsson and Malone [26] which considers intellectual capital as the aggregate of human and structural capital within an organization. This is the microlevel perspective on intellectual capital. At this level, it embeds the accumulation of experience, knowledge, organizational technology, and professional skills and competences. Whether we consider intellectual capital at microlevel, or as a macrolevel national intangible asset, mapping the intellectual capital based on its sub-components remains desirable, especially in the context of the knowledge-based, digitalized economy [12, 25].

Mapping (national) intellectual capital for a knowledge economy and society is essential, while reducing the relevance of intellectual capital to firms' level is unsatisfactory and might prove a pitfall in the future. Economic sectors shift and change, along with expectations and demands for labor markets, especially regarding the skills, competences, abilities, and talent requirements that might prove as critical access barriers in the absence of coordination and cooperation between the public and private sectors. The required levels of skilling, competences and talents are increasingly higher and critical in obtaining jobs that guarantee satisfactory incomes. Therefore, partnerships for improving labor market are already critical from the perspective of education, training, demand and supply, and expectations of both employers and employees. In this context, partnerships between the public and private stakeholders could be one of the keys for solving the current issues that continue to trigger increased polarization in the absence of solutions between the main dialogue partners.

Hence, it is necessary to extend the definition of intellectual capital in line with the considerations about its increasing relevance [26] based on the trend of higher flows

of investments, especially in knowledge, and in identifying new and innovative ways of dealing with the current challenges, from the ones posed by the Green Deal to the ones resulting from the disruptions and distrust generated by the pandemic, and the recent uncertainties and heightened volatility because of the conflictual situation in the immediate proximity of the EU.

Some recent approaches suggest a system of variables for estimating the existing intangible wealth of a nation and for assessing the potential for developing it further by measuring existing and potential national intellectual capital. This system, however, like all other attempts to measure intangibles is based mostly on strict economic variables and indicators. The measurements are based on human capital, market capital (relationships with international market, investments, commercial activities, country brand, etc.), process capital (flows of knowledge, information systems, key infrastructures, technological readiness, and skills, etc.) renewal capital (capacity to extend the market potential, research-development, innovation, start-ups, etc.), and financial capital with impact on GDP growth.

While all are relevant for a nation's capacity to balance/control external debt, ensuring the sustainability of major industrial branches and controlling/taking adequate measures regarding inflation [12], it might be objected that as an intangible capital, intellectual capital is characterized by other features pertaining to human and social capital, that have strong both objective and subjective socioeconomic features which are decisive for its emergence and development, like the capacity to improve skills, competences, to maintain and attract talents inside the economy, to create and encourage the development of innovative clusters, to generate an environment encouraging creativity and innovativeness, etc.

This is a perspective that is somewhat diverging from the strict economic one, but that we consider to be relevant and more accurate for the knowledge-based digital and AI driven economy, implicitly society.

It is easy to notice that national intellectual capital as concept and key intangible asset has not reached maturity yet, expressed as the agreement on a clear, standardized and unanimously accepted definition. Moreover, and as implied above, some of its traits and characteristics are germane to definitions referring to both structural and cognitive capital. Therefore, we suggest a possible provisory definition summarizing on one hand the key features of the two types of intangible capital (social and intellectual), and on the other hand, providing the grounds for including them into an extended definition in the framework of the New Institutional Economics (NIE).

NIE, by its very definition, as dealing with the rules of the game [27] with how economic and social institutions are created, how they evolve, mature, improve or decay, all the while defining the wealth and economic growth capabilities of nations [6] is fit to guide the further development of the methodology for measuring as accurately as possible social capital, in its traditional and institutional understanding, and national intellectual capital.

The suggested definition considers national intellectual capital as the final and desirable outcome of the ability of economic public and private stakeholders, together with stakeholders of the social sphere to create the necessary bonds and bridges so as to structure, map and provide for the development of talents, skills, competences

and abilities that ensure the sound basis for sustainable development and resilience by preserving the capacities of the markets—in particular the labor market—and of the societies to deal with conditions of increased uncertainty and volatility in times of change both from technological but also from geo-economic and geopolitical viewpoint.

1.2.1 Arguments for Public–private Partnership for Investing in Social and Intellectual Capital

The post-financial crisis period, followed by the pandemic, and the current uncertain post-pandemic context marked by the conflictual situation generated at the borders of the EU-27, all draw attention to issues that emerged over this relatively short period of time (2012–2022). From an institutional perspective, this means considering the dynamics for a time horizon of 1 to 10 years regarding the mechanisms changing or maintaining the general rules of the game for governance, existing business relations either by reinforcing them, or changing the mechanisms for mitigating the needs of the time, while new organizations might be created for dealing with the shifting political or economic-social landscape [17, 28, 29].

The political arguments play an important role, and especially the evolution of social capital is relevant for emerging trends at societal level. It is where perceptions of the society about itself, and how it relates to issues such as social justice, inclusion, equality of chances and opportunities are formed. Moreover, it is a factor determining how social networks, hierarchical and/or of peers develop at several levels, including professional or expert networks, public, or closed networks of shared interests and goals. It also creates the premises for some trends with political, economic, social, or even culture-changing results. For instance, they might trigger movements supporting different causes, ideologies, and even policy changes that impact positively or negatively. However, in the current stage of development, it is no longer only about the ideological view—be it capitalism and its various forms, or the option for various socialist models that seem to inevitably lead to authoritarian attitudes and dictatorships—but about how the embedded values and beliefs disseminated in the social network influence, if they gain momentum, policy formulation in various fields.

The economic perspective is the next relevant approach, as politics and economy have a constant interplay, and their interactions determine countries' wealth, welfare, development, and modernization. The recent developments at global and European level have shown how politics and economy might trigger either positive or negative effects and impacts at all levels of the society, by threatening or improving the economic outlook, implicitly the social and cultural outlook and development of the respective countries.

While recent geopolitical changes are not neglectable and need proper assessment and reconfigurations where possible or necessary, under the pressure of recent events, just as relevant are economic and social issues as these fields are the first to react to pressures of financial-economic, pandemic, and natural disaster nature. The highly unpredictable evolution of present and future economic ties, some as result

of frozen or ongoing geopolitical conflicts trigger crises that rely heavily on the still insufficiently explored potential and relevance of social capital in addressing issues of interest. In this context, an argument and the evidence for the need of improved social capital assessment is the accelerated sequence of decisions regarding the *Green Deal*, which has many consequences that instead of gathering momentum and support at society's level, might to the contrary pit socioeconomic categories, professionals, and political decision factors against each other, and compromise the intended targets at EU level for some, if not all the member-states. If we add the current uncertainty and unpredictability of the post-pandemic context, and the geopolitical balance distorting influences like the conflict in Ukraine, at least for the EU, if not for the world, the relevance of developing an objective social capital measurement becomes obvious.

These two factors (social and intellectual capital) express how societies interact in both public and private spheres, and here is where public–private partnership becomes meaningful for these intangibles, and where the need emerges to increase awareness for investing in these types of intangible capitals.

In this specific context, intellectual capital might be regarded as the end-product of the constant interaction between the components of human capital feeding social capital and social capital contributing to improved quality in the (national) intellectual capital in low, moderate or high leaps, depending on the level of accumulated knowledge and the contribution of its outcomes, according to the sketched definition from above to sustainability and resilience.

One final issue that needs further investigation, and changes in the way of action is precisely the way in which public–private partnership is perceived, if the aim is to change it into a flexible tool which allows, among others, also for developing national intellectual capital. It should be mentioned, in this context, that the blurred interpretation of public–private partnership and its several meanings [30–32] are reasons for the skepticism with which it is regarded in most EU-27 and other European countries. This is reflected also by the rather restrictive institutional-legislative framework that dominates this type of relationship aimed mostly at investments in high-cost infrastructures (highways, railways) and based on laws related to concessions and other types of contractual relations. However, considering that these partnerships have generally a public purpose in their nature, and that they might take a specific form, or represent another type of arrangement aimed to policies at a wider scale [33] it would be reasonable to suggest adjusting them to the needs of a knowledge-based, digitalized economy and society which will depend increasingly more on intangible capitals. Their main characteristics, of being concluded with the purpose of delivering public services and/or goods, might be valorized for rendering public-partnerships more flexible based on formal and informal, fully institutionalized or undergoing institutionalization mechanisms, to foster social and intellectual capital. We consider that this should be a common goal taking into account how the world of work undergoes considerable changes, as well as the new opportunities and risks triggered by the accelerated transformative dynamics of labor.

This would imply 'thinking outside the box' and seeing public–private partnerships as a tool in making meaningful investments in education, research-development, innovation, and developing solutions for the labor force as result of

sped-up robotization, automation and digitalization, because jobs might either be lost or even vanish on short- and medium term, without the perspective of compensating them by job creation at the same speed.

The essential role will have to be attributed to intellectual capital investments, as this capital will define and decide how the almost blurred boundaries between real and virtual economic and social activities will be balanced, and how the technologies driving these interactions will impact, transform, and finally organize work for individuals, efficiency in the labor markets. It might even be reasonable to consider that intellectual capital has an objective component (dealing with organizational issues, knowledge assets, etc.) and a subjective component which reflects, for instance, the capacity of countries to attract or retain talents, and allow for merit-based upwards social mobility. It is in the interest of both public and private stakeholders in the economy and society to put to good use their potential of nurturing the national intellectual capital, as it is the basis for building up and consolidating the economy of the future under the imperatives of sustainability and resilience.

In this context, and in search for answers aimed at improving economic outcomes at world and regional level, more attention was paid again to findings of institutional and behavioral economics, to what might be called the "subjective" side of the real economy, as perceptions, trust, transparency, and 'economic sentiments' were found to have impact on actual results at regional (EU-27) and country level.

1.3 Analysis Framework

Social and intellectual capital are relatively new concepts used in assessing the overall competitiveness of global and European economies. As intangible capitals they are seen as the outcome of interactions between traditional macroeconomics, business administration and behavioral economics, institutional economics and the new trends emerging from the necessity of paying increased attention to social issues, that impact not only on how work is done, but also on how societies, and socio-professional groups deal with various challenges. The recent past has proved that the EU-27 is faced with several geopolitical and geo-economic uncertainties, various crises that might be triggered by pandemics (like the recent one, and for which the post-pandemic period is still volatile), or unforeseen conflicts, and climate changes. Each of these topics contributes to the core of issues that need joint effort at EU-level, and in the EU interactions with candidate and neighboring countries, and even in its global presence.

Our approach is substantiated by the fact that the theories of social and intellectual capital need to be integrated in the wider New Institutional Economics framework. Moreover, they will play an increasing role and will be an issue for considering investments, based on the multiple intercorrelations and interrelationships between these types of capital that are crossing permanently the 'borders' between the public and private interests and goals. At the same time, the identified topics of shared interest for both public and private stakeholders in fields like research-development,

innovation, product and service delivery and improvement, maintaining and retaining knowledge workers, and talents, are the complementary argument, for encouraging new perspectives for meaningful and results-delivering innovative public–private partnerships.

Another argument is that the first signs of considerable economic imbalances and risks to economy and labor were already noticeable in the seventies, and they increased up to the nineties. At this time, the institutional economic perspective gained renewed impetus, and the New Institutional Economics (NIE) gained relevance and substantiation based on the works of North [27] Williamson [34] Furubotn [35] and more recently the works of Acemoglu and Robinson [3, 4, 6], Künneke et al. [36]. These approaches were the first to draw attention to the role of institutions like property rights, contracts and transparent (though often asymmetric) information in diminishing transaction costs, including the role of good governance in pursuing economic growth and development.

While this institutional approach is sound, as it was the first to put the emphasis on the necessity of monitoring economic institutions, including here the institutions of the labor market, the measurements were and continue to be rather tentative, as proxies are often used, because of lacking own and standardized indicators for such assessments, that are still under development. Most of these indicators are based on questionnaires (see for instance, WB governance indicators, CEPII– Institutional Profile Database [37], etc.), and others are built based on scales borrowed from other fields, like politics. Hence, there is still a lot to be improved and specific institutional indicators are still explored and tested, and they are complemented with GDP data even though this type of statistical economic information might be misleading, as the Stiglitz-Sen-Fitoussi Report (2009) argues. They alleged that GDP, while providing the best available information, does not say a lot about what really is important to individuals and society alike [38, 39]. Their findings were based on information acquired over the last decades of the twentieth century, and which were improved, diversified, and disseminated more insistently in the first decade of the years 2000.

In this context, in which NIE formulated new theories by laying emphasis on economic/social institutions, we suggest the addition to its framework of social and intellectual capital as the new types of intangibles that need to be evaluated, monitored, and improved especially in a knowledge-based digital economy. This is the place where public and private interests meet and should pursue to identify the common goals, including new ways of investing for achieving required targets related to changes on labor market, technological shift and the reactions of workers and societies.

Therefore, we suggest considering and including social and intellectual capital as sub-components that might be used by the New Institutional Economy for extending its analysis framework, as several indicators relevant for these two intangible capitals are monitored by various databases dealing with the institutional-economic profiling of countries. In the following, we mention some relevant dimensions in which the sub-components we propose are found, especially regarding economic growth, for instance: reliability/trust in economic information and/or policy, intellectual property rights, coordination, and cooperation capacity, etc. They all might be valorized

and improved to contribute in better understanding the creation, building-up and consolidation of the two intangible capitals by public and private stakeholders.

The New Institutional Economics framework is better suited, in our opinion, for monitoring and assessing also public–private partnerships having as purpose investing in social and intellectual capital, as it embeds an entire history regarding rules, norms, incentives and sanctions, and it has available some tools already for more accurate measurements, that include qualitative indicators and variables regarding (good) governance, capacity of countries and/or regions to attract or retain talent, and how, for instance, social upwards mobility based on merit is achieved, or not.

It would also mean, investigating and making good use of the untapped and necessary potential for public–private coordination and cooperation, and for creating new frameworks that change public–private partnership from a purpose to a useful tool in delivering on the economic and social dimensions of sustainability and resilience.

2 Social and Intellectual Capital Components' Analysis

2.1 Analysis of Social and Intellectual Capital Sub-Components Relevant to Public–private Partnership Cooperation

The measurement of social and intellectual capital is still difficult, and some of the papers mentioned above suggest possible proxies. However, the standardized framework is non-existent as defining and measuring social capital is extremely biased and dependent on the objectives of the organization/person doing the measuring. Most reliable measurements are based on questionnaires of the World Values Survey (now at the 7th wave) [37]. One possible drawback is that most emphasis is laid on 'trust'. In turn, the Institutional Profile Database-CEPII [37], which presented the last institutional profiles relevant for social and intellectual capital in 2016, manages to capture the aspects of social capital that we propose as relevant for economic growth and development. Moreover, we consider that these include the attributes required for building together with human capital the components for generating the intellectual capital essential for a knowledge economy. We believe that this might redefine both hierarchical and peer networks with respect to how they create nodes in their daily interactions at country, European and international level, in view of current challenges and for achieving sustainable development goals, along with the goals of the European agendas on the related dimensions of labor and social objectives.

To analyze some of the relevant impact indicators for social and intellectual capital, we performed a cross-sectional panel correlation for 12 member-states regarding relevance of social components for GDP/capita, and the impact each has on it (Table 1). The results show that all these components are significant for GDP/

capita, an exception being the public–private partnership which seems to have less importance.

The 12 member-states were selected based on three main criteria: (a) period of accession to the EU and economic role—for instance, in the first four are Germany and France, countries regarded as 'engines' of the Euro Area and of the EU-27 economy overall, next to the Netherlands and Italy and all of them are Old-Member-States (b) The next group was constituted by Former Member-States of Convergence and Cohesion (Spain, Portugal, Greece and Austria) that also have some similarities and relationships from historical and geographical perspective with the selected New Member-States (Romania, Bulgaria, Poland and Hungary) either based on a 'mental map' or due to the fact that they are spatial neighbors of these New Member-States.

The first analyzed variable was governmental efficiency interpreted as the aggregate of the quality of regulation and actions taken by the public (central and regional) authorities. The Pearson correlation matrix highlights that it plays the most significant role with respect to encouraging the development of solid and stable social capital, as its relevance is close to the one of GDP/capita. At the same time, it is important due to the strong impact regarding interpersonal trust, the development degree of clusters, while it has a relatively lesser impact on public–private partnership cooperation. In this context, we hypothesize that one possible solution could be changing public-partnership into a tool, and adjust the legislative-institutional framework accordingly, for rendering it more flexible, and pliable to the pursued objectives from both economic and social perspective. Thus, it would be more adequate for

Table 1 Correlations based on governmental efficiency (based on [38, 41–43])

	GDP/capita	Governmental efficiency	Interpersonal trust	Cluster development degree	Public-Private partnership coop.
GDP/capita	1	0.857**	0.727**	0.841**	0.556**
Governmental efficiency	0.857**	1	0.678**	0.722**	0.754**
Interpersonal trust	0.727**	0.678**	1	0.663*	0.663*
Cluster development degree	0.841**	0.722**	0.663**	1	0.680**
Public-	0.556**	0.754**	0.663**	0.680**	1
private					
partnership coop					
	60	60	60	60	60

**Correlation is significant at the 0.01 level (2-tailed)

Source: authors' calculations after IPD-CEPII, Penn World Table 10.0, IMD World Competitiveness Yearbook, and Eurostat

mitigating the requirements and needs of various stakeholders from different, and sometimes even diverging spheres of economic and social life.

From this point of view, a dedicated public–private partnership would be relevant as well for centering employment opportunities more on the interests of the public and private stakeholders. At the same time this would ensure through cooperation that labor market needs are better managed, and negotiations between the various associations of employers and employees provide the best possible outcomes for the parties involved, as well as to diminishing polarization and alleviating poverty.

Another issue is that, perhaps, one of the 'hidden' reasons for the skepticism about public–private partnerships, is the fact that it does not contribute consistently either to building interpersonal trust, nor clusters, as the single variable that draws attention to a potential contribution of the public–private partnership cooperation is the one of "governmental efficiency". The question is why it does not have more potential? It would be in the interest of both public and private stakeholders to diversify such partnerships, and one solution would be improving transparency, coordination, and communication between these sectors, as regards specific needs for social and intellectual capital, from education to investments in joint research-development and innovation platforms.

In the next step, we performed the same analysis for the potential components that might be considered significant for intellectual capital related to GDP/capita. From the first correlation we already found that governmental efficiency is almost as relevant as GDP/capita. This is why we did not include "governmental efficiency" in the next step, as it is obvious that it would have approximately the same level of importance.

For intellectual capital, we realized an analysis including GDP/capita and institutional economic components, and the results are just as interesting (Table 2), as it is quite clear that for the component digital and/or technological competences GDP/capita has a lesser level of significance and shows a weak correlation (0.070). The explanation might be that it depends on the mediation of education, and on the other forms of (lifelong) learning and training initiatives. These, in turn, depend on two conditions, that require an ampler debate and are an added argument to meaningful cooperation and investment in intellectual capital between the public and the private stakeholders: first is the individual's decision to pursue on entering labor market further education, or vocational-professional training for improving skills and competences[9], and second is the desire of the employer (either public or private) to invest in the employees, and to provide various schemes of education and/or vocational-professional training. It would make sense to build thus public–private partnerships in the field of education and vocational-professional training that would ensure the creation of a larger pool of competences and skills that meet the demands of both sectors, and of the labor market as such. These schemes, if judiciously applied, might also contribute to reducing migration for labor in countries that suffered from excessive 'brain drain'. An example in point is Romania, which ranks second after Syria regarding migrants [44].

