Bridging Systems, Shaping Futures: A Theoretical Multilevel Framework for Curriculum Transformation in Higher Education

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Abstract. *Curricula are no longer just course maps, they are strategic blueprints for navigating uncertainty and driving societal progress. In an era defined by rapid digital change, climate volatility, and widening skills gaps, higher education institutions must evolve from static content providers into agile ecosystems of innovation and resilience. This paper proposes a theoretical, stakeholder-driven multilevel framework for curriculum transformation, grounded in complexity theory, systems thinking, and participatory design. Methodologically anchored in a design-based, mixed-methods approach, this conceptual framework emphasizes inclusive governance and adaptive learning but has not yet been implemented. The Faculty of Economics-Skopje at Ss. Cyril and Methodius University in Skopje, a pioneer candidate in Association to Advance Collegiate Schools of Business (AACSB) accreditation in North Macedonia, inspires this work and will serve as the initial institutional context for future empirical validation. The initial application phase will involve the development of tailored surveys and interviews to capture stakeholder perspectives. The study offers a strategic roadmap for universities, policymakers, and industry partners seeking to reimagine curricula as engines of sustainable, inclusive transformation.*

Keywords. curriculum transformation, innovation, resilience, higher education, systems thinking, multilevel strategy

1 Introduction

Higher education stands at a historic crossroads. Faced with intensifying global challenges, from pandemic-induced disruptions and digital acceleration to shifting labor markets and widening social inequities, universities must evolve beyond incremental reform to systemic reimagination. Traditional curriculum structures, often compartmentalized and discipline-centric, are increasingly inadequate for preparing graduates who must lead in an era of uncertainty, complexity, and constant change (Hassan et al., 2024; Nusche et al., 2024; Ross et al., 2022). This study responds to that urgency by proposing a theoretical, multilevel strategy for curriculum transformation rooted in innovation and resilience.

The impetus for this research arises from a growing consensus that higher education reform must transcend isolated pedagogical adjustments. Instead, transformation must be embedded across governance levels, driven by stakeholder collaboration, and informed by both qualitative insight and quantitative rigor (Law, 2022; Ritzen & Soete, 2011). Curriculum is no longer merely a vehicle for knowledge delivery; it is a strategic instrument for institutional renewal, talent development, and societal impact (Carayannis & Morawska-Jancelewicz, 2022).

This paper develops a conceptual framework for curriculum transformation, guided by a theoretical synthesis of complexity theory, systems thinking, socio-cultural and critical perspectives, and organizational change. Although the framework has not been piloted, it serves as a strategic design for future empirical testing. Methodologically, the study employs mixed-methods and participatory design. Structured surveys, semi-structured interviews, and stakeholder focus groups will be developed in a future phase to identify curriculum challenges, opportunities, and leverage points. Data visualization tools such as Power BI will support the modeling of institutional learning and engagement dynamics. It is important to emphasize that the research remains in a pre-implementation phase and is entirely conceptual at this stage.

The inspiration for this paper stems from the Faculty of Economics–Skopje's strategic momentum toward innovation, resilience, and international quality standards. Motivated by the institution's ongoing progress, particularly its commitment to curriculum modernization, digital integration, and global accreditation, the research team identified the need for a structured, evidence-based and scalable approach to curriculum transformation. The Faculty's proactive initiatives served as both a catalyst and a case model for developing the broader multilevel framework proposed in this study.

The framework is designed to be generalizable across higher education institutions but will undergo preliminary validation at the Faculty of Economics-Skopje at Ss. Cyril and Methodius University in Skopje. As a national leader in business and economics education, the faculty serves not as an isolated case, but as the emergent context where the proposed strategy was conceived and shaped. In the next phase, we plan to develop detailed instruments, including questionnaires and interview protocols tailored to capture stakeholder perspectives. These tools will first be applied within the Faculty to validate, refine, and test the assumptions embedded in the framework, before expanding its application to other institutions nationally and internationally.

The contribution of this study is fourfold. First, it introduces a robust, multilevel conceptual framework that integrates curricular innovation with governance alignment. Second, it demonstrates how a participatory, data-driven methodology can operationalize reform across institutional boundaries. Third, it highlights the role of HEIs as orchestrators of transformation, not just responders to change but proactive agents of social, economic, and digital progress Fourth, it provides practical guidance for institutional leaders, accreditation bodies, and policymakers aiming to embed systemic resilience, agility, and inclusiveness into the heart of curriculum reform.

