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THE INFLUENCE OF THE INSTITUTIONAL FRAMEWORK ON PUBLIC DIGITAL SERVICES IN THE BUSINESS SECTOR IN BOSNIA AND HERZEGOVINA

Abstract

The purpose of this research is to identify the influence of the institutional framework on public digital services in the business sector in Bosnia and Herzegovina. By analyzing the research findings, it can be confirmed that the determinants of the institutional framework have a significant impact on the development and accessibility of digital public services aimed at the business community. More specifically, the institutional framework makes a unique and important contribution to predicting the availability, efficiency, and quality of digital services essential for business operations in Bosnia and Herzegovina's digital economy. Based on the theoretical foundations, empirical analyses, and research results, it can be concluded that the institutional framework substantially affects the business sector and the extent to which it can benefit from public digital administration services. The research findings further confirmed a high level of dissatisfaction among businesses regarding institutional support for the digitalization of public services, as well as a generally negative perception of investment efforts by municipalities, cantonal authorities, and state-level institutions in the development of ICT infrastructure aimed at facilitating business operations. The study also highlighted the need to improve the legislative and regulatory framework to create conditions for faster development of digital services and their alignment with the needs of the business sector. The research sample consisted of 171 respondents (n = 171) from Bosnia and Herzegovina, selected using the snowball sampling method. The basic motive for the realization of this research is the fact that there is no relevant research in Bosnia and Herzegovina that focuses on the impact of the institutional framework on public digital services for the business sector.

Keywords: institutions and growth, government policy, entrepreneurship.
JEL: O43, O38, L26

1. INTRODUCTION

The rapid development of digital technologies has fundamentally transformed the ways in which governments interact with citizens, businesses, and various stakeholders. Across the world, public institutions have increasingly integrated digital tools and platforms into their administrative processes, aiming to improve service efficiency, transparency, and responsiveness. Within this context, public digital services have emerged as essential components of modern governance, particularly in economies striving to enhance their competitiveness and operational effectiveness in a digital environment. The integration of public digital services is not only a technical or operational shift but also a reflection of deeper institutional, political, and regulatory dynamics that shape the speed, scope, and quality of digital transformation.

In the European Union, the expansion of e-Government services has accelerated in recent years, particularly during the COVID-19 pandemic, when digital interactions became essential for maintaining public administration functions. The EU's Digital Decade strategy has set an ambitious goal for all key public services to be accessible online by 2030, both for citizens and businesses. However, the progress of digital transformation has been uneven across the region, influenced by varying institutional capacities, political priorities, and investment levels. While some member states have achieved significant advancements in providing digital public services for businesses — simplifying procedures for licensing, tax reporting, public procurement, and regulatory compliance — others continue to face systemic challenges related to regulatory fragmentation, infrastructure limitations, and policy incoherence.

In Bosnia and Herzegovina, the situation is particularly complex. As a country with a highly decentralized governance structure and multiple layers of political authority, Bosnia and Herzegovina has encountered significant barriers in implementing comprehensive digital public services, especially those intended for the business sector. Although certain administrative units have made isolated progress, the absence of a unified national digital strategy, outdated legislative frameworks, and limited institutional coordination have hindered the development of interoperable and business-friendly e-Government solutions. These institutional constraints affect the efficiency and accessibility of public services for businesses, directly influencing the operational environment and competitiveness of the private sector in Bosnia and Herzegovina's emerging digital economy.

Given these conditions, understanding the role of the institutional framework in facilitating or hindering the digitalization of public services for the business sector is crucial. A well-functioning institutional framework can enhance the availability, quality, and reliability of digital public services, thereby reducing administrative burdens, improving transparency, and fostering a more favorable business climate. Conversely, fragmented, inefficient, or outdated institutional arrangements can slow down digital transformation, restrict business access to essential services, and limit the broader economic benefits associated with digital public administration.

The subject of the research is the identification of the influence of the institutional framework on public digital services in the business sector in Bosnia and Herzegovina. The paper aims to identify and describe the impact of the institutional framework on the business activities in the public digital services in Bosnia and Herzegovina in the period from October 2022 to December 2023.

