GEN Z PERCEPTIONS ON GOVERNMENT GAMIFICATION INITIATIVES TO REDUCE SHADOW ECONOMY IN NORTH MACEDONIA

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ABSTRACT
This study examines the role of the MojDDV app, a gamification initiative designed to increase fiscal transparency and curb the shadow economy in North Macedonia, by engaging citizens in reporting their purchases through receipt scanning. Leveraging the Unified Theory of Acceptance and Use of Technology (UTAUT) model, this research investigates how the constructs of Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Conditions impact Generation Z's intention to use MojDDV. The UTAUT model is implemented to understand factors that drive or hinder app adoption, ultimately aiming to identify how gamification can incentivize responsible fiscal behaviour and transparency. Data was collected via a structured questionnaire, and multiple regression analysis was conducted to determine the relationships between these constructs and intention to use. The findings reveal that Facilitating Conditions and Social Influence are significant predictors of intention to use, underscoring the importance of resource accessibility and social encouragement in fostering app engagement. While both Performance Expectancy and Effort Expectancy are positively associated with intention to use, their effects are not statistically significant. This suggests that providing practical support and leveraging social networks may be more impactful for adoption than user expectations of ease and performance. These insights recommend that policymakers focus on enhancing facilitating conditions and social influence mechanisms to boost the effectiveness of gamification initiatives like MojDDV. Future studies could examine

additional factors that affect app engagement and employ longitudinal methods to assess changes in user behaviour over time. This research contributes to a deeper understanding of how gamification strategies can support fiscal transparency efforts, offering valuable guidance for developing public sector innovations aimed at reducing the shadow economy.

1. INTRODUCTION

According to IMF (How to Manage VAT refunds, IMF, April 2021) "the VAT is a consumption tax borne by the final consumers of goods and services (in most cases, households). By design, the VAT-unlike retail sales tax (RST)-is collected at all stages of the production-distribution chain, including on intermediate transactions. However, VAT is only paid on the value added at each stage". The most widely used approach is to ensure that the VAT falls only on final consumption (the invoice-credit method). According to this method, taxpayers can credit input VAT they have paid (and shown on their purchase invoices) against output VAT they have collected (and shown on their sales invoices). VAT is one of the most important taxes in the world, both in terms of its global adoption and revenue-generating potential. Over 30% of global government taxes are collected at the central and federal levels in over 160 nations (WoRLD 2019). VAT is an appealing tax due to its ability to generate large government revenue and self-enforcement capacity. In many countries, some provisions enable taxpayers to claim refunds, after meeting several sometimes very strict requirements. When taxpayers seek these refunds, payments are frequently delayed or not received. These issues are not the product of VATs, but more of the inadequate legal and institutional frameworks, as well as limited administrative ability, that cause VAT refund fraud.

1.1. MojDDV application

At the beginning of 2019, the Parliament adopted the Law on the return of part of the value-added tax to citizens and it came into effect on July 1, 2019. The Law was amended several times[1]. The main idea of the Law is to provide partial return of the paid value-added tax by the physical persons after buying good/services for which they were given a fiscal bill with clearly stated amount of the paid tax that was issued by the seller with the proper unique bar code[2]. According to the last revision of the Law, 20% of the paid tax on goods/services produced in the country can be returned to the customer, and 10% of the paid tax on the rest of the goods and services. The reimbursed sum for one trimester should not exceed 2100 denars (approximately 35 Euros). The maximum amount of a single bill should not exceed 30000 denars (approximately 500 Euros). The only way to get the reimbursement is by scanning the code in the application on a mobile phone or PC (MojDDV). The Public Revenue Office (PRO) should pay the money within 60 days from the end of the quarter. To register an account, one should be older than 15 years, have an ID issued by the Republic of North Macedonia, and have a banking account. According to the government, the main reason for the adoption of this law is the reduction of tax evasion. Therefore, an increase in the registered turnover through fiscal systems of equipment is expected, as well as an increased collection of taxes, that is, a reduction in tax evasion by taxpayers. According to the PRA, there are more than 500000 registered users (523.673), and for the total period of 4 years more than 120 million Euros were

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[1] Official Gazette of the Republic of North Macedonia no.133/19,275/19,244/20,65/23
[2] Law on registration of cash payments

given back to the citizens. 523.673 In the first quarter of 2024, 22,670,713 fiscal receipts were scanned, and a total turnover of 11,423,978,620 denars was achieved, with a calculated total VAT of 1,241,434,628 denars (Akademik, 2021).