In an era where curricula must prepare learners not only for existing jobs but for shaping the future of work and society, this paper positions curriculum transformation as both a theoretical imperative and a strategic opportunity.

The structure of the paper is organized as follows: Section 2 presents a synthesis of recent literature on curriculum innovation, digital transformation, institutional resilience, and multilevel governance. Section 3 outlines the theoretical framework that informs the study, integrating key concepts from educational systems theory and innovation studies. Section 4 details the methodological design and research phases, including stakeholder engagement mechanisms and analytics strategies. Section 5 provides an in-depth institutional profile of the Faculty of Economics–Skopje, highlighting its strategic orientation, leadership vision, and curricular innovations. Section 6 discusses the broader implications for higher education policy and practice. Section 7 concludes with key findings, research limitations, and directions for future studies.

2 Literature Review

The landscape of higher education has undergone significant disruption in recent decades, driven by technological advancement, labor market transformation, climate change, and global crises such as the COVID-19 pandemic. These forces have compelled universities worldwide to reassess the relevance and adaptability of their curricula. Scholars increasingly emphasize that curricula must evolve from static, discipline-bound structures to dynamic systems that integrate digital literacy, sustainability, experiential learning, and civic responsibility (Law, 2022; Paliwoda et al., 2025). Within this context, the concept of Curriculum 4.0 has emerged as a powerful framework for modernizing higher education. It promotes interdisciplinarity, problem-based learning, and the embedding of technological and soft skills, all of which are essential for graduates to thrive in the knowledge economy (Kunnari et al., 2018).

A growing body of literature has investigated how higher education institutions implement such transformative approaches. For example, Hasanefendic et al. (2017) introduce the notion of "individuals in action", faculty members who, equipped with intrinsic motivation, authority, and social networks, catalyze curricular reform from within their institutions. Their work underscores the importance of bottom-up innovation and points to the role of institutional culture in enabling or constraining change. Complementary studies by Laufer et al. (2025) explore trust-based leadership as a structural enabler, demonstrating how decentralized decision-making, transparency, and mutual trust can accelerate adoption of educational technology and participatory innovation.

At the governance level, Ritzen and Soete (2011) argue for the reconfiguration of educational governance structures to promote cross-level coordination among supranational entities, national ministries, and institutional actors. Their multilevel governance model frames HEIs as embedded within broader policy ecosystems and advocates for alignment between curriculum goals and societal needs. In parallel, Carayannis and Morawska-Jancelewicz (2022) propose the Quadruple Helix innovation model, which positions universities as central actors in collaborative networks that include industry, government, and civil society. These perspectives provide a theoretical foundation for systemic and stakeholder-inclusive curriculum reform.

Resilience is another key dimension addressed in literature. Dohaney et al. (2020) conceptualize resilience in higher education not only as the ability to recover from disruptions but also as a proactive stance of adaptability and preparedness. Ross et al. (2022) extend this idea by showing how organizational culture, leadership, and academic identity shape responses to systemic change. On the student side, Sahanowas and Halder (2024) emphasize that resilience can be cultivated through curricula that promote emotional intelligence, critical thinking, and metacognitive skills. Their findings advocate for integrated learning models that foster both academic performance and psychological adaptability.

In the digital domain, Eri et al. (2021) introduce the concept of digital resilience, which refers to learners' capacity to navigate and adapt to online learning

environments. Their comparative study across Asia and Australia reveals the critical role of institutional support structures, including IT infrastructure, pedagogical redesign, and professional development for instructors. These insights are especially relevant as universities increasingly adopt blended learning and digital tools such as learning analytics, AI-driven feedback systems, and immersive technologies.

Universities are increasingly seen as active agents in shaping equitable and sustainable futures. Spours and Grainger (2023) frame higher education institutions as mediators in a "just transition," emphasizing their role not only in responding to global challenges but in proactively guiding societal transformation. Through curricula that foster systems thinking, long-term impact assessment, and inclusive problem-solving, universities can help equip learners to navigate and lead change in complex, interdependent environments.