2. LITERATURE REVIEW

The digital economy, defined through the integration of digital technologies into economic and social systems, has profoundly transformed the delivery of public services, including those aimed at the business sector. Shi et al. (2022) emphasize that digitalization enables more efficient, transparent, and business-oriented public services, creating new opportunities to improve the relationship between governments and economic actors. According to the recent definition of the World Bank, the institutional framework is defined as a system of rules, norms and organizations that govern economic and social behavior (World Bank, 2023). Contemporary research confirms that digital transformation introduces significant changes not only within the internal processes of public sector organizations but also in their institutional and regulatory environments, which directly shape the accessibility and quality of digital public services for businesses. At its core, digital transformation implies a dual shift — within the administrative structures of organizations and within their external interactions with businesses and other stakeholders. Hanelt et al. (2021) argue that these changes are primarily driven by the development of digital technologies, which reshape the expectations of businesses regarding public service delivery, introducing new models of interaction, faster service provision, and improved usability.

While in the private sector, digital transformation has largely focused on the creation of new business models and the transition from analogue to digital production and services, within public administration the emphasis has been placed on understanding how digital technologies are changing and improving public institutions' organization and the way they deliver services, particularly those critical for the business sector. Fischer et al. (2021) note that although many governments have yet to achieve full digitalization of public services and administrative procedures, there has been a visible increase in the use of digital technologies, particularly following the COVID-19 pandemic, which exposed inefficiencies in traditional bureaucratic processes. Enang et al. (2020) highlight that these efforts are expected not only to gradually improve, but to fundamentally transform how governments engage with businesses, citizens, and other stakeholders. Haug et al. (2023) stress that while technology lays the groundwork for transformative initiatives, the true potential lies within the institutions themselves, shaped by their organizational structure and by the institutional environment in which they operate. Digitally induced change is thus conceived as a combination of incremental improvements and transformative reforms, demanding a strategic and coordinated approach, especially in complex governance systems such as that of Bosnia and Herzegovina.

In the context of the European Union, the implementation of public digital services has advanced considerably over the last decade, with the COVID-19 pandemic accelerating the shift toward digital public service provision as the default administrative channel. The EU's Digital Decade initiative (2021) has established an ambitious target for all essential public services to be accessible online by 2030, benefiting both citizens and the business sector (DESI, 2022). However, while certain member states such as Malta, Finland, and Croatia have made significant progress by allocating substantial resources to digitalization, overall advancement remains uneven — both between and within countries. This challenge is particularly relevant for Bosnia and Herzegovina, where decentralized governance structures and fragmented institutional competencies have slowed the pace of digital transformation in the public sector. Market regulation requires government intervention to balance the interests of all parties, limit the improper use of market power, and develop effective institutional and legal frameworks (Spence, 2021). The lack of coordinated digital strategies and insufficient legal and regulatory frameworks for e-Government services aimed at businesses continue to pose systemic obstacles.

Digital public services specifically designed for the business sector are essential for enabling more efficient market operations, reducing administrative burdens, and improving the overall business environment. According to the DESI (2022) report, the "Digital Public Services for Businesses" indicator evaluates the extent to which public services intended for enterprises are digitalized and their degree of cross-border interoperability. While countries such as Ireland, Estonia, Malta, Luxembourg, Spain, Lithuania, and Finland lead this area, with nearly 100% of business-related public services available online, the average across the EU stands at around 85%. These digital services facilitate business operations by simplifying procedures for licensing, tax reporting, customs, public procurement, and regulatory compliance. In contrast, Bosnia and Herzegovina lags significantly behind these benchmarks, primarily due to institutional fragmentation, outdated regulatory provisions, and limited investments in advanced digital infrastructure.

