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The role of external assistance in propelling the digitalization of public services in the republic of Moldova

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Abstract: Digitization of public services has become an imperative in modern governance, bringing promises of increased efficiency, transparency and greater citizen engagement. This study examines the critical role of external assistance in accelerating the digitization of public services in the Republic of Moldova, highlighting its impact on shaping national digitization agendas, particularly in transition economies. The relevance of the research lies in its ability to contribute to the development of effective and sustainable strategies for the digitization of the public sector, thus facilitating socio-economic development and strengthening international cooperation. The main aim of the study is to investigate the role of external assistance in this process, being structured on three objectives: exploring the theoretical concepts of e-government, analysing the impact of external assistance on digitization in Moldova and assessing the influence of digital public services on the development of local entrepreneurship. Through a qualitative methodological approach, the study provides valuable insights for policy makers and practitioners, contributing to the academic discourse on digital governance.

Keywords: financial assistance, digitization, public services, e-government, efficiency

Introduction

Every century brings substantial changes in science, innovation and society. Scientific progress initiates chain reactions that generate continuous innovations in different aspects of life. One area significantly affected by new technologies is the provision of public services. The transmission and storage of information and data has evolved into a digital format, a process known as digitization. Digitization involves the conversion of analog/physical versions, such as paper documents, images and photographs, into digital formats. Once digitized, this information can be integrated and used in various applications.

The digitization of public services includes the automation of the submission of service requests, the identification and authorization of applicants, the digital

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completion and signing of service requests, the online payment of fees for services, the provision of services, inter-institutional data exchange and the secure hosting of e-services. Information and digitization have transformed economic value creation, market structure and functionality, communication with government bodies and the management of different businesses and services such as banking, education and healthcare.

Given the rapid pace of evolution, digitization of public services remains a pressing priority for most countries, especially for developing nations such as the Republic of Moldova, which has skilled IT specialists and is on the path of European integration. The evolution of digitization of public services is reflected in various concepts such as e-government and digitization, which illustrate the progression of public service delivery using digital technologies.

The development of digital government is influenced by several factors, including:

- Reducing service delivery time and improving communication: Improving government-business (G2B) and government-citizen (G2C) interaction. Government services provided through websites offer numerous benefits to both the government and its users by saving time Hiller and Belanger (2001). According to Sharma et al. (2012, pp. 19-27), e-government services improve the competitiveness of the business environment by creating informed customers and helping businesses save time, money and energy for other investments.
- Increasing efficiency and reducing costs: e-government improves the efficiency of administrative processes, reduces the need for manpower to manage the large volume of paper-based work, and allows processes to be managed by fewer employees, thereby reducing operational costs Mundy and Musa (2010, pp.148-161), Joseph (2015, pp.18-34).
- Building a transparent and less bureaucratic government: uploading official policies and legislation online facilitates the evaluation and debate of government decisions by analysts and the general public, ensuring transparency and freedom of information and effectively preventing corruption Vossos (2013, p.166).

Despite the recognition of the indispensability of digitization of public services for modern governments, there is a lack of empirical evidence on the role of official development assistance (ODA) in building digital governments or e-government.

Although several researchers address in their works the importance of digitization of public services and building a digital government Lungu et al. (2022, pp. 124-130), Chiochină (2023, pp. 48-49), they don't identify the catalysing elements of this process or the link between external assistance and the implementation of Moldova's digital transformation agenda. The originality of the subject and the lack of specialized literature emphasize the need to address the topic

in the specialized literature. The article aims to analyse the role of development partners' support in the digitization of public services in the Republic of Moldova.

The aim of the research is to investigate the role and impact of external assistance in the digitization of the Republic of Moldova.

The study sets the following objectives:

1. Support the role of external assistance in boosting e-government efforts.
2. Analysis of the results and impact of external assistance on the digitization of public services in Moldova;
3. Examining digital public services and their impact on the development of the local entrepreneurial sector;

The research results will highlight key success factors, challenges and lessons learned, providing valuable information for policy makers, practitioners and international development agencies. Ultimately, this research contributes to advancing scholarly discourse on digital governance and international development, while offering practical recommendations to enhance digitalization strategies in Moldova and beyond. By bridging theory and practice, the study aims to catalyse informed decision-making processes and drive sustainable socio-economic progress in the digital era.