1.2. The rationale behind the project MojDDV

As mentioned, the main idea behind the project of tax return by use of MojDDV is to decrease tax evasion. Other possible consequences such as social, political, or even influence on macroeconomic aggregates (demand, inflation) are rarely mentioned and/or investigated by government officials. There are numerous theories that deal with the rationale of tax morale and tax evasion. The concept of "tax morale" can be defined as a moral obligation and a belief in a better society by paying taxes (Frey and Torgler, 2007). Tax morale measures attitudes toward paying taxes, unlike tax evasion, which measures actual behaviour. In the authors' opinion, the theory that can explain tax evasion practices in the country is the theory of unexpected benefit. The main idea of this theory is that in a risky and uncertain situation of being caught and sanctioned for tax non-compliance, individuals happen to behave contrary to the assumptions of the model of expected benefit. McGee (2008) has concluded that the major argument in favour of tax evasion is that governments are susceptible to corruption and the tax system is unfair. By increasing the responsibility, political stability, and the absence of violence, as well as by the efficiency of the government, the rule of law, and control over corruption, trust in governmental institutions and legal systems will increase,

The relative tax revenues to GDP ratio is a simple measure of assessing the level to which taxes stimulate the national economy, and it is also used in combination with other metrics with the purpose of measuring the level of government oversight over its economic resources. In the last decade, this ratio is between around 20%, which is less than in EU countries. According to the abovementioned estimates, that means that the Republic of North Macedonia suffers losses of 9.9% of the GDP or 14.5%, which is 102 million euros annually due to the low tax morale (numbers that can go even higher in the Republic of North Macedonia if we take into consideration the likely lower level of tax morale as a result of the lack of trust in the state and local institutions). The shadow economy in the Republic of North Macedonia, which represents a rooted issue and continues to be a significant challenge, is something that CEA (2012) has studied, and the results indicate that it is present with over 30% of the GDP in 2016. The IMF has also come up with a 38% share of the shadow economy in the GDP.

The idea that a strong state with the ability to enact laws and a population that supports the system confirms the relationship strong state and less tax evasion. Strong and institutionally well-organized states are also thought to have a lower shadow economy and higher rates of tax compliance. People who have faith in their governments have demonstrated higher levels of tax morale than people who do not.

Tax morale is higher among citizens who view fiscal redistribution as a fundamental component of democracy and society as a whole —that is, those who believe taxes from the wealthy should be collected to support the impoverished. Active participation in decision-making, especially at the local level, is associated with higher tax morale, a sense of ownership, and increased accountability to the community and society.

Transparent policies and procedures that govern the processes in budget execution and reflect its strategic planning—in which the government aligns its goals with the resources from the budget—are expected to be part of the public finance system. The more informed the constituents are, the more influence they have in fostering the legislators to enact the best possible social policies. More specifically, one of the things that affects tax morale is mistrust of the establishment. Tax morale may suffer because of careless tax revenue spending if people consistently believe that their money is being misappropriated by the government.

The Government of the country through the Ministry of Finance is following the so called Public Fiscal Management Reform Program (PFM) and it is mentioned that progress has been achieved in number of areas, but many areas for improvement remain works in progress. The PRO and the CA (Customs Administration) account for all central government tax revenues and SSC (Social Security Contribution) and for 91.3% of total revenues collected in the Budget of the Republic of North Macedonia (taxes only 56%). After performing design and redesign of the main business processes, the PRO has been developing the Integrated Tax Information System (ITIS). The system has several core modules (Registration, Filing and Service Management, Accounting, Payments, and Refunds, Debt management, Assessments, Legal, and Audit). Within the PRO, a contact center has been opened, offering a combination of communication channels and development solutions aimed at full customer service to all taxpayers (citizens and businesses) in realization of their tax rights and obligations.