Strong relationships exist also between the quality of R&D legislation and total expenditures on R&D, suggesting that legislative improvement might contribute to

Table 2 Correlations for components relevant for intellectual capital (based on [38, 41–43])

	GDP/capita	Digital transformation	Total R&D expenditures	R&D legislation quality	Digital/tech competences
GDP/capita	1	0.070	0.865**	0.789**	0.070
Digital transformation	0.070	1	0.046	0.159	−0.142
Total R&D expenditures	0.865**	0.046	1	0.764**	−0.117
R&D legislation quality	0.789**	0.159	0.764**	1	0.128
Digital/tech competencies	0.070	−0.142	−0.117	0.128	1
	60	60	60	60	60

**Correlation is significant at the 0.01 level (2-tailed)

increased investment in R&D, while the same has a weak impact on digital transformation. If we consider that the main drivers of digital transformation are enterprises, and especially small- and medium sized ones, and start-ups, we identify another 'node' in which public–private partnerships for fostering an encouraging business environment based on community/region of development/country might make sense.

This would require involving the wider community/region of development, from families with children, to schools and other educational facilities, main public, and private stakeholders in a process of mapping a vision and a strategy to which they all would commit with respect to the economic, social, and cultural development of the respective community/region.

It would also mean providing for, and making use of flexible forms of constant cooperation between the representatives of the public and private sector that would be expressed in actions based on either Public-Oriented-Projects (POP), or even on Private Sector-Oriented-Projects in a manner that would contribute to satisfying the goals of both parties on short-, medium- and long-term [45].

It is especially relevant in the current context when technological rapid change, ongoing transformative labor market developments, the post-pandemic volatilities in certain economic and social sectors (health, education, energy), and the geopolitical insecurity in the immediate neighborhood of the EU-27, have triggered considerable imbalances threatening to a certain extent and putting into question some of the goals of convergence and cohesion goals.

3 Future Development of the Framework

These are some raw, initial findings from a more complex model, including several other institutional-economic indicators, that we believe as relevant in context, but for which reliable statistical data are not yet available. Moreover, we would like to have a longer period covered by the databases concerned with potential and already included social and intellectual capital components, next to the set of indicators we intend to apply in a more extended study, regarding the institutional economic components that might play a role for rethinking the frameworks, dimensions, and legislative criteria for public–private partnerships.

The period before the Covid 19 pandemic has shown that in most EU member-states, these partnerships have delivered beyond potential and expectations. Among the obstructive issues was the legislative-institutional framework for which were identified three main dimensions: contractual governance, interinstitutional relationships, and risk sharing. All these dimensions have both endogenous and exogenous factors that contribute to how public–private partnerships operate and are perceived, and for which interventions are required for rendering them flexible and for providing them with room for innovative approaches in the dialogue with interested stakeholders and partners from both sectors.

Other main issues that contributed to a lesser degree to the low share of public–private partnerships, though encouraged by the Commission and included among the possibilities of benefiting from European funds are the differences in aligning and combining the public and private interests. There are different degrees of coordination and cooperation between the public and private sector, depending also on the stage of development in the respective EU-27 country. One contributing factor is the added lacking transparency often accompanied by considerations related to the financial and investment interests of the financiers who put in some cases heavy emphasis on rigid contractual relationships, especially if they are an important international or European bank player.

Possible institutional economic indicators we suggest including in our extended analysis were identified in the IPD-CEPII database. We selected some institutional economic indicators that we intend to include in the extended model, but this time taking as dependent variable public–private partnership cooperation.

Hereunder, we present an overview of the main indicators that we consider as defining for establishing working public–private partnerships for developing both social and intellectual capital, based on the same selection criteria, and arguments related to historical, geographic, and spatially perceived proximities.

We divided the table in two parts, where in Table 3 we present the indicators that we regard as relevant for a favorable climate to public–private partnerships in general, while in Table 4 we introduce institutional-economic indicators for the generation of both social and intellectual capital in association with public–private partnership.

However, the scarcity of data did not allow for performing a more in-depth analysis as these indicators are available only for the year 2016, and it is our opinion that the pandemic and the current geopolitical instability might have impacted on them.

Table 3 Institutional-economic indicators for estimating the potential for public–private partnerships (2016) (based on [38])

	Fiscal autonomy of sub-national authorities	Transparency of economic policy	Transparency in public procurement	Influence of economic stakeholders	Capacity for State reform	Capacity for sectoral reform	Public–Private cooperation
Germany	3.00	4.00	4.00	2.33	4.00	3.80	3.33
Austria	0.50	3.00	3.00	2.33	2.50	2.20	2.67
Bulgaria	1.50	2.50	2.00	1.33	2.75	2.60	2.67
Spain	2.00	3.50	2.00	0.33	2.25	2.60	2.67
France	3.00	4.00	4.00	3.00	4.00	3.40	2.67
Greece	1.00	3.00	2.00	1.33	1.50	1.40	2.00
Hungary	2.00	3.50	2.00	1.67	4.00	3.00	2.67
Italy	2.50	4.00	2.00	2.33	2.25	2.60	3.00
Moldova	2.00	2.50	2.00	1.33	2.25	2.00	2.00
Netherlands	2.00	4.00	4.00	2.33	3.00	3.20	4.00
Poland	2.00	3.50	3.00	2.00	2.50	2.80	2.67
Portugal	2.00	3.00	3.00	2.33	2.50	3.60	3.67
Romania	1.00	3.00	2.00	1.00	3.00	1.80	1.67

Legend: the indicators are built on scores from 0 to 4, where 0 is very low and 4 is very good

Table 4 Institutional-economic indicators for estimating the potential for public–private partnerships (2016) selected member-states (based on [38])

	Long-term vision	Long-term sectoral strategies	Public policy-making process quality	Adaptation and innovation	Ease of starting a business	Support for emerging dynamic sectors	Consideration of the public interest in relationships between the State and business	Technological environment of firms	Public support for innovation
Germany	4.00	3.50	2.80	4.00	4.00	3.00	1.50	4.00	4.00
Austria	3.00	3.25	2.60	2.67	3.00	4.00	0.50	3.00	3.00
Bulgaria	1.00	1.75	2.20	2.33	4.00	2.00	2.50	2.67	2.25
Spain	2.00	2.00	1.80	2.33	3.00	2.00	2.00	1.67	1.25
France	2.50	3.00	2.40	2.67	4.00	3.00	3.00	3.33	2.50
Greece	0.00	1.75	1.00	1.33	2.50	2.00	2.00	2.33	2.25
Hungary	3.00	2.75	1.60	1.33	3.50	4.00	3.00	2.00	2.50
Italy	1.00	2.25	2.40	1.33	4.00	2.00	1.50	3.00	1.75
Netherlands	4.00	3.75	3.20	3.67	4.00	4.00	4.00	3.33	2.25
Poland	3.00	1.50	1.80	2.00	3.50	3.00	2.50	1.67	2.50
Portugal	3.00	3.50	2.80	3.00	4.00	3.00	3.00	2.67	2.75
Romania	1.00	1.50	1.40	1.33	4.00	3.00	1.50	3.00	2.25

Legend: the indicators are built on scores from 0 to 4, where 0 is very low and 4 is very good

We support this argument by mentioning the evolution of the composite economic sentiment indicator (ESI) which is indicative also for the appetite of the society to invest, to consume and to develop new activities. The composite indicator is built on considering the five main sectors (industry with a weight by 40%, services 30%, consumers 20%, constructions 5%, and retail 5%) and it has shown a considerable drop for the past two to three years. While it is used to estimate the GDP growth at EU-27 level, for the member-states and regions, it is also useful in estimating how institutional-economic indicators will develop, according to the optimism or pessimism shown by the respondents of the Business and Consumers Surveys, if we consider that it also follows the employment developments. The latest data (2022) is that, after a period of increase, with a peak by 117,8 in October 2021 it began decreasing and continued to decrease for several consecutive months, by −1.0 points in the EU, to 96.5%, and by −1.3 points in the Euro Area to 97.6%. Encouraging is the fact that the employment expectations indicator (EEI) has stabilized at 107.3 in the EU-27 and at 108.0 in the Euro Area at after two months of significant losses [2]. The most recent data (2023) show that the economic sentiment indicator begins to pick up hesitantly again, despite the continued uncertainty due to political decisions, and inferences determined by the conflict in the immediate proximity of EU.

This only confirms again that the economic sentiment indicator, and the employment expectations indicator are depending also on the institutional-economic indicators we identified in support of our argument that public–private partnership cooperation is required for investing in and developing the social and intellectual capital of member-states and of nations, in general, especially when uncertainties are predominant.

Although the indicators included in the Tables 3 and 4 are self-explanatory, we notice that they also show how the political, economic and social environment interact as to be conducive not only to public–private partnerships, but also to encouraging the creation of public and private networks that would support innovation and technological transformation depending on the higher or lower increase in aspects related to trust, such as how transparent, clear and specific are economic policies, or how high is the influence of economic stakeholders.

Another relevant aspect is that, for instance, despite high ease in starting a business, from what we noticed while compiling the data (for instance, Albania scores 4), this is not necessarily related to the degree of adaptation and innovation where the same country might score much lower (for instance just a bit above 1), thereby being able to draw attention to the possible low support for emerging dynamic sectors of the economy (1.00). It is as such also an explanation for the average score regarding public–private cooperation in most instances.

Regarding public–private cooperation, the best scores are registered in two Old Member-States, respectively Germany (3.33) and the Netherlands (4.00) while almost all other countries have scores between 2.00 and 2.67, except for Portugal, from the Former Member-States of Convergence and Cohesion, with a score by 3.67. From the New Member-States it is most concerning that Romania (1.67) scores below the total average of the selected member-states, and even compared with the New Member-States included in the sample.

Hence, we might conclude that public–private cooperation and/or partnership depends also on the state's capacity to reform, and in this respect, the highest scores Hungary (4.00) from the category of New Member-States, followed by Romania (3.00), while the highest scores of Old Member-States are recorded in Germany at the same level with Hungary, and the Netherlands which has the same score as Romania. All other countries have scores ranging between 2.25 and 2.75 and it is a mix of countries representing all categories, that is member-states and candidates.

However, though these findings might have been encouraging for the period 2016–2019, we have grounds to assume that the conditions have changed, due to economic and social issues for the period 2019–2022/2023, from among which the heaviest impact is the one of the Covid-19 pandemics. The high volatility determined by speeding up the processes for decarbonizing the EU economies, when the post-pandemic recovery was just beginning to take roots, followed by considerable concerns triggered by the Ukraine conflict we believe to have also impacted the favorable evolution of some of the economic-institutional indicators, along with the ones regarding economic sentiment and employment expectations. A clear sign is that, now, by the beginning of 2023, several member-states show signals of distress, by tightening labor market legislation (see for instance France and its pension system reform regarding age of retirement), or the recent austerity package proposed by Romania, whereby assessments are made, and decisions are in preparation for freezing wages and employment opportunities in the public sector for the current year. These are two most recent examples which substantiate our opinion, as both mentioned interventions show worsening of transparency regarding economic policy of these two countries. This might be corroborated also with the decreasing score in the quality of the public policy making process (Table 4).

When we estimate the existing and potential national intellectual capital, we believe that the indicators in Table 4 are closely linked and fit for this purpose and might be used as soon as the available data will allow for cross-panel analysis or even for designing an econometric model. These institutional-economic indicators corroborate well with the findings of the other studies, and they give a specific reason for reflection, in particular how a more flexible public–private partnership cooperation could contribute to encouraging attitudes and actions that would increase certain aspects like the support for dynamic emerging economic sectors, or the public support for innovation were the highest score (4.00) is in Germany, followed by Austria (3.00).

Also, another aspect that needs improvement is the consideration of the public interest in the relationships between the state and the business environment, where in point, small, flexible, and ad-hoc public–private partnerships could play a major contribution. The only example is Netherlands, a country which has had a relatively good experience as regards public–private partnership cooperation, as compared with other member-states.

When we consider these dimensions, we might weigh in also the experience of Great Britain, a country which exited the EU, but where the pandemic period has shown a good management regarding public–private cooperation and succeeded in covering almost all needs of the healthcare system in the first stage of the outbreak,

and operating from ensuring medical equipment for the healthcare personnel up to providing for short-, medium- and long-term care for the patients.

4 Conclusions

It is obvious that a knowledge society and economy cannot function any longer by insisting and directing policies for employment and labor market based on the criteria of traditional economy. In the very near future, the performances of the global and EU economies will be measured especially based on the types of intangible capitals they will be able to generate in the mixed labor environment which is brought by digitalization, automation, and AI.

Labor markets will be measured more based on indicators that help prevent, for instance, the *de-socialization* of labor which is currently on increase due to heightened polarization and increasing disparities and divergence that were only amplified by the pandemic.

The current post-pandemic period is one of tension and vulnerability. The pandemic doesn't seem to have ended its evolutions, as variants of concern still appear. At the same time, the labor market is affected by the technologically and digitally induced changes that first affect economic institutions that developed endogenously and were also impacted by exogenous factors.

From the brief analysis it is obvious that investments are necessary in developing the various types of social capital, especially the ones enabling cooperation and coordination beyond hierarchies, inside complex systems, and which need therefore a climate of transparency and confidence in official economic information if the numerous current risks are to be avoided. Additionally, more needs to be done to identify how national intellectual capital could be monitored, measured, and improved, based on a combination between economic-institutional components and indicators about the development in the business sector, especially in high-tech industries and services, where there already exists intellectual capital at micro level.

Our analysis has shown that there is no direct link between human capital and intellectual capital—for achieving and being able to measure in the future the actual and potential national intellectual capital, it is necessary to extend the framework for measuring social capital as this form of capital, by the networks it creates, by its multiple private and public intermediation of information and knowledge is the meeting place between all types of capital present in the labor market and in the economic sectors.

Recent approaches attempting to measure social capital at regional level could serve as a platform for developing the extended institutional-economic framework assisting in developing objective and measurable outcomes of the intellectual capital also at regional level, thus facilitating building a tool for measuring national intellectual capital, by considering how it takes shape in the various interactions mediated by the most relevant components of the social capital.

For intellectual capital macro-complex indicators need to be developed that will correlate as much as possible with the indicators and sub-indicators of the human and social capital if objective measurement tools are developed.

Regarding the potential for investing in social and intellectual capital, public–private partnership cooperation under new forms and types, implying 'thinking outside the box', could improve all dimensions relevant not only for these two types of intangible capital, but also for human capital and labor market developments in a period that is fraught with numerous uncertainties and vulnerabilities.

Another argument for supporting this approach is the emerging Project Oriented Partnership which does not discriminate interested stakeholders in terms of their legal status (public, private, NGO). This approach might contribute to render more flexible partnerships that are necessary in the current period of multiple crises for managing the welfare, economic growth, and development of the European societies.

For governments, the main measures should aim at creating a more favorable environment for the business sector, especially for SMEs in R&D and innovation, in high-tech industries and services by ensuring new co-financing, co-planning schemes, improving transparency and increasing confidence in the official economic information. These governmental aims can be achieved only based on sustained coordination and cooperation with the private sector, and by agreeing on several common goals for medium- and long-term.

References

1. Mincer, J.: Investment in human capital and personal income distribution. J. Polit. Econ. **66**(4), 281–302. The University of Chicago Press (1958). https://www.jstor.org/stable/1827422. Accessed 05 May 2022
2. Becker, G.S.: Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education, 3rd edn. The University of Chicago Press, Chicago (1993)
3. Acemoglu, et al.: Institutions, human capital and development. Annual Review of Economics **6**, 875–912 (2014)
4. Acemoglu, D., Johnson, S., Robinson, J.A.: Institutions as Fundamental Cause of Long-Run Growth: Handbook of Economic Growth, vol. I A, Aghion, Ph. et al. eds., Elsevier B.V. (2005)
5. Fix, B.: The trouble with human capital theory. In: Real-World Economics Review, Issue 86, pp. 15–32. World Economics Association, Bristol (2018). http://bnarchives.yorku.ca/568. Accessed 15 March 2022
6. Acemoglu, D., Robinson, J.A.: Why Nations Fail: The Origins of Power, Prosperity, and Poverty. Profile Books, London (2013)
7. Andriessen D., Stam C.: The Intellectual Capital of the European Union/Measuring the Lisbon Agenda, p. 23. Centre for Research in Intellectual Capital, INHolland University of AppliedSciences, Haarlem (2004)
8. Dasgupta, P.: Trust as a commodity. In: Gambetta, D. (ed.) Trust: Making and Breaking Cooperative Relations, pp. 49–72. Basil Blackwell, Oxford (1988)
9. Dasgupta, P.: Economic progress and the idea of social capital. In: Dasgupta, P., Serageldin, I. (eds.) Social Capital: A Multi-faceted Perspective, pp. 325–424. The World Bank, Washington, DC (2000)

10. Putnam, R.D.: Making Democracy Work: Civic Traditions in Modern Italy. Princeton University Press (1993) Putnam, R.D.: Democracies in Flux: The Evolution of Social Capital in Contemporary Society. Oxford University Press (2002)
11. Putnam, R.D.: Democracies in Flux: The Evolution of Social Capital in Contemporary Society. Oxford University Press (2002)
12. Schiuma, G., Marr, B., Neely, A.: Intellectual capital—defining key performance indicators for organizational knowledge asset (2004). https://www.emerald.com/insight/content/doi/https://doi.org/10.1108/14637150410559225/full/html
13. Healy, T., Cote, S.: The Well-Being of Nations: The Role of Human and Social Capital. Organisation for Economic Co-operation and Development (2001)
14. Schneider, J.A.: Social Capital and Welfare Reform: Organizations, Congregations, and Communities. Columbia University Press (2006)
15. Kaplan, R.S., Norton, D.P.: The balanced scorecard-measures that drive performance. Harv. Bus. Rev. **70**(1), 71–79 (1992)
16. Sveiby, K.E., Risling, A.: The Knowledge Company: The Most Important Management Challenge in this Century? Liber, Sweden, Malmo (1986)
17. Unerman, J., Guthrie, J., Striukova, L.: United Kingdom Reporting of Intellectual Capital. Institute of Chartered Accountants of England and Wales Centre for Business Performance, London (1986)
18. Beattie, V., Thomson, S.J.: Lifting the lid on the use of content analysis to investigate intellectual capital disclosures. Account. Forum **31**(2), 129–163. Elsevier (2007)
19. Bontis, N.: National intellectual capital index: a United Nations Initiative for the Arab region. J. Intellect. Cap. **5**(11), 13–39 (2004)
20. Wall, A., Kirk, R., Gary, M.: Intellectual Capital Measuring the Immeasurable? CIMA Publishing, Elsevier (2004)
21. Lin, C.Y-Y., Edvinsson, L.: National Intellectual Capital, A Comparison of 40 Countries. Springer Verlag New York, Springer Science+Business Media LLC. (2011)
22. Schuller, T.: Reflections on the use of social capital. Rev. Soc. Econ. 65(1), 11–28. https://doi.org/10.1080/00346760601132162 (2007)
23. Granovetter, M.: Economic action and social structure: the problem of embeddedness. Am. J. Sociol. **91**(3), 481–510 (1985)
24. Bounfour, A., Edvinsson, L.: Intellectual Capital for Communities: Nations, Regions, and Cities. Elsevier Butterworth-Heinemann (2005)
25. Marr, B., Schiuma, G.: Measuring and managing intellectual capital and knowledge assets in new economy organisations. In: Bourne, M. (ed.) Handbook of performance measurement. Gee, London (2001)
26. Edvinsson, L., Malone, M.: Intellectual Capital. Harper Business, New York (1997)
27. North, D.: Institutions, Institutional Change and Economic Performances. Cambridge University Press (1990)
28. Williamson, O.E.: The new institutional economics: taking stock, looking ahead. J. Econ. Lit **38**(3), 595–613. https://www.jstor.org/stable/2565421. Accessed 21 Feb 2022
29. Voigt, St: How (Not) to measure institutions. J. Inst. Econ. **9**(1), 1–26. Millennium Economics Ltd. (2013)
30. Linder, S.H.: Coming to terms with the public-private partnership: a grammar of multiple meanings. Am. Behav. Sci. **43**(1), 35–51 (1999)
31. Wettenhall, R.: The rhetoric and reality of public-private partnerships. Public Organ. Rev. **3**(1), 77–107. Springer (2003)
32. Hodge, G.A., Greve, C.: The Challenge of Public-Private Partnerships: Learning from International Experience. Edward Elgar Publishing (2005)
33. Bovaird, T.: Public–private partnerships: from contested concepts to prevalent practice. Int. Rev. Admin. Sci. **70**(2), 199–215. Sage Publications (2004)
34. Williamson, O.E.: The Economic Institutions of Capitalism: Firms, Markets, Relational Contracting. London: Free Press; Collier Macmillian, New York (1985)

35. Furubotn, E.G., Richter, R.: Institutions and Economic Theory: The Contribution of the New Institutional Economics. Economics, Cognition, and Society, 2nd ed. University of Michigan Press, Ann Arbor (2005)
36. Künneke, R., Menard, C., Groenewegen, J.: Network Infrastructures: Technology meets Institutions. Cambridge University Press (2021)
37. Haerpfer, C., Inglehart, R., Moreno, A., Welzel, C., Kizilova, K., Diez-Medrano, J., Lagos, M., Norris, P., Ponarin, E., Puranen, B. (eds.).: World Values Survey: Round Seven—Country-Pooled Datafile Version 4.0. JD Systems Institute & WVSA, Madrid, Spain & Vienna, Austria (2022)
38. CEPII.: Institutional Profiles Database (2000–2016)
39. Stiglitz, J.E., Fitoussi, J.P, Sen, A.: Mismeasuring Our Lives: Why GDP Doesn't Add Up, The Report by the Commission on the Measurement of Economic Performance and Social Progress. The New York Press, New York (2010)
40. Stiglitz, J.E., Fitoussi, J.P., Sen, A.: Beyond GDP: Measuring What Counts for Economic and Social Performance. OECD Publishing, Paris (2018)
41. PENN-World Table (2022). https://www.rug.nl/ggdc/productivity/pwt/?lang=en
42. Eurostat, https://ec.europa.eu/eurostat/databrowser/view/sdg_08_10/default/table?lang=en
43. IMD World Competitiveness Yearbook (2019). https://ec.europa.eu/eurostat/databrowser/view/sdg_08_10/default
44. Emerging Europe (EE): New Statistics Confirm Romania's Demographic Catastrophe (2018). https://emerging-europe.com/news/new-statistics-confirm-romanias-demographic-catastrophe/. Accessed 20 May 2022
45. Vecchi, V., Caselli, S., Corbetta, G.: The public-private partnerships' framework. In: Caselli, S., Corbetta, G., Vecchi, V. (eds) Public Private Partnerships for Infrastructure and Business Development. Palgrave Macmillan, New York (2015)

The Promethean Fate of Economy: Will Hydrogen Really Be Prometheus III's New Gift to Humanity?