The research will also help advance the academic discourse on digital governance and international development, while providing practical recommendations to improve digitization strategies in Moldova and beyond. By bridging theory and practice, the study will catalyse informed decision-making processes and foster sustainable socio-economic progress in the digital era

Various research methods and techniques were used to achieve the specific research aims and objectives. These included factual analysis, statistical analysis focusing mainly on data provided by the External Assistance Management Platform and the Ministry of Economy and Digitization of the Republic of Moldova, and impact analysis aimed at identifying the effects of external assistance on the digitization of public services. Data for these analyses were obtained from the Electronic Government Agency, the Ministry of Economy and Digitalization of the Republic of Moldova and the National Bureau of Statistics of the Republic of Moldova. In the process of analysis, the data were selected by a process of cross-checking, several platforms and available statistics were analysed.

The research is based on the seminal works of researchers such as Kaaya J., Sharma S., Gupta J., Bao X., and Qian W., as well as on the publications of international organizations such as the European Commission (EC), the United Nations (UN), the United States Agency for International Development (USAID) and the AID Management Platform. In addition, data provided by the Ministry of Economic Development and Digitalization, the Agency for Electronic Government and the National Bureau of Statistics of the Republic of Moldova were an integral part of the research.

1.Theoretical concepts of digitization of public services

1.1. Terminology and evolution of digital governance

The academic literature uses a variety of terms to describe the integration of information and communication technology (ICT) to modernize administrative functions. These terms include e-government, e-administration, e-administration, e-service delivery, e-democracy, digitization, digitalization, digitization, digital transformation and digital governance. The concepts of electronic government (e-government) and their associated terminology emerged in the early 1990s, coinciding with the entry of governments onto the World Wide Web as a crucial element of e-government.

E-government generally refers to efforts to increase the efficiency of service delivery and accessibility for citizens through the use of the internet and ICT Meijer and Bekkers (2015, pp. 266-271). E-government models describe this concept as a linear, staged and progressive process that evolves from an initial internet presence to information provision, interactivity and transactional service delivery. As e-government matures, it is moving from a front-office (information on the website) issue to an amalgam of front-office and back-office solutions. However, almost all models become normative when they describe a fully developed e-government, stating what e-government should become. These models implicitly assume that fully transactional systems are superior and that increased interaction with citizens equates to improved services Coursey and Norris (2008, pp. 232-245), Bednar and Welch (2020, pp. 281-298).

1.2 Digitization and digital transformation

Some e-government models suggest a transformation stage after information, interaction and transaction as the end point of digitization. Ostasius (2012, p.88-96) defines transformation as a fundamental positive change in the interactions between citizens and government, characterized by citizen-centricity, responsiveness and increased trust in government. However, beyond this normative perspective, I argue that ICT-led government has changed minimally, primarily reinforcing existing power structures. West (2004, pp.50-65) notes the difficulty in determining the extent of innovation and the length of time required before something can be considered a 'complete change in character and condition', the classic definition of transformation. Bannister and Connolly (2014, pp.119-128) argue that transformation is not a binary categorization of minor or major change, but rather a continuum without a clear end point that indicates radical change. Consequently, it remains ambiguous when the implementation of desirable values qualifies as transformation.

Contemporary literature has largely moved away from the term "e-government", favouring terms related to digitization Lindgren (2019, pp. 427-436). Three reasons for this terminological evolution are identified:

1. The terms have certain connotations, and many practitioners and researchers believe that e-government is never fully realized and therefore a failure;
2. Technological advances create new possibilities that have not been considered in e-government models, such as mobile or ubiquitous computing;
3. New requirements for transparency, participation and collaboration go beyond traditional e-government models;

Digitization refers to the direct conversion of analog data into digital formats, essentially replicating existing analog structures and processes in electronic format without changing administrative, organizational, or process structures Mergel (2019, p.1-3). While these efforts have led to significant improvements in public organizations, such as time savings in information transfer, it is often overlooked that an inefficient digital process remains inefficient by focusing excessively on technological advances. Instead, digitization involves transforming analog processes into digital processes by revising processes and introducing new organizational models. When this digitization leads to comprehensive institutional change, it is referred to as digital transformation. This term encompasses not only organizational and procedural changes, but also significant cultural changes within public authorities, affecting staffing and skill structures, interactions with citizens and the long-term performance of public service delivery.

Digital transformation therefore involves substantial developments in the production of services and associated interactions, focusing on the socio-technical nature of these changes rather than the purely technical aspects Siau and Long (2009, p.98-107). However, the distinction between digitization and digital transformation is difficult because of the relative nature of what constitutes 'comprehensive' change. Similarly, empirical research struggles to distinguish between these stages. Therefore, this article uses the term 'digitization' to describe changes in public administration resulting from the use of ICTs, considering digital transformation as the impact stage of digitization.

In short, this overview of terms related to digital governance illustrates that the field has not yet reached agreement on common definitions and concepts remain ambiguous. However, the literature agrees that - whether discussing e-government or digitization - it is not possible to establish an end point of digitization that can be reached by organizations, but rather describe ongoing processes and dynamic patterns that can be categorized into specific waves and stages.