The implementation of open data policies and interoperable digital platforms has become a critical tool for enhancing transparency, administrative efficiency, and competitiveness in the business environment. The European Commission estimates that digital public services could generate up to €50 billion in annual savings across the EU, largely by streamlining processes and reducing transaction costs for businesses. Enang et al. (2020), Hanelt et al. (2021), and Shi et al. (2022) emphasize that beyond operational efficiency, digital public services provide additional value to business users by improving functionality, reducing service delivery times, and increasing institutional accountability. Recent research shows that digitization facilitates more efficient, transparent public services aimed at citizens (Sharma et al., 2022). In Bosnia and Herzegovina, where businesses frequently encounter complex administrative procedures and fragmented institutional authority, the potential benefits of expanding digital public services are particularly significant.

The adoption of digital systems in areas such as public procurement, tax administration, and company registration has demonstrated substantial benefits in other contexts, including rationalized processes, improved transparency, and reduced opportunities for administrative malpractice. Moreover, digitalization in public administration provides the foundations for e-democracy and public participation by promoting data accessibility, openness, and business community engagement in policymaking. Contemporary technological solutions enable public administrations to address the increasingly complex needs of the business sector while simultaneously reducing operational costs and administrative inefficiencies. As the DESI report (2022) confirms, digital public services are evolving not only as instruments of bureaucratic modernization but also as integral components of the digital economy, contributing to improved public trust in institutions and a more dynamic business environment.

In the case of Bosnia and Herzegovina, addressing the institutional framework's shortcomings — particularly political fragmentation, incoherent regulatory policies, and insufficient coordination among public agencies — will be essential for unlocking the full potential of digital public services in the business sector. Aligning national and entity-level policies, investing in interoperable infrastructure, and harmonizing legal frameworks with

European standards remain strategic priorities for creating a digital public administration capable of supporting economic development and business sector competitiveness in the digital economy.

3. RESEARCH METHODOLOGY

As part of the primary research (field research), data were collected using the survey method, using a survey questionnaire as a technical means of data collection. The collection of primary data for this part of the research was carried out in the period from October 2022 to December 2023 and is part of a wider research that, included the business sector in Bosnia and Herzegovina.

Primary data was collected using the method of a controlled random sample. The sampling frame consisted of the entire set of companies registered with the State Bureau of Statistics of Bosnia and Herzegovina. From the register, a sample of 250 companies was selected using a stratified controlled radndom sampling procedure that involved dividing population into strata based on key characteristics such as sector and geographical location, and then randomly selecting companies within each stratum to ensure representativeness across these dimensions. All selected companies received the survey, which was administered partly electronically via Google Forms, a platform for online surveys, and partly through personal visits to respondents. The dual administration mode was implemented to maximize participation, especially among the companies with varying levels of digital access. Out of the selected sample, 171 companies responded to the survey, representing a response rate of 68.4%. In some cases, surveys were conducted personally with company representatives responsible for digital technology use. The sample covered companies from 72 different local self-government units of which a total of 171 in Bosnia and Herzegovina, providing broad territorial-political coverage across Bosnia and Herzegovina. To assess representativeness, the sample was compared to the reference population values from the statistical register in terms of sectoral distribution, company size and geographical location, confirming that the sample closely matches the broader business sector.

The survey questionnaire, except for questions about the demographic characteristics of the respondents and the social structure and occupation of the respondents, is structured in the form of closed questions, whereby the respondents had the opportunity to evaluate their degree of agreement with certain statements through the offered answer form in the form of a five-point Likert response scale. A Likert scale with five intensities was used to measure attitudes and opinions in the questionnaire. Respondents expressed their agreement or disagreement with the statements stated in the survey questionnaire, where the degrees are properly distributed and numbered, namely: 1 = I completely disagree; 2 = Disagree; 3 = I have no opinion; 4 = I agree; 5 = I strongly agree. The second, admittedly smaller number of questions, related to dichotomous variables to which respondents had the opportunity to answer through the modalities "yes" and "no", and rounding one of the offered alternative answers.