Cristina Montesi

Abstract The paper aims to analyze, adopting an *interdisciplinary* method, whether hydrogen can be considered the key-fuel of a new *Promethean* technology, *Promethean* in the peculiar meaning that ecological-economist Georgescu Roegen attributes to this adjective of mythological resonance. By Promethean technology Georgescu-Roegen means a particular technology, which is based on a qualitative transformation of energy and on a self-enhancing chain reaction which produces a great surplus of energy available for other processes (which means to have a high *Energy Return On Energy Invested*, an EROI > 10). In this interpretative frame only three Promethean technologies have been identified by Georgescu-Roegen since the dawn of history (*mastery of fire*, *agricultural and animal breeding techniques*, *steam engine*) which respectively gave rise to the society of the fire regime, to agrarian societies, to industrial societies. Hydrogen satisfies the first requirement of a Promethean technology being able to allow the transformation of chemical energy into electrical energy or kinetic energy, but it does not satisfy the second requirement (EROI > 10) as it actually has too low energy efficiency and a production cost which is still quite high (especially for green hydrogen). However, if we assume a broader notion of Promethean technology compared with Georgescu Reogen's notion, we can appreciate hydrogen for four characteristics that make it "titanic": it is an element that is not at risk of exhaustion being very abundant in nature although bound to other molecules; it is a disruptive element due to its capacity of decarbonizing a variety of energy-intensive sectors (this characteristic refers to green hydrogen); it is an element that can lead to a new socio-technical regime based on economic democracy; it is an element that, due to its extreme versatility of use, can, once fully operational, give rise to an open up long-term expansive economic phase. So it may be understandable why after the gift of fire to humanity made by titan Prometheus I, after the gift of coal and other fossil fuels made by Prometheus II, *green* hydrogen is looming as the new gift of Prometheus III to mankind. This gift, thanks to the fact that *green* hydrogen is

C. Montesi (✉)
Department of Economics, University of Perugia, Via Alessandro Pascoli 20, 06123 Perugia, Italy
e-mail: cristina.montesi@unipg.it; montesik@usa.net

Member of Athena Laboratory, Terni, Italy

G. Pellat et al. (eds.), *Cooperation and Enlargement: Two Challenges to be Addressed in the European Projects - 2022*, Studies in Systems, Decision and Control 500,
https://doi.org/10.1007/978-3-031-42253-9_16

an easily storable raw material, a clean fuel, a vector and a means for accumulation of energy, can contribute, as already pointed out by Jeremy Rifkin, to overcome, at European level, the problems of exhaustion of non-renewable energy resources, of pollution, of climate change, of security and independence of energy supplies, of economic recovery after covid-19 pandemic and Ukrainian war, of lack of democracy in energy generation. This charge of optimism, however, cannot ignore naturally the different problems that in the present slow down a wider diffusion of hydrogen which are analyzed in the essay. "A cleaner planet and a more stable and stronger economy" is the dual objective to be pursued by European Union in the coming years through two strategies: the first strategy is the transformation of European energy systems in the direction of a greater use of renewables energy and of acquisition of a greater integration and flexibility; the second strategy is the implementation, according to what has already been established by European Green Deal to reduce CO_2 emissions, of a *European Hydrogen Strategy* aimed at increasing the production/use of *green* hydrogen, to be implemented gradually, according to a precise road map, through investments, regulation, market creation and research and innovation, within the framework of a *European Clean Hydrogen Alliance*. The *European Hydrogen Strategy* should help to overcome, enhancing national specificities, the bottlenecks still existing in large-scale production of hydrogen (low technological maturity of technologies of synthesis and of use of hydrogen; high manufacturing costs, especially of green hydrogen; absence of an adequate regulatory and certification system; etc.). Some countries of European Union have already equipped themselves with a national strategy for hydrogen according to their specific resources. Italy could aspire to become an international hub for hydrogen production given its geomorphological characteristics, its industrial specialization and its strong competitive advantage both in the sectors of the "core" and in the sectors of the more "ancillary" technologies necessary for hydrogen production.

1 Promethean Technologies According to Nicholas Georgescu-Roegen

1.1 Methodology

The article aims, through the critical analysis of some of Georgescu Roegen's scientific works, to update his thinking on the subject of Promethean technologies which embraces fascinating themes related to evolutionary economics and philosophy of science. In this sense the article aims to analyze whether *hydrogen* can be considered the key-fuel of a new Promethean technology, after *wood* of the mastery of fire, *soil* of the cultivation techniques of *cereals* in the Neolithic revolution, *coal* of the steam engines of the first industrial Revolution, *oil* of combustion engine of the second industrial Revolution.

The positive answer to the question, which implies an innovation from an epistemological point of view in the enlargement of the concept of Promethean technology originally developed by Georgescu Roegen, has been formulated in an *interdisciplinarity* key, through the study of the scientific literature existing on hydrogen in different fields (in chemical, physical, technology of marketable goods; in economic, ecological-economic, financial, social, anthropological, geopolitical field) and through the consultation of the most up-to-date reports drawn up by international research institutes that are specialized on hydrogen issues and renewable energies and the reading of the documents of European Union and Italian public institutions dealing with hydrogen. These reports contain data relating to the demand and supply of hydrogen at world level, at EU level and at Italian level both in quantitative and qualitative terms and offer an insight into the economic, industrial and environmental policies already in force or still to be adopted to develop hydrogen economy overcoming all obstacles of technical, administrative and economic nature.

1.2 The Characteristics of Promethean Technologies *According to Nicholas Georgescu-Roegen*

Nicholas Georgescu-Roegen (1906–1994), Romanian economist, mathematician and statistician [1–5], founder of the thermodynamic and bioeconomic branch of *ecological economics* [6],[1] coined in some articles published between 1979 and 1989 [7], the concept of *Promethean technology*, whose name derives from Prometheus, who in Greek mythology is represented as the rebellious Titan who fights against the established order, as the friend of Humans and as the champion of progress. Prometheus steals fire from Zeus to deliver it to men, a theft for which he will be severely punished, but which allows humans to make a crucial leap in civilization. By Promethean technology Georgescu-Roegen means a particular technology which is based on a *radical innovation* of Schumpeterian type, a technology which opens up to a *long-term expansive economic phase*, a technology which gives rise to a *new socio-technical regime* at a higher level of complexity and hierarchy.

The three Promethean technologies identified by Georgescu-Roegen since the dawn of history (*mastery of fire*, *agricultural and animal breeding techniques*, *steam engine*) respectively gave rise to the *society of the fire regime*, to *agrarian societies*, to *industrial societies*. The growing flow of energy that has progressively flowed through individual and social life in all these passages has imposed the establishment of more complex and more articulated institutional organizations, with greater differentiation

[1] Ecological economics is an interdisciplinary branch of economics that attempts to achieve an integrated knowledge of the links between ecological and economic systems. A key goal of this research is to develop *sustainable* models of economic *development*, distinct from *economic growth* that is not sustainable on a *finite* planet. A key aspect in developing sustainable development models is the role of *limits*: thermodynamic limits, biophysical and socio-ethical limits, demographic limits.

and specialization of tasks among their members, with more concentration of power at the top [8].

According to Georgescu Roegen [2] a Promethean technology is characterized by: (1) a *qualitative transformation of energy* or a *new way of managing/controlling a production process*; (2) a *chain reaction* which, in addition to maintain intact the technological infrastructure involved in the process of the transformation of energy, produces a *great surplus of energy available for other processes.* A Promethean technology: "must have the same qualities as those characterizing a living organism which, in addition to performig certain specific activities, also maintains its material scaffold (its body) intact from one minute to the next" [9].

Georgescu-Roegen provides some examples of Promethean technologies, which satisfy these requirements, starting precisely from *mastery of fire*,[2] the original gift of Prometheus to Humans. Georgescu Roegen describes in details the use of fire made by mankind for the most varied purposes, in different eras, depending on the geographic areas of the planet [10, 11].[3] In the case of fire, with the combustion of wood, there is a *qualitative conversion of energy* (from chemical energy to thermal energy); the fire *allowed multiple uses* (also productive) hitherto unknown to men[4]; the fire made possible, *being able to trigger an energy chain-reaction*, to obtain a greater quantity of thermal energy than the energy input originally used (from a simple spark it is possible to generate, in presence of favorable conditions, the fire of a whole forest or of all forests) [12].

Another example of Promethean technologies are according Georgescu-Roegen the *agricultural and animal breeding techniques* experimented during the Neolithic revolution which, compared to the previous hunting and gathering regime, consisted of a *qualitative* transformation of energy[5] and improved significantly their productivity over time [13]. Mauro Bonaiuti highlights how Georgescu-Roegen's inclusion of agricultural and breeding techniques among Promethean technologies occurred belatedly, namely in his latest essay *Thermodynamics and We, the Humans* written in 1991 [42]. This hesitation "was probably motivated by the fact that agriculture exploits endosomatic (and not exosomatic) metabolytic processes. Furthermore, clear

[2] Fire control consisted of different operations: lighting the fire, keeping it burning, transporting it and taming its spread.

[3] The first evidence of a controlled use of fire (inferable from the discovery of thick layers of ash, remains of coal, burnt bones) date back to Middle Pleistocene; they are present in many Eurasian sites, the oldest of which is the Zhoukoudian cave in China inhabited by *Homo erectus* about 500.000 years ago. Other paleoanthropologists trace the mastery of fire to a maximum of 1.400.000 years ago.

[4] Among the different uses of fire can be included the production of tools for hunting and for other activities which could also take place at night; the casting of metals; the cooking of ceramics; the cooking of food with improved nutrition; the lighting and heating of living environments; the protection from enemies, predators and insects; the possibility of migrating to areas with colder climates; the deforestation of the land.

[5] In the case of agriculture, the energy of the sun, through the process of chlorophyll photosynthesis, is transformed into chemical energy (glucose), in the case of livestock, the chemical energy, through animal metabolism, is transformed into mechanical energy.

evidence was not available at the time on the role that the Neolithic revolution had, for example, exercised on population growth" [2].

Finally, the *steam engine*, which became a symbol of the first industrial Revolution [14, 15], also manifests itself as a Promethean technology. Steam engine transforms *qualitatively* thermal energy into mechanical energy, it has been applied to a series of innovative production processes,[6] it has been used in the extraction of increasing quantities of coal, through which other steam engines have been produced in a chain process. Man is distinguished from other living species, according to Georgescu-Roegen, by the fact that he does not have a pure biological evolution, but an evolution which makes also use of *exosomatic organs* (such as tools or machinery) that do not belong to human body, but which are external to the body [4].

The problem with Promethean technologies (mastery of fire, agricultural and breeding techniques, steam engine), according to Georgescu-Roegen, is that they are "self-defeating". Mastery of fire and steam engine, in their historical overlap, have always been fueled by a key-fuel of biological or fossil nature (such as *wood* and *coal*), present on Earth in limited stocks which, given the acceleration impressed to their consumption by the same Promethean technologies, have degraded (passing from *available* to *unavailable*) and risk being exhausted over time, moreover *irreversibly* [16], if not used in a *sustainable* way.[7] Economic growth driven by the consume of *wood* led, in ancient times, to the disappearance of the great western forests, economic growth driven by *coal* led to an increasingly expensive exploitation of its deposits. As far as agriculture and livestock are concerned, the key resource was the *soil*, a finite resource which, having been over-exploited in ancient times, caused great migrations of the population from Asia to Europe and the decline of many societies and empires. The *age of wood* has been followed by the *age of coal*, the age of coal has been replaced, in the first decades of the twentieth century, by the *age of oil and of other fossil fuels* (conventional: methane, natural gas, etc. and not conventional: heavy oil, bitumen and oil sands, oil shales), an era which we are still living in the present. When man makes use of Promethean technologies, he exploits energy resources, that support these same technologies, in an "extravagant" way, eventually causing an energy crisis according to Georgescu-Roegen [7]:

> The first [Promethean technology] was based on the *mastery of fire*, the legendary gift of Prometheus. Its support was wood fuel […] by the later part of the seventeenth century there was a crisis of wood, entirely similar to the present crisis of fossil fuels. The wood crisis was solved, as by miracle, by Prometheus II, two mortals, Thomas Savery and Thomas Newcomen, who invented the *heat engine* […] The problem now is whether and when a Prometheus III will come to get us out of the present muddle. No one can answer that question for sure.

[6] The applications of steam engine have ranged from machines associated with looms for textile production to water pumps used for mines, to other industrial machines, to transport (locomotives, ships, cars, trucks).

[7] Respect for sustainability would suggest a consumption of a *non-renewable energy* source such as coal within quantitative limits that are dictated by the discovery of new deposits and/or of new substitutes, while the consumption of a *renewable energy source* such as a forest should be made in times that guarantee its reproducibility and do not alter its quality.

Georgescu-Roegen could not see a solution to the energy crisis of his time as photovoltaics could not be, in his days, a Promethean technology because, despite the sun being a clean and unlimited source of energy, it had a high energy and economic cost that seriously limited its efficiency [9]:

> The direct use of solar energy does not fulfill the minimal strictly necessary condition of a Promethean recipe, which is that some solar collectors could be reproduced only with the aid of the energy they can harness [..] The main obstacle is the extemely weak radiation of the solar energy reaching the soil. The obvious upshot is that we need a disproportionate amount of matter to harness solar energy in some appreciable amount.

Nuclear energy, while falling within the canons of Promethean technological paradigm, manifested then as today other drawbacks according to Georgescu-Roegen [9][8]:

> The 'breeder' reactor, however, is a Promethean recipe: it performs a qualitative conversion, of fertile into fissionable nuclear material, and, just like the heat engine, it produces more fuel than it consumes. But the use of nuclear energy in any type of reactor raises issues about the safety of all life on this planet, issues that are far from even moving toward a settlement.

Although Georgescu-Roegen prophetically refers to the efficient use of biomass or to a "new age of wood, even if different from the past, because today our technical knowledge is more extensive" [12], the only rational strategy, pending the discovery of a new Promethean technology or the slow sliding towards a less 'hot' technology than fossil fuels (a transition that could take place, according to Georgescu-Roegen, making the use of solar energy more efficient[9]), should have been the strategy of the economization of fossil energy resources and the strategy of the adoption of a *minimal bioeconomic program* devised by Georgescu-Roegen [22, 23, 41]. Hydrogen had not been visualized by Georgescu Roegen as Prometheus' third gift to humanity.

[8] According to Georgescu-Roegen, however, the tendency for an increase in entropy does not only concern energy, but also matter.

[9] It should be noted that *solar technology* in 2008 had a value of EROI (*Energy Return On Energy Invested*), the indicator that measures the ratio between output and input of energy produced by a photovoltaic plant, still too low (between 6 and 12) to be defined a *Promethean technology* (which requires an EROI value > 10). Consider that *oil* in the 1930s in US had an EROI of 100, and then dropped to 31 in the 1970s and to 11–18 in 2005. A similar decreasing trend was found worldwide, where the *global* EROI (which includes *oil* and *natural gas*) was 26 kilojoules per 1 kilojoule invested in 1992, 18 kilojoules per 1 kilojoule invested in 2006, 15 kilojoules per 1 kilojoule invested in 2008 [17, 17–20]. Thanks to technological progress, silicon photovoltaics have reached an EROI value between 12 and 15 over time and cadmium tellurium photovoltaics an EROI value between 30 and 40, a higher performance than that provided by other renewable energies (the EROI of wind power is between 5 and 15) and by some fossil fuels [21].

1.3 The Imminent Arrival of Prometheus III with the Gift of Green Hydrogen to Humanity

The scarcity of fossil fuels (oil and natural gas), predicted in the Seventies by Georgescu-Roegen and by other scholars [24], has now become manifest[10] and has even worsened due to the shock, which occurred on the side of their supply, of the war between Russia and Ukraine which exploded in February 2022. The conflict in act causes serious disturbances in world energy system because of high energy prices and energy insecurity. Furthermore the energy crisis cannot be separated from taking into consideration the deleterious effects of fossil fuels on climate due to the emission of greenhouse gases which have caused the phenomenon of *global warming* [27].

A recent Report by Irena (International Renewable Energy Agency) [28] has highlighted the increasingly strategic role that *renewable energies* are playing in the energy transition both for the lower costs of producing electricity compared to fossil fuels and for the possibility of a decarbonised production of electricity that is necessary for an affordable 1,5 C° pathway of Paris Agreement.

In 2020 the *global weighted-average levelised cost of electricity* (LCOE) produced in new generation plants, with the use of renewable sources, declined in comparison with 2019, despite the impact of the pandemic, thanks to the resilience of renewable power generation supply chains and to the record growth of new plants in China.

The biggest reduction of LCOE `been` registered, in 2019–2020, respectively in *concentrating solar power* (CSP) (−16%), in *onshore wind* (−13%), in *offshore wind* (−9%), in *solar photovoltaic* (PV) (−7%).[11] So renewable electricity from solar and wind power is passing from an expensive niche to a head-to-head competiton with fossil fuel for new capacity. In this process renewables will become also the backbone of the production of *green* hydrogen (hydrogen produced in an electrolyzer using water and renewable energy) facilitating the imminent advent of Prometheus III bearer of this new gift to humanity (after the gift of fire and of coal).