2. Digitalization of public services in the Republic of Moldova

2.1. The digital transformation path of the Republic of Moldova

The digitization of government in the Republic of Moldova is a dynamic and continuous process, driven by strategic vision, technological innovation and commitment to improve public administration. The transformation process includes several steps that the Republic of Moldova aims to achieve by the end of 2030, with subsequent adjustment to advanced information technologies and citizens' requirements. State policies clearly stipulate that building a digital administration is a prerequisite for building an efficient administration that functions in a transparent and democratic manner.

The construction of e-government includes three phases (Fig. 1) with a major influence in the development of a complex and efficient mechanism of activity.

Early adoption: At the initial stage, the Government of the Republic of Moldova made efforts and carried out activities in the field of public policy adoption, which were indispensable in the digitization process. The first steps focused on several principles: the development of a modern digital infrastructure, which at the first stage includes connecting public institutions to the Internet (2010); the development of internal software used at the government level for data storage (2012); the gradual adjustment of public documents and preparation of the legal framework towards the digitization process (abolishment of the obligation to use the stamp 2014), the visibility of central and local public authorities in the online environment (building for each municipality a web page with relevant information);

The digitization period: The digitization period included an extensive process of developing digital platforms for the delivery of public services, as well as a period of educating the population on their use. The process was carried out in stages, with actions in different directions, but with the aim to achieve the same results, a digital and efficient government.

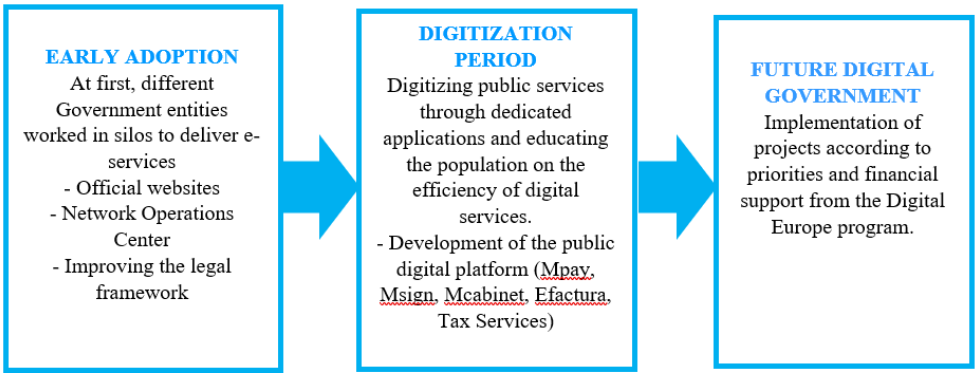
From 2024, economic operators are obliged to submit all tax and financial reports electronically. To this end, specialized and functional platforms have been created to automate the entire process. This was made possible in the context of the development, education and subsequent introduction of electronic signature obligations. If previously the company director used to perfect his electronic signature on demand, at the current stage, perfecting the electronic signature is a paramount step in the launch and development of the business. Another element that contributes to the development and education of the population and the business environment in the use of digital public services is the EVO application, a wallet with digital documents and access to the necessary public services.

The Future Digital Government - phase will represent a continuous evolution in the transformation of government towards advanced digitization and increased efficiency in line with the Digital Europe agenda. This phase will be characterized

by the implementation and integration of emerging technologies and innovative practices in public administration, such as:

- The Government of Moldova will adopt and integrate emerging technologies such as artificial intelligence, blockchain, internet of things (IoT) and big data analytics to improve the efficiency and transparency of public services. These technologies will be used to optimize administrative processes, manage data and deliver faster and more personalized public services.
- Digital platforms for the delivery of public services will be further developed and integrated, ensuring that they are interoperable and easily accessible for citizens and economic operators. These platforms will enable citizens to access various services (e.g. health, education, taxes) in an integrated and simplified way.
- Particular attention will be paid to cybersecurity, given the increase in cyber threats in the context of widespread digitalization. The Government will implement rigorous measures and policies to protect citizens' sensitive data and personal information.
- Efforts to educate the population on the use of digital public services and associated technologies will continue. Awareness raising campaigns and training programs will be implemented to ensure that all citizens, including vulnerable groups, have access to and the necessary knowledge to use government digital platforms.
- The government will adapt and refine legislation to support the development and deployment of advanced digital public services. This may include regulations on data protection, standardization of digital technologies and promoting innovation in the public sector.
- The government will continue to work with the private sector, international organizations and civil society to continuously improve digital services for citizens. Partnerships will play a crucial role in developing and implementing innovative technological solutions.

