

E-governance – the decisive step toward an efficient and transparent state

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Abstract

In recent years, public administration has been undergoing a continuous process of transformation driven by the evolution and implementation of new technologies. The main aim of this paper is to investigate the current state of e-governance in Romania, the adoption of digital public services, the use of new technologies, and the digital competencies of citizen and to identify the main barriers to digitalization, regional disparities and possible solutions for enhancing access, efficiency and transparency in e-governance. The theoretical foundation of the paper is based on several recent relevant studies that compare the level of digital literacy within the Romanian administration to that of the most advanced EU member states. The research methodology used is a mixed one, analyzing the harmonization of EU legislation on digitalization with Romanian legislation, DESI data, as well as several case studies. The results show that Romania currently has a favorable legislative framework for digitalization and that significant progress has been made; however, the pace and quality of digital transformation vary greatly between regions and institutions. The implications for local public authorities concern the continued investment in digital infrastructure (interoperability and standardization of services), as well as the training of specialists in e-governance. Researchers have the opportunity to monitor the evolution of services across different regions, the impact of new technologies, and conduct comparative studies. The main contribution of this paper lies in providing an updated synthesis between the political measures adopted and the realities observed in practice, as well as proposing recommendations specific to the current Romanian context. For e-governance to function effectively, an integrated approach is required, one that combines technology, skills, infrastructure, clear policies, and active citizen engagement.

Keywords: e-governance, digitization, legislation, interoperability.

JEL Classification: M15, K23, K24, H83, O33

1. Introduction

Given the evolution of new technologies in recent years, public administration is in a continuous process of transformation and the need to adapt to new realities. The Digital Europe 2021-2027 Program [1] was developed by the European Union precisely to support and promote the digitalization of the member states. Romania is obliged to transpose EU norms and directives into domestic legislation.

The OECD definition of e-government is the use of information and communication technologies, and in particular the Internet, to achieve better governance [2]. The principles of e-government are:

- transparency and partnership – all activities should be carried out transparently, taking into account citizens' proposals and ideas.
- accessibility of information - ensuring access to information for all persons without discrimination.

- efficiency - efficient use of public funds and improvement of administrative processes through technology.
- data security and safety - ensuring the confidentiality of personal data, but also the authenticity of information

E-governance involves modernizing public administration, increasing efficiency and transparency in the relationship between the state and citizens. The quality of a country's governance directly influences the economic performance and well-being of its citizens. An important aspect is that Member States can request technical assistance from the Commission regarding reforms in the field of public administration and governance. The areas of intervention are: central administration, local administration, digital governance, public procurement, the fight against corruption and fraud, the judiciary, the absorption of European structural and investment funds [3].

The transition to e-government is an essential process for providing citizens with better, higher quality, more efficient and implicitly cheaper services. A modern and ethical administration is concerned with promoting transparency, easy and fast access to information, ensuring the protection and confidentiality of personal data, thus creating a relationship of trust between institutions and citizens.

Thus, the objective of the paper is to investigate the current state of e-government in Romania, the extent to which digital public services have been adopted, whether new technologies are actually used and what is the level of digital skills of citizens. The purpose of our paper is to identify the main barriers to digitalization, regional differences and identify solutions to increase access, efficiency and transparency of e-government. The research methodology used is the mixed one, analyzing the correlation between EU legislation on digitalization with Romanian legislation, examining DESI indicators, as well as analyzing some case studies. The results indicate that Romania currently has a favorable legislative framework for digitalization, and that significant progress has been made. However, the pace and quality of digital transformation differ greatly between regions and institutions. The implications for local public authorities concern the continuation of investments in digital infrastructure (interoperability and standardization of services), as well as the training of e-government specialists. Researchers have the opportunity to follow the evolution of services for different regions, the impact of new technologies, comparative studies. The main contribution of the paper consists in achieving an updated synthesis between the adopted political measures and the realities on the ground, but also in proposing recommendations specific to the current Romanian context.

For e-government to function effectively, an integrated approach is necessary that combines technologies, skills, infrastructure, clear policies, but also the active involvement of citizens.

2. Legislative framework for the digitalization of public administration

The European Union has adopted a series of legislative instruments and strategies, primarily to ensure a unitary framework for the development of public services, but also to boost the pace of implementation of digitalization in the member states.

2.1. Some essential European regulations

2.1.1 Regulation (EU) 2018/1724 on the creation of a single digital gateway (Single Digital Gateway – SDG) asigură accesul cetățenilor și întreprinderilor din Uniunea Europeană la informații, proceduri și servicii administrative online, indiferent de statul membru în care se află. Principalele principii sunt: ensures access to information, procedures and administrative services online for citizens and businesses in the European Union, regardless of the Member State in which they are located [4].

The main principles are:

- simplifying access to information (rights, rules, procedures, problem-solving services, multilingual assistance).
- improving interoperability between IT systems in the Member States.
- implementing the once-only principle – citizens or businesses provide data to public authorities only once, then it is reused, but with great care and security.
- Digitalising cross-border administrative procedures (recognition of diplomas, applying for social benefits, registering a business).