The literature points to three converging imperatives for curriculum reform: adaptability to digital and labor market change; integration of stakeholder input across governance levels; and cultivation of resilience at institutional, staff, and student levels. These imperatives underpin the theoretical and methodological choices of this study. They also justify the need for a general framework that not only guides curriculum reform conceptually but can be applied in diverse institutional contexts. The Faculty of Economics-Skopje, while serving as a case study in this research, exemplifies the global relevance of these themes. Its pursuit of innovation, resilience, and international accreditation provides fertile ground for examining how theory-informed reform can be both systemic and context-specific.

3 Theoretical Framework

The design of curriculum transformation must contend with the reality of complexity, institutional inertia, and shifting stakeholder demands. To address these challenges, the framework proposed in this study is built on a synthesis of four core theoretical perspectives: (1) complexity theory, (2) systems thinking, (3) multilevel governance, and (4) participatory engagement. Together, these lenses provide a holistic and actionable strategy for reimagining curriculum as a dynamic, evolving ecosystem embedded in broader institutional and societal systems.

3.1 Complexity Theory and Systems Thinking

Complexity theory provides a foundational understanding of curriculum transformation as a non-linear, adaptive process. Educational institutions are viewed as open systems that respond to continuous external pressures such as economic volatility, digital disruption, and socio-political change. Kolmos et al. (2015) argue that such systems must be flexible, reflexive, and capable of evolving in unpredictable environments. In this context, curriculum reform is not a one-off intervention but an ongoing learning process involving feedback loops, experimentation, and recalibration. Fenwick and Dahlgren (2015) emphasize that resilience emerges not from rigid stability but from the system's ability to reorganize and learn in response to crises. For the Faculty of Economics-Skopje at Ss. Cyril and Methodius University in Skopje this suggests the importance of embedding responsive structures into curriculum design, capable of adjusting to both anticipated and emergent challenges.

Systems thinking complements this by emphasizing the importance of structure, relationships, and purpose in shaping institutional change (Sterman, 2000). It provides a language for identifying leverage points and designing interventions that reflect the interconnected nature of academic governance, pedagogical design, and labor market relevance. Curricula are not isolated artifacts but subsystems within the larger university ecosystem, which itself is embedded in the regional, national, and global economy.

3.2 Multilevel Governance

Effective curriculum transformation requires alignment across governance levels, macro (national policy and accreditation standards), meso (university and faculty leadership), and micro (individual educators and students). Drawing from Ritzen and Soete's (2011) model, the framework integrates vertical and horizontal coordination mechanisms, ensuring that innovations are both top-down enabled and bottom-up informed. This multilevel logic is crucial in contexts such as North Macedonia, where European standards, national reforms, and local institutional dynamics converge.

3.3 Participatory Engagement

Transformative change cannot be imposed; it must be co-created. Participatory engagement draws from design thinking and stakeholder theory, advocating for the inclusion of diverse voices in shaping curriculum goals and delivery mechanisms (Carayannis & Morawska-Jancelewicz, 2022). Co-design with students, alumni, employers, faculty, and policymakers enhances ownership, relevance, and sustainability of reforms. This element ensures the framework is not only theoretically sound but contextually anchored and socially legitimate.

To enhance clarity and accessibility, a visual model of the framework has been developed (Fig. 1). The model situates curriculum at the center of intersecting systems, governance, stakeholder communities, and innovation pathways, demonstrating how systemic

inputs flow into curriculum redesign and how outcomes loop back into institutional learning. Each governance level (macro, meso, micro) is mapped with its respective roles, responsibilities, and stakeholder interactions.

