THE CURRENT STATE OF PUBLIC SERVICES DIGITALIZATION: A CASE STUDY OF ROMANIA

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Abstract. *As the digital revolution reshapes societies and economies worldwide, understanding the current state of digitalization and its impact on public services is crucial for policymakers, researchers, and practitioners. This article presents an in-depth examination of Romania's digitalization landscape, with a particular focus on the efforts undertaken by the government to advance public digital services. Leveraging a multidisciplinary approach, this study combines data analysis to offer a comprehensive overview of Romania's digital transformation journey. Furthermore, this research delves into the government's initiatives and investments aimed at bridging the digital divide and enhancing the quality and accessibility of public digital services.*

Keywords: public services, digitalization, government initiatives, digital technologies, digital transformation

INTRODUCTION

In the contemporary era, digitalization is an essential driving force that defines the progress and development of a nation. Over time, digital technology has entered people's daily lives and has become a vital component of the economy, society, and government. Digitalization is not just a simple adoption of technology; it is a profound and ongoing transformation of the way a country functions, interacts and thrives. In this context, the importance of digitizing a country becomes obvious and undeniable. This importance manifests itself in several key areas, from economic growth and government efficiency to improving citizens' quality of life and skills.

The European Union has narrowed the gap with the United States in adopting advanced digital technologies (EU, 69% vs. US, 71%). [1] According to the DESI 2022 reports, in 2021 Member States directed an average of 26% of their allocation from the Recovery and Resilience Mechanism (RMF) to digital transformation, exceeding the mandatory threshold of 20%. There are also Member States that have chosen to invest more than 30% of their MRR allocation in the digital transition. These are Austria, Germany, Luxembourg, Ireland, and Lithuania. [2]

Romania, one of the member states of the European Union, faces an alarming reality in terms of digitalization, registering the lowest rate of growth in this regard. This worrying development distances Romania even more from the other countries of the European Union, signaling an increasingly accentuated discrepancy in terms of digital development. According to data provided by the European Commission, digital skills are not a strong point of Romanians. Only 28% of compatriots possess basic digital skills, in contrast to the European Union average of 54%. Furthermore, only 9% of Romanians have acquired digital skills that exceed the elementary level, highlighting an urgent need for significant investments and efforts to remedy this alarming situation [3].

Transparency in public administration means providing citizens easy access to government information and involving them in decision-making. To achieve this, it's crucial to maintain up-to-date public authority websites. However, challenges exist, particularly in remote Romanian areas. To ensure transparency, a comprehensive Digitalization strategy is necessary at both central and local levels to make public information readily accessible to all [4].

In the current situation in Romania there is a lack of IT system interoperability within public administration, limited adoption of digital technology in the business sector, and the digital skills of the population. Reports and statistics consistently place Romania at the bottom in various European Union analyses of digitalization indicators [5].

Despite the availability of various online platforms for making payments like fines and taxes, the convenience of paying these "obligations" in person at a physical counter surpasses digital platforms [6].

The digital transformation of public administration opens doors to enhance transparency, accountability, efficiency, and tax collection. These advantages become even more vital during the global coronavirus crisis, where countless individuals turn to online solutions. The research paper [7] provides a comprehensive examination of the strategic management in public administration concerning the influence of digitalization on local tax revenue collection by analyzing the impact of digitalization within the Romanian public sector, concentrating on local tax revenue collection from 2015 to 2021.

While digitalizing Romania's public sector offers numerous benefits, it encounters barriers like privacy concerns, user resistance, and individual limitations. Building digital trust is the crucial initial step to maximize these benefits, overcoming current obstacles, and creating a modern, citizen-centric administration. Additionally, the digital readiness of civil servants and citizens, alongside socio-economic factors, technology access, and equipment, plays a vital role. In a study conducted in a low-economic county of Romania, 323 participants reported daily social network use, but local authorities' lack of focus on digitizing civil servants hinders modern interaction methods [8].

These findings reveal a major challenge for Romania in terms of adapting to the digital age and its competitiveness on the European market. The approach to digitalization is an essential area for the economic and social development of the country, and sustainable and coordinated efforts are imperative to catch up and ensure a more prosperous future in the European context of ever-evolving digital technology.