Figure 1. Stage of building e-government. The case of the Republic of Moldova



Source: authors' representation

2.2. Policies in the field of building e-governance

The digital transformation in the Republic of Moldova is guided by the strategic documents approved at national level: the Development Strategy "Moldova-2030", the Action Plan "European Moldova" 2030, the Digital Transformation Strategy-2023-2030, which aim to provide quality public services in line with citizens' needs.

The Digital Transformation Strategy 2023-2030 is the reference framework for the implementation of digitization initiatives in the Republic of Moldova. It focuses on five essential pillars, which, approached in a systemic manner, will enable the building of a modern and efficient digital governance.

The pillars of the digital transformation strategy are presented in the table below:

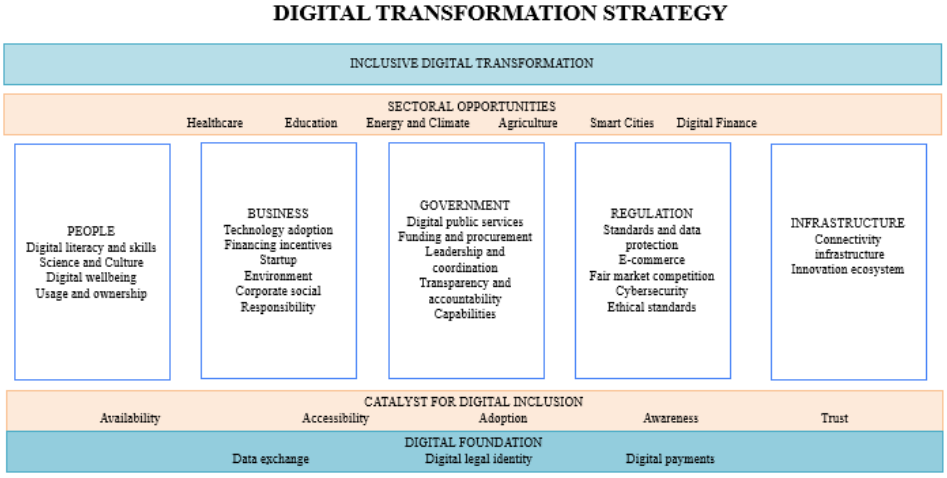
Table 1. Pillars of the digital transformation strategy

Pylon	Description
Digital infrastructure	Develop and upgrade ICT infrastructure, including the expansion of high-speed internet networks and data canters, to ensure universal access to digital technologies.
eGovernment	Implement e-government solutions to make public services more efficient and transparent, facilitating digital interaction between citizens and public administration.
Digital skills	Promoting digital education and training for both citizens and public sector employees to increase digital literacy and develop advanced skills.
Digital economy	Stimulating the development of the digital economy by supporting innovation and entrepreneurship in the ICT sector and attracting investment in emerging technologies.
Cyber security	Providing a robust cyber security framework to protect critical infrastructures, personal data and digital transactions, thus preventing associated risks.

Source: Electronic Governance Agency, egov.md

The digitization of public services is pressing in all areas, so the key elements that will support the implementation of an inclusive digital transformation are: citizens, businesses, government, the legal framework and infrastructure.

Figure 2. Structure of the digital transformation strategy



Source: Electronic Governance Agency, egov.md

2.3. Digital public platforms and services

The implementation of the Digital Transformation Strategy has led to the development of several innovative products that facilitate access to public services for both individuals and businesses, Meijer (2019, pp.120-138). Its implementation would have been very difficult without the support of development partners, who have been partners in developing and popularizing these solutions among citizens. Several projects have been implemented in the Republic of Moldova, which have contributed to the digitization of 59% of the existing public services, and 41% are to be digitized during the years until 2030.[1] The process of digitization of public services is the responsibility of the Ministry of Economy and Digitization and the Agency for Electronic Government, which are working on this on a daily basis. The relevant structures have implemented a number of digital applications and platforms to improve public services and facilitate the interaction of citizens and businesses with public administration. They are:

- MSIGN- Electronic signature service that allows online authentication and signing of documents, guaranteeing their authenticity and integrity. The application has strengthened and simplified the process of collaboration of business representatives with state institutions, business partners and financial institutions. At this stage, any document can be electronically signed, transmitted and accepted by the relevant institutions.