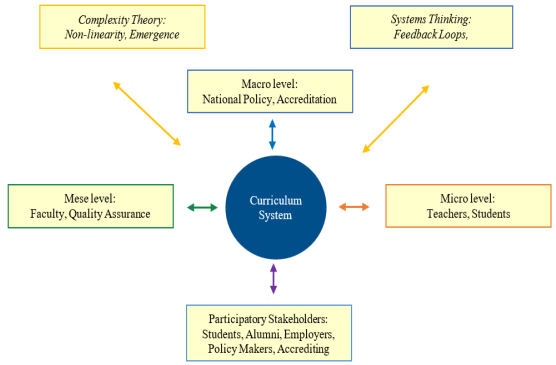

Figure 1. Theoretical Framework for Curriculum Transformation

4 Methodology and Data

This study adopts a mixed-methods research design that integrates both qualitative and quantitative approaches to explore curriculum transformation for innovation and resilience in higher education. The methodology is informed by the theoretical framework outlined in Section 3 and operationalizes its key constructs, complexity, systems integration, multilevel governance, and stakeholder engagement through a sequential and participatory research process. The research unfolds in four interconnected phases: (1) exploratory assessment, (2) co-design, (3) piloting and evaluation, and (4) strategy formulation. Each phase is strategically aligned with the principles of systems thinking and iterative learning and engages stakeholders from across governance levels, disciplines, and professional roles. We emphasize that the framework and methodological design proposed in this study are theoretical and have not yet been empirically implemented.

Phase 1: Exploratory Assessment

The first phase involves diagnosing the current state of curriculum innovation and institutional readiness. A structured questionnaire will be disseminated to faculty members, students, and alumni to assess perceptions of curriculum relevance, digital integration, practical orientation, and stakeholder responsiveness. The survey instrument draws on validated scales for digital resilience (Eri et al., 2021), critical thinking disposition (Sahanowas & Halder, 2024), and academic innovation (Hasanefendic et al., 2017). Simultaneously, semi-structured interviews will be conducted with ministry officials, university leadership, and employer partners to understand macro-level expectations, accreditation imperatives, and labor market alignment. The exploratory phase is grounded in the premise that innovation cannot be meaningfully pursued without understanding systemic constraints and stakeholder perceptions.

This phase will provide foundational data for constructing participatory mechanisms and will be further refined in collaboration with the Faculty's quality assurance and curriculum committees.

Phase 2: Co-Design

Building on the diagnostic findings, a Curriculum Transformation Working Group will be convened. This cross-functional team, comprising academic staff, students, alumni, employers, and policy representatives will engage in collaborative workshops to co-create proposed reforms. Techniques such as curriculum mapping, backward design, and persona-based planning will be employed to realign content, pedagogy, and outcomes. As Strachan et al. (2023) highlight, multidisciplinary collaboration is essential in designing curricula that embed sustainability, interdisciplinarity, and experiential learning.

This co-design effort will be supported by participatory design principles and will adopt an iterative validation model to ensure stakeholder buy-in and alignment with governance structures.

Phase 3: Piloting and Evaluation

Selected curriculum components developed in Phase 2 will be piloted in targeted undergraduate courses. For instance, an innovation lab course that brings students into direct collaboration with local firms or public institutions may be introduced. Evaluation of these pilots will be conducted through a combination of pre- and post-intervention surveys, focus groups, and classroom observations. Importantly, data visualization tools like Power BI will be used as a central analytical platform for real-time data visualization, tracking indicators such as engagement levels, satisfaction, digital tool usage, and perceived learning outcomes. Dashboards will display decomposed analytics across student demographics, academic departments, and instructional methods, offering granular insight into the effectiveness of interventions.

This phase incorporates dynamic data feedback loops and systems mapping, emphasizing complexity theory in identifying leverage points and emergent behaviors.

Phase 4: Strategy Formulation

Insights from the evaluation phase will be synthesized into a curriculum transformation strategy that includes design principles, governance recommendations, and a roadmap for scaling. This strategy will be documented in both policy and pedagogical formats enabling its adoption by faculty councils and academic program boards. At this stage, broader dissemination will occur through policy briefs, academic publications, and

stakeholder roundtables at the national level. The case of the Faculty of Economics-Skopje will serve as a benchmark model for other faculties in North Macedonia and beyond.
The strategy will be guided by institutional mission alignment, AACSB accreditation standards, and relevance to sustainable development goals (SDGs).
Figure 2 presents a conceptual diagram illustrating the four-phase methodology.