2.1.2 Regulation on electronic identity and trust services for electronic transactions in the internal market eIDAS&eIDAS 2.0 was initially adopted in 2014, and then updated in 2024. This regulatory act establishes a uniform legislative framework for all EU countries regarding the security of electronic transactions and interoperability between Member States. The Council of the European Union adopted, in March 2024, a new legal framework on the European digital identity with the aim of integrating a secure digital wallet (EUDI) for all EU citizens. The digital wallet allows Europeans to access public and private services across borders, manage their electronic identity and personal data (e.g. diplomas, driving licenses, bank accounts, digital ID card), and share information without revealing additional data. eIDAS offers users greater security and convenience for any activity that can be carried out online. The deadline for implementing the digital wallet is 2026 for all EU member states [5].

2.1.3 General Data Protection Regulation (GDPR) was adopted in 2018. Its aim is to protect the privacy of citizens' personal data given the large volume of sensitive data that is handled. GDPR is based on seven key principles [6]:

- lawfulness, fairness and transparency – the personal data controller must identify a valid legal basis for processing them.
- purpose limitation – data collection is only for a specified, explicit and legitimate purpose. Further use of the data in a way incompatible with the purpose for which they were collected is prohibited.
- data minimisation – collecting only that information which is strictly necessary for the stated purpose.

- accuracy – the data collected must be correct, up-to-date, complete and accurate.
- storage limitations – data must be kept for no longer than is necessary for the purpose for which they were collected; then they will be deleted or anonymised.
- integrity and confidentiality – strict security measures to ensure data protection against theft, loss, destruction or damage.
- accountability – the data controller is responsible for complying with all GDPR principles and must be able to demonstrate this.
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2.2. Some essential national regulations

As a member state of the European Union, Romania has aligned itself with EU standards, transposing EU laws and regulations into domestic law.

2.2.1 Law no. 242/2022 of Romania transposes the provisions of Regulation (EU) 2018/1724 on the interoperability of information systems together with the *International Interoperability Platform and the Reference Norms for Interoperability (NRRI)*, adopted in 2024 [7, 8].

2.2.2 National Action Plan for the Digital Decade for Romania 2030 – was adopted in 2024. It has four main directions: digital skills, digital transformation of enterprises, digital infrastructure and digital public services [9].

2.2.3 Emergency Ordinance No. 155/2024 transposes into domestic law the European Union's NIS Directive 2/2022. The purpose of this act is to establish a legal framework for increasing the cybersecurity of critical infrastructures. It provides for strict obligations to report cyber incidents and periodic risk assessments. It now covers 18 areas of application, including: energy, transport, financial services, health, digital infrastructure, public administration. The act does not apply to defense institutions, public order, national security or IT systems that deal with classified information [10].

3. Romanian reality and barriers in implementing e-government

3.1. Romanian reality

In recent years, Romania has made progress in the digital transformation of public administration. The OECD report, *Towards a Digitally Mature Government 2023*, praises Romania's efforts and desire to achieve the level of a mature digital government, which can quickly adapt to new technologies so that it can respond to the constantly changing needs of users [11].

The Romanian Digital Authority (RDA) was established within the Ministry of Research, Innovation and Digitalisation, with the aim of supporting the implementation and monitoring of the digital transformation of the public sector. At the EU Chief Information Officers (CIO) meeting in Poland, the President of the RDA, Dragoş-Cristian Vlad, presented the latest Digital Decade report, which shows the progress made by Romania, including: a 20.2% increase in the digitalisation score of essential public services and a 45.1% increase in the provision of cross-border online services. These results could be

better, but unfortunately the RDA does not benefit from full political support and does not have the necessary leverage to impose itself on all local public authorities [12, 13].

This development, from an objective point of view, must be viewed through the lens of two components: the first is the actual progress, and the second refers to the significant gaps compared to the European average.

Some examples of implemented digital platforms:

- e-Invoice – is a mandatory national system through which tax invoices are issued, transmitted and received in digital format. Starting with January 1, 2024, all VAT paying economic agents are obliged to issue invoices only through e-Invoice. Its main purpose is to combat tax evasion and quickly collect VAT [14].
- Private Virtual Space (SPV) – is a digital platform of the National Agency for Fiscal Administration (ANAF) through which documents can be requested, tax returns filed or tax obligations checked.
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- RoeID – is an electronic authentication and identification system, which is in the implementation stage at national level. It is currently available in 18 counties and in the Municipality of Bucharest.
- Single Electronic Contact Point (PCUe) – provides information to citizens and companies who want to study, work or travel in the EU area (it is part of the European Single Digital Gateway network) [15].
- Ghişeu.ro – is a platform that allows citizens and companies to pay taxes, local taxes and fines online. A mobile application is also available. Payments can be made partially or fully, are secure, there is no commission, and confirmation is sent by e-mail. In January 2025, the application registered over 2.4 million active users, 1600 institutions and 400 payment types [16].

For these platforms to find their usefulness, it is necessary for citizens to use them. Part of the progress is visible to the naked eye, there are no longer those endless queues in front of public institutions. Part of the population has understood that it is much faster, simpler and more efficient to carry out these activities from the comfort of their home.