The institutional framework variable was operationalized through three distinct indicators measuring perceptions of political structures, the legislative and legal system, and the communications regulatory agency in Bosnia and Herzegovina, all within the context of their support for digitalization initiatives encompassing business operations, e-business, and e-Government. These indicators were assessed using a five-point Likert scale, providing ordinal data reflecting respondents' degrees of agreement. For analytical purposes, these three items were aggregated into a composite index representing the overall institutional framework to capture the multidimensional nature of institutional support. The dependent variable, public digital services, was measured via a single item evaluating the extent of digitalization of public services at the municipal or cantonal level crucial for business operations, also rated on a five-point Likert scale.

The methods that will be used in the presented scientific research work to investigate and present the results of scientific research are inductive and deductive, methods of analysis and synthesis, comparative methods, and statistical methods. During the research, the analysis of relevant scientific research and studies in the form of books, textbooks, magazines, official publications, websites, as well as other relevant literature will be carried out. The inductive method will be applied in the reverse direction - to derive general propositions from individual facts. The deductive method will be used to derive appropriate concrete assumptions and conclusions from general statements. These two methods will be used to explain established and discover new knowledge and new laws, as well as to prove established theses and test hypotheses and predict future events.

The method of analysis will enable the explanation of the problem and the subject of research by breaking it down into simpler parts and researching each part separately concerning other parts, which will enable the observation, discovery, and study of the scientific truth about mutual relationships. The synthesis method will be used to combine the obtained research results into a single unit in which these results are mutually related. The comparative method will be used to compare the same or related facts, phenomena, processes, and relationships, i.e. it will help to establish their similarities in behavior and intensity, as well as the differences between them. Following the usual research standards in the social sciences, the data obtained from the questionnaire will be processed using SPSS modern software package for statistical analysis. Bearing in mind that the research hypotheses were formulated in such a way as to test the influence (causality) of one variable on another, and not the connection (connection) between the defined variables, regression analysis was used in the paper. The method of description will be used to describe facts and their empirical confirmation but without scientific interpretation and explanation.

3.1. Research variables

The variables observed in the context of the empirical research are:

The independent variable relates to the Institutional framework. An institutional framework refers to the system of rules, regulations, norms, and organizations that shape and govern the behavior and interactions of individuals, groups, and institutions within a particular society or sector. It provides the foundation for organizing and structuring various aspects of social, economic, and political life.

The dependent variable is related to the digital economy which is operationalized through variable: Public Digital Services. Public Digital Services (often referred to as e-Government) are public services delivered to citizens, businesses, and administrations through digital technologies. Public Digital Services enable interactions with government bodies to be carried out online, either fully or partially, replacing traditional in-person or paper-based processes.

Indicators for measuring independent variables are the functions of the institutional framework, as follows:

- support of political structures at all levels for the digitization of society and the improvement of citizens' lives,
- support of the legislative and legal system for the digitization of society and the improvement of citizens' lives, and
- support of the regulatory agency for communications to the digitization of society and the improvement of citizens' lives.

To test the auxiliary hypothesis, the Public Digital Services variable was observed through one indicator:

- eGovernment Accessibility

The planned research will be based on the application of scientific methods of secondary and primary research.

4. RESULTS AND DISCUSSION

The findings indicate that institutional factors play a critical role in shaping the development and use of digital public services. Respondents reported insufficient political prioritization of digital transformation, outdated and unclear legislative frameworks, and weak regulatory enforcement, all of which hinder progress and limit investment in ICT infrastructure. Despite these challenges, the aggregate institutional framework index shows a significant positive effect on both the accessibility and perceived quality of digital services, confirming that stronger, more coherent institutions directly support digital advancements. However, the overall availability of e-

Government services, particularly at municipal and cantonal levels, remains low, limiting broader engagement from citizens and the business sector. These results suggest that increased political commitment, modernization of legislation, and stronger regulatory oversight are necessary to achieve integrated institutional reform and ensure that digital public services scale effectively and generate meaningful value.