The primary goal of this article is to thoroughly analyze the current digitalization status of public services in Romania. One of the secondary objectives is to present the Digital Economy and Society Index (DESI) for Romania, providing a quantitative measure of the nation's digital advancements. Another secondary objective is to describe the government's initiatives in driving digital transformation. This comprehensive approach holds significance as it not only illustrates a holistic picture of Romania's digitalization journey but also imparts valuable insights for policymakers, stakeholders, and researchers. The novelty of this paper is given by its synthesis of data from diverse sources, its emphasis on ongoing government endeavors.

EXPERIMENTAL

The research methodology is a qualitative one, aiming to identify scientific sources and public reports offered by Romanian Institutions to comprehensively assess the extent and impact of digitalization within public services in Romania. Based on data gathered, the article presents the digital economy and society index (DESI), situating Romania in the actual EU context and offering valuable insights into the present state of digitalization. Furthermore, initiatives and projects that were approved by Romanian Government in order to increase the level of digitalization are summarized here, to fill the gap between academic research and real-world policy and implementation, making the study more relevant and valuable to policymakers and stakeholders involved in digitalization efforts.

The data collection approach was multifaceted being analyzed a range of data sources, including statistics from other case studies, research conducted by other authors, and data from ongoing projects authorized by the Romanian government. This comprehensive approach allowed to be drawn from a wide spectrum of information, providing a well-rounded perspective on the subject. To extract data from these diverse sources, there were employed various methods, including extensive literature reviews, document analysis, and data extraction from pertinent reports. This ensured the gathering of a rich dataset that represented the multifaceted nature of public services digitalization.

The core of this methodology lays in data analysis, where insights were gathered from statistics, research findings, and ongoing government projects. The synthesis process ensured the presentation of a cohesive and integrated narrative of the current landscape of public services digitalization in Romania.

RESULTS

Romanian in the context of digitalization
The Digital Economy and Society Index (DESI) tracks progress in EU Member States in terms of digital competitiveness in areas such as human capital (30.9), broadband connectivity (55.2), the integration of digital technologies by businesses (15.2) and digital public services (21) (Figure 1) [9].
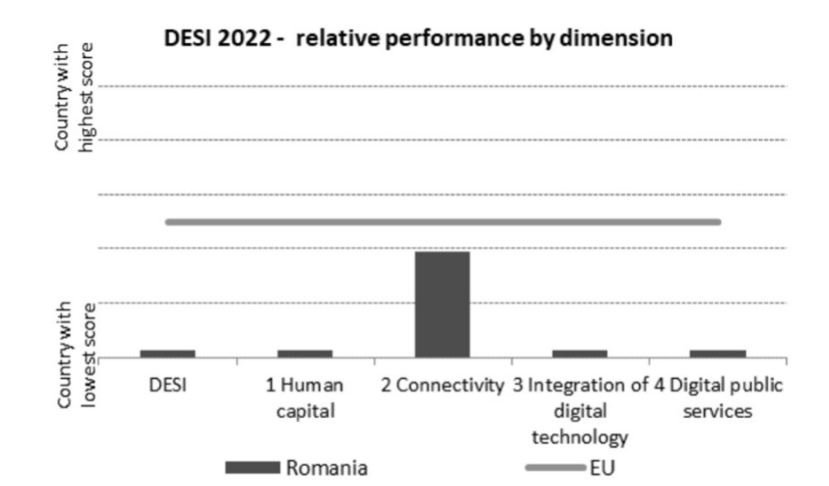

Figure 1. DESI Romania, relative performance by dimension
Source: DESI 2022, Romania

The provision of digital public services remains a persistent hurdle in Romania. The nation consistently lags far behind the EU average across various metrics. For instance, when it comes to the accessibility of digital public services for both citizens and businesses, Romania scores significantly lower than the EU average, registering only 44 (compared to the EU average of 75) for citizens and 42 (compared to the EU average of 82) for businesses. Additionally, the level of digital interaction between public authorities and the general population remains quite limited, with only 17% of internet users engaging with e-government services (Figure 2) [10].