Types of taxes and contributions which fall in public revenues in the RNM are as follows: personal income tax; profit tax; value added tax; excise duties; Customs – import duties; compulsory social security contributions (three funds); and property taxes (local taxes). The general value added tax rate is 18%, while the preferential rate of 5% is applied to certain goods and services. The value added tax is represented with the largest share of (almost one half) 45.2% in the total tax revenues for 2019, i.e. 25.5% of the overall budget revenues. In the Republic of North Macedonia, the share of tax revenues in the gross domestic product (GDP) is around 17% (which has been almost constant for two decades) compared to the larger shares in the EU countries, ranging between 25-50%. This is the minimum level considered by the UN as necessary for achieving the Millennium development goal. 42 For a comparison, the OECD countries tax revenues share in the GDP is approximately 35%. In the case of RNM the indirect tax is dominant, i.e. around 80% falls onto consumption taxes (VAT), while in the EU personal taxes have a bigger share.

To increase interest in the project, the Ministry of Finance introduced another game at the end of 2019 that lasted for one year. By scanning each fiscal account through the MojDV application, every adult citizen was a potential winner of one of 3,852 awards in total of half a million Euros by awarding 10 daily awards – 4 out of 1,000, 3 out of 2,000 denars and 3 out of 3,000 denars. The rest of the scanned accounts received serial numbers that entered the monthly cycle for 15 prizes of 100,000 denars (1600 Euros), as well as for the two premiums of 3,000,000 denars (50000 Euros). To participate in the prize game, the person had to be registered on the e-Personal tax system and be a user of the MojDV application. The drawing of the daily awards was carried out by an electronic random generator. The winners of daily prizes receive notice immediately after the account scan and the others received will receive a message with educational-information content. The drawing of the prizes from 100,000 denars and premiums of 3 million denars was broadcasted live immediately after the draw from Lotto 7 and Joker extraction. According to the Ministry, citizens who scan fiscal accounts than had threefold benefits: the possibility of receiving one of the cash prizes up to 3,000,000 denars, the second VAT refund and third – to contribute to the fight against the grey economy. In presenting the prize game former Minister of Finance Nina Angelovska pointed out that MojDDV #MyAward was created for best practices of prize games in other countries for addressing the grey economy (PRO, 2022). With the prize game citizens receive motivation to demand and scan fiscal accounts and thus influence the reduction of tax evasion that is harmful to the economy.

1.3. Research background

Gamification—the application of game mechanics in non-game contexts—has emerged as an effective approach to improve user engagement and motivation across diverse fields, including

public administration (Hassan and Hamari, 2020). Studies indicate that gamification in government services can increase civic participation and compliance by making public interactions more engaging and rewarding (Wijaya and Sutomo., 2023). In fiscal policy, gamification techniques have been applied to encourage tax compliance and reduce the shadow economy by involving citizens in an interactive, reward-based system that fosters accountability and transparency (Muller, 2020).

The shadow economy- comprising unreported economic activity-poses significant challenges for governments globally, often undermining tax revenue and fiscal transparency (Medina and Schneider, 2021). In North Macedonia, estimates place the shadow economy at approximately 30-40% of GDP, which impacts tax morale, defined as the moral obligation to pay taxes for societal benefit (Torgler, 2020). Gamified applications like the MojDDV app aim to address these challenges by using rewards to reinforce the perceived benefits of tax compliance and fiscal responsibility. According to a study on gamification and fiscal initiatives, reward mechanisms and social incentives significantly increase voluntary tax compliance, especially among younger populations (Halkos *et al.*, 2020).

The Unified Theory of Acceptance and Use of Technology (UTAUT), developed by Venkatesh *et al.* (2003), serves as a foundational model for understanding technology adoption in various fields, including public sector gamification. This model identifies Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Conditions as key determinants of intention to use technology. Research demonstrates that these constructs are particularly relevant for understanding user' behaviour intention in digital government services, as factors like social endorsement and resource availability strongly influence adoption rates. The UTAUT framework has been successfully applied to analyse the effectiveness of gamification initiatives in other governmental contexts, highlighting its relevance in assessing MojDDV's impact on user engagement and tax compliance (Abu-Shanab and Al-Sayed, 2019).