[1] Mded.gov.md

- MPOWER - Single authorization and authentication platform for access to government e-services.
- MCABINET- Portal for citizens, providing access to personal information and personalized public services.
- MPASS - Password Management and Authentication System, providing enhanced security for access to e-services.
- MCONNECT - Interoperability platform that enables the exchange of data between different government IT systems.
- MPAY - National electronic payment system that allows citizens and businesses to make payments for public services in a simple and secure way.
- DATE.GOV.MD- The national open data portal, which provides access to public datasets from various domains, encouraging transparency and innovation.
- The Public Services Portal, which centralizes all government services available online, giving citizens and businesses a single point of access.
- MDELIVERY - Electronic document delivery platform, which allows sending and receiving official documents electronically.
- MLearn - governmental distance learning platform, launched by the Government of the Republic of Moldova in 2020 by Government Decision. The purpose of the MLearn platform is to provide the central and local public administration, as well as citizens and the business environment, as potential users of training services, with an information platform-system intended to constitute a mechanism for training employees, as well as to ensure access to information for the professional development of employees.
- MNOTIFY - Electronic notification system informing citizens and economic operators about the status of applications and services requested.
- Semantic Catalog - An electronic registry of standardized terms and definitions used in government systems, facilitating interoperability and collaboration between public institutions, development partners and economic agents.
- MTENDER is a platform for the management and transparency of public procurement processes, developed on the basis of a public-private partnership, with the aim of developing transparent and efficient public procurement.
- The EVO app, is an innovative mobile application developed by the eGovernment Agency with the support of the Future Technologies Project and funded by USAID, Sweden and the UK. Available on iOS and Android, EVO centralizes the main public services in a single platform, facilitating citizens' access to public documents and services through an intuitive and efficient interface. The app has key functionalities such as:
- Digital acts and digital wallet: Users can store and access digital acts, which are legally accepted in any interaction in accordance with "Law No. 321/2023 on stimulating the development and use of electronic services;
- Pay public services: View transaction history, search and pay taxes, fines and other public services;

- Notifications and preferences: Users receive notifications and can manage usage settings and payment tools;
- Health services: information about your insured status and access to your personal health data;
- Powers of attorney: Grant and receive power of attorney for various services. Using the app brings multiple benefits, such as cutting red tape and eliminating the need to go to Public Service Agency counters, services available online and from anywhere in the world.

Public services have varying degrees of utilization by final beneficiaries. Services with the highest utilization rates are: Import authorization for pharmaceutical products and registration certificate for medicines (provided by the Agency for Medicines and Medical Devices), road transport authorizations (National Agency for Road Transport), partial radiological authorization (National Agency for the Regulation of Nuclear and Radiological Activities), waste management authorization (Environment Agency), statistical and financial reports (National Bureau of Statistics), registration of taxable objects and forms of primary documents with special regime (State Tax Service), customs warehouse authorization (Customs Service), provision of topographic materials (Land Relations and Cadastre Agency), initiation/termination of employment contracts (National Health Insurance Company) and criminal record certificates for individuals and legal entities (Information Technology Service of the Ministry of Internal Affairs). Moderately requested digitized public services are: sanitary-veterinary authorizations for transport vehicles (National Agency for Food Safety), sanitary operating authorizations for facilities (National Agency for Public Health), certificates of non-preferential origin for goods (Chamber of Commerce and Industry of The Republic of Moldova) and nuclear/radiological safety certificates (National Agency for the Regulation of Nuclear and Radiological Activities).

Digital public services in low demand are: manufacturing authorization for medicines (Agency for Medicines and Medical Devices), individual export/import authorization for strategic goods, information on assets owned by natural or legal persons (Agency for Public Services), authorization for installation and operation of radio transmitters (Civil Aviation Authority), phytosanitary export/re-export certificates (National Agency for Food Safety), environmental impact assessments/notifications on transboundary transportation of waste (Environment Agency), generalized data transmission (National Bureau of Statistics), certificates on the absence of budget arrears, tax code assignment/online taxpayer registration (State Tax Service), temporary firearms permits/special category vehicle permits (National Public Health Inspectorate) and all services provided by the National Institute of Metrology. These services are less demanded by beneficiaries, including in physical mode.

3. The role of external assistance in building digital governance

3.1. Development partners in the e-government building process.

Development partners play a key role in the digitization of public services in the Republic of Moldova, providing financial support, technical expertise and assistance in the implementation of e-government projects. Each of these partners has a distinct and significant contribution to advancing the country's digital infrastructure.

The World Bank Group provides financial support in the form of loans and grants for projects to modernize public services and digital infrastructure. Through funded projects, such as the implementation of the national e-payment system (MPAY) and the national open data portal (DATE.GOV.MD), the World Bank contributes to increasing the efficiency and accessibility of public services. The World Bank is also providing technical expertise and advice in the development of digitization policies and strategies, thus contributing to the formulation of a sound strategic and operational framework for the implementation of digital technologies.