Table 1. Summary of Institutional Determinants, Mechanisms, Outcomes, and Policy Implications

Institutional Determinants	**Mechanisms**	**Observed Outcomes**	**Policy Implications**
Political Structures	Policy support and prioritization	Insufficient support perceived	Strengthen political coordination
Legislative Framework	Regulatory processes	Legal barriers to digitalization	Reform legislation to enable e-Gov
Regulatory Agency	Enforcement of standards	Weak regulatory support	Enhance regulatory effectiveness
Institutional Framework (Index)	Combined institutional influence	Positive effect on service quality	Promote integrated reforms
Digital Public Services (DV)	Service digitalization efforts	Underdeveloped e-Gov services	Accelerate digital service rollout

Source: Authors

Inspecting the results of the research, 59.65% of respondents reside in the territory of the Federation of Bosnia and Herzegovina, 33.33% of them in the territory of Republika Srpska, and 7.02% in Brčko District of Bosnia and Herzegovina.

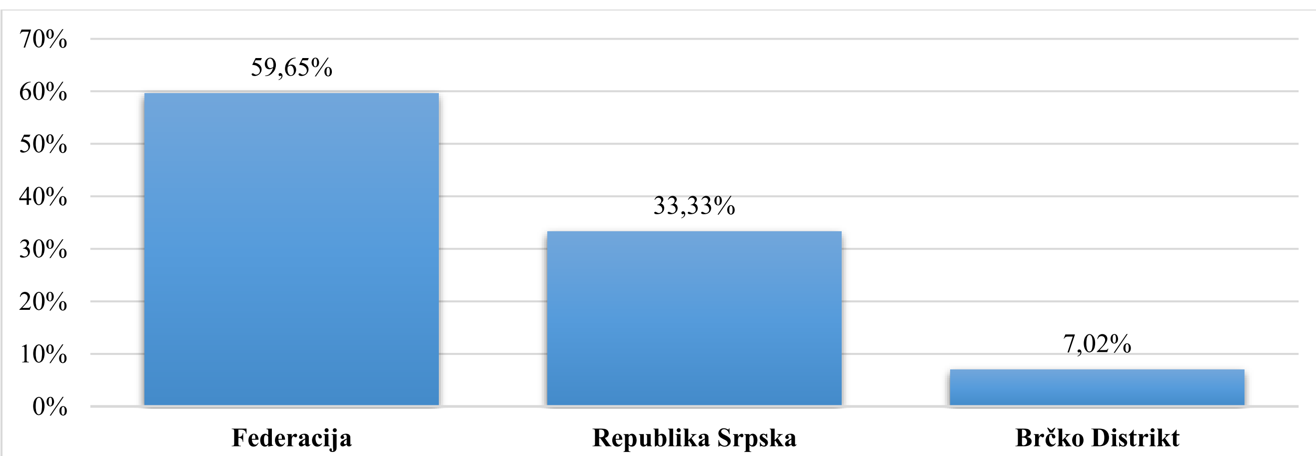

Fig. 1. Business sector respondents based on entity
Source: Authors' research

If the number of employees is considered according to whether it is an small, mediul or large enterprise, our research includes 66,08% of respondents are from small enterprises, and 19.30% of respondents are from medium enterprises and finally 14.62% are from large enterprises.