4 Digital public services[8]	Romania		EU
	rank	score	score
DESI 2022	27	21.0	67.3

	Romania			EU
	DESI 2020	DESI 2021	DESI 2022	DESI 2022
4a1 e-Government users % internet users	15% 2019	16% 2020	17% 2021	65% 2021
4a2 Pre-filled forms Score (0 to 100)	NA	NA	19 2021	64 2021
4a3 Digital public services for citizens Score (0 to 100)	NA	NA	44 2021	75 2021
4a4 Digital public services for businesses Score (0 to 100)	NA	NA	42 2021	82 2021
4a5 Open data % maximum score	NA	NA	76% 2021	81% 2021

Figure 2. Status of Digital public services in Romania, the end of 2022
Source: DESI 2022, Romania

These low indicators led to the submission for approval of 76 projects, most projects approved in the second quarter of 2022 being submitted by institutions of the central public administration, they represent almost half of the total number of projects approved in this year period. In the months of April - June of 2022, 54 CTE notices were issued, the value of which is approximately 1,346,313,207 lei [11].

More than 10 million Romanians do not have basic digital skills, although approximately 13 million Romanians use the Internet. 91% of people from rural areas do not use e-governance or local administration services online, 81.5% of the population did not use internet banking. These are some of the data that make up the digitalization landscape in Romania, synthesized in the Digital Exclusion and Inclusion Map, produced by the EOS Foundation.

In 2021, 80.8% of households in Romania had access to the Internet at home, an increase compared to 2020 by 2.6 percentage points, 60.2% of which are concentrated in the urban environment, according to a report of the National Institute of Statistics on the population's access to IT&C technologies in 2021. Compared to the previous year, in 2021 the share of people aged between 16-74 who use or have ever used the Internet increased by 2.7 percentage points, their number reaching approximately 13 million people.

Of the total number of people who accessed the Internet in 2021, the share of those who interacted with public authorities or services for personal purposes represented only 16.7%.

E-commerce has started to gain momentum recently, the report shows: the share of people aged 16-74 who have used online services to order and/or buy products and services has grown steadily in recent years, reaching a maximum of 58.2% in 2020, in 2021 registering a decrease of 0.9 percentage points compared to the previous year, reaching the value of 57.3%.

Among 16–74-year-olds who used the internet via any mobile device in the past 3 months, 35.8% reported accessing information or content (eg videos, images) that they believed to be fake or dubious on Internet news or social media sites (eg: Facebook, Instagram, YouTube, Twitter). Among these users who had doubts about the certainty of this information, only 38.6% checked the veracity of the information or content they found on Internet news sites or social networks [12].
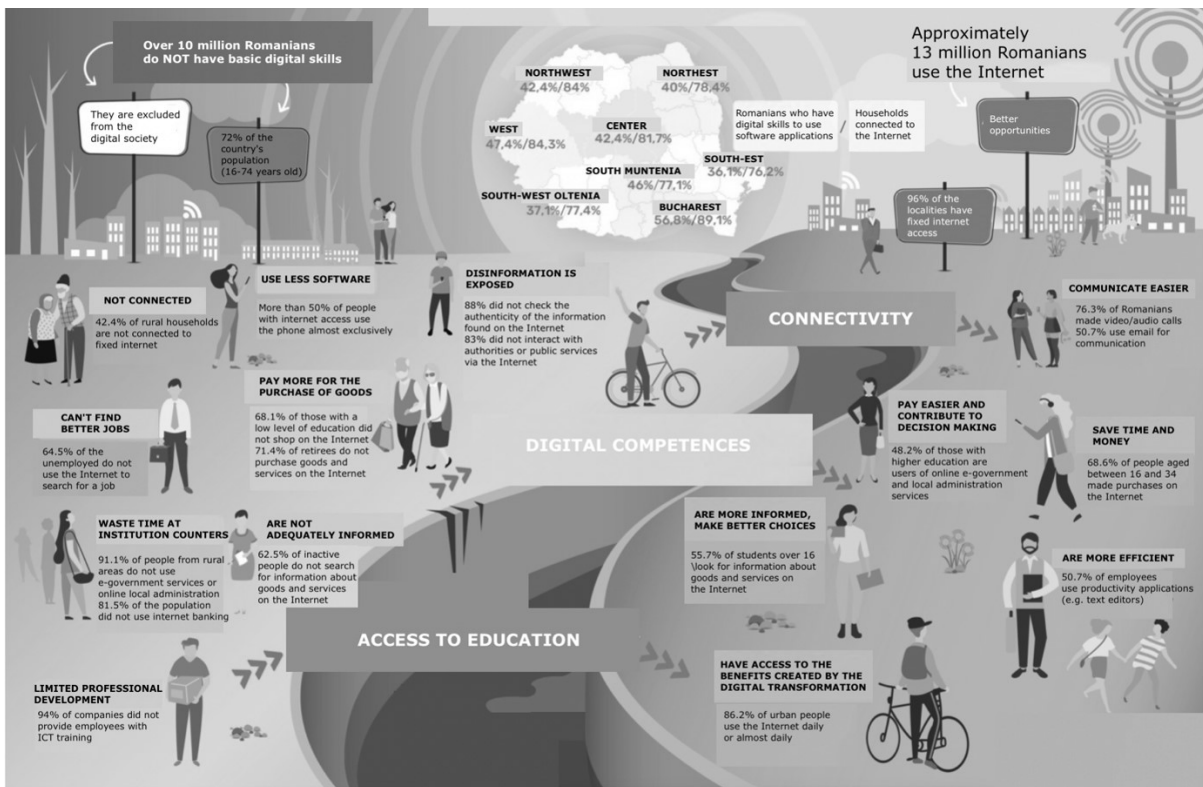
Figure 3. Map of digital exclusion and inclusion of Romania
Adapted after source: DESI 2022, Romania