The European Commission financially supports various eGovernment projects through programs such as the European Neighborhood and Partnership Instrument, contributing to the improvement of digital infrastructure and public services in Moldova. Through training and support programs, the European Commission facilitates the development of the digital skills of civil servants, essential for the effective use of new technologies. The European Commission's contributions have been essential for the development of electronic signature (MSIGN), authentication (MPOWER) and interoperability (MCONNECT) platforms, which are fundamental for ensuring security and efficiency in digital interactions.

GIZ Moldova (Deutsche Gesellschaft für Internationale Zusammenarbeit)GIZ provides technical expertise in the development of e-government infrastructure and the implementation of specific projects, thus supporting institutional and operational capacity building of public administration. It organizes training programs and workshops to improve the digital skills of public sector employees, thus contributing to the adaptation and adoption of new technologies. GIZ has supported the development of the electronic notification (MNOTIFY) and electronic document delivery (MDELIVERY) systems, which are key to streamlining communication and document processing in the public sector.

UNDP (United Nations Development Program) provides both financial support and technical expertise for e-government projects, facilitating the implementation of innovative digital solutions in public administration. It promotes initiatives on transparency and access to information through open data portals and other digital platforms, thus contributing to increased accountability and efficiency of public institutions. UNDP has supported the development and implementation of

the Public Services Portal and other e-government platforms, ensuring citizens' access to efficient and transparent public services.

USAID (United States Agency for International Development) provides funding for digital infrastructure and e-government projects, contributing to the development and modernization of public services. Through dedicated projects (FTA, MESA, MISRA, PCRA) it provides expertise in the development and implementation of projects to digitize public services, thus supporting the digital transformation of public administration. USAID has supported various initiatives to modernize public services and improve access to them, thus contributing to increasing the efficiency and accessibility of public services, such as the development of Beeprotect.md,

UNFPA (United Nations Population Fund) supports digitization projects aimed at improving health and other essential public services, thus contributing to a better quality of life for citizens. It contributes to the development of digital platforms that facilitate access to information and services on reproductive health and sexual and reproductive health, thus ensuring access to essential services for all citizens. Provides support for the development and implementation of digital educational programs, thereby contributing to increasing digital literacy levels among the population.

Development Partners contribute significantly to the process of digitization of public services at the national level, having a direct collaboration with the Government of the Republic of Moldova, as well as with representatives of other sectors (education, agriculture), which through Associations and other subordinated state institutions implement digital solutions, test their efficiency and potential use and then present them to the Government.

Analysing the data published on the External Assistance Management Platform, we can mention that for digitization, on various intervention projects, in various sectors, approximately EUR 75, 67 million are allocated, but the digitization element has a primary role in the implementation and realization of projects in any field. The most important projects for digitization of public services currently being implemented are:

- Modernizing Government Services in the Republic of Moldova (MGSP), implemented with the support of the World Bank;
- EVO app, implemented with Future Technology Activity, funded by USAID, the Embassy of Sweden and UKAID;

3.2. E-government and achieving the SDGs

Development partners support the path of digitization of the Government of the Republic of Moldova, as this process contributes to building a transparent and efficient Digital Government, as well as to achieving the Sustainable Development Goals, according to the UN Agenda, by increasing efficiency, accessibility and

transparency. In the context of Moldova's 2030 Strategy, leveraging digital technologies can play a key role in advancing various aspects of sustainable development Goloshchapova et al. (2023, p. 112). The digitization of public services contributes to the achievement of the SDGs and aligns with Moldova's 2030 Strategy:

- SDG 9: Industry, innovation and infrastructure: Digitization stimulates innovation in public service delivery and infrastructure development. By investing in digital infrastructure and technologies, Moldova can improve connectivity, promote technological advances and stimulate economic growth.
- SDG 3: Good health and well-being: Digital health services improve access to health care and facilitate remote consultations, especially in rural or underserved areas. Moldova can implement telemedicine initiatives and electronic health records to ensure equitable access to healthcare for all citizens.
- SDG 4: Quality Education: Digitization enables the provision of online educational resources and e-learning platforms, expanding access to quality education. Moldova can invest in digital classrooms, educational apps and online courses to improve learning outcomes and promote lifelong learning opportunities.
- SDG 5: Gender Equality: Digitization can empower women by providing access to digital skills training, online employment opportunities and e-government services. Moldova can implement gender-sensitive policies and initiatives to bridge the digital gender divide and promote women's participation in the digital economy.
- SDG 8: Decent work and economic growth: Digitization creates new employment opportunities in the digital sector and increases productivity across industries. Moldova can support digital entrepreneurship, provide digital skills training programs and promote e-business to stimulate economic growth and create sustainable employment opportunities.
- SDG 16: Peace, justice and strong institutions: Digitalization promotes transparency, accountability and efficiency in public administration, reducing the risk of corruption and promoting good governance. Moldova can implement e-government solutions, such as online public procurement systems and e-voting platforms, to strengthen democratic institutions and increase citizens' trust.