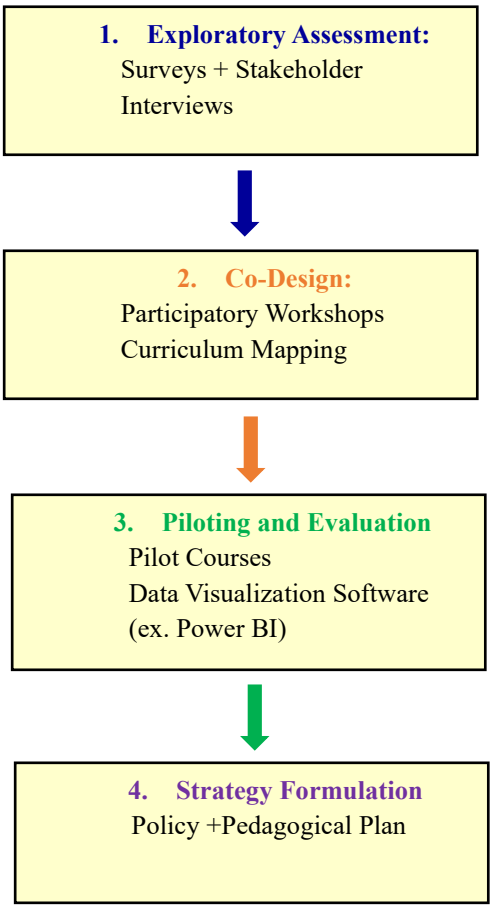

Figure 2. Visual representation of the four-phase methodology

The design of the questionnaire will be grounded in a comprehensive literature review of contemporary studies on curriculum transformation, innovation capacity, digital integration, resilience in education, and stakeholder engagement in higher education reform (e.g., Law, 2022; Kunnari et al., 2018; Hasanefendic et al., 2017). This analytical foundation ensures that the instrument captures not only generalizable constructs such as perceived curriculum relevance, pedagogical innovation, and institutional responsiveness, but also context-sensitive indicators tailored to the specific dynamics of educational systems in transition. The questionnaire will integrate validated scales and construct domains aligned with the study's theoretical framework, emphasizing complexity, systems thinking, and multi-level governance. Items will be carefully adapted and, where necessary, newly developed to reflect the distinctive priorities of digital transformation, sustainability, and assurance of learning. This approach ensures methodological rigor while enhancing the instrument's capacity to generate actionable insights for institutional decision-makers. Pre-testing will be conducted with faculty and students to ensure clarity, reliability, and contextual appropriateness before full-scale deployment.

All participants will be informed about the purpose of the study and their rights. Ethical approval will be sought from the institutional research board. To ensure the trustworthiness of findings, triangulation of methods and sources will be employed, and member checking will be applied during focus groups and interviews. A pilot study of the survey instrument will be conducted to refine clarity and reliability before full deployment.

To further enhance research integrity and alignment with contemporary standards, emphasis will be placed on transparency, inclusiveness, and responsiveness throughout the process.

This methodological design, rigorous, iterative, and stakeholder-driven ensures the integrity of the research and its alignment with contemporary expectations for responsive, inclusive, and evidence-based curriculum transformation.

5 Institutional Case: The Faculty of Economics-Skopje at Ss. Cyril and Methodius University in Skopje

The Faculty of Economics-Skopje, a constituent member of Ss. Cyril and Methodius University in Skopje, stands as the preeminent academic institution in North Macedonia for the study and advancement of economics and business disciplines. With over seven decades of tradition in higher education, the faculty has cultivated a reputation as a regional leader committed to academic excellence, internationalization, and social responsibility. Its graduates occupy leadership positions in public administration, private enterprises, and international organizations, reinforcing its identity as a cornerstone of the national knowledge economy.

The faculty has systematically strengthened its internationalization strategy by intensifying its participation in multilateral networks and embedding global standards within institutional governance. Its extensive portfolio of bilateral collaborations, Erasmus+ mobilities, and participation in European research frameworks (such as Horizon and COST projects) reflects a deliberate shift toward deeper international engagement. These partnerships not only elevate the faculty's visibility but also infuse global best practices into its teaching and research agendas. As such, the institution has positioned itself as a gateway between the domestic academic landscape and the broader European Higher Education Area.

A defining moment in this institutional trajectory has been the launch of a comprehensive curriculum reform initiative, one that places innovation, resilience, and digital fluency at the center of academic renewal. This reform effort is not episodic, but systemic, grounded in a strategic vision set forth by the Dean and its team. It responds both to the internal imperative for modernization and to the external expectations stemming from evolving student needs, employer expectations, and competitive accreditation environments.