Actually producing hydrogen from fossil fuels is the cheapest option in most parts of the world. The levelised cost of hydrogen production from natural gas (*grey* hydrogen) ranges in the present from USD 0.5 to USD 1.7 per kilogramme worldwide. The levelised cost of hydrogen production from natural gas, but using "Carbon Capture, Utilisation and Storage" technologies (CCUS) (*blue* hydrogen) goes from

[10] The ratio between the currently estimated reserves (meaning by reserves the deposits already identified and exploitable in an economically competitive manner with the available technologies) and the current annual production certifies that the availability of *oil* has been estimated in 41.6 years (oil should therefore end around 2064), the availability of *natural gas* in 60.3 years and the availability of *coal* in 133 years[25, 26].

[11] Between 2019 and 2020, the *onshore wind* LCOE fell from USD 0.045/kilowatt hour (kWh) to USD 0.039/kWh; the *offshore wind* LCOE fell from USD 0.093/kWh to USD 0.084/kWh; the *solar PV* LCOE decreased from USD 0.061/kWh to USD 0.057 kWh. To understand how some renewable energy sources (onshore wind, solar photovoltaic) are becoming more convenient for the production of electricity compared to fossil fuels considered as a whole, it should be taken into account that in 2020 the LCOE coming from fossil fuels was USD 0.076/kWh (the same value it had in 2010) [28].

USD 1 to USD 2 per kg. Using renewable electricity to produce hydrogen from water (*green* hydrogen) costs at the moment from USD 3 to USD 8 per kg.[12] As both renewable electricity and electrolyser costs fall, however, the price gap between different methods of production of hydrogen is expect to shrink quickly.[13]

However, in particular areas with excellent renewable resources and other facilities, things can go differently. In 2020 the levelised cost of *green* hydrogen in Saudi Arabia has been USD 1.74/kgH_2[14] lower than the levelised cost of *blue* hydrogen which goes from USD 2.4/kgH_2 to USD 1.45/kgH_2. In 2030 in this "optimal area" the levelised cost of *green* hydrogen could fall to USD 1.3 per kg and in the longer term, thanks to technology innovation and increased deployment, the levelised cost of *green* hydrogen could even reach only USD 1 per kg [31].

The decade 2010–2020 also represents a period of notable decrease in the LCOE from renewable energy sources, reconfirming the trend observed in 2019–2020, especially for the improvement of technologies, for economies of scale, for the increase in developer experience, for the greater competition among supply chains. In the decade 2010–2020 the most significant reductions were recorded in *solar photovoltaics* (−85%), followed by *concentrated solar power* (−68%), *onshore wind* (−56%), *offshore wind* (−48%), while the LCOE of *geothermal* has increased (+45%) like the LCOE of *hydroelectric* (+18%). The LCOE of *bioenergy* remained stationary [28].

2 Hydrogen as a Promethean Element?

2.1 Could Hydrogen Be Included in Promethean Technologies *According to Georgescu Roegen Criteria?*

Hydrogen is the lightest and *most abundant* element in nature (so, unlike the key-fuel of the Promethean technologies of the past, like wood, soil, coal examined by Georgescu Roegen, it does not run the risk of exhaustion with its more intensive

[12] Estimated costs in European Union are around € 1.5/kg for *grey* hydrogen, are around € 2/kg for *blue* hydrogen, are € 5–6/kg for *green* hydrogen [29].

[13] Pricing CO_2 emissions could further narrow the gap by pushing up the cost of hydrogen produced from fossil fuels.

[14] This very competitive price has been the result of an optimization for the co-location of a solar PV, a wind farm and an electrolyser in Dumat al Jandal in Saudi Arabia, an area with excellent solar and wind resources which permits high load hours necessary to amortise the costs of relatively expensive electrolyser [28]. The optimal locations for a green hydrogen production in this regard should be in areas which have the capacity to produce green hydrogen at scale and with abundant low cost renewable energy resources, which have inherent demand for local green hydrogen (possibly driven by regulations/incentives) and which are equipped with efficient transportation infrastructure [30]. In European Union this could be the case of southern Europe with cheap solar PV energy and of northern Europe with favourable onshore wind energy, with the exception of Belgium and Germany, where on average offshore wind is the cheapest option.

consumption. This trait could make hydrogen be titanic in itself). Hydrogen is present, *combined with other elements*, in water or in mineral substances, in hydrocarbons and in biological molecules. Therefore hydrogen is not considered a primary source of energy, but an *energy vector*, because some energy must be used in special processes to extract it. Hydrogen certainly satisfies the first requirement of a Promethean technology according to Georgescu-Roegen's vision: *it allows a qualitative transformation of energy*. In fact if hydrogen is used, as an alternative fuel, in a heat engine, it allows the transformation of chemical energy into kinetic energy which can be used by different transport vehicles. If hydrogen is used as input in fuel cells, it allows the transformation of chemical energy into electricity.

Regarding the second requirement of a Promethean technology (being not only a *viable* technology, but also a *super viable* technology, i.e. having an EROI > 10),[15] hydrogen in its various typologies is still far from respecting this standard, although its EROI can vary depending on the way it is produced (the EROI of *green* hydrogen is far below the EROI of *blue* hydrogen and the EROI of *grey* hydrogen).[16]

2.2 *Hydrogen According to a Wider Notion of* Promethean Technologies

The *Promethean* character of hydrogen may today derive from a characteristic of hydrogen that, at the time of Georgescu-Roegen, was less in evidence: that of being a *disruptive element* useful for *decarbonizing a variety of energy-intensive sectors.* This peculiar capability depends on a series of factors: on the fact that hydrogen can be produced in many ways (more or less environmentally sustainable), on the fact that hydrogen can even be totally clean (in the case of *green* hydrogen), on the fact that hydrogen shows great versatility of use and therefore its ability to decarbonize can be as pervasive as that of a General Purpose Technology (GPT). Hydrogen can in fact be produced and used in many ways. Hydrogen can be extracted in different ways [33]:

- hydrogen has been historically produced through fossil fuels which are still now the main extractive source of hydrogen. Coal gasification occurs when coal reacts with carbon dioxide and water vapor to produce carbon monoxide, carbon dioxide and *brown hydrogen.* Steam reforming consists in injecting steam into natural gas producing *grey* hydrogen and carbon dioxide. If CO_2 coming from steam-natural gas reformig is captured and storaged this process produces *blue* hydrogen.[17] A second way of producing *blue* hydrogen is methane splitting. This procedure uses

[15] To be *viable*, a technology should not be limited to having an EROI > 1 like in Georgescu Roegen's view, but according to some scholars should have an EROI > 7 [32].

[16] Some research has estimated an EROI value of 0.42 for *green* hydrogen and of 3.36 for *grey* hydrogen derived from steam reforming of natural gas.

[17] The capture of carbon dioxide, given the current technologies, has the limit of 90% of emissions.

a high-temperature plasma to split methane into hydrogen and carbon monoxide (CO);

- hydrogen is produced through the use of renewable energy and water. Low-temperature electrolysis is an electrochemical process in which an electric current, obtained from renewable energy (wind; solar), is applied to water to produce *green* hydrogen and oxygen (O_2). Strategical for the electrolysis process are the alkaline solution and the polymer electrolyte membrane (PEM) present in the electrolyzer;
- hydrogen is produced through the use of nuclear energy and water. The first way of manufacture is an electrolysis in which an electric current, obtained from a nuclear reactor, is applied to water to produce *pink* hydrogen and oxygen (O_2). A second way of producing *purple* hydrogen uses high-temperatures (500–2.000 C°) heat, coming from nuclear reactors, combined with the electric current to produce, with a thermochemical electrolysis, hydrogen and oxygen (O_2);
- hydrogen is produced through biomass/organic waste gasification. This means processing organic materials at high temperatures, but without combustion. When combined with oxygen and steam, the reaction results in hydrogen, carbon monoxide (CO), carbon dioxide (CO_2), which can be captured through solid sorbents;
- hydrogen is produced through not recyclable plastic waste hydro-gasification. This means processing plasmix with hydrogen getting methane. Methane is then subjected to a thermal process, using renewable energies, from which carbon dioxide (CO_2) and hydrogen are obtained, part of which will feed the hydrogasification process itself;
- hydrogen can also be produced through artificial photosynthesis (but this technology is not mature, is still sperimental).

Given its *versatility* hydrogen can be used in many industrial processes, in power generation and in transports:

- gaseous hydrogen is used, through fuel cell, in power generation, in combined heat and power applications, in gas distribution (hydrogen can in fact be mixed with natural gas and added to piping to provide fuels for industrial and domestic heating applications). Hydrogen can also provide seasonal storage for power grid[18];
- *green* hydrogen is used in oil refining and can be integrated in the production of carbon-intensive materials such as aluminum, iron, steel, glass and cement whose carbon dioxide emissions are “hard to abate”;
- hydrogen is used in the production of ammonia, methanol and other industrial chemicals which require hydrogen as a primary ingredient (ammonia and methanol are viable “substitute fuels” for heavy-duty applications like in maritime field);

[18] Unlike batteries, which are unable to store large amounts of electricity for long periods of time, hydrogen can be produced from excess renewable energy and can be stored in large quantities for a long time to be converted back into electricity when needed.

- gaseous hydrogen can be combusted directly, or when paired with fuel cells, can function as a substitute for conventional fuels (e.g., natural gas, gasoline, diesel, coal, oil, etc.) for use in commercial and industrial vehicles or in aviation;
- hydrogen fuel cell electric vehicles ("HFEVs") compete favorably with battery electric vehicles ("BEVs") in industrial applications that require high uptime, quick refueling and the ability to move heavy loads and in transport field, more precisely in large and heavy passengers vehicles (trains, buses).

This multiplicity of uses of hydrogen can lead to hypothesize that, once fully operational, it *could open up a long-term expansive economic phase*, a capacity that would reaffirm the character of hydrogen as a Promethean technology in the classic meaning of Georgescu Roegen, who had studied the expansionary cycles induced by the first and second industrial Revolutions, driven respectively by coal and oil.

Another feature that could make hydrogen be a Promethean technology today, if we look at its innovative charge invisible to Georgescu Roegen's eyes, is that hydrogen can favor the advent of an *economic democracy* with the creation, thanks to its use in domestic micro systems of fuel cells combined with ICT, of *communities* based on the concept of "distributed generation" of energy, where the user, no longer just a consumer, becomes producer of renewable energy which can be used for his needs as well as surplus energy that can be shared in the community [8, 34]. It should be noted that all the previous Promethean technologies had brought to a more centralized and hierarchical socio-technical regime.

3 Hydrogen Global Supply and Demand

3.1 Hydrogen World Insights

The energetic transition implies a gradual passage from *grey* hydrogen to *blue* hydrogen to *green* hydrogen. Grey hydrogen is predominant today accounting in 2020 for 59% of the annual global hydrogen production which is of 90 million tonnes. Natural gas is the primary source of hydrogen production, followed by diesel oil (21%) and coal (19%). In 2020 only 0,7% of global hydrogen production derives from fossil fuels with carbon capture, utilisation and storage; less than 0.1% of global hydrogen production comes from water electrolysis [31]. Production of hydrogen is responsible in 2020 for 900 million tons of carbon dioxide emissions (2,5% of the global CO_2 emissions in energy and industry sectors) [31]. A clean energy transition requires, on supply side, both a more intensive capture of CO_2 in hydrogen production from fossil fuels (blue hydrogen) and a greater supply of green hydrogen from clean electricity (green hydrogen).

Demand for hydrogen, which has grown more than threefold since 1975 and more than 50% since the turn of the millennium, comes mainly from refining and industrial uses. In 2020 refineries consume close to 40 Mt of hydrogen, industrial

sector consume more than 50 Mt (chemical production accounts for 45 Mt, three-quarters directed to ammonia production and one-quarter to methanol. The remaining 5 Mt is consumed in steelmaking) [31]. The demand of hydrogen for new application has been slow, has taken place specially in the last decade accelerated by concernes about climate change, has developed in a wider hydrogen use in existing applications (refining, chemicals, iron and steel) and in new uses in heavy industries, heavy road transport, shipping and aviation, in buildings, in agricolture, in power generation and storage. Meaningful barriers for hydrogen becoming cost competitive, in addition to the cost of energy (specially of renewable) used to obtain it and to the cost of its manufacturing plants, are many tipologies of costs related to its chemical properties and to its supply chain. The chemical properties of hydrogen (volatility, reactivity) constitute an economic obstacle to the diffusion of hydrogen. The high volatility of hydrogen molecules entails in fact the risk of energy losses. Furthermore, to avoid dispersion and increase its density, hydrogen must be compressed at high pressures or cooled to a liquid state, which increases transportation costs. The high reactivity requires, in turn, attention to the problem of keeping hydrogen pure. Hydrogen often combines with metals of the pipelines in which it is transported, damaging them. So the compatibility of the materials of pipelines in which hydrogen is carried must be carefully checked. Hydrogen reacts with all oxidants agents, such as oxygen, chlorine, nitrous oxide, etc., and in all cases the reactions are accompanied by a high development of heat. In the presence of an ignition source, reactions can become explosive, especially if they occur in closed environments.

Considering all these aspects of hydrogen implies taking into account a whole range of costs: the cost of transport and of storage (which needs pressurization) once hydrogen is produced; the costs to upgrade existing infrastructure (natural gas pipelines) to facilitate hydrogen transport[19]; the costs related to the safety measures to be taken in its transport and use; the costs of purification of hydrogen for its transformation in alternative fuels; the costs associated with modifying end-use infastructure/equipment to use hydrogen as a fuel source; the costs associated to other environmental and social externalities in the production (water consumption, implant placement); the costs of improvement of electrolyzers and of fuel cells[20]; the costs of research and development. Present governments focus mainly on decarbonising hydrogen production rather than on stimulating demand for new application with the aim of meeting 10% of total final energy consumption by 2050.[21] Apart from the exceptions of China, South Korea, Japan and some European Union countries which have developed different fuel cell electric vehicles, few government try to accelerate

[19] Hydrogen can in fact be mixed with natural gas up to 20% and travel in the same pipes choosing the right chemical structure of the pipelines.

[20] The electrolyzer manufacturer landscape is divided between advanced industries and smaller players or start-up whose technologies are still under development.

[21] In 2020 about 17 governments have released hydrogen strategies, more than 20 have announced they are working to develop hydrogen strategies and many companies are searching business opportunities in hydrogen field [31].

the adoption of hydrogen-based fuels in end-use sectors.[22] IEA has formulated seven recommendations to scale up hydrogen [36]:

(1) ***Establish a role for hydrogen in long-term energy strategies*** (national, regional and city governments have a guide-role because they should govern future expectations);
(2) ***Stimulate commercial demand for clean hydrogen*** to underpin investments by suppliers, distributors and users;
(3) ***Address investment risks of first-movers*** through targeted and time-limited loans, guarantees and other tools which can help the private sector to invest, learn and share risks and rewards;
(4) ***Support R&D*** **to bring down costs** for fuel cells, hydrogen-based fuels and electrolysers;
(5) ***Eliminate unnecessary regulatory barriers and harmonize standards*** including equipment and safety and certifying emissions from different sources;
(6) ***Engage internationally and track progress***: international co-operation is needed especially on standards, on sharing of good practices and on cross-border infrastructure, on monitoring and reporting to keep track of improvement;
(7) ***Focus on four key opportunities to further increase momentum over the next decade*** through current policies, development of infrastructure and development of skills.[23]

4 A Hydrogen Strategy for a Climate-Neutral European Union

4.1 EU Hydrogen Strategy: Targets, Phases, Axes, Investments, Financial Instruments

In the present on the demand side in EU the main consumers of hydrogen are the *refining sector* and the *chemical sector*. Actually hydrogen is produced in EU principally from *natural gas* (67% of total production) and as a *by-product in refineries* (30%). So, although hydrogen production in EU is unbalanced on grey hydrogen and consumption is mainly concentrated only on two industrial sectors, hydrogen is an

[22] The largest share of USD 300 billion of mondial investments in hydrogen until 2030 (although only USD 80 billion are really mature investments), in their *public* component, are directed to the production of green hydrogen more than other destinations (fuel cells and on-road vehicle platforms), while private companies invest mainly in capital expenditures, followed by spending on merger and acquisition and research and development activities. The biggest quota of investment will take place in Europe (about 45%), followed by Asia, where China is leading with around half of the total investments [35].

[23] This last recommendation could include the following *four* actions: transform most of existing industrial ports into hubs for lower-cost hydrogen; use existing gas infrastructure to spur new clean hydrogen supplies; support transport fleets, freight and corridors to make fuel-cell vehicles more competitive; establish the first shipping routes to start the international hydrogen trade [36].

important part of the solution to meet the 2050 climate neutrality goal established by European Green Deal and in compliance with the first European Climate Law (adopted by European Council in June 2021), because hydrogen does not emit CO_2 and does not pollute the air when it is used even through combustion. European Union has launched *EU Hydrogen Strategy for a climate-neutral Europe* (July 2020) and the *European Clean Hydrogen Alliance* (November 2020), which will play a crucial role in the New Industrial Strategy of European Union.[24] Several Proposals adopted by European Commission have given support to Hydrogen Strategy: the Proposal of revision of EU rules on Trans-European Networks for Energy (TEN-E Regulation) which promotes cross-border hydrogen infrastructure networks instead of the creation of new natural gas pipelines; the Proposal of revision of the Directives and Regulations which are part of "FIT for 55" package[25] to incorporate into EU legislation several targets to encourage the use of hydrogen and of hydrogen-based fuels in industry and in transport and for developing required infrastructure.[26]

The aim of the EU Hydrogen Strategy is to decarbonise hydrogen production (so *green* hydrogen is crucial), to expand its use in sectors where it can replace fossil fuels, to export electrolysis technologies in other countries (EU holds, at mondial level, more than 60% of them). This expansion can drive EU to sustainable development and to create green jobs (EU hydrogen value chain could totally employ up to 1 million people) after pandemic crisis as acknowledged in Commission's Recovery Plan.

The EU Hydrogen Strategy foresees a gradual trajectory, with three phases of development of a clean hydrogen economy, at different speed across different industry sectors:

- in the first phase (2020–24) the objectives are to decarbonise the existing hydrogen production, to promote hydrogen consumption for current uses in some industrial sectors (chemical sector and others) and to promote hydrogen for new applications (heavy-duty transport). This phase relies on the installation of at least *6 Gigawatt of renewable hydrogen electrolysers* in EU by 2024 and aims at producing up to *one million tonnes of renewable hydrogen* (today approximately only 1 Gigawatt of electrolysers are installed in EU). It will be necessary, in this phase, also to create the regulatory framework for a "liquid and well-functioning hydrogen market";
- in the second phase (2025–30) hydrogen needs to become an intrinsic part of an *integrated* energy system with the strategic objective to install at least *40 Gigawatt*

[24] The *European Clean Hydrogen Alliance* brings together industry, national and local public authorities, civil societies and other stakeholders to implement the EU Hydrogen Strategy. It currently has 500 members and coordinates investments between public authorities and industries, will determine economically sustainable investment projects and will create a well-defined reserve of concrete projects.

[25] This package is a set of proposals aimed to reduce in EU net greenhouse gas emissions of 55% by 2030.