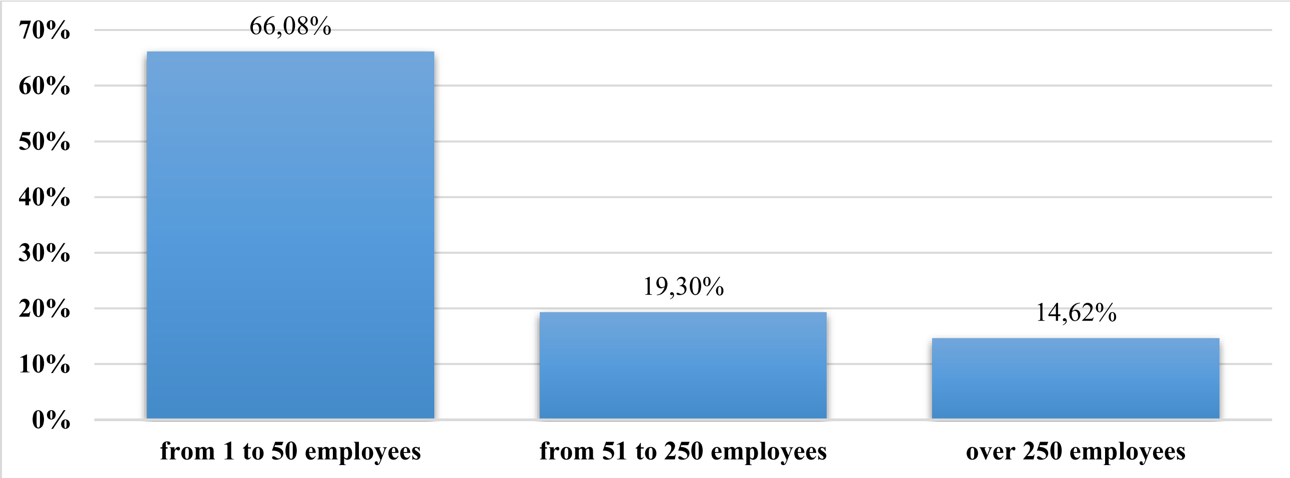

Fig. 2. Business sector respondents by number of employees
Source: Authors' research

The research results indicate a distinctly negative perception within the business sector in Bosnia and Herzegovina regarding the digitalization of public services and the institutional framework supporting it. As shown in the data, 80.12% of respondents strongly disagree that public institutions are adequately digitalized, while only 2.34% agree and 3.51% strongly agree. Similarly, perceptions of the institutional framework are predominantly unfavorable, with 52.63% strongly disagreeing that political structures support digitalization, 50.29% expressing the same view of the legislative system, and 38.01% toward the regulatory agency. Positive perceptions are minimal, with agreement and strong agreement levels not exceeding 16.96% for any of the assessed institutional components. These results highlight widespread dissatisfaction in the business community and underscore critical gaps in institutional support for the digital transformation of public services in Bosnia and Herzegovina.

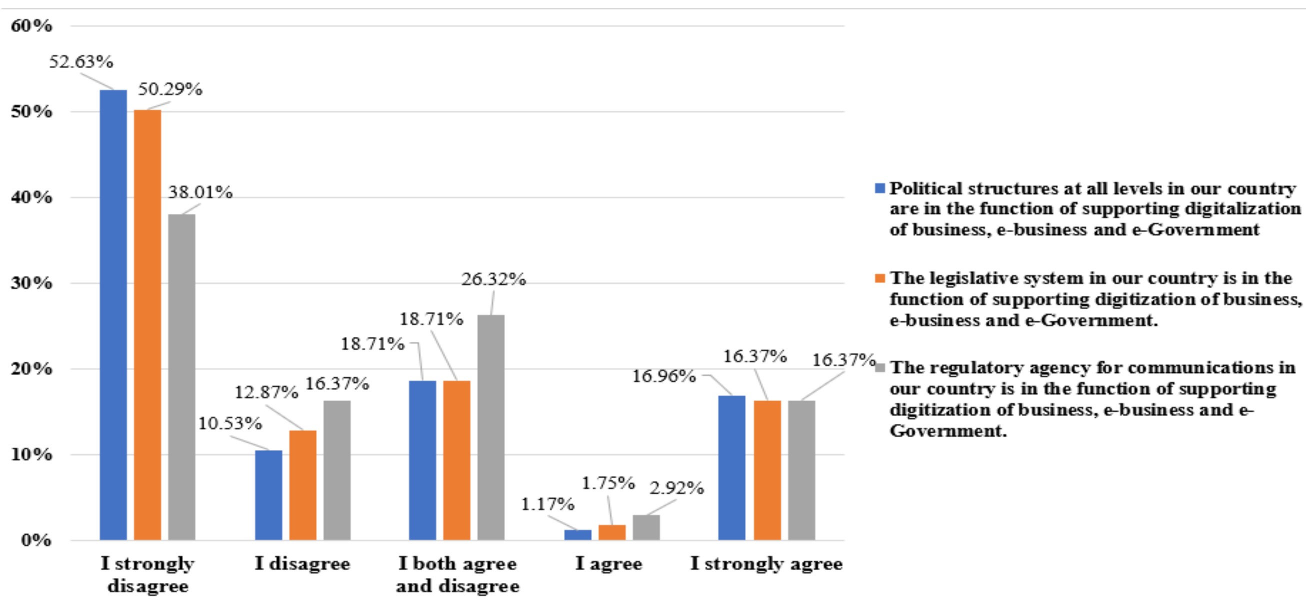

Fig. 3. Business sector perception of the institutional framework
Source: Authors' research