The current initiative emerges under a visionary leadership agenda that positions innovation, resilience, and global integration at the heart of institutional development. This orientation is not merely rhetorical. Under the strategic guidance of the Dean and the team, the Faculty has undertaken bold steps toward internationalization and quality enhancement. One of the most emblematic of these efforts is the formal pursuit of AACSB accreditation, a globally recognized hallmark of academic excellence and continuous improvement in business education. This decision reflects not only a commitment to meet global standards but also a recognition that curriculum reform must be both evidence-driven and future-oriented.

In preparation for AACSB accreditation, the faculty has initiated several structural and pedagogical transformations. First, it has undertaken a comprehensive curriculum audit to map program learning goals against industry expectations, student competencies, and international trends in economic education. Second, faculty members have been mobilized into working groups aligned with AACSB's 9 accreditation standards, including Standard 4, which focuses explicitly on curriculum and embedding ethical reasoning, digital literacy, sustainability, and experiential learning into core and elective courses. Third, institutional governance processes have been streamlined to support Assurance of Learning (AoL) practices, linking student outcomes with feedback loops that inform teaching and assessment design. These internal shifts are aligned with global best practices promoted by AACSB but are also responsive to local socio-economic demands.

A pivotal moment in this process was a two-day participatory event initiated by the Dean during which the proposed structure of the redesigned curriculum was presented to internal staff. The new model reconsiders the number of credits allocated to specific modules, modernizes course sequencing, and aims to satisfy both national accreditation requirements and international quality expectations. The curriculum management process will incorporate structured participatory forums, exemplified by events where faculty, students, alumni, and industry partners collectively evaluate and refine the curriculum concept.

Leadership has played a decisive role in shaping the tone and direction of this transformation. The Dean's style, rooted in strategic foresight, inclusivity, and empowerment, has succeeded in mobilizing cross-functional teams, fostering trust, and building a unified institutional culture that views reform not as a burden but as an opportunity. This leadership model reflects an adaptive governance approach aligned with contemporary literature on organizational change in higher education. It has proven essential in aligning internal motivation with external accountability, making the Faculty of Economics-Skopje a national reference point for how strategic vision can translate into sustained academic excellence.

Through this ongoing transformation, the Faculty demonstrates that curriculum reform is not merely a technical or bureaucratic exercise, but a strategic process that redefines an institution's identity, values, and future trajectory. As the Faculty deepens its engagement with AACSB and other international quality assurance bodies, it continues to evolve as a dynamic, resilient, and forward-looking institution prepared to lead higher education in North Macedonia into the next generation.

6 Implications

The proposed framework for curriculum transformation holds far-reaching implications that extend beyond institutional boundaries and into the broader domains of national development, societal well-being, and sustainable innovation. At a time when education is called upon to serve as a pillar of societal resilience, this model offers a bold reconceptualization of how higher education can drive not only academic excellence but also economic adaptability, civic renewal, and ecological responsibility.

First, the framework contributes directly to national capacity-building. In countries like North Macedonia, where higher education institutions are increasingly navigating the dual demands of European integration and domestic reform, the need for cohesive, future-proof academic models has never been greater. By anchoring curriculum reform in a multilevel governance strategy, the framework enables alignment between government policy objectives, institutional mission, and community expectations. It fosters a model of higher education that supports national competitiveness, promotes equitable opportunity, and generates graduates capable of navigating and shaping the transformations of the 21st century.

At the societal level, the implications are equally profound. The framework shifts the focus of curriculum development from insular academic priorities to outward-facing, problem-oriented learning that connects students with real-world challenges. This reconnection between universities and their communities revitalizes the civic role of higher education, positioning institutions as mediators of social change and innovation. Through active engagement with industry, government, and civil society, the curriculum becomes a living interface

between knowledge creation and societal impact, training students not just to adapt, but to lead.

Crucially, the framework embeds sustainability not as an add-on, but as a core design principle. In doing so, it should align curriculum content and pedagogical practices with the Sustainable Development Goals (SDGs), particularly those related to quality education (SDG 4), decent work and economic growth (SDG 8), and climate action (SDG 13). By fostering interdisciplinary learning and ethical reasoning, students are equipped with tools to tackle complex, interlinked challenges such as climate change, digital inequality, and social fragmentation. This approach ensures that graduates are not only employable, but responsible, capable of contributing to both economic vitality and planetary stewardship.