When examining Generation Z's interaction with MojDDV, it is critical to consider this cohort's digital preferences and engagement patterns. Generation Z, known for its preference for intuitive, socially integrated digital platforms, often responds positively to gamified experiences that align with their values, such as transparency and efficiency. Studies reveal that gamification can be especially effective in engaging audiences in government initiatives, as peer influence and streamlined user experiences directly affect their likelihood of participation (Guerra *et al.*, 2024).

The aim of this research is to examine the intention of Generation Z to engage with the MojDDV app through the UTAUT framework, specifically focusing on how Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Conditions contribute to app adoption. By understanding these factors, this study provides insights into how gamified government initiatives like MojDDV can enhance fiscal transparency, increase tax compliance, and engage a digital-native population in reducing the shadow economy.

2. LITERATURE REVIEW

In recent years, governments worldwide have increasingly turned to innovative solutions to address complex challenges, such as the shadow economy. One such innovative approach is the use of gamification—a strategy that applies game design elements in non-game contexts to engage users and solve problems. Gamification has been shown to effectively motivate behaviour change, enhance engagement, and improve both educational outcomes and business processes (Hamari *et al.*, 2014; Deterding *et al.*, 2011). In the context of public governance, gamification can play a crucial role in encouraging compliance and participation in civic duties (Mollick and Rothbard, 2014). However, the application of gamification also can have limited effectiveness, since it may require changes in government policies (Nepal *et al.*, 2015).

North Macedonia, like many countries, faces challenges related to the shadow economy, particularly tax evasion. To address these issues, the government introduced the "MojDDV" app—a gamified initiative aimed at reducing undeclared economic activities by incentivizing citizens to scan their purchase receipts, thus promoting transparency and accountability in transactions. This approach not only aids in capturing more fiscal information but also engages citizens directly in governance processes, potentially altering their perceptions and behaviours toward tax compliance (Thomson *et al.*, 2005).

Generation Z, defined as individuals born from the late 1990s to the early 2010s, represents a significant segment of the population that is particularly adept at using technology and engaging with digital platforms (Seemiller and Grace, 2016). Understanding how this demographic interacts with gamified government initiatives is crucial for evaluating the effectiveness of such strategies. Research suggests that Gen Z values transparency, engagement, and digital connectivity, characteristics that may influence their responses to gamification in a governance context (Williams, 2015).

The MojDDV effort provides a chance to examine these processes. Through analysing Gen Z's perspectives and involvement with MojDDV, we may acquire valuable knowledge on the capacity of gamification to tackle governance obstacles and improve the efficiency of policies. This study seeks to address the lack of research in the literature by specifically examining the perspectives of young individuals toward gamified initiatives undertaken by the government. The study enhances our understanding of how individuals from Generation Z engage with and perceive gamified systems in governmental settings, providing a more detailed perspective.

Gamification has been increasingly adopted in public governance as a tool to enhance citizen engagement, improve public service delivery, and promote transparency and compliance. The core idea is to apply elements typical of game playing (e.g., point scoring, competition) to other areas of activity, often to increase user engagement and participation (Hamari *et al*., 2014). Studies have shown that when gamification is effectively implemented, it can significantly enhance the motivation and engagement of citizens towards governmental programs (Mollick and Rothbard, 2014). For instance, Thom et al. (2016) observed that gamification strategies could transform mundane tasks, like tax filing or following governmental regulations, into more engaging and less cumbersome experiences, thereby potentially reducing avoidance behaviours.

The shadow economy consists of those economic activities that are not monitored by government institutions and, therefore, escape taxation and regulation (Schneider *et al.*, 2010). North Macedonia, like many transition economies, has struggled with a sizable shadow economy, which affects fiscal stability and equitable growth. Researchers argue that one of the effective ways to combat this issue is through enhancing fiscal transparency and engaging citizens directly in monitoring economic activities (Williams and Schneider, 2016). The MojDDV app represents such an effort by incentivizing the formalization of transactions through receipt scanning.

Gamification in the public sector has been applied in various contexts to improve compliance and transparency. For instance, the "Taxman" initiative in Brazil used game elements to encourage tax compliance among citizens. The initiative saw a significant increase in tax revenues as citizens were motivated to engage with the tax system more actively (Alm and Torgler, 2011). Similarly, in South Korea, a mobile application named "Check Your Receipt" was introduced to reduce tax evasion by allowing users to scan receipts and enter a lottery. This initiative led to a notable increase in the issuance of receipts and improved tax compliance (Choi and Park, 2013).