In regards to perception of the business sector in Bosnia and Herzegovina regarding the extent to which public institutions are digitalized (e-Government). The findings reveal a notably negative assessment, with 80.12% of respondents strongly disagreeing that public institutions are adequately digitalized. Additionally, 8.77% disagree, while 5.26% neither agree nor disagree. A marginal 2.34% agree, and only 3.51% strongly agree with the statement. These results indicate a pronounced dissatisfaction within the business community concerning the progress of e-Government initiatives, suggesting that public digital services remain largely underdeveloped and insufficiently responsive to the needs of the business sector in Bosnia and Herzegovina.

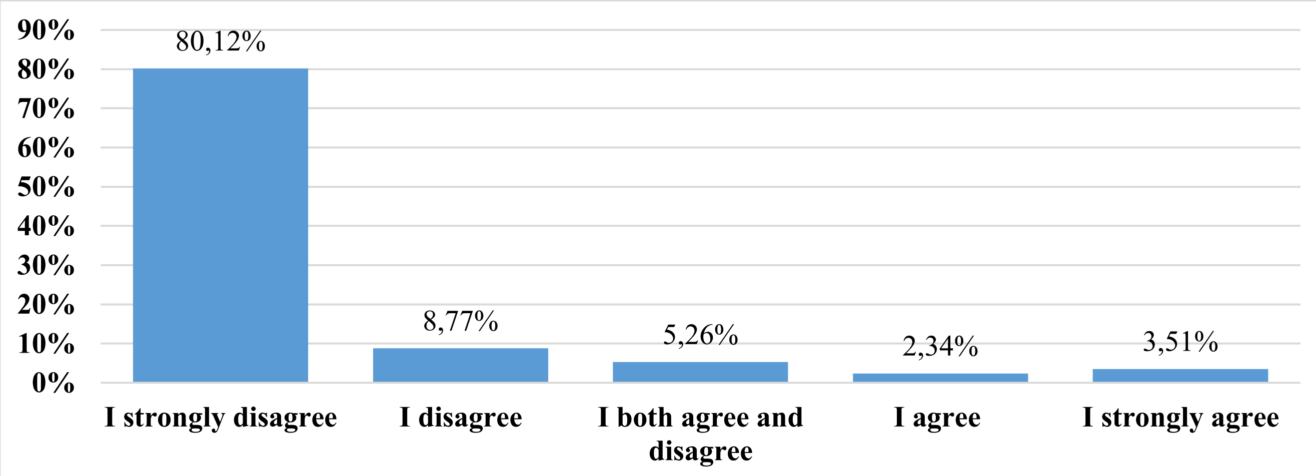

Fig. 4. Business sector perception of public institutions being digitalized
Source: Authors' research

Table 2. details regression coefficients, standard errors, significance levels, and model fit indicators examining the institutional framework's effect on digital public services. Significant contributions are found for the combined institutional index. This table substantiates the statistical relationships discussed in the text.

Table 2. Results of the regression analysis examining the influence of the institutional framework on the public digital services

Summary of model[b]					ANOVA	Coefficients	
Model	R	Coefficient of determination	Corrected coefficient of determination	Standard error of estimate	Sig.	Beta	Sig.
1	0,464[a]	0,215	0,215	0,877	0,000	0,464	0,000
a. Predictor: INSTITUTIONAL FRAMWORK							
b. Dependent variable: PUBLIC DIGITAL SERVICES (eGOVERMENT)							

Source: Authors' research

Model-level statistics such as R, R², adjusted R², and standard error estimates are reported for the model examining the influence of institutional variables on the availability of digital public services. The values indicate a moderate level of explanatory strength, suggesting that institutional factors account for a meaningful but not exhaustive share of variance in digital service development. These results help frame and contextualize the more detailed regression outputs presented in Table 3.