In line with Moldova's Strategy 2030, digitization of public services should be accompanied by comprehensive policies, investments and capacity building initiatives. The strategy should prioritize the development of digital infrastructure, regulatory reforms to support digital innovation, and collaboration with stakeholders from the public and private sectors, civil society and academia. By effectively harnessing digital technologies, Moldova can accelerate progress towards achieving the SDGs and building a more inclusive and sustainable society by 2030.

An important element in the digitization process is the accession of the Republic of Moldova to the Digital Europe Programme, which is a crucial strategic

step for the digital development of the country. The Digital Europe Program, initiated by the European Union, aims to support the digital transformation of European society and economies through investment in digital infrastructure, digital skills and innovation. The program provides members with access to financial resources geared towards the development of digital infrastructure, the implementation of innovation projects, in particular the development of digital technology start-ups, support for SMEs[2] in the field of information and communication technologies, the modernization of public services and ensuring interoperability. Also, the list of objectives set out in the program stipulates the need to develop digital competences through various training and certification programs, to ensure the integration of partner countries in the European digital market, to increase the institutional capacities of the Government through the transfer of best practices and know-how and to stimulate the digital economy through the development of specialized companies in the field and job creation in the ICT industry[3] and other related fields. Joining the programme will support the Republic's journey and contribute to the strategic goal of digitization of 100% of current public services.

The digital transformation of public services in the Republic of Moldova is essential for modernizing the administration and improving the interaction between government and citizens. This process, guided by national strategic documents, has a significant impact on the business sector, facilitating economic growth and stimulating innovation.

4. The role of digitalization of public services on the business environment

4.1. Business use of public services

The digitalization process contributes significantly to strengthening the dialogue between the administration and the business environment. The business environment, being the guarantor of the state's economic development, needs quality, fast, efficient and low-cost public services. While policies with an impact and binding force have been drawn up and approved at the stage of educating economic agents, at the current stage economic agents understand how useful digital public services are. This is demonstrated by the fact that daily traffic on the services.gov.md platform reaches 13.2 thousand users. A comparative analysis of other specialized service platforms shows that the business community uses the platform services.fisc.md[4] on a daily basis, with an average daily traffic of 9.3

[2] Small and medium-sized enterprises.

[3] Information and communication technologies.

[4] Servicii.fisc.md - specialized platform for tax and statistical reporting to relevant institutions, which also includes e-factura.fisc.md, a module for issuing tax invoices.

thousand people, 70% of whom use the e-invoice module, which is designed for the automatic issuance of tax invoices for economic agents. Compared to public services for certain categories of economic agents, the Republic of Moldova is in the process of education and transition. This is demonstrated by the data delivered by the platform Beeprotect.md[5] , which has a daily traffic of 100 people.

At the end of 2023, according to STISC data, there were 266,155 active public keys of advanced e-signatures, which is an increase of 105% compared to 2022. Data provided by mobile companies show that citizens still have 119,813 digital signatures, the number of applications is also increasing, about 4.5 times compared to 2022.

This significant increase in the use of e-signatures indicates a high level of confidence and adaptation of businesses to new digital technologies.

In a context of exponential growth, the eGovernment Agency annually measures the level of assimilation and perception of public services by the population and the level of satisfaction of beneficiaries. Thus, the level of satisfaction of beneficiaries is 76.3% and the majority of respondents (57.2%) consider that the implementation of eGovernment will bring many advantages and benefits to citizens. The main improvements expected as a result of the reform in modernizing government services include:

- Eliminate corruption;
- Fewer visits needed to access public services;
- Reducing costs;
- Reduce the amount of paperwork needed;
- Reduce the time it takes to get a service.

Among the most used public services accessed by business are: electronic tax services (34.0%) and electronic cadastral services (22.3%).

4.2. The role of digitization in making the business environment more efficient

Digitization of public services not only simplifies and streamlines administrative processes, but also stimulates innovation and competitiveness, contributing to a more transparent business environment conducive to economic development. Chen et al. (2021, p.3). In addition to simplifying administrative processes, digitization of public services significantly reduces operational costs for businesses. Automation and quick access to information reduce the time needed to obtain official documents and allow businesses to focus more on productive activities. For example, the implementation of the e-invoice system on the services.fisc.md platform has considerably simplified the process of issuing and managing tax invoices, eliminating the need for paper documents and reducing

[5] Specialized software designed to facilitate communication between farmers and beekeepers and to inform them about spraying.

human errors. This has led to substantial savings in time and resources, thus increasing the efficiency and productivity of businesses.