Generation Z, having grown up with digital technology, exhibits distinctive behaviours and preferences in their interaction with digital platforms, including government services. According to Seemiller and Grace (2016), Gen Z values transparency, speed, and convenience

in their digital interactions. Research by Smith (2017) indicates that this generation is more likely to engage with digital platforms that offer immediate rewards and feedback, characteristics that are inherently aligned with gamification principles. This suggests that gamification strategies, such as those used in the MojDDV initiative, could be particularly effective with this demographic.

The effectiveness of gamification in improving tax compliance has been a subject of interest among researchers. Studies such as those by Hallsworth *et al.* (2017) indicate that even small, gamified elements, such as competitions or simple rewards, can lead to increased tax compliance. The underlying psychological mechanisms—increased attention, motivation, and satisfaction—suggest that gamified approaches could reshape how citizens perceive and engage with tax-related responsibilities (Hamari, 2017). Moreover, the literature on gamification emphasizes the importance of user-centric design. Kankanhalli *et al.* (2012) found that when gamification elements are tailored to the preferences and motivations of users, the engagement levels significantly improve. This aligns with the findings of Mekler *et al.* (2017), who noted that personalized gamification elements, such as setting personal goals and receiving immediate feedback, enhance user satisfaction and performance.

Building on the theoretical foundation laid out in the literature review, this study seeks to empirically investigate the perceptions and intentions of Generation Z towards the MojDDV app, a gamification initiative aimed at reducing the shadow economy in North Macedonia. The literature suggests that gamification can significantly enhance engagement and compliance, particularly among younger demographics who are more accustomed to digital interactions and gamified environments.

The Unified Theory of Acceptance and Use of Technology (UTAUT), as shown in Figure 1, was developed by Venkatesh *et al.* (2003), as a comprehensive model that integrates elements from various technology acceptance models. It aims to explain user intentions to use an information system.

Figure 1: UTAUT Model
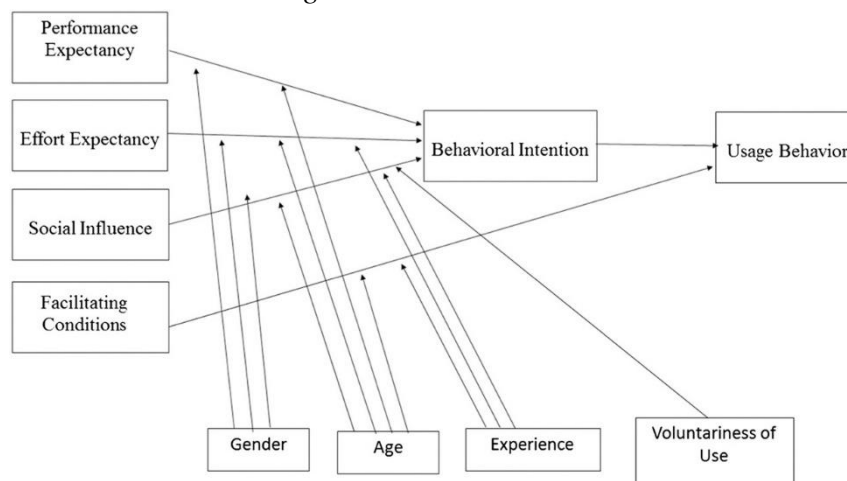
(Source: Venkatesh et al., 2003)

The following hypotheses were outlined for testing:

H1: There is a positive relationship between Performance Expectancy and intention to use MojDDV among Generation Z in North Macedonia.

H2: There is a positive relationship between Effort Expectancy and intention to use MojDDV among Generation Z in North Macedonia.

H3: There is a positive relationship between Social Influence and intention to use MojDDV among Generation Z in North Macedonia.

H4: There is a positive relationship between the presence of Facilitating Conditions and the intention to use MojDDV among Generation Z in North Macedonia.