Initiatives of Romanian Government

Digitalization has the potential to facilitate the migration of specific manual public services into the digital realm, a shift that could result in the conservation of various resources, including financial and time-related ones.

    A.   Digitalization - A Path to Advancing Society

Digitalization represents a pathway that can facilitate the advancement of society, particularly when approached with a strategic mindset. Given its intricate nature, the implementation of digitalization demands a well-structured, long-term strategy and comprehensive projects with clearly defined objectives; the establishment of subsequent stages is imperative. Noteworthy practices that contribute to societal development through digitalization include continuous citizen and official education and information dissemination, process automation, the creation of user-friendly websites, and the adoption of innovative initiatives like electronic identity cards. To ensure a sustained process of information and education, it is crucial to initiate citizen familiarity with digitalization from an early age, starting within educational institutions.
To facilitate these educational endeavors, it is imperative to ensure convenient access to the Internet and computers. To streamline computer accessibility, it is recommended that each municipal office is furnished with a public-access computer. Simultaneously, it is vital to ensure equitable Internet access across the entire region. In the context of civil servant education, one viable approach might involve implementing a training strategy that equips them with the skills necessary for tasks involving technology utilization. With an educated populace proficient in technological tools, the transition to automating certain pre-existing processes can be achieved through the establishment of user-friendly web platforms.

    B.   Digitalization - a Solution for Addressing Societal Challenges

The integration of digitalization into the realm of administration has the potential to streamline bureaucratic processes, ultimately enhancing the efficiency of the institution where its implementation is enacted. The reduction of bureaucratic complexity through digitalization necessitates the adoption of a strategic plan tailored to the digital landscape. Although the initial phase of digitalization implementation may incur substantial expenses, it represents a long-term investment. The initial costs are offset by reducing salary expenditures for civil servants. Consequently, one of the fundamental tenets of digitalization implementation in public administration is the principle of fiscal responsibility, aimed at modernizing the administration. Concurrently, the central element of this vision is the seamless interoperability of databases.

C. Digitalization - a Means to Combat Corruption

The initial phase of digitalization necessitates substantial financial investments, typically allocated from the state budget. In 2021, Romania was positioned at 66 out of 180 countries in terms of corruption levels [13]. Concurrently, in the realm of digitalization, Romania ranks at the bottom of the European Union in 2022, according to STATISTICA's index [14]. In the perspective of the authors of this paper, there exists a correlation between corruption and digitalization. A higher degree of digitalization is associated with lower levels of corruption, as it promotes greater transparency in governmental activities, facilitates expense tracking, and significantly reduces the opportunities for bribery, both in terms of offering and accepting bribes.