[26] The Proposal of modification of the "Renewable Energy Directive" fixes the following targets: 50% renewable hydrogen consumption in industry by 2030; at least 2,6% share of renewable fuels of non-biological origin in 2030 which include hydrogen and hydrogen-based fuels produced from renewable electricity; other targets concerning deployment of alternative fuels infrastructure [31].

of renewable hydrogen electrolysers in EU by 2030 and the production of up to *ten million tonnes of renewable hydrogen.* Hydrogen use, while becoming cost-competitive, will gradually be expanded to new sectors including steel-making and will have some applications also in rail and maritime transport. Furthermore, in this second phase, green hydrogen will make European electricity system, increasingly based on renewables, more flexible thanks to its facility to be stored.[27] It will be produced mainly close to the user or close to renewable energy sources in local ecosystems (hydrogen valleys), in isolated areas or islands. It will be necessary in the meantime to create a network of hydrogen filling stations and large-scale storage facilities. An EU-wide hydrogen core network will be planned by reusing parts of the existing gas pipelines;

- in the third phase (2031–2050), renewable hydrogen technologies should reach maturity and be deployed at large scale to reach all "hard-to-decarbonise" sectors (like aviation and buildings) where other alternatives might not be feasible or might have higher costs.

The Strategy, in addition to the three phases, is articulated along five axes: *investment agenda*, *demand increase, infrastructure and market framework*, R&D *for hydrogen technologies, international dimension* [37].

The investment needs, up to 2030, would amount to € 24–42 billion for electrolysers; to € 220–340 billion to increase solar and wind power generation capacity to 80–120 GW; to € 11 billion to equip half of existing plants with carbon capture and storage technologies; to € 65 billion for the transport, distribution and storage of hydrogen, together with hydrogen refueling stations. By 2050 cumulative investments in *green* hydrogen in European Union could reach the threshold of € 180–470 billion and be in the range of € 3–18 billion for *low-carbon fossil-based* hydrogen.

Financial instruments of support to the European Union Hydrogen Strategy can be found in the provisional funds of the Important Projects of Common European Interest (IPCEI), in the National Energy and Climate Plans of EU member State, in the National Plan of Recovery and Resilience of EU member State, in the European Regional Development Fund, in the Cohesion Fund, in the new initiative REACT-EU, in the Just Transition Mechanism of Green Deal, in InvestEU Programme, in the EU ETS Innovation Fund, in the Connecting Europe Facility for Energy and in the Connecting Europe Facility for Transport.

In March 2023 EU Commission (COM(2023)156) has lauched the establishment of the European Hydrogen Bank, based on four pillars, which will promote the production of renewable hydrogen domestically as well as imports from international producers to European consumers.

[27] The EU Hydrogen Strategy complements the *Strategy for Energy System Integration* fostering a climate neutral integrated energy system based on renewable electricity, circularity and green and low carbon hydrogen at its core.

4.2 Hydrogen in REPowerEU Plan

In parallel and in accordance with the actions of European Commission, some EU countries have prepared their own strategic plan for hydrogen: Belgium in 2014, France in 2018, Portugal, Germany, the Netherlands, Spain in 2020. In Italy, Poland, Austria and other countries work is in progress.[28]

As highlighted by the recent Ambrosetti-Snam Study "H2 Italy 2050" [38], each of EU countries intends to enhance their own geomorphological or industrial peculiarities: think of the case of Belgium which carried out, since 2014, the first demonstration projects focused on the use of hydrogen in transport; of Netherlands which aims to exploit offshore wind in the North Sea for the creation, by 2030, of the biggest plant, at mondial level, for green hydrogen production together with an European Hydrogen Valley; of Portugal which can count, for green hydrogen production, on the lowest cost, in European Union, of electricity production from photovoltaics.[29] Germany aspires to position itself as a global leader in the production of green hydrogen and of hydrogen technologies, together with Netherlands and France which are already specialized in CCUS technologies. France, in addition to the decarbonization of hydrogen used in industrial sectors, focuses on hydrogen also to decarbonize mobility.[30]

The EU Hydrogen Strategy was joined recently by *REPowerEU plan* (May 2022) launched, after Russia's military aggression against Ukraine, to free EU from excessive dependence on imports of gas, oil and coal from Russia [39]. The REPowerEU Plan integrates the "Fit for 55" package with interventions above all in the field of energy supply security, but includes a series of additional actions on the side of energy saving, diversification of energy supplies, replacement of fossil fuels with clean energies and replacement of natural gas with renewable gases, smart investments. The plan provides for the increase of the **production and import of renewable hydrogen, reconfirming the target of *10 million tonnes of domestic renewable hydrogen*** *production and 10 million tonnes of imports from third countries by 2030*, to replace natural gas, coal and oil in "hard-to-decarbonise industries" and in transport sectors.

The European Commission is also publishing, under the 2018 Renewable Energy Directive, **two Delegated Acts applicable to "green hydrogen".** The first proposal covers renewable fuels of non-biological origin and sets the criteria for

[28] Almost all Member States have included hydrogen in their national energy and climate plans, in 16 cases hydrogen is also part of national frameworks dedicated to infrastructure for alternative fuels, 26 countries have signed the *Hydrogen Initiative*, a policy document supporting the development of green hydrogen.

[29] The Portuguese National Strategy for Hydrogen is based on € 7 billions of public investments and on the creation by 2023 of a big plant of green hydrogen in Sines.

[30] France has set the target for the use, in the industrial sector, of 10% of green hydrogen by 2023 and of 20–40% by 2028. Regarding mobility target have been fixed by French Governemnt in terms of numbers of fuel cell vehicles and of charging infrastructures. The 2018 *Plan de déploiement de l'hydrogène pur la transition énergétique* has been updated in 2020 in the light of the report *Puor un Plan National Hydrogène ambitieux & cohérent* made by AFHyPaC.

products that fall under the 'renewable hydrogen' category. The second proposal puts forward a detailed scheme to calculate the life-cycle emissions of renewable hydrogen to meet the greenhouse gas emission reduction threshold set in the Directive.

To accelerate the uptake of green hydrogen additional funding of € 200 million has set aside for research and European Commission has approved, in July 2022, the Important Projects of Common European Interest (IPCEIs), where many investments regarding hydrogen has been included.

This first IPCEI, called "IPCEI Hy2Tech", has included 41 projects coming from 15 member States and involving 35 companies aiming at developing innovative technologies in four technology fields, concerning generation of hydrogen, fuel cells, storage, transportation and distribution of hydrogen and end-users applications.

In September 2022 the Commission approved "IPCEI Hy2Use" (35 projects jointly prepared by 13 member States and 29 companies), which complements IPCEI Hy2Tech and which will support the construction of hydrogen-related infrastructure and the development of innovative and more sustainable technologies for the integration of hydrogen into the industrial sectors, especially those that are more challenging to decarbonise, such as steel, paper, cement and glass.

5 The Hydrogen Challenge in Italy

5.1 The Hydrogen Supply Chain in Italy: Distinctive Competitive Factors, National Strategies, Development Scenarios

The consumption of hydrogen in Italy is actually almost exclusively limited to uses in the refining and chemical industries and is prevalently of grey type because it is extracted through the process of steam reforming of natural gas.

According to the PNIEC (Integrated National Energy and Climate Plan) (December 2019, but an updated version will be released by the end of 2022), one of the main objective is the reduction in Italy by 2030 of 33% of national greenhouse gas emissions in all no ETS sectors. For this purpose hydrogen can have a key role.

In november 2020 the Ministry of Economic Development published the *Italian Hydrogen Strategy: preliminary guidelines* [40]. This document sets a medium and a long term demand objective: by 2030 the national energy consumption should be made of 2% of hydrogen and by 2050 of 20% of hydrogen. On the side of the production of green hydrogen the objective is to install at least 1 Gigawatt of renewable hydrogen electrolysers in Italy by 2026 and 5 Gigawatt by 2030.

This economic turning to hydrogen, which could reduce of 4% CO_2 emissions by 2030 and create new jobs,[31] can be facilitated in Italy by several factors: (1) a higher

[31] *Italian Hydrogen Strategy* is supposed to generate in 10 years 200.000 temporary jobs and in the medium term around 10.000 permanent jobs.

availability in Italy of renewable than in other European countries; (2) the availability of an exceptional infrastructure for the transport of gas (35.000 km, the largest in Europe) that can be easily adapted to the transport of hydrogen and the capillarity of the infrastructure for the distribution of gas (260.000 km) which could be used also for hydrogen distribution[32]; (3) the existence of several pipelines connecting northern Africa to southern Italy which could be used to import hydrogen at lower cost of transport and of production[33]; (4) the leading role of Italy in Europe in research in hydrogen sector (128 projects financed by EU in 2008–2017) conducted by big private energy players (ENI, SNAM, ENEL, etc.) or by public National Agency (ENEA, National Agency for New Tecnologies, Energy and Sustainable Economic Development) or by Universities (Polytecnic of Milan, University of Perugia and others) often in collaboration with each other[34]; (5) the ownership of distinctive competencies in the production of biomethane strategic for the production of green hydrogen; (6) the strong positioning of Italy in the cluster of the production of *technologies for the production of green hydrogen* (second in EU, after Germany, with a market share of 25%), of *technologies for the production of blue hydrogen* (second in EU, after Germany, with a market share of 25%); the strong positioning in the production of technologies which are not fundamental, but functional to hydrogen production: *thermal technologies for hydrogen* (first producer in EU with a market share of 24,4%), *mechanical technologies for hydrogen* (second producer in EU, after Germany, with a market share of 19%), *electric technologies for hydrogen* (second player in EU, after Germany, with a market share of 10,9%) [38].

To reach the targets of *Italian Hydrogen Strategy* around € 10 billion of investments are needed, so articulated:

- investments required for hydrogen production: € 5–7 billion;
- investments in hydrogen distribution and consumption facilities (i.e. for refuelling stations): € 2–3 billion;
- investments in research and development: € 1 billion.

These € 10 billion can be partially covered with the funds of NRRP and with other EU funds (*Mission Innovation*,[35] etc.).

The centrality of hydrogen has been riconfirmed by the National Recovery and Resilience Plan (NRRP), the national declination of Next Generation EU Programme, transmitted by Italian Government to European Commission on 30 April 2021 and approved by European Commission on 13 July 2021. NRRP deals with hydrogen in Mission 2 "Green Revolution and ecological transition" and in its Sub-Mission

[32] Italian Snam company has already experimented methods of mixing methane with hydrogen in its own distribution network.

[33] In Africa, hydrogen can be produced from solar energy at a lower cost due to the greater number of hours of sun exposure and with a more constant supply of solar energy given the lower seasonality of the climate.

[34] Italy joined the *Renewable and Clean Hydrogen Innovation Challenge* which is a multinational research program aiming at accelerating the development of green hydrogen market.

[35] *Mission Innovation* is a global initiative of 24 countries and EU Commission to increase investments in clean energy and innovation.

M2C2 "Renewable Energy, Hydrogen, Network and Sustainable Mobility" and has allocated € 3 billion to pursue the following objectives:

- developing flagship projects for the use of hydrogen in "hard to abate" industrial sectors, starting with steel industry;
- promoting the creation of "hydrogen valleys", specially on brownfield sites;
- allowing the use of hydrogen in heavy transport and in non electrificable railway sections;
- supporting research and all the necessary legislative reforms to facilitate the use, transport; distribution of hydrogen.

NRRP has stressed the importance of a legislative reform regarding the overcoming of the fragmentation of the authorization processes for new hydrogen plants articulated on several administrative levels (central government for production and storage, local public authorities for land use) and the overcoming of the lack of a clear distinction, in authorization procedures, between production of grey or green hydrogen. NRRP highlights also the importance of fixing technical standard on production, transport, storage and use of hydrogen; the importance of administative simplification meausures for the construction of small-scale green hydrogen plants; the importance of administrative meausures for the building of hydrogen refuelling stations at motorway services areas, in ports, etc.; the importance of the introduction of certification system to guarantee the green character of hydrogen.

6 Conclusion

6.1 Synopsis

Hydrogen could constitute a Promethean element, in an enlarged meaning compared to that originally thought by Georgescu Roegen, for a series of reasons: for its being *abundant* in nature albeit combined with other elements; for its being *protean* (it is an energy transformer, a means for the accumulation of energy, a fuel, an input to many production processes); for its high *versatility of use* (domestic, commercial, industrial, mobility use) which can enhance its capability of opening up a long-term expansive economic phase; for its being (in the *green* variant) a *disruptive element*, alias a totally *clean input*, which can help decarbonize the most energy-intensive sectors and facilitate the achievement, in European Union, of climate neutrality in response to the challenge of global warming; for its being one of the *cornerstones of a more integrated*, *diversified and flexible* European energy system (with a growing role, internally, of renewable energies) and *safer* in energy supply (given the greater independence from foreign supplies of fossil fuels).

Hydrogen economy can also be an *engine of sustainable development* which creates good employment throughout its value chain in its different step[36] and a *lever of a new democracy of energy.*

Hydrogen economy is a new economy which can help overcome the economic and social crisis induced by the pandemic, the loss of competitiveness of European companies due to cost inflation and trade restrictions resulting from the war between Russia and Ukraine.

A weakness of hydrogen (in all the different tipologies) is actually its low EROI value compared to standard EROI needed to become Promethean and to the EROI of conventional fossil fuels and its high cost of production (specially the cost of green hydrogen in comparison with grey and blue hydrogen, excluding green hydrogen manufactured in the geographic areas of its "optimal" production), but the gap is narrowing as the hydrogen market develops and scales up and the cost of electrolytic hydrogen decreases thanks to the policies adopted in many States for renewable energies.

The EU Hydrogen strategy has outlined, in three phases and along five axes, the common path to promote the use of hydrogen, mainly *green* hydrogen, in all member States, as already established by European regulations on climate, enhancing national industrial and geographical specificities. This Strategy consists of increasing R&D efforts for hydrogen technologies and is focused on several key objectives: on increasing energy efficiency, on cost reductions along the whole value chain of hydrogen; on scaling up hydrogen production via EU Clean Hydrogen Alliance and via Hydrogen IPCEI; on scaling-up of electrolyser and fuel cell manufacturing; on building up of hydrogen transportation infrastructure, especially hydrogen pipelines as the cheapest energy transportation mode; on eliminating legal barriers among State members, on fixing a common legal frame, on introducing certification systems, on establishing international cooperation.

In this contex Italy could aspire, provided that all the necessary administrative reforms are made, to become an international hub for hydrogen production given its geomorphological characteristics, its industrial specialization and its strong competitive advantage both in the sectors of the "core" and in the sectors of the more "ancillary" technologies necessary for hydrogen production.

References

1. Bonaiuti, M.: La Teoria Bioeconomica. La "Nuova Economia" di Nicholas Georgescu-Roegen. Carocci, Roma (2001)
2. Bonaiuti, M.: Georgescu-Roegen. La sfida dell'entropia. Jaca Book, Milano (2017)

[36] The hydrogen value chain can be divided into different steps: *input generation*, *production*, *conversion* (including compression and storage), *transportation*, *distribution.* The key actors who should be involved in a synergic way in the value chain are: power producers, electric and natural gas utilities, oil and gas majors, electrolyzers and fuel cells producers, automotive sector, infrastructure and transportation providers, municipalities/governments, consumers.

3. Maneschi, A., Zamagni, S.: Nicholas Georgescu Roegen, 1906–1994. Econ. J. **107**(442), 695–707 (1997)
4. Zamberlan, S.: Dall'utilità al Godimento Della Vita: la Bioeconomia di Nicholas Georgescu-Roegen. Ipem Edizioni, Pisa (2007)
5. Latouche, S.: La Descrescita Prima Della Decrescita. Precursori e Compagni di Strada, pp. 70–74. Bollati Boringhieri, Torino (2016)
6. Molesti, R.: I Fondamenti Della Bioeconomia. La Nuova Economia Ecologica. Franco Angeli, Milano (2006)
7. Georgescu-Roegen, N.: The Promethean condition of viable technologies. Materials and Society **7**(3/4), 425–435 (1983)
8. Rifkin, J.: Economia all'idrogeno. Mondadori, Milano (2002)
9. Georgescu-Roegen, N.: The entropy law and the economic process in retrospect. Eastern Econ. J. **XII**(1), 3–25
10. Steven, J.: Hominid use of fire in the lower and middle pleistocene: a review of the evidence (and comments and replies). Curr. Anthropol. **30**(1), 1–26 (1989)
11. Gowlett, J.A.J., Harris, J.W.K., Walton, D., Wood, B.A.: Early archaeological sites, hominid remains and traces of fire from Chesowanja, Kenya. Nature **294**, 125–129 (1981)
12. Georgescu-Roegen, N.: Economia e degradazione della materia. Il destino prometeico della tecnologia umana. In: Molesti, R. (ed.) Economia e Ecologia, 79–102. Ipem Edizioni, Pisa (1995)
13. Childe Gordon, V.: Man Makes Himself. Watts & Company, London (1936)
14. Dickinson, H.W.: A Short History of the Steam Engine. Cambridge University Press, Cambridge (1939)
15. Rosen, W.: The Most Powerful Idea in the World: A Story of Steam, Industry and Invention. University of Chicago Press, Chicago (2012)
16. Georgescu-Roegen, N.: The Entropy Law and The Economic Process. Harvard University Press, Cambridge (Mass.) (1971)
17. Hall, C., et al.: Peak oil, EROI, investments and the economy in an uncertain future. In: Pimentel, D. (ed.) Biofuels, Solar, and Wind as Renewable Energy Systems: Benefits and Risks, pp. 109–132. Springer, Dordrecht (2008)
18. Lambert, J.G., Hall, C.A.S., Balogh, S.B.: EROI of Global Energy Resources. Status, Trends and Social Implications, pp. 1–136. Suny-ESF, Syracuse (USA) (2013)
19. Hall, C., Lambert, J.G., Balogh, S.B.: EROI of different fuels and the implications for society. Energy Policy **64**, 141–152 (2014)
20. Bonaiuti, M.: La Grande Transizione. Dal Declino alla Società Della Decrescita. Bollati Boringhieri, Torino (2013)
21. Scalia, F.: Energia Sostenibile e Cambiamento Climatico. Giappichelli, Torino (2020)
22. Georgescu-Roegen, N.: Energy and Economic Myths: Institutional and Analytical Economic Essays. Pergamon Press, New York (1976)
23. Molesti, R.: I fondamenti scientifici dell'economia ambientale: l'opera di Nicholas Georgescu-Roegen. In: Molesti R (ed.) Economia dell'ambiente. Per una Nuova Impostazione, pp. 189–209. Ipem Edizioni, Pisa (1988)
24. Meadows, D., Meadows, D., et al.: The Limits to Growth. Universe Book, New York (1972)
25. IEA.: Resources to Reserves—Oil and Gas Technologies for the Energy Markets of the Future, pp. 1–124. Juove, Paris (2005)
26. IEA.: Oil, Gas and Coal Technologies for the Energy Markets of the Future, pp. 1–268. Soregraph, Paris (2013)
27. Montesi, C.: La grammatica della giustizia climatica: configurazioni, principi, sintassi. In: SRM, Un Sud che Innova e Produce. Ambiente e Territorio: Valore e Prospettive Della Filiera Bioeconomica, vol. 8, pp. 45–86. Giannini Editore, Napoli (2021)
28. Irena (International Renewable Energy Agency).: Renewable Power Generation Costs in 2020, pp. 1–178. Abu Dhabi (2021)
29. Hydrogen Europe.: Clean Hydrogen. Monitor 2020, pp. 1–104. Brussel (2021)

30. Irena (International Renewable Energy Agency).: Geopolitics of Energy Trasnsformation. The Hydrogen Factor, pp. 1–118. Abu Dhabi (2022)
31. IEA.: Global Hydrogen Review 2021, pp. 1–221 (2021). https://www.iea.org. Accessed 25 June 2022
32. Gupta, A.K., Hall, C.: A review of the past and current state of EROI data. Sustainability **3**(10), 1796–1809 (2011)
33. CMS.: Facing the Future of Hydrogen: an International Guide, pp. 1–266 (2021)
34. Montesi, C.: L'economia all'idrogeno come paradigma di una nuova economia politica istituzionale all'insegna della sostenibilità economico-ecologica. Il Pensiero Economico Moderno, anno **XXIX**(3), 23–41 (2009)
35. Hydrogen Council, McKinsey&Company: Hydrogen Insights.: A Perspective on Hydrogen Investment, Market Development and Cost Competitiveness, pp. 1–48 (2021). https://www.hydrogencouncil.com. Accessed 28 June 2022
36. IEA.: The Future of Hydrogen. Seizing Today's Opportunities, pp. 1–178 (2019). https://www.iea.org. Accessed 15 June 2022
37. European Commission: Communication.: A Hydrogen Strategy for a Climate-Neutral Europe. COM, 301 final, Brussels, 8.7.2020 (2020)
38. The European House-Ambrosetti, Snam.: H2 Italy 2050. Una Filiera Nazionale dell'idrogeno per la Crescita e la Decarbonizzazione dell'Italia. Global Print, Gorgonzola (Mi), pp. 1–248 (2020)
39. European Commission.: Communication REPowerEU: Joint European Action for More Affordable, Secure and Sustainable Energy. COM, 108 final, Brussels, 8.3.2022 (2022)
40. Ministero Sviluppo Economico.: Strategia Nazionale Idrogeno. Linee Guida Preliminari, pp. 1–19 (2020)
41. Georgescu-Roegen, N.: Bioeconomia. Verso un'altra economia ecologicamente e socialmente sostenibile. In: Bonaiuti, M. (eds.) Bollati Boringhieri, Torino (2003)
42. Georgescu-Roegen, N.: Thermodynamics and we, the humans. In: Dragan, J., Seifert, E., Demetrescu, M. (eds.) Entropy and Bioeconomics: Proceedings, First International Conference of the European Association for Bioeconomics Studies, Rome, pp. 184–201. Milan (1993)

Sustainable Development: Acquiring New Forms of Competitiveness to Generate New Values

Elisabetta Calvo and Dante Alpi

Abstract The COVID-19 pandemic highlighted the importance of the close connection between people, our planet and profits and in particular, between the state of health of people, the degree of economic wellbeing, changing climatic conditions and the resilience of financial systems. Corporate sustainability will be an indispensible element in the development of new competitive capabilities that can create new value and in this context companies will need to enhance and reinforce goals that are sustainable in a way that are also sustainable, in order to achieve benefits both in the economic sphere and on socio-environmental impact.