3. METHODOLOGY

This study employs a quantitative research design to investigate Generation Z's perceptions and intentions toward the MojDDV gamification initiative aimed at reducing the shadow economy in North Macedonia. The research utilizes the Unified Theory of Acceptance and Use of Technology (UTAUT) model as the primary framework for evaluating the acceptance and usage of the MojDDV app. Specifically, this model helps identify the influence of constructs such as Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Conditions on the intention to use the app. A structured questionnaire was developed based on the UTAUT constructs. The constructs utilized are the following:

- **Performance Expectancy:** Measures how users perceive the effectiveness of the gamification initiative in reducing tax evasion and whether they believe participating in it will lead to a tangible benefit
- **Effort Expectancy:** Assess how easy and convenient users find the process of scanning receipts and participating in the program.
- **Social Influence:** Measure the extent to which social factors, such as seeing others participate or societal pressure to combat tax evasion, influence individuals to engage
- **Facilitating Conditions:** Evaluate the infrastructure and support in place for the initiative, such as the availability and reliability of the receipt scanning technology, and any assistance provided to users.

Each construct was measured using multiple variables on a 5-point Likert scale, ranging from "Strongly Disagree" to "Strongly Agree." The questionnaire also included demographic questions to capture age, gender, employment status, and education level. Moderators were not included in the analysis because only young people were asked to participate, and gender is not considered to be important in the usage of apps in our country.

The target population for this study was Generation Z individuals residing in North Macedonia, defined as those born between the late 1990s and early 2010s. A purposive sampling method was employed to select participants who met the inclusion criteria: being active users of the MojDDV app. This focus on Gen Z is pertinent as younger users are generally more receptive to digital innovations and gamified interfaces in public sector initiatives. The sample size of 180 participants is justified due to the study's focus on a specific population subset, Generation Z students, who are early adopters of technology and highly relevant for evaluating app-based engagement in this demographic.

Data was collected using an online survey platform and participants were informed about the purpose of the study and assured of the confidentiality and anonymity of their responses. In the period between 16.02.2024 through 31.03.2024 more than 180 responses were received via online questionnaire. Data analysis was conducted using SPSS software to perform multiple regression analysis on the UTAUT constructs. By applying SPSS, the study effectively evaluated the relationships between the UTAUT constructs and the intention to use the MojDDV app, providing insights into the critical factors influencing app adoption within Generation Z.

4. RESULTS
4.1. Descriptive statistics
Participants answered a qualifying question "Have you used the app MojDDV?", where 65.4% of respondents answered affirmatively. This indicates a significant portion of the surveyed population is engaged with the app, demonstrating its reach and potential impact. Most respondents fall within the age group 18-24, accounting for 97.5% of the sample. This is consistent with the focus on Generation Z in this study and underscores the relevance of the findings to this demographic. Among those who reported using the MojDDV app, 71.4% were female. On the question of whether they are scanning most of the receipts, more than 87% of respondents said that they are actually scanning all or almost all of them.

4.2. Cronbach's Alpha
To ensure the internal consistency of the questionnaire items within each UTAUT construct, Cronbach's Alpha was calculated. Cronbach's Alpha is a measure of internal consistency, indicating how closely related a set of items are as a group. A Cronbach's Alpha value above 0.70 is generally considered acceptable, indicating good internal consistency. The results are presented in the table below:

Table 1: Cronbach's Alpha for constructs

Construct	Cronbach's Alpha
Performance Expectancy	0.799
Effort Expectancy	0.858
Social Influence	0.815
Facilitating Conditions	0.828

(Source: Authors' research)

These Cronbach's Alpha values indicate that the items within each construct have good internal consistency, supporting the reliability of the measures used in this study. These results confirm that the questionnaire items for each UTAUT construct reliably measure the intended variables, providing a solid foundation for further analysis.

4.3. Descriptive statistics
The descriptive statistics for the UTAUT constructs provide an overview of the respondents' perceptions and experiences with the MojDDV app.