The Authority for the Digitisation of Romania is a structure with legal personality within the Ministry of Research, Innovation and Digitisation. The role of the ADR is to implement and coordinate public strategies and policies in the field of digital transformation and the information society. Within this authority, there are currently many projects and programmes (Table 1) underway with the aim of digitizing public services in Romania [15].

Table 1. On-going projects for digitalization
Adapted after source: Authority for the Digitisation of Romania, 2023

Name	Description	Investment (LEI)
Information System for the Clinical Record of I.T.A. Departments (S.I.E.C.-A.T.I.)	The objective of the project is to implement a modern information system, which will function as a support for decision making in emergency situations in a central unit of the Ministry of Health.	134.498.076,93
MMPS Service HUB - SII MMPS	The aim of the project is to create an environment, so that the interaction of the citizen, both with the MMPS directly and with the institutions under the coordination of the MMPS, can be carried out online through a single point of contact.	133.136.679,70
Information System for Health Registers – RegIntermed	Realization of health registers and their interconnection with other IT platforms in the field of e-health	67.591.875.80
Strategic Framework for the Adoption and Use of Innovative Technologies in Public Administration 2021 - 2027 - Solutions for Business Efficiency, SIPOCA code 704, MySMIS code 2014+ 129878	The overall objective of the project is to carry out a national analysis linked to international strategies for the use of innovative technologies in order to improve the efficiency of institutional activity in relation to citizens.	16.263.594,01
Centralised Software Platform for Digital Identification – PSCID	Centralised Software Platform for Digital Identification (PSCID) to provide the gateway and first point of security for eGovernment services.	99.939.410
National Adoption Information System	The overall objective is to implement level 4 sophistication for electronic services dealing with the life event "Adoption", to create a unified data model and a Romanian context-specific vocabulary.	45.970.431,72
Integrated Information System for Issuing Civil Status Documents	Computerisation of the application system for the registration and effective issuance of civil status documents, as well as implementation of the necessary support for the development and access to electronic services based on primary civil status information.	184.920.864,06
National Disability Management System	The overall objective of the project is to develop and implement a centralised national platform for collecting, storing and distributing information on people with disabilities (adults and children) to central and local public authorities, individual beneficiaries and institutional partners.	45.042.464,00
Improving the rules,	The project aims to stimulate the efficient and secure	3.773.199,21

procedures and mechanisms required by the Authority for the Digitisation of Romania to further develop the e-commerce sector (ECOM), SIPOCA code 18	development of the e-commerce system by improving the administrative capacity of the Authority for the Digitalization of Romania, responsible for coordinating and fulfilling the strategic lines of e-commerce development set out in the National Strategy on the Digital Agenda for Romania 2020.	
Integrated Management System for a High Performance Information Society (SIMSIP), SIPOCA code 391/SMIS 2014+ 116172	The aim of the project is to increase the administrative capacity of the RDA and CERT-RO to support institutional reforms by implementing a unified quality and performance management system, as well as a system that includes procedures and mechanisms for coordination and consultation with stakeholders on the implementation, monitoring and evaluation of policies and strategies for which the MCSI is responsible, and the systematization of the active fund of legislation with incidence and impact on investments in the development of NGN access networks.	7.816.950,76
Technological Interoperability System with EU Member States – SITUE	The overall objective of the project is to build the Technological Interoperability System with EU Member States (SITUE) which will be based on the construction of the eIDAS node for Romania and will interconnect it with the eIDAS nodes of the other Member States and with the identity and electronic services providers in Romania.	9.814.178,40

DISCUSSION

The Digital Economy and Society Index (DESI) provides a comprehensive overview of Romania's digital competitiveness, touching upon various crucial dimensions, including human capital, broadband connectivity, the integration of digital technologies by businesses, and the delivery of digital public services. In this discussion, we emphasize the profound impact of the current state of digitalization in Romania, as revealed by the DESI and related data.