1 Introduction

1.1 Relevance

The COVID-19 pandemic highlighted the importance of the close connection between people, our planet and profits and in particular, between the state of health of people, the degree of economic wellbeing, changing climatic conditions and the resilience of financial systems. There has been the need to accelerate the development of responsible companies capable of implementing investment sustainability, digitalisation and diversification; thus new reallocation of capital will be required with an inevitable shift towards sustainability in all sectors.

All of which should be in line with the 17 Sustainable Development Goals, identified by the UN as part of the 2030 Agenda, including the need to adequately communicate the effects of companies on the market.

E. Calvo (✉) · D. Alpi
Athena Laboratory, Terni, Italy
e-mail: elisabettacalvo@interfree.it

D. Alpi
e-mail: dantealpi@interfree.it

G. Pellat et al. (eds.), *Cooperation and Enlargement: Two Challenges to be Addressed in the European Projects - 2022*, Studies in Systems, Decision and Control 500,
https://doi.org/10.1007/978-3-031-42253-9_17

In this context, the EU regulation on 2020 taxonomy, which aims to identify a list of sustainable investments at a global level with the use of a common mode of communication between companies and investors in projects with a potentially favorable impact on the climate, the environment and human health, is necessary. The taxonomy used in this context aims to encourage business and investor choices for economic development that minimizes and possibly offsets negative impacts. Climate change and environmental issues are areas where it is necessary for those engaged in value production to be able to act, through activities that are environmentally responsible, paying attention to social and governance aspects (topics summarized in the acronym "ESG"—Environmental Social Governance).

Sustainable development is directly linked to the dissemination of human well-being in order to protect the health of all people and at all ages (United Nations SDG n° 3) and to this end, the promotion of healthy lifestyles and socio-economic development supported by the rational use of environmental resources is essential.

Corporate sustainability will be an indispensible element in the development of new competitive capabilities that can create new value and in this context companies will need to improve and enhance goals that are sustainable in ways that are also sustainable, in order to achieve benefits both in the economic sphere and on socio-environmental impact.

1.2 Methodology

The article aims, through the analysis of various experiences and scientific publications, to analyze the effort that companies have to make to transform their business models toward a cost-effective, yet socially inclusive and environmentally neutral economy. In this sense, businesses, together with institutions and individuals, assume an important role in the pursuit of lasting change**.** In writing the article, in response to the growing interest of organizations to move towards sustainable development, we wanted to examine a standard capable of reading sustainability at 360°, also through the description of specific business cases. The "SRG88088:20—Social Responsibility and Governance" standard, which through its High Level Structure (HLS—a structure common to all new ISO standards in order to achieve the best interaction between several integrated management systems), allows companies to obtain an accredited certification of a management system oriented towards ESG sustainability.

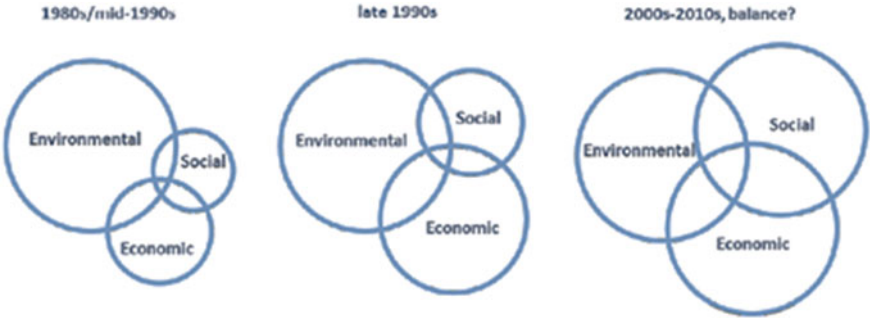


Fig. 1 Evolution of sustainable development [1]

2 The Concept of Sustainable Development and European Policies

The notion of sustainability already has its roots in the Sylvicultura Oeconomica[1] document from 1713, in which it assumes the meaning of not collecting beyond what nature is able to regenerate, thus preserving the possibility of passing on resources to future generations.

In the interaction between man and the environment, the relationships that exist within the ecosystem have been studied and have aroused the interest of political leaders and as early as 1798, Malthus,[2] in reference to the exponential growth of the population and consumption, questioned the compatibility of human development with the limitation of natural resources. The concept of sustainable development at an international level was first proposed in the report "Our Common Future" (Brundtland Report) presented in 1987 by the World Commission on Environment and Development (WCED), where it is identified as "… development that meets the needs of the present without compromising the ability of future generations to meet their own needs…".

Early on, sustainable development focused on the environmental aspect, although the social and economic components later proved to be fundamental pillars (Fig. 1).

Sustainability implies the presence of harmony between resource use, investment plans and development orientation, with the aim of optimizing present and future potential in order to adequately meet the needs induced by social development.

Sustainable development has long been in the interest of the European project and the EU treaties affirm its economic, social and environmental value, three aspects which need to be considered together.

The European Union agrees with the concept of sustainable development as it aims to ensure a decent quality of life for citizens while respecting environmental

[1] Hans Carl von Carlowitz develops an innovative manual on the subject of forestry, recognized as a turning point in the history of sustainability: Sylvicultura Oeconomica oder Anweisung zur Wilden Baum-Zucht.

[2] Malthus TR, English clergyman and economist, 1766–1834.

possibilities, through peaceful relations, efficiency of the economic system and social inclusion.

In order to protect natural heritage it is necessary to accelerate the transition to a low-carbon, climate-resilient and efficient circular economy. In this context, the European Union is in a good starting position due to its characteristic economic development, the degree of social cohesion and the sustainable development convincingly declared in the treaties [2].

The European Union adheres to Agenda 2030 [3] signed on 25 September 2015 by the governments of the 193 member states of the United Nations and approved by the General Assembly of the United Nations, for the promotion of sustainable development, through a program characterized by 17 SDGs—Sustainable Development Goals—and its 169 objectives to be achieved in the environmental, economic, social and institutional spheres by 2030.

In 2016, the European Commission identified a group of experts (High Level Expert Group on Sustainable Finance—HLEG) with the aim of developing recommendations to develop sustainable finance, supporting the use of capital in the European market in projects to support sustainable economic growth.

In March 2018, the European Commission, as part of an action plan to finance sustainable growth, presented the regulatory measures aimed at promoting investments in sustainable activities, supporting the integration of environmental, social and governance criteria (ESG[3]) in the risk management of financial operators.

In 2019, with the introduction of the Green Deal,[4] the European Union drafted a new agenda for its growth, setting the goal of climate neutrality (zero greenhouse gas emissions) by 2050, with intermediate targets in 2030 and 2040, through regulation and investment to make Europeans' energy production and lifestyles less harmful to the environment.

In 2020, subsequent to the impact of the COVID-19 pandemic, the Extraordinary Program adopted by the European Union (Next Generation EU—NGEU) renewed the objective of the green transition.

In 2021, the European Sustainable Finance Disclosure Regulation (SFDR) aimed to increase the degree of transparency of sustainable investments by allowing investors to compare different financial products by means of harmonized criteria; asset management companies are encouraged to differentiate products that support environmental and/or social and sustainability objectives from other products.

In February 2022, the Directive of the European Parliament and Council unveiled the proposal on Corporate Sustainability Due Diligence [4], which identifies the

[3] ESG is the acronym for Environmental, Social and Governance which identifies the 3 essential elements of an organization's Social Responsibility A company's ESG performance reported in Sustainability Reports is assessed by analysts, banks and investors to quantify how reliable a company is in the area of sustainability, providing important insights into the ability of an organization to meet the challenges of the market.

[4] The European Green Deal is a set of strategic initiatives that aims to set the EU on the path to a green transition; offering a complex and articulated framework of measures to be introduced in various sectors, such as climate and energy, environmental protection and biodiversity, green industry, sustainable mobility, circular economy, production and sustainable consumption.

"duty of care" of large companies operating in the EU for sustainability purposes, providing an obligation on companies to identify risks and, if necessary, to stop or minimize the negative impact of their activities on people and the environment. The initiative is in line with the European Green Deal and a commitment to honor the United Nations Sustainable Development Goals to support resilient business activities related to sustainability and ESG principles. ESG Due Diligence aims to hold companies more accountable for environmental damage and human rights violations by their business partners, operating both within the EU and abroad. National administrative authorities mandated by EU member states will oversee the new legislation, being able to impose penalties for violations and aggrieved parties will be able to take legal action for compensation for damages that could have been avoided by complying with due diligence measures.

Regulation in the field of sustainability is increasingly extensive and complex and the legislator, at European and state levels, recognizes the central role played by companies in this field. Companies have the opportunity and, in some cases, the obligation to disclose their non-financial information through the use of reliable and recognized standards, in order to transparently report the social impact of their business.

3 The New Business Strategy in a Sustainable Perspective

Recovery from the COVID-19 pandemic has necessarily led to a new economic paradigm and as United Nations Secretary-General António Guterres said, " everything we do during and after this crisis must focus strongly on building fairer, more inclusive and sustainable economies and societies that are more resilient" [5].

The COVID-19 pandemic has highlighted the limits of the system, imposing unknown challenges but also producing new opportunities. It has furthermore overlapped another global crisis, related to climate change, which is slower but of even greater proportions. In this context, economic, environmental and social interaction is a key element in the implementation of future business strategies. The integration of sustainability in a business strategy will allow competitive advantages, potentially giving rise to greater profits in the near future. By setting economic, social and environmental objectives, sustainable business fuels mechanisms for creating social value which, in addition to the economic objective, constitute a driving force for social entrepreneurship [6]. Eco-entrepreneurship tries to tackle environmental problems while producing economic value [7] in a harmonious and supportive framework that respects social values [8]. The figure highlights the holistic connotation of sustainable value, capable of harmonizing economic, environmental and social forms of value [9], (Fig. 2).

The creation of a business scheme oriented towards sustainability requires the involvement of all interested parties in the absence of prevarication of shareholder expectations [10] and with the possibility of standardizing the interests of all stakeholders [11], which are fundamental elements for the development of a Sustainable

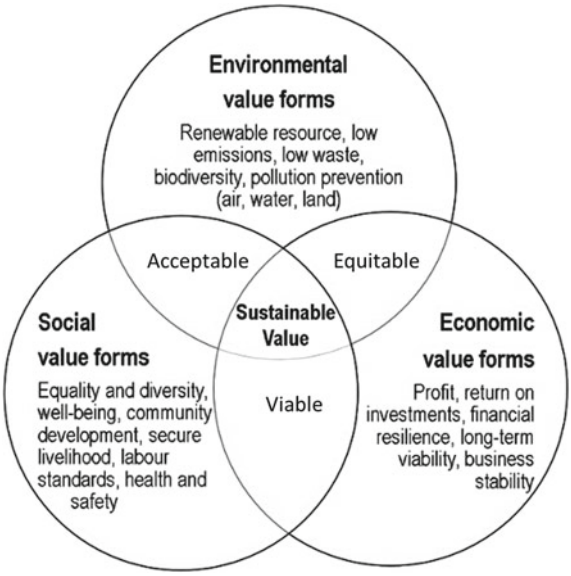


Fig. 2 Triple bottom line Elkington (1997), (adapted from [9])

Business Model (SBM) approach. In addition to the renewal of technologies, products and services, this requires an evolution of the very concept of business [12, 13] and stakeholder relations that condition each other with the governance of the enterprise [14].

Companies that are striving for this are trying not to subordinate relationships to the benefits they can gain, moving towards the development of mutually favorable relationships with internal and external stakeholders [15]. The long-term success of companies results from a close and balanced link between the competing and complementary advantages existing between the parties, including society and the environment, in order to have a better position in terms of sustainability [16]. Therefore, considering society and nature as stakeholders in the company is the founding pillar of the Sustainable Business Model [10], with the understanding that defending the natural environment has an economic interest for businesses, factors that influence each other [17]. Identifying all existing value streams between stakeholders, including the understanding that the natural environment and society are primary stakeholders, can unveil opportunities for business model renewal [9]. According to the EY report "Seize the Change—Sustainable Future" [18], Italian companies are approaching sustainability, but still insufficiently[5]; the study analyzes 5 main themes (strategic plans for sustainable development, climate change, supply chain, sustainable finance, circular economy) to quantitatively and qualitatively assess the

[5] The report examines sustainability trends for Italian companies for more than five years. The new edition of the report examined a sample of more than 300 companies from different sectors analyzed with two different methods, a hundred through surveys (market research) and 203 others listed with a documentary analysis (reworking of information already collected from official sources) on non-financial information.

position of companies in these areas. In terms of strategic plans, the report highlights that following the pandemic surge, 19% of the companies selected in the survey accelerated the transition to more sustainable models, which in 32% of the cases did not reduce projects in courses and that only in 12% of the companies there were negative repercussions. The documentary analysis shows that 2/3 of the companies under consideration have set up an internal governance body that reports to the board of directors on sustainability issues. The survey finds that 53% of companies have actions related to climate change in their industrial plan, an increase of 21 percentage points compared to 2020 and that 19% of companies have declared a strategic plan dedicated to climate neutrality. A review of literature shows that 31% of companies (up 6% from 2020) have set quantitative targets for reducing emissions and 14% have identified a zero emissions target.

Regarding the sustainable supply chain,[6] the documentary analysis shows that 75% of companies have objectives in this area and 50% implement a risk assessment analysis on suppliers; in addition, 71% have changed their supply chain by selecting suppliers more responsibly (45%) as a result of increased stringency in the selection criteria by some stakeholders (3%) or for both of the previous reasons (19%). Regarding sustainable finance, an analysis of the survey shows that 35% of companies have initiated responsible finance plans, while the documentary analysis finds that 84% of listed companies in the financial sector have activated sustainable finance projects (up 8% from 2 years earlier). Regarding circular economy and initiatives with a social impact, in the survey, 19% of companies declare a circular economy plan linked to goals to be achieved and 64% have developed social support projects for the community, as also shown in the documentary analysis.

The benefits that can be seen in organizations that have elements of sustainability and sustainable business programs in their mission are now consolidated and companies should review their position in the field in which they work, their strategies, their organization, their resources and their corporate culture.

4 From Shareholder Capitalism to Stakeholder Capitalism in the Orientation of Sustainable Business

Companies are evolving by becoming more and more embedded in the context in which they operate, partly as a result of the impetus of consumers who to a greater extent are making choices of belonging by rewarding more the companies with which they identify and with which they share common environmental, social and ethical ideals. Conversely, choices that are not socially oriented, although potentially beneficial in the short term, induce image damage to the company, just as corporate sustainability is of strong interest to investors who associate it with future growth in corporate value.

[6] Transparency, traceability, social and environmental protection in order to create a relationship of trust between companies, the market and consumers.

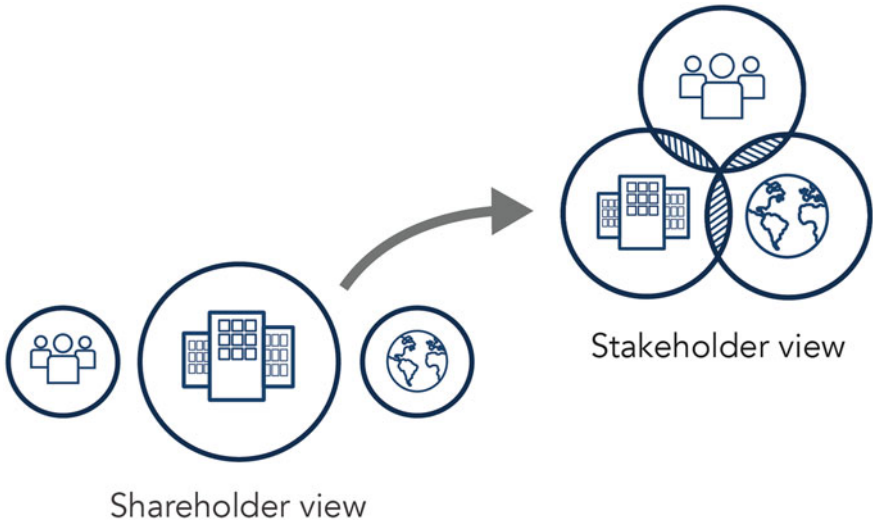


Fig. 3 Embedded strategies: the shift to a system view of value creation (adapted from [24])

In 2019, America's Business Roundtable in The Purpose of the Corporation [19] expressed the need for businesses to prioritize an economy that works for all Americans, supporting the move toward development of "stakeholder capitalism", increasingly adopted by large and small companies [20] and by large consulting firms and international organizations [21].

The underlying concept is for companies to identify areas where their interests coincide with socio-environmental interests by identifying opportunities for shared value [22], produced by the fact that their activities also have positive environmental and/or social repercussions; "do well by doing good" [23], (Fig. 3).

Companies that opt for stakeholder capitalism are characterized by greater resilience in phases of change and economic difficulties, being less sensitive to downturns, resulting in a competitive advantage over competitors. Companies also need to redefine their mission with a view to lasting value for employees, consumers, suppliers and the socio-environmental sphere.

In addition to increasing company awareness, adherence to stakeholder capitalism also exhibits improved performance, an aspect well documented in literature, such as in the McKinsey Global Institute study [25] which evaluated 615 mid- and large-capitalization U.S. publicly traded companies from 2001 to 2015, showing that companies with a long-term view had exhibited superior performance in terms of profits, investments and job growth. Another study [26] by McKinsey found that companies with ESG standards achieve higher performance and credit ratings and other surveys have found that they perform better during crises.