Table 2: Descriptive statistics

Construct	Mean	Standard deviation	CV
Performance Expectancy	4.15	0.82	0.20
Effort Expectancy	3.83	0.91	0.24
Social Influence	3.99	1.05	0.26
Facilitating Conditions	3.46	0.91	0.26

(Source: Authors' research)

As shown in Table 2, for the Performance Expectancy construct, respondents generally agreed that the MojDDV app helps reduce tax evasion and ensures retailers issue receipts, with a mean score of 4.15 (SD = 0.82). The Effort Expectancy construct, which measures the ease of use and convenience of the MojDDV app, received a moderately high mean score of 3.83 (SD = 0.91). Social factors, as captured by the Social Influence construct, played a significant role

with a mean score of 3.99 (SD = 1.05). Finally, the Facilitating Conditions construct, which assesses the availability of resources and support for using the MojDDV app, had a mean score of 3.46 (SD = 0.91). These statistics highlight that while there is a positive perception of the app's usefulness and ease of use, there are varying levels of social influence and perceived facilitating conditions among the respondents.

4.4. Multiple regression analysis

Multiple regression analysis was conducted to examine the relationship between the UTAUT constructs (Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Conditions) and the Intention to use the MojDDV app. The results of the analysis are summarized below.

Table 3: Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.684[a]	.468	.449	.59459

(Source: Authors' research)

The regression model explained 46.8% of the variance in intention to use (R^2 = 0.468), indicating that the UTAUT constructs collectively have a significant impact on the intention to use the MojDDV app. The adjusted R^2 value of 0.449 suggests a good fit of the model to the data, with a standard error of the estimate of 0.59459.

Table 4: ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	35.461	4	8.865	25.076	<.001[b]
	Residual	40.303	114	.354		
	Total	75.764	118			

(Source: Authors' research)

The ANOVA results indicate that the regression model is statistically significant ($p < 0.001$). This confirms that the independent variables (UTAUT constructs) reliably predict the dependent variable (Intention to use).

Table 5: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	.849	.344		2.471	.015		
	PE_Composite	.100	.073	.109	1.358	.177	.719	1.392
	EE_Composite	.148	.086	.146	1.728	.087	.651	1.535
	SI_Composite	.197	.094	.190	2.094	.039	.568	1.761
	FC_Composite	.441	.086	.417	5.116	.001	.702	1.425

a. Dependent Variable: IU_Composite

(Source: Authors' research)

The regression results indicate that:

- **Performance Expectancy** (PE_Composite) has a positive but not statistically significant effect on intention to use (b = 0.100, p = 0.177).
- **Effort Expectancy** (EE_Composite) shows a positive effect that approaches significance (b = 0.148, p = 0.087).
- **Social Influence** (SI_Composite) has a positive and statistically significant effect on intention to use (b = 0.197, p = 0.039).
- **Facilitating Conditions** (FC_Composite) has the strongest positive and statistically significant effect on intention to use (b = 0.441, p < 0.001).

5. DISCUSSION

The regression analysis offers significant insights into the factors influencing the adoption and intention to use the MojDDV app among Generation Z in North Macedonia. The results reveal varying levels of influence across the four UTAUT constructs: Performance Expectancy, Effort Expectancy, Social Influence, and Facilitating Conditions.

The results of the multiple regression analysis, indicate that the UTAUT constructs collectively explain a significant portion of the variance in the intention to use the MojDDV app. Facilitating Conditions and Social Influence are significant predictors of intention to use, suggesting that the availability of resources and support, as well as social factors, play crucial roles in influencing the use of the app. Although Performance Expectancy and Effort Expectancy are positively related to intention to use, their effects were not statistically significant.

H1: There is a positive relationship between Performance Expectancy and the intention to use MojDDV among Generation Z in North Macedonia. Performance Expectancy, which refers to users' belief in the app's ability to assist in reducing tax evasion and providing value through financial returns, was shown to have a positive, though not statistically significant, effect on intention to use (b = 0.100, p = 0.177). This suggests that while users may perceive the MojDDV app as beneficial, this alone does not strongly drive their intention to use it. Thus, H1—predicting a positive relationship between Performance Expectancy and intention to use—is not supported by the data. This finding aligns with research that suggests perceived utility alone may be insufficient to motivate consistent engagement if not accompanied by other factors, such as ease of use or social reinforcement.