Table 3. Model Summary

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.464[a]	.215	.215	.877
a. Predictors: (Constant), INSTITUTIONAL FRAMWORK				
b. Dependent Variable: PUBLIC DIGITAL SERVICES				

Source: Authors' research

The obtained results show the statistical significance of the coefficient of determination of the analyzed model, and a significant unique contribution to the prediction of the dependent variable. More precisely, the institutional framework makes a significant unique contribution to public digital services as a component of the digital economy.

In summary, the results of this research clearly demonstrate that the business sector in Bosnia and Herzegovina perceives the existing institutional framework as insufficiently supportive of the development and implementation of public digital services. The findings confirm that political structures, legislative frameworks, and regulatory bodies are viewed as key barriers rather than enablers of digital transformation. These perceptions reflect broader challenges in administrative coordination, policy prioritization, and regulatory responsiveness, indicating that significant institutional adjustments are required to improve the availability, quality, and efficiency of digital public services tailored to the needs of the business sector.

5. CONCLUSION

This research has explored the complex relationship between the institutional framework and the development of public digital services in the business sector in Bosnia and Herzegovina. The findings reveal a prevailing perception of institutional inefficiency and insufficient commitment to digital transformation processes among public authorities. Political structures, legislative bodies, and regulatory institutions are identified as key determinants shaping the environment in which digital public services are developed and delivered, yet these institutions are predominantly perceived as inadequately responsive to the growing digital needs of the business community.

The analysis confirms that digital transformation in the public sector is not merely a matter of technological advancement, but fundamentally a question of governance, institutional accountability, and administrative capacity. The availability, accessibility, and quality of public digital services are closely tied to the institutional environment in which they are designed and implemented. This environment encompasses political will, legislative coherence, and regulatory effectiveness — all of which, according to the perceptions captured in this study, are currently insufficient to meet the evolving demands of a modern, digitally oriented business sector.

Public digital services, when effectively developed, have the potential to enhance operational efficiency, reduce transaction costs, improve service transparency, and facilitate greater interaction between businesses and government institutions. However, this potential remains largely untapped in Bosnia and Herzegovina due to evident institutional limitations. The fragmentation of decision-making structures, uneven policy implementation across administrative levels, and a lack of systematic regulatory oversight contribute to inconsistencies in the provision and functionality of digital public services. This creates an environment where businesses encounter significant administrative and procedural barriers in accessing the digital services that are increasingly indispensable for competitive and compliant operation in contemporary markets.

Moreover, the research points to a widespread perception of inadequate investment by public institutions in digital infrastructure and service development. The business community perceives that institutional efforts to modernize public service delivery through digital platforms remain sporadic, reactive, and insufficiently coordinated. This perceived lack of strategic prioritization hinders the capacity of the public sector to respond to the expectations of businesses seeking efficient, reliable, and user-oriented digital public services. The absence of visible institutional leadership in promoting and managing digital transformation processes contributes to skepticism within the business community regarding the public sector's readiness and capability to provide services aligned with the requirements of a digital economy.

In conclusion, this study underscores that the institutional framework in Bosnia and Herzegovina plays a pivotal role in either enabling or constraining the digitalization of public services in the business sector. The findings demonstrate a clear need for institutional reforms that strengthen administrative coordination, improve regulatory effectiveness, and foster a culture of transparency, accountability, and innovation within public sector institutions.

Addressing these challenges is essential not only for enhancing the quality and accessibility of public digital services but also for ensuring that the business sector can fully participate in and benefit from the opportunities provided by digital economic development. The evidence presented confirms that advancing public digital services requires an integrated institutional response capable of aligning legal, regulatory, and administrative functions with the practical needs of the business community in Bosnia and Herzegovina's digital economy.

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