From the perspective of innovation, the framework redefines how educational systems generate and sustain creative capacity. It operationalizes innovation through participatory curriculum design, digital transformation, and iterative improvement. Faculty are engaged as co-creators, empowered to design programs that reflect both disciplinary excellence and cross-sectoral relevance. Institutions benefit from dynamic feedback mechanisms through tools like Power BI and structured stakeholder consultations that allow continuous adaptation to new trends, technologies, and learner needs. This positions curriculum not as a static repository of knowledge but as a flexible, evolving platform for innovation.

Resilience, the ability to endure, adapt, and grow through disruption, is the defining characteristic of education systems in the post-pandemic era. The framework directly contributes to building institutional, pedagogical, and individual resilience. At the institutional level, it fosters agile governance structures and evidence-based decision-making. At the pedagogical level, it emphasizes learning-by-doing, scenario planning, and systems thinking. For students, the reformed curriculum cultivates emotional intelligence, critical reflection, and self-directed learning, all essential traits for personal and professional sustainability in an unpredictable world.

Finally, the implications for regional leadership are significant. By piloting this strategy at the Faculty of Economics-Skopje, North Macedonia has the opportunity to position itself as a frontrunner in educational transformation in Southeast Europe. The initiative serves not merely as an institutional innovation, but as a model that can inspire systemic change across other faculties, universities, and national systems. It signals that even in smaller or transitioning economies, world-class reform is possible when driven by strategic vision, inclusive governance, and a shared commitment to relevance, resilience, and responsibility.

The implications of this research are transformative. It offers a roadmap for embedding innovation, resilience, and sustainability into the heart of academic life, shaping not only how we teach and learn, but how education can serve the greater public good in a rapidly changing world.

7 Conclusion

This study introduces a novel and integrative framework for curriculum transformation that responds to the urgency of systemic reform in higher education. By embedding innovation, resilience, and multi-level alignment at its core, the proposed approach addresses both institutional challenges and wider socio-economic imperatives. Its added value lies in the synthesis of complexity theory, systems thinking, multilevel governance, and socio-cultural pedagogy, offering a unified lens through which curriculum reform can be approached holistically rather than piecemeal (Law, 2022; Kunnari et al., 2018; Hasanefendic et al., 2017).

Unlike traditional reform models that isolate curricular change from institutional governance or stakeholder input, this framework conceptualizes the curriculum as a living, adaptive system. In doing so, it moves beyond static program revisions to a dynamic, evidence-informed, and participatory model of academic transformation.

The methodology employed combines quantitative instruments (e.g., validated surveys, Power BI analytics) and qualitative mechanisms (interviews, focus groups, participatory workshops), ensuring both breadth and depth of analysis. This dual approach not only identifies existing curriculum gaps but also uncovers the socio-cultural and organizational levers needed for sustainable reform (Strachan et al., 2023).

The proposed approach carries implications that extend beyond institutional performance. By fostering interdisciplinary learning, digital fluency, and ethical responsibility, it supports the development of graduates who are equipped to lead societal, economic, and environmental transitions. Moreover, by embedding stakeholder co-creation and assurance of learning mechanisms, it strengthens governance structures and positions higher education as a resilient driver of national innovation systems (Eri et al., 2021; Sahanowas & Halder, 2024).

Future research will focus on the empirical validation of this framework through the development of tailored questionnaires and structured interview protocols for various stakeholder groups. These instruments will guide data collection on curriculum relevance, engagement, and readiness for innovation. The initial application of the framework will take place at the Faculty of Economics-Skopje, which has emerged as the institutional catalyst for this conceptual model. Insights from this pilot will inform further refinement, enabling broader implementation across other faculties and national education systems. In doing so, the study charts a pathway toward a more resilient, inclusive, and future-ready higher education landscape.