Other research over the years has shown that companies that are successful in meeting stakeholder needs, those that invest in workers, customers, communities and the environment generate better returns for investors [27]. In a 2019 report by

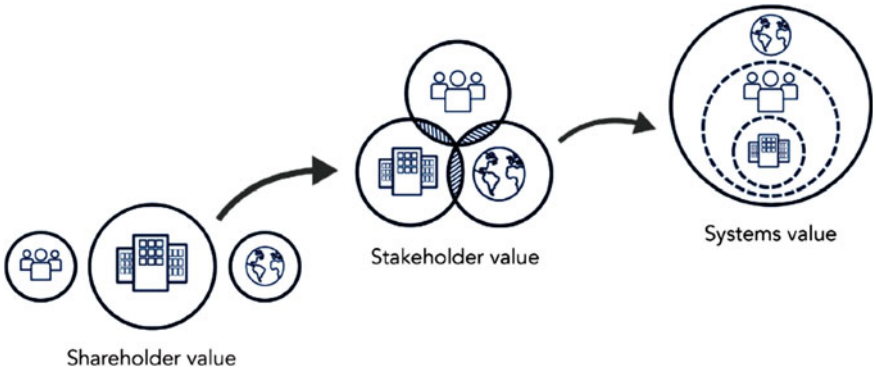


Fig. 4 Embedded strategies: the shift to a systems view of value creation [24]

JUST Capital [28], it was confirmed that companies show higher turnover when they invest in employees, defend the environment, respect customers and interact positively with local communities.[7] It was quantified that companies that are best able to balance the interests of different stakeholders, particularly in the areas of workers' compensation and treatment and environmental impact, create a return on equity (ROE) 6.4% higher than their peers. The long-term success of a company is therefore based on the resilience of the social ecosystems around it and preserving them, with an awareness of belonging to a larger system, is a strategic action for favourable development (Fig. 4).

5 Sustainable Development: Health and Safety in Corporate Strategy

The deep interconnection between occupational health and safety and sustainability is inherent in the concept that the positive results achieved by a company are really so only if, in order to achieve them, workers have maintained and possibly implemented a good state of health. It is therefore necessary that the highest level of assurance in terms of workers' health and safety be pursued in the development strategies of companies [29].

It is becoming increasingly essential that occupational health and safety skills be developed in the corporate environment in close connection with the other strategic aims of the social, environmental and sustainable development spheres. Optimization of the working environment, in terms of safety and motivation, leads to closer ties with stakeholders, facilitates access to credit with minimization of business risk

[7] The research was conducted through a detailed analysis of the profitability and business practices of 875 companies from the 2017 JUST Capital Rankings, including the largest publicly traded US companies.

and enhances the efficiency of enterprise management. Good health and favourable working conditions invigorate the productive capacity of workers, who are more motivated and enriched by a greater sense of belonging to the company in which they work. Sustainability in the workplace extends beyond the mere implementation of current legislation, with the need for tailor-made programs aimed at reconciling work and social life (Work Life Balance), with the ultimate goal of increasing quality of life [30].

Business strategy must increasingly be enriched by the collaboration of those involved in safety, health and sustainability, developing issues of organizational wellbeing, sustainable supply chain management and stakeholders; business sustainability also stems from the ability to ensure the safety, health and wellbeing of its employees [31].

Workplace Health Promotion (WHP) bases its nature on the principle that a company should not only implement all measures aimed at preventing occupational injuries and diseases, but also invest in offering its workers opportunities aimed at improving their health, contributing to the minimization of general risk factors and above all, those most involved in the origin of chronic and degenerative diseases.

The concept of sustainability is the cornerstone of the companies participating in the WHP project because they focus on the wellbeing of people for their own development. The WHP project aims to increase workplace sustainability by promoting healthier lifestyles through concrete initiatives. The companies participating in the project implement and promote physical activity, offer opportunities to quit smoking, support healthy eating, implement measures to increase wellbeing at work and outside of work [32].

Companies, as a result of their involvement in the social responsibility program, can benefit from multiple advantages, including discounts on INAIL (National Institute for Insurance against Workplace Accidents) premiums and the opportunity to take advantage of more easily from as well as access to tenders designed for companies that meet the goals of the UN 2030 Agenda for Sustainable Development, in which the WHP fits perfectly.

A valid occupational safety and health (OSH) program proves to be an advantage from an economic point of view [33] and, in fact, the European Agency for Safety and Health at Work (EU-OSHA) points out that companies with higher levels of activity in this area are more likely to be successful and are more sustainable. According to available data, for every euro invested in OSH there is an economic return of 2.2 euro and a positive cost–benefit ratio related to increased health and safety. An effective OSH program induces significant economic returns for large and small enterprises as a result of increased employee productivity, minimized benefits and absenteeism, and the fulfillment of the needs of public and private agents. In the European Union, economic support methods have been put in place to reward companies that are committed to producing healthy and safe working environments, through reduced insurance premiums, tax breaks and state subsidies.

The 2021–2027 EU Strategic Framework on Health and Safety at Work [34], declared in the European Pillar of Social Rights Action Plan [35], identifies essential priorities and action to improve health and safety of workers in the post-pandemic

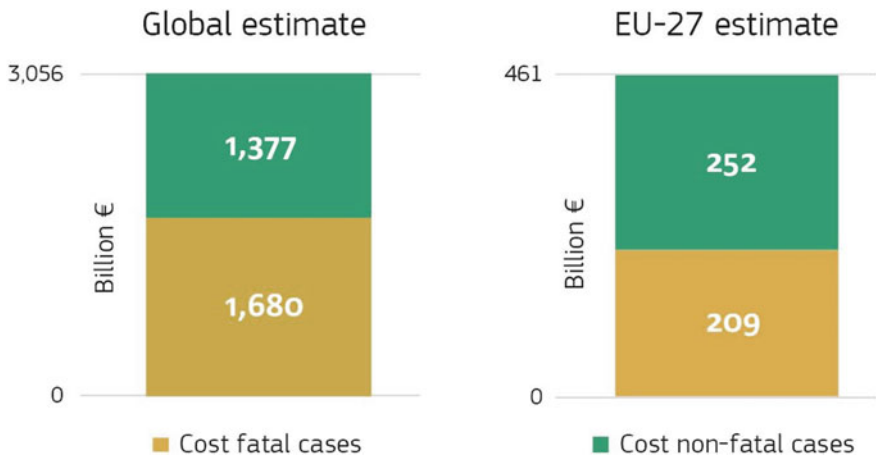


Fig. 5 Social cost of accidents at work and occupational diseases, 2019 (in billions of euros). Revamped. International comparison of the cost of occupational accidents and diseases (EU-OSHA, 2017), estimate based on Eurostat and World Bank data [34]

period, characterized by green and digital transitions, economic and demographic difficulties and the transformation of the concept of the work environment as it has been perceived so far.

Safe and healthy working conditions are essential for a productive and healthy workforce, with the need to minimize occupational diseases and accidents at work, an essential prerequisite for the sustainability and competitiveness of the EU economy. More than 3,300 fatal and 3.1 million non-fatal accidents were recorded in the EU-27 in 2018. In addition, occupational diseases result in the death of more than 200,000 workers annually.

A high level of protection for the health and wellbeing of workers also has positive repercussions on the economy, since accidents at work and occupational diseases weigh on the EU economy accounting for more than 3.3% of the GDP per year[8] (about EUR 460 billion in 2019), (Fig. 5).

Strong OSH support in tune with the specific needs of SMEs, the backbone of the EU economy, will be fundamental for a sustainable economy and for the affirmation of OSH; thus the costs of health care and other social security contributions borne by individuals, companies and society can also be reduced.

The coronavirus pandemic has highlighted the importance of OSH for the maintenance of fundamental economic and social productive activities, resulting in the need to maintain and implement the link between public health policies and the OHS in the future in order to optimize the adaptation of increasingly changing and complex workplaces to constant demographic, social and economic changes. The

[8] To calculate disability-adjusted life expectancy, the number of years of healthy life lost (DALYs), the sum of the length of life with disability (YLD) and the number of years of life lost through premature death (YLL), must be estimated in relation to expected life expectancy.

EU's strategic framework in the years to come will therefore be developed around three fundamental cross-cutting objectives:

- Anticipating and managing change in the new world of work determined by ecological, digital and demographic transitions.
- Improve the prevention of work-related accidents and diseases.
- Improve preparedness for potential future health crises.

To achieve these goals, action at national, sectoral and enterprise level through supporting social dialogue, strengthening data availability, strengthening enforcement measures, raising awareness and funding will be essential.

6 Sustainability as a Lever of Competitiveness

In terms of return on investment, companies direct their business towards the profitability of their results. However, more and more leaders in this new phase are realising that the benefits of their actions go far beyond mere profit; indeed, when actions aimed at improving sustainability are put into place, the result that is achieved exceeds profit.

As early as 2015 in a review by the University of Oxford and Arabesque Partners, based on 200 studies on sustainability and corporate performance, it was shown that good environmental, social and governance practices resulted in better performance in 88% of the cases and that in 80% of the cases the performance of actions was positively related to good sustainability practices. Over the past two decades, a growing number of companies have embraced sustainability in their business models to increase their competitive advantage.

The recent requirement to report non-financial data for large companies has highlighted a set of measures and indicators not typically found in traditional reporting, namely sustainability performance. As a result, it is increasingly emerging that there is a need to identify and make use of tools capable of assessing the validity of sustainable projects and investments and their ability to increase the value of the company implementing them, so that a correspondence of effects between company and society in committing to a sustainable choice can be detected.

Evidence regarding the correlation between corporate financial performance and sustainability is now consolidated and in a recent ESG Paper from August 2021 from the New York University Stern School of Business [36], an analysis of over a thousand scientific papers published between 2015 and 2020 documented a positive relationship between ESG factors and financial performance in terms of investor returns and profitability indicators (the correlation is positive for 58% of the studies based on parameters such as Return on Equity-Roe and Return on Assets-Roa) (Fig. 6).

The superior financial performance associated with sustainability initiatives is justified by greater sales growth, improved reputation, the ability to intercept changes in consumer habits and reduced costs associated with the use of water or energy. High ESG scores are linked to a greater ability to mitigate risks, whether these are climatic

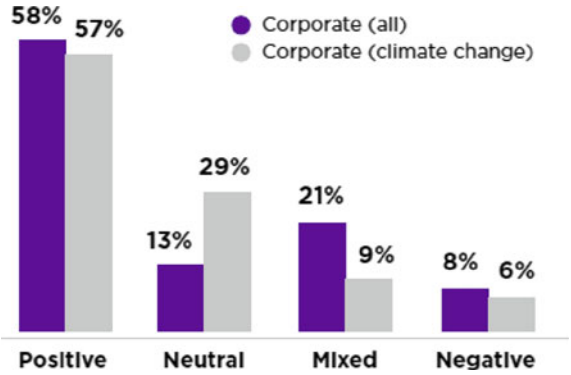


Fig. 6 Positive and/or neutral outcomes dominate for investing in sustainability. Very few studies have found a negative correlation between ESG and financial performance (based on 245 studies published between 2016 and 2020), (adapted from [36])

and regulatory (e.g. putting more stringent regulations in place), and greater resilience to economic or social crises, with evidence that an improved financial performance is more evident in the long run.

7 New Standards and Metrics to Measure Sustainability: The SRG88088:20®—Responsibility and Governance Standard, the Accredited Sustainability Certification

The idea of corporate sustainability is becoming increasingly popular among companies and investors, although it suffers from a lack of sharing of defined ways of assessment and reporting. The existence of various international standards (SASB—Sustainability Accounting Standards Board; GRI—Global Reporting Initiative) does not solve the problem regarding the need for a shared determination of sustainability parameters and their collection and measurement methodology, to be presented in non-financial communications or in sustainability reports. When it comes to sustainability, it is necessary to be able to better describe the existing correlations between ROI (Return of Investment) and SROI (Social Return on Investment) indices and between tangible and intangible assets of companies.

Proper reporting of companies' ESG impacts and standardizing Non-Financial Disclosure (NFD)[9] are key elements in the prevention of greenwashing cases [37] through the reporting of ESG performance, a particularly important factor for companies in investment funds, especially in light of the growing prominence of Article 8 and 9 funds under the Sustainable Finance Disclosure Regulation (SFDR). In this context, an important contribution has come from the ESG European Institute with the definition of sustainability standards of a generic (sector-agnostic) nature, which

[9] Report in which the socio-environmental aspects, personnel management, commitment to the fight against corruption and respect for human rights are reported.

define relevant sustainability data for all sectors and are feasible in all corporate situations, highlighting the financial value of sustainability issues.

It is in this context that as of 27 January 2022, the world's first Accredia[10] [38] and internationally recognized scheme has been accredited, based on certifiable requirements because it is linked to a structured HLS Standard and can be put into practice by any type of organization regardless of its size and nature, whether it is public or private, and in all sectors of production or services. This is the "SRG88088:20®—Social Responsibility and Governance "standard, developed by the "Leonardo School of Ethics for Higher Education and Training",[11] which makes it possible to provide an accredited certification scheme of an SRG-ESG Sustainability Management System to a third parties that requests it in addition to the ESG Rating and whose "… particularity is to recognize full entrepreneurial freedom and in total approach to sustainability…[12]". The objective of the scheme is the synthetic identification of the basic requirements capable of expressing the content and values of ESG Sustainability, issuing a Sustainability Rating[13] in line with the organization's performance in this area.

The SRG88088 scheme® is based on a set of criteria capable of generating the most effective correlation between business and sustainable wellbeing, highlighting the most appropriate path to sustainability.

The scheme through its requirements incorporates the values of the 17 SDGs of the 2030 Agenda by inserting them into the PDCA (Plan Do, Check, Act) model and can refer to the GRI (Global Reporting Initiative) indicators for the purpose of reporting for Sustainability Reports.

The scheme follows the organization in risk management, compliance adherence, stakeholder relations, internal relations through the Wellness Assessment Team (TVB) and Business Continuity.

The requirements of SRG88088® involving the ESG concepts of sustainability, urge the acceptance of all SDGs through the ESPs (31 Ethical and Social Principles) by encouraging organizations towards overall sustainability, under the assumption that compliance with environmental and social principles presupposes a convinced choice of governance.

The Certification of a Sustainability Management System is an opportunity to certify the level of sustainability of an organization through writing a rating based on

[10] Accredia is the only national accreditation body designated by the Italian government, pursuant to European Regulation 765/2008, to certify the competence, independence and impartiality of certification, inspection and verification bodies and testing and calibration laboratories. Accredia is a recognized non-profit association acting under the supervision of the Ministry of Economic Development.

[11] The "Leonardo" School of Ethics for Higher Education and Training is a non-profit association that carries out activities of social utility towards its members and third parties, in the fields of training, orientation and culture of the personnel of the School, Health and Public Administration in general and for private organizations.

[12] Teacher. Mauro Pallini, president of "Leonardo" School of Ethics.

[13] Sustainability rating is a summary judgment that certifies the strength of an organization, security or fund from the point of view of environmental, social and governance aspects.

an algorithm that the Leonardo School of Ethics has developed and validated over the years. Accreditation is based on an official audit, with a team of Specialist Auditors in Environment, Social and Governance, led by a qualified Team Leader and under the supervision of Accredia and Leonardo School of Ethics, as Scheme Owner, with the aim of eradicating greenwashing, a real scourge of the system followed until now [39].

The value of the SRG88088:20® certification is demonstrated by the double-digit increase in turnover of certified companies, the activation of social welfare agreements that have increased the wellbeing of people, the contribution to the development of UN SDGs 1 and 2 (distance adoptions), land sustainability programs, cultural initiatives; in short, the transition from shareholder capitalism to stakeholder capitalism towards a new paradigm of globalization.

This certification standard includes the organization as a whole; production, legislative, contractual, economic, fiscal and judicial processes, human resources, customers, suppliers, social fabric and for this reason is particularly appealing for the market, consumers and supply and sales chains. In addition, an added value which is not secondary is the fact that Credit Institutions reserve favorable conditions on interest rates for SRG88088:20® certified organizations, even up to a 40% reduction. Certified organizations also include municipalities that obtain the "Ethical and Sustainable Municipality" mark, which also has positive repercussions on the whole territory, businesses, tourism and the community as a whole. Interestingly, the first ESG Scientific High School in Italy under the patronage of the Ministry of Education [40] is opening next September in the city of Pescara.

Currently, according to the latest data[14] (provided by Professor Mauro Pallini, president of the "Leonardo" School of Ethics), 22 certifications have been issued and 16 certification bodies are in the qualification phase of the Leonardo School of Ethics and accreditation phase of Accredia.

The benefits (Table 1) that can be obtained with the SRG88088:20® Certification, highlighted by Professor Mauro Pallini, are set out below.

The following case studies show data of two Italian companies that have successfully implemented an ESG-SRG 88088 Certified Sustainability Management System with a Sustainability Rating awarded. Some of the actions implemented and the various benefits obtained have been analyzed.

7.1 Spiedì s.r.l. [42]

A company in Pescara (Abruzzo) founded in 1987 by brothers Marino and Roberto di Domenico, a leader in the processing and distribution of high quality mutton, it has conquered the Italian market and is currently interested in new products and new markets. It currently has 27 employees, two-thirds of whom are women, with an annual turnover of 11 million euro. The company has for some time embraced a

[14] As of the date of this article.

Table 1 Possible benefits of sustainability management system certification and assignment of sustainability rating (adapted from [41])

For companies	For credit institutions	Stakeholders and communities
– Legislative compliance and consistency – Organizational facilitation – Staff involvement and wellbeing – Shareholder and stakeholder satisfaction – Facilitated credit – Business continuity – Process performance – Safeguard from business suspension, sanctions, etc. – Governance and risk management – Quality of products/services – Product/service innovation – Social contribution – Culture development for Sustainability – Analysis of ESG risks and opportunities – Serious approach to Risk Capital, increasing creditworthiness – Supply chain involvement – Meeting commitments – Development of culture for sustainability	– Deeper and more truthful instructions – Expansion of indicators for company evaluation – Greater certainty of return – Lower non performing loans – Support for companies with ESG beliefs – Contribution for more informed development – Big Data for one's Sustainability Report – More active and credible governance – Technological development – Better control of business networks – Institutional performance growth	– General wellbeing – Recognition and respect – Active participation – Capacity for conditioning – Improved living conditions – Less litigation – Improved quality of life

far-reaching innovation path based on product quality, process sustainability and employee wellbeing. A constructive relationship was fortified as a result of an advanced supplementary company contract,[15] inspired by European best practices [43], which aims to enhance the value of human resources by inserting a performance bonus based on the participation of all employees in the company's results (over the next 3 years upon achievement of the objectives, 5% of the net profits will be redistributed among all employees) The company also provides employees with additional leave in situations where special conditions for families requiring assistance exist. Spiedì s.r.l. has obtained the ESG Rating—SRG 88088:20 Environmental Social Governance "AA" certifying a high degree of compliance for sustainability. A summary of a number of benefits achieved are listed below (Table 2).

[15] A written agreement entered into between the union and employer when there is a set of favourable conditions for the worker, integrating certain economic and regulatory institutions governed by National Collective Contracts (the CCNL, which represent their first level) or by specific regulations.

Table 2 Benefits obtained by Spiedì s.r.l. (adapted from [41])

Benefits
– Internal climate—Establishment of the Wellness Assessment Team
– Credit: reduction of the interest rate from 1.65 to 0.79
– Energy saving
– Cultural growth
– Visibility in the press and on TV
– "Culture Fridays" initiative
– Pays attention to the environment
– Two new by-product recovery activities
– Long-distance adoptions
– Supplementary 2nd level agreement—Corporate Welfare
– Customer appreciation
– +45% turnover

7.2 Sea Impianti s.r.l. [44]

A medium and low voltage power line installation company from Guardiagrele in the province of Chieti (Abruzzo), which was founded in 1996. Over the years the company has experienced a gradual growth in employment associated to innovation in skills and equipment.