In addition, digitization helps improve transparency and reduce corruption in public-private interactions. Through digital platforms, all transactions and applications are recorded and tracked, which reduces the risk of unethical practices and fosters a fair business climate. For example, the use of advanced electronic signatures ensures the authenticity and integrity of documents, making them difficult to forge or manipulate. This increased level of security and trust facilitates a more secure and predictable business environment, thereby attracting investment and contributing to long-term economic stability. In the process of digitization of public services, significant investments have been made to modernize the IT infrastructure and develop the necessary platforms. For example, in the period 2020-2023, the Government of the Republic of Moldova has allocated approximately USD 30 million for digitization projects, including the modernization of IT systems and staff training. These investments were essential to ensure the functionality and security of digital platforms serving businesses and the general public.

On the other hand, the economic benefits of digitizing public services are considerable. According to a report by the Ministry of Economy, the savings to economic agents through reduced administrative time and costs have been estimated at around 15 million dollars annually. Also, the introduction of electronic signatures and e-invoicing has led to additional savings of about 5 million dollars annually by reducing paper costs and processing errors. Thus, in the medium and long term, digitization contributes not only to streamlining processes, but also to increasing the economic competitiveness of businesses in the Republic of Moldova.

For entrepreneurs, this shift to digitized public services translates into direct and tangible benefits. The reduction in time spent on bureaucratic tasks means that business owners can allocate more resources to core activities, such as innovation and market expansion. Furthermore, the increased transparency and security of digital interactions with the government reduce the risk of fraud and legal issues, making the business environment more stable and attractive for both local and foreign investors. The cost savings achieved through reduced paperwork and faster processing times enhance profit margins, allowing businesses to reinvest in growth and development. Ultimately, these improvements not only boost individual business performance but also contribute to a more robust and dynamic economy, positioning the Republic of Moldova as a more competitive player in the regional and global markets.

Conclusions

The academic literature uses a variety of terms for the integration of ICT in the modernization of administrative functions, such as e-government, e-governance and digitization. The concept of e-government, which emerged in the 1990's, aims

to improve the efficiency and accessibility of public services through the use of the web and ICT. e-government models are often presented as linear and progressive processes, but become normative when they describe a fully developed system, assuming that increased interaction with citizens improves services.

Digital transformation involves fundamental institutional and cultural changes, affecting organizational structures and interactions with citizens. Contemporary literature prefers terms associated with digitization due to the perception of e-government as unrealized and limited. Technological advances and new demands for transparency and participation underline the need for comprehensive digitization in order to achieve sustainable and profound changes in public governance.

The adoption of eGovernment concepts establishes the most efficient model of communication between the government and its citizens, ensuring the delivery of high-quality services.

The digital transformation of the Republic of Moldova is being achieved through a step-by-step and well-structured process, with each step contributing to building a modern and efficient government system. Digital signatures play a central role in this process, ensuring the authenticity, integrity and security of electronic transactions and documents.

The digital transformation of public services, supported by development partners, is essential for the country's progress. This transformation contributes to sustainable development goals and alignment with national development policies;

Moldova's accession to the DIGITAL EUROPE PROGRAM has multiple strategic, economic and social advantages. Access to funding and resources, development of digital competences, integration into the European digital market, increased institutional capacity and stimulation of the digital economy are just some of the benefits that this initiative would bring. In the context of accelerated globalization and digitalization, active participation in this programme would significantly contribute to the digital transformation of the Republic of Moldova, positioning it favourably on the European and global scene.

For developing countries like Moldova, external assistance serves as a catalyst and promoter of local digital transformations, facilitating progress and innovation.

The financial resources provided through programs like DIGITAL Europe are not only aimed at developing innovative solutions, but also include components for expertise and public education, ensuring a comprehensive approach to digital progress.

Development partners are key to Moldova's digital growth, providing continuous support from the initial stages and throughout the entire development process, ensuring sustainable progress and integration into the digital landscape.

The digital transformation of public services in the Republic of Moldova has had a profound impact on the business sector, facilitating economic growth and innovation. Services such as MPay, MSign, MCabinet, MNotify and the Electronic

Tax Service have streamlined administrative processes, increased transparency and improved legal and tax compliance. By cutting red tape and facilitating access to information and resources, these digital solutions have created an enabling environment for business growth and boosted competitiveness in the global marketplace. In conclusion, digital transformation continues to be a crucial factor for the sustainable development of the Moldovan economy and society.

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