H2: There is a positive relationship between Effort Expectancy and intention to use MojDDV among Generation Z in North Macedonia. Effort Expectancy, which gauges the ease and convenience of using the MojDDV app, was positively associated with intention to use but was not statistically significant (b = 0.148, p = 0.087). Although H2 hypothesized a positive influence, this result implies that perceived ease of use may play a supportive rather than a pivotal role in adoption. Users' engagement appears less reliant on the app's simplicity or user-friendly design than on other factors. This finding suggests that while simplifying the user interface could marginally improve engagement, it might not independently drive adoption rates.

H3: There is a positive relationship between Social Influence and intention to use MojDDV among Generation Z in North Macedonia. Social Influence, which captures the effect of friends, family, and social networks on app adoption, emerged as a significant predictor of intention to use (b = 0.197, p = 0.039). H3 is therefore supported, reinforcing the critical role of peer encouragement and societal perceptions in fostering usage intention. This result aligns with social proof theory, which posits that individuals are more likely to engage in behaviours when they observe others in their social circle doing the same. The significance of Social Influence in this study highlights the importance of community-driven initiatives and the potential impact of peer networks in promoting engagement with public sector digital

solutions. This finding suggests that policies aimed at increasing app adoption should consider strategies that leverage social networks, such as referral programs, community-based campaigns, and influencer partnerships. The influence of peers and family members on MojDDV adoption highlights a potential strategy for future government initiatives to enhance compliance and engagement through socially driven channels.

H4: There is a positive relationship between the presence of Facilitating Conditions and the intention to use MojDDV among Generation Z in North Macedonia. Facilitating Conditions, which encompass the availability of resources, infrastructure, and support, were identified as the strongest predictor of intention to use (b = 0.441, p < 0.001), thus supporting H4. This indicates that access to reliable resources and technological support significantly impacts users' decisions to engage with the MojDDV app. The importance of Facilitating Conditions aligns with previous literature on digital adoption, suggesting that providing a stable and accessible infrastructure is essential for sustainable user engagement. In this study, Facilitating Conditions were assessed through respondents' agreement with several key statements, including access to information on using MojDDV, the app's functionality and uptime reliability, the availability of customer support, and compatibility with users' devices. Notably, respondents were ambivalent about the support received, both from the app and the government, though they felt confident in their technological capabilities. This highlights the need for continuous technical support and educational initiatives to enhance users' experience and trust in government-provided digital solutions.

6. CONCLUSIONS

The objective of this study was to assess the effects of the MojDDV app, a gamification project created to improve fiscal transparency and decrease the share of the shadow economy in North Macedonia. The research aimed to comprehend the aspects that influence Generation Z's inclination to use the app, using the well-known Unified Theory of Acceptance and Use of Technology (UTAUT) model. The results of the multiple regression analysis indicate that Facilitating Conditions and Social Influence are strong predictors of intention to use. Having in mind that young people experience strong social influence on their behaviour the result is not a surprise. Furthermore, the notable influence of the social environment underscores the significance of social networks and peer recommendations in promoting the adoption of apps. The significant impact of Facilitating Conditions implies that users require dependable technological access and ongoing assistance to properly interact with the application. These findings suggest that the presence of resources and assistance, together with social encouragement from peers, are essential factors in the acceptance and utilization of the MojDDV app. While Performance Expectancy and Effort Expectancy did not show statistical significance as predictors, their positive associations with intention to use indicate that these components still play a role in the adoption process. The app's effectiveness in promoting tax compliance and its user-friendliness, although not the main factors, are crucial for improving user engagement.

The findings have important consequences for policymakers, as well as gamification initiatives in this sector. It is crucial to provide users with the required infrastructure and assistance to ensure the successful implementation of the MojDDV app. Moreover, utilizing social influence using focused ads and referral incentives can amplify user engagement. Continued emphasis should be placed on effectively communicating the advantages of the app and enhancing its user-friendliness. These suggestions should be considered in the period to come to utilize the app by more citizens.

Future research could analyse additional variables that might impact the adoption of the MojDDV application. An in-depth analysis of the relationship between trust in government and

perceived risk could offer valuable insights into the process of adoption. In addition, conducting longitudinal studies that monitor user behaviour over an extended period could provide useful insights into the long-term efficacy of gamification campaigns in encouraging tax compliance. Furthermore, these studies could also enhance the research by incorporating usage behaviour analysis based on the UTAUT model.

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