References

Carayannis, E. G., & Morawska-Jancelewicz, J. (2022). The futures of Europe: Society 5.0 and Industry 5.0 as driving forces of future universities. *Journal of the Knowledge Economy, 13*(4), 3445–3471. https://doi.org/10.1007/s13132-021-00854-2

Dohaney, J., de Róiste, M., Salmon, R. A., & Sutherland, K. (2020). Benefits, barriers, and incentives for improved resilience to disruption in university teaching. *International Journal of Disaster Risk Reduction, 50*, 101691. https://doi.org/10.1016/j.ijdrr.2020.101691

Eri, R., Gudimetla, P., Star, S., Rowlands, J., Girgla, A., To, L., Li, F., Sochea, N., & Bindal, U. (2021). Digital resilience in higher education in response to COVID-19 pandemic: Student perceptions from Asia and Australia. *Journal of University Teaching and Learning Practice, 18*(5), Article 7. https://doi.org/10.53761/1.18.5.7

Fenwick, T., & Dahlgren, M. A. (2015). Towards socio-material approaches in simulation-based education: Lessons from complexity theory. *Medical Education, 49*(4), 359–367. https://doi.org/10.1111/medu.12638

Hassan, M., Murtaza, A., & Rashid, K. (2024). *Redefining higher education institutions (HEIs) in the era of globalisation and global crises: A proposal for future sustainability*. European Journal of Education, 60(1), 92–105. https://doi.org/10.1111/ejed.12822

Hasanefendic, S., Birkholz, J. M., Horta, H., & van der Sijde, P. (2017). Individuals in action: Bringing about innovation in higher education. *European Journal of Higher Education, 7*(2), 101–119. https://doi.org/10.1080/21568235.2017.1296367

Kolmos, A., Hadgraft, R. G., & Holgaard, J. E. (2016). Response strategies for curriculum change in engineering. *International Journal of Technology and Design Education, 26*(3), 391–411. https://doi.org/10.1007/s10798-015-9319-y

Kunnari, I., Ilomäki, L., & Toom, A. (2018). Successful teacher teams in change: The role of collective efficacy and resilience. *International Journal of Teaching and Learning in Higher Education, 30*(1), 111–126.

Laufer, M., Deacon, B., Mende, M. A., & Schäfer, L. O. (2025). Leading with trust: How university leaders can foster innovation with educational technology through organizational trust. *Innovative Higher Education, 50*(1), 303–327. https://doi.org/10.1007/s10755-024-09733-5

Law, M. Y. (2022). A review of curriculum change and innovation for higher education. *Journal of Education and Training Studies, 10*(2), 16–23. https://doi.org/10.11114/jets.v10i2.5448

Nusche, D., Fuster Rabella, M., & Lauterbach, S. (2024), Rethinking education in the context of climate change: Leverage points for transformative change, *OECD Education Working Papers*, No. 307, OECD Publishing, Paris, https://doi.org/10.1787/f14c8a81-en.

Paliwoda, K., Strachan, S., & Rance, D. (2025, March). *Using experiential learning to engage students in interdisciplinary education for sustainable development: A vertically integrated project case study*. Paper presented at the Advance HE Annual Sustainability Symposium, University of Strathclyde.

Ritzen, J., & Soete, L. (2011). *Research, higher education and innovation: Redesigning multi-level governance within Europe in a period of crisis* (UNU-MERIT Working Paper No. 2011-056). United Nations University - Maastricht Economic and Social Research Institute on Innovation and Technology (UNU-MERIT). https://collections.unu.edu/view/UNU:71

Ross, P. M., Scanes, E., Poronnik, P., Coates, H., & Locke, W. (2022). Understanding STEM academics' responses and resilience to educational reform of academic roles in higher education. *International Journal of STEM Education, 9*(1), Article 11. https://doi.org/10.1186/s40594-022-00327-1

Sahanowas, S. K., & Halder, S. (2021). *Effect of emotional intelligence and critical thinking disposition on resilience of students in transition to higher education phase.* Journal of College Student Retention: Research, Theory & Practice, 23(4), 913–939. https://doi.org/10.1177/15210251211037996

Spours, K., & Grainger, P. (2023). The mediating role of further and higher education in a Just Transition social ecosystem. *Journal of Vocational Education & Training*, *76*(2), 307–330. https://doi.org/10.1080/13636820.2023.2258521

Sterman, J. D. (2000). *Business dynamics: Systems thinking and modeling for a complex world*. Irwin/McGraw-Hill.