Romania faces a considerable challenge when it comes to delivering digital public services. The statistics paint a stark picture, with the nation consistently trailing behind the EU average in multiple aspects. Of particular concern is the accessibility of digital public services for both citizens and businesses. Romania's scores, significantly lower than the EU average, indicate a substantial gap that needs to be addressed. For citizens, the score stands at 44, in contrast to the EU average of 75, while businesses score 42, compared to the EU average of 82. This disparity underscores the urgent need to enhance the accessibility and quality of digital services in Romania, as this impacts both the government's efficiency and the citizens' convenience.

Furthermore, the limited level of digital interaction between public authorities and the general population is a significant concern. With only 17% of internet users engaging with e-government services, there is a clear call for more comprehensive efforts to promote and facilitate the utilization of digital public services among the Romanian population. This data highlights the critical need for user-friendly interfaces and digital literacy programs to boost engagement. The submission of 76 projects for approval in the realm of digitalization, with a substantial proportion originating from central public administration institutions in the second quarter of 2022, reflects a growing recognition of the importance of digitalization. These projects could play a vital role in addressing the digital disparities evident in the country. The impact of these initiatives, if properly implemented, could catalyze a positive shift in Romania's digital landscape.

The data also underscores the significant issue of digital exclusion. Over 10 million Romanians lack basic digital skills, despite a high number of internet users. Rural areas, in particular, face substantial challenges, with 91% of rural residents refraining from using e-governance or local administration services online, and 81.5% avoiding internet banking. To bridge this digital divide, focused efforts on digital skills development and digital inclusion are imperative, particularly in less urbanized regions. Although 80.8% of households in Romania had access to the Internet in 2021, the limited interaction with public authorities and services online suggests that mere access is insufficient to drive digital engagement. This highlights the necessity for more user-friendly platforms, increased digital literacy, and initiatives that encourage and streamline digital interaction.

The data also reveals the evolving landscape of e-commerce, with a growing percentage of individuals using online services for ordering and purchasing products and services. However, the recent slight decline in this area underscores the importance of consistent support for e-commerce and ensuring its continued growth. Lastly, the prevalence of misinformation and dubious content on the internet is a concerning issue. While a substantial number of users encountered such content, the low percentage of those who took steps to verify information highlights the need for comprehensive digital media literacy programs to empower users to critically assess online information.

The impact of the country's digitalization efforts, as indicated by the increase in project submissions, should not be underestimated. However, sustained, targeted, and coordinated efforts are essential to harness the full potential of digitalization for the benefit of both the government and the citizens of Romania.

CONCLUSIONS

In conclusion, the multifaceted landscape of digitalization in Romania unveils both a promising future and the pressing need for comprehensive reform. The insights garnered from the European Investment Bank's report on "Digitalisation in Europe 2022-2023"[1] paint a vivid picture of the evolving digital landscape within the European Union, which Romania is an integral part of. However, the nuances of Romania's digital journey, as illustrated by "Economedia"[5], present a more complex narrative.

Romania's digitalization efforts, as exemplified by the ongoing projects meticulously documented on the ADR website, signify the nation's ambition to harness the potential of digital technologies for societal and economic advancement. These projects span various critical sectors such as healthcare, education, and public administration, showcasing a deliberate move towards the modernization of vital public services.

Nonetheless, the challenges persist. Romania's lower ranking in the European Union's Digitalization Index and the alarming pace of growth in this context, as revealed by economists, signal a widening gap between Romania and its European counterparts. While the promise of digitalization is palpable, there is an evident urgency to align national strategies and policies with the broader European agenda.

However, the integration of digitalization necessitates not just substantial financial investments but also a holistic approach encompassing education and digital literacy. Initiatives that commence at an early educational level are instrumental in cultivating a digitally skilled workforce capable of propelling innovation and adaptation in the digital era.

In conclusion, Romania's path towards comprehensive digitalization is marked by both promise and complexity. The nation stands at a pivotal juncture, and the strategic integration of digitalization could catalyze profound societal, economic, and governance improvements. To bridge the digital divide and fully realize the potential outlined in the ADR projects and the EIB (European Investment Bank) report, Romania must adopt a multifaceted approach, emphasizing financial investment, digital education, and a steadfast commitment to transparency and accountability in public administration. Through these measures, Romania can actively contribute to the broader European vision of a digitally resilient and prosperous future.

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