Sea Impianti's mission is supported by the commitment of partners and employees who are interested in the concept of sustainable development, a goal pursued by the company's management which is convinced of the need for green development, socially balanced with advanced governance. At present, the company has 60 employees with a turnover of approximately 4 million euro and is a model for competitors and stakeholders, supporting the wellbeing of the community as a whole. Sea Impianti obtained its first certification at the end of 2020 with an "AAA" rating, certifying a high degree of compliance for sustainability according to the SRG scheme. A summary of a number of benefits (Table 3) obtained by Sea Impianti are listed below.

Table 3 Benefits achieved by Sea Impianti s.r.l. (adapted from [41])

Benefits
– Internal climate—Establishment of the Wellness Assessment Team
– Credit: reduction of the interest rate from 1.84 to 0.92
– Energy saving
– Cultural growth
– Pays attention to the environment
– Long-distance adoptions
– Supplementary 2nd level agreement—Corporate Welfare
– Customer appreciation
– +30% turnover in 2021

The company also received recognition as "Leader of Sustainability 2021"[16] awarded by il "Sole 24 ore" and "Statista" to the 150 most sustainable Italian companies in 2021.

8 Conclusion

Sustainability, in addition to being a useful means of containing the distortions produced by capitalist systems, constitutes an opportunity for value creation and an element of competitive advantage that goes hand in hand with the need to abandon the concept of business driven by the sole objective of producing wealth. Sustainable development appears to be the only opportunity available to the business world and to society to secure their future. In the search for profit, a business can no longer function independently of the needs of its stakeholders and must implement ethical behavior in accordance with social and economic needs [45].

It is becoming increasingly clear that a necessary tool for the development of sustainability in companies is the certification of their sustainability management system by means of an independent third party assessment, which is essential for quantifying the progress made in this area by organizations interested in documenting their commitment and related results.

Sustainability has become an element of competitiveness, constituting a stimulus for the socio-economic and environmental metamorphosis of business strategies, which interferes with the bargaining power of the consumer who is increasingly interested in sustainability and production methods. Corporate sustainability grows with the participation of conscious citizens who are ready to follow the concept of sustainability. If a consumer does not adhere to the new behavioral paradigm by modifying his consumption patterns, the goal cannot be achieved since it is not sufficient to change the business model unless the consumption model is also changed. Therefore, in addition to now being an indispensable ingredient for business evolution, sustainability is a central element in the evolutionary process of society, involving the whole community, to improve quality of life and guarantee the future for the next generation.

References

1. European Parliament: Social Sustainability. Concepts and Benchmarks. Retrieved from: https://www.europarl.europa.eu/RegData/etudes/STUD/2020/648782/IPOL_STU(2020)648782_EN.pdf (2020). Accessed 21 August 2022

[16] List created in collaboration with il Sole 24 Ore, by Statista, a leading company in market research and specialized in the classification and analysis of business data. The list presents the 200 most sustainable Italian companies.

2. Consolidated version of the Treaty on European Union. Official Journal of the European Union. Flight. 55. (26.10.2012) Article 3, paragraph 5 and article 21, paragraph 2
3. Organizzazione delle Nazioni Unite. Risoluzione adottata dall'Assemblea Generale il 28 settembre 2015. Retrieved from: https://unric.org/it/wp-content/uploads/sites/3/2019/11/Agenda-2030-Onu-italia.pdf (2015). Accessed 21 August 2022
4. European Commission: Proposal for a Directive of the European Parliament and of the Council on Corporate Sustainability Due Diligence and amending Directive (EU) 2019/1937. Retrieved from: https://ec.europa.eu/info/sites/default/files/1_1_183885_prop_dir_susta_en.pdf (2022). Accessed 21 August 2022
5. United Nations: The recovery from the COVID-19 crisis must lead to a different economy. Retrieved from: https://www.un.org/en/un-coronavirus-communications-team/launch-report-socio-economic-impacts-covid-19 (2020). Accessed 21 August 2022
6. Acs, Z.J., et al.: The social value of productive entrepreneurship in Small Business Economics. Small Bus. Econ. **40**(3), 785–796 (2013)
7. Schaltegger, S., Wagner, M.: Sustainable entrepreneurship and sustainability innovation: categories and interactions. Bus. Strat. Environ. **20**(4), 222–237 (2011)
8. Ueda, K., et al.: Value creation and decision-making in sustainable society. CIRP Ann. Manuf. Technol. **58**(2), 681–700 (2009)
9. Evans, S., et al.: Business model innovation for sustainability: towards a unified perspective for creation of sustainable business models. Bus. Strat. Environ. **26**, 597–608 (2017)
10. Stubbs, W., Cocklin, C.: Conceptualizing a sustainability business model. Org. Environ. **21**(2), 103–127 (2008)
11. Evans, S., et al.: Final Set of Tools and Methods that Enable Analysis of Future Oriented, Novel, Sustainable, Value Adding Business-Models and Value-Networks. Deliverable D2.6. SustainValue project (2014)
12. Girotra, K., Netessine, S.: OM forum—business model innovation for sustainability. Manuf. Serv. Oper. Manag. **15**(4), 537–544 (2013)
13. Yang, M., et al.: Value uncaptured perspective for sustainable business model innovation. J. Clean. Prod. **140**(3), 1794–1804 (2017)
14. Perrini, F., Tencati, A.: Sustainability and stakeholder management: the need for new corporate performance evaluation and reporting systems. Bus. Strat. Environ. **15**(5), 296–308 (2006)
15. Gulati, R., Kletter, D.: Shrinking core, expanding peripheral: the relational architecture of high-performing organizations. Calif. Manag. Rev. **47**(3), 77–104 (2005)
16. Edgeman, R., Eskildsen, J.: Modeling and assessing sustainable business excellence. Bus. Strat. Environ. **23**(3), 173–187 (2014)
17. Haigh, N., Griffiths, A.: The natural environment as a primary stakeholder: the case of climate change. Bus. Strat. Environ. **18**(6), 347–359 (2009)
18. New Report EY: "Seize the Change - futuri sostenibili". Retrieved from: https://www.ey.com/it_it/news/2022-press-releases/01/nuovo-report-ey-seize-the-change (2022). Accessed 21 August 2022
19. Business Round Table Redefine the Purpose of a Corporation to Promote 'An Economy That Serves All Americans'. Retrieved from: https://www.businessroundtable.org/business-roundtable-redefines-the-purpose-of-a-corporation-to-promote-an-economy-that-serves-all-americans (2019). Accessed 21 August 2022
20. Embedding Project: Why Stakeholder Capitalism Is Not Enough. Retrieved from: https://www.embeddingproject.org/blog/why-stakeholder-capitalism-is-not-enough (2021). Accessed 21 August 2022
21. Word Economic Forum: Measuring stakeholder capitalism towards common metrics and consistent reporting of sustainable value creation. Retrieved from: https://www.weforum.org/reports/measuring-stakeholder-capitalism-towards-common-metrics-and-consistent-reporting-of-sustainable-value-creation (2020). Accessed 21 August 2022
22. Porter, M.E., Kramer, M.R.: Create shared value. How to reinvent capitalism and unleash a wave of innovation and growth. Harvard Bus Rev 62–77 (2011)

23. Euromoney: Impact investing: The mindless mantra—'doing well by doing good'. Retrieved from: https://www.euromoney.com/article/b1ck2fbsvz15tk/impact-investing-the-mindless-mantra-doing-well-by-doing-good (2019). Accessed 21 August 2022
24. Bertels, S., Dobson, R.: Embedded Strategies for the Sustainability Transition: Setting Priorities and Goals Aligned with Systems Resilience. Embedding Project, p. 6. (2020)
25. Dominic, B. et al.: Measuring the economic impact of short-termism. Discussion paper. McKinsey Global Institute (2017)
26. Henisz, W. et al.: Five ways that ESG creates value. McKinsey & Company. McKinsey Quarterly (2019)
27. Forbes: 5 Reasons To Give Stakeholder Capitalism A Chance. Retrieved from: https://www.forbes.com/sites/martinwhittaker/2019/09/12/five-reasons-to-give-stakeholder-capitalism-a-chance/?sh=5908cd4c4626 (2019). Accessed 21 August 2022
28. JUSTCapital: Just Business Better Margins. Full Report. Retrieved from: https://justcapital.com/wp-content/uploads/2019/06/JUSTCapital_JBBM_FullReport_06102019.pdf (2019). Accessed 21 August 2022
29. YOUR group: Sostenibilità: una questione anche di salute e sicurezza sul lavoro (Safety & Security). Retrieved from: https://www.yourgroup.it/practice/sostenibilita-salute-e-sicurezza-sul-lavoro/. Accessed 21 August 2022
30. Quotidianosanità.it: Sviluppo sostenibile e tutela della salute e sicurezza sul lavoro. Retrieved from https://www.quotidianosanita.it/studi-e-analisi/articolo.php?articolo_id=92740 (2022). Accessed 21 August 2022
31. PuntoSicuro: Sostenibilità e sicurezza sul lavoro, un inscindibile binomio. Retrieved from: https://www.puntosicuro.it/pubbliredazionale (2022). Accessed 21 August 2022
32. Rete WHP Bergamo: Che cosa è WHP? Retrieved from: https://retewhpbergamo.org/whp/. Accessed 21 August 2022
33. European Agency for Safety and Health at Work: Good OSH is good for business. Retrieved from: https://osha.europa.eu/it/themes/good-osh-is-good-for-business (2021). Accessed 21 August 2022
34. European Commission: European Union strategic framework for health and safety at work for the period 2021–2027. Health and safety at work in a changing world of work (Brussels, 28.6.2021). COM (2021) 323 final
35. European Commission: The European Pillar of Social Rights Action Plan. Retrieved from: https://ec.europa.eu/info/strategy/priorities-2019-2024/economy-works-people/jobs-growth-and-investment/european-pillar-social-rights/european-pillar-social-rights-action-plan_it. Accessed 21 August 2022
36. Whelan, T., et al.: ESG and financial performance: Uncovering the Relationship by Aggregating Evidence from 1,000 Plus Studies Published between 2015–2020, p. 4. NYU STERN Center for Sustainable Business, Rockefeller asset management (2021)
37. Official Journal of the European Union: Commission Notice C 526/72. Application of the UCPD to specific fields—Sustainability—Environmental claims. Retrieved from: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:C:2021:526:FULL&from=IT (2021). Accessed 21 August 2022
38. ACCREDIA: Circolare informativa DC N° 14/2022—"SRG 88088:20 Social Responsibility and Governance®". Retrieved from: https://www.accredia.it/documento/circolare-informativa-dc-n-05-2022-srg-8808820-social-responsibility-and-governance/ (2022). Accessed 21 August 2022
39. 24oreprofessionale: La Certificazione Accreditata della Sostenibilità ESG-SRG88088: vantaggi e opportunity per le imprese. Retrieved from: https://24oreprofessionale.ilsole24ore.com/news/la-certificazione-accreditata-della-sostenibilita-esg-srg88088-vantaggi-e-opportunita-per-le-imprese/ (2022). Accessed 21 August 2022
40. politicamentecorretto.com: Presentata la Norma SRG88088:20 per certificare la Sostenibilità ESG di enti pubblici e aziende private. Retrieved from: https://www.politicamentecorretto.com/2022/05/29/presentata-la-norma-srg8808820-per-certificare-la-sostenibilita-esg-di-enti-pubblici-e-aziende-private/ (2022). Accessed 21 August 2022

41. Data and information provided by Professor Pallini Mauro, President of "Scuola Etica Leonardo". https://www.scuolaeticaleonardo.it (2022)
42. Spiedì S.r.l.: Retrieved from: https://www.spiedi.it/. Accessed 21 August 2022
43. Consiglio e Commissione Europea: Gazzetta ufficiale n. C 104 del 30/04/2004 pag. 01–19. "Istruzione e Formazione 2010". Retrieved from: https://eur-lex.europa.eu/legal-content/IT/TXT/HTML/?uri=CELEX%3A52004XG0430%2801%29. Accessed 21 August 2022
44. SEA Impianti S.r.l.: Retrieved from: http://seaimpiantisrl.it/. Accessed 21 August 2022
45. Giangualano, P., Solimene, L.: Sostenibilità in cerca di imprese. Ed. Egea, Milano, p. 54 (2019)

Conclusion

The Enlarged and Enlarging Union—as a Fruit of Schuman Plan—a Space of Hope and Perspective? Conclusions

Marian Šuplata

In the history of Europe there have been numerous less or better-known concepts leading to its unification: in ancient times represented or driven by Roman Empire, by Alexander of Macedonia, later in middle-ages by *Sacrum Romanum Imperium.* Especially, since the Enlightenment period, there were numerous persons in history that dreamt about the united Europe, Marquis de Lafayette, Jean-Jacques Rousseau, Tadeusz Kosciusko, Victor Hugo, Richard Coudenhove-Kalergi, Milan Hodža to name just a few. Historically, there have been two main concepts of unification of Europe that have been tried over the times: based on the application and dominance of power, centralization in some cases leading to enslaving other nations and individuals, or second concept—a unification based on a free, voluntary and mutually beneficial co-operation of sovereign nations of Europe. This is how the very beginning of the European integration process started in the Western part of Europe at the beginning of 1950s by Robert Schuman who wished that the community would be open to any European state who would be willing and able to be a part of the enlarged Europe.

Following these ideas, the project of the European integration has marked over seven decades of its existence. This has been the longest period of peace and an unprecedented prosperity in Europe in its history. After the beginning of Western European integration and the formation of European Coal and Steal Community by six founding Member States—Germany, France, Italy, Belgium, the Netherlands and Luxembourg—the project of the European integration enjoyed seven waves on consecutive enlargements: First wave: 1973—by the UK, Ireland and Denmark; Second: 1981—by Greece; Third: 1981—by Spain and Portugal; Fourth: 1995—by Austria, Finland and Sweden; Fifth: 2004—by Cyprus, Czech republic, Estonia,

M. Šuplata (✉)
Faculty of Management, Comenius University Bratislava, Odbojárov 10, Bratislava, Slovakia
e-mail: Marian.Suplata@uniba.sk

G. Pellat et al. (eds.), *Cooperation and Enlargement: Two Challenges to be Addressed in the European Projects - 2022*, Studies in Systems, Decision and Control 500,
https://doi.org/10.1007/978-3-031-42253-9_18

Hungary, Latvia, Lithuania, Malta, Poland, Slovakia and Slovenia; Sixth: 2007—Bulgaria and Romania; Seventh and so far the last wave of EU enlargement resulting into the accession of Croatia.

The European integration started with small, but strategic commodities—coal and steel, followed by energy, agriculture and traditional economic areas of common cooperation, single market, Schengen system and common currency, trade, common foreign and security policy and other important areas of supranational cooperation among member states.

The contemporary enlarged European Union, despite having lost recently one of his members—the United Kingdom after Brexit—remains to be an attractive space for new candidate countries for the next accession: Albania, Moldova, Montenegro, North Macedonia, Serbia, Turkey, Ukraine, as well as Bosnia and Herzegovina, Georgia and Kosovo with status of potential candidate countries for accession into the EU. After decades of the enlargement, it can be probably hardly found a single country that, economically speaking, has lost from the EU membership, however, not all Member States are benefitting equally.

The project of the enlarged Europe of 27 EU Member States serves also as an inspiration for other continents. The African Union can serve as an example. Thanks to aid, the inspiration and know-how gained from the European Union in the last decades, the nations of the African continent have marked an unprecedented development.

The lessons learned from the past are that it is too risky to be wealthy and weak at the same time. This is why Europe cannot remain "a giant on weak legs". It should be able to act efficiently in times of crises. On one hand to be able to protect its external border. On the other hand, to keep being a hospitable space of freedom, justice and security for those who would like to be an enrichment for the common culture of Europe and the specific precious features of its unique member states.

Kundera defines Europe as "the maximum diversity on a minimum space". In institutional form the EU institutions enjoy the diversity of twenty-one official languages and three working languages—English, French and German. In broader sense there on the territory of the united Europe, every around two-hundred kilometres a unique piece of cultural diversity that differs it from the rest of the world. This is why Europe, as an "old continent" is leading in tourism as the most attractive destination of the world. Its history, geographical position, atmosphere, cultural heritage and other aspects are natural preconditions for that. Moreover, Europe confirms its leading position also in terms of outgoing tourism.

The fourteen years of period after the adoption of Treaty of Lisbon have brought an unprecedented time of several and multidimensional crises: financial and economic, migration and refugee, Ukraine and emerging civilisation crisis. This revealed that the contemporary construction of project of the European Union is more a project rather for stable times than times of turbulences. This statement might be a good opportunity to recall the initial legacy of the European project, formulated by its founder Robert Schuman in his book "For Europe" ("Pour l'Europe").

Schuman was not a bureaucrat, but a visionary man of action and practical solutions. Despite of actual problems and times of multi-dimensional crises, the value of Schuman´s vision keeps being over-temporal, however, still not fully comprehended.

Thanks to his vision the contemporary European Union enjoys being a community of 27 Member States with urging challenge to be "the guardian of its own destiny", with the world largest free market in the world, being number one in providing the development aid in the world.

Should the community of enlarged Union that was formed by Schuman´s ideas be capable to respond to the future challenges, it must continue to get back to the inspiration from the sources it was built upon. Robert Schuman formulates the main ideas concerning the main mission of Europe in the world that could be composed into four pillars:

1. Europe should be a ruler over its own destiny.
2. Europe, as the birthplace of democracy, must become its guardian.
3. Europe should become a leader in humanism.
4. The united Europe is a precursor of the general solidarity in the future.

Schuman's ideas were deeply rooted in very profound values, based on his personal, deep Christian faith that allowed him to formulate his ideas, including his outlook on democracy and visions on Europe in his very intimate relationship with transcendent reality. Schuman strongly advocates democracy, however with strong moral imperatives: **"***Democracy will be Christian or there will be no democracy. An anti-Christian democracy will be only a caricature which will degenerate into tyranny or sink into an anarchy."*

When creating and defending the European project in 1950s, Schuman argues that:

- Division of Europe became an unreasonable relic.
- Before Europe will become a military or economic alliance must become a cultural community of states—in the most honourable sense.
- Europe is a general execution of democracy according to Christian meaning.
- Neither without Germany, nor without France it is not possible to construct Europe.
- Great Britain will join the European integration only after the pressure of circumstances.
- Long-term economic integration will not be possible without political integration.
- The birth, goals and construction of the European Community for Coal and Steal.
- To serve humanistic ideals is a duty equal to duty to be devoted to our own nation.

There is one point, where Schuman strictly refuses any interventions by the European level: "*The supranational level should not be applied in cultural area that represents all different features*".

Europe with its dynamic historical developments, has never been solely about borders and geography. It is in the first place about the time-proven, common values shape across centuries that define Europe. Robert Schuman, as its main architect, together with Konrad Adenauer, Alcide de Gasperi and others that joined these founding fathers, breathed in these values in the centre of the European project. This remains to be a cornerstone for trust and creative cooperation among citizens of the Member States. The mission remains to be nourished and remembered.

To conclude, let us recall the Schuman´s quote that probably summarises the main idea of his overt-temporal message for Europe and its citizens: "*Let the idea of the reconciled Europe, united and strong, is an imperative for young generations, to serve to humankind, finally freed from hatefulness and fear, that after a long-time division learns again to Christian brotherhood.*" The contemporary European Union, its leaders and citizens in the turbulent future perspective are and will be more and more challenged to show whether and to which extent they will be able to face the demanding reality in the years and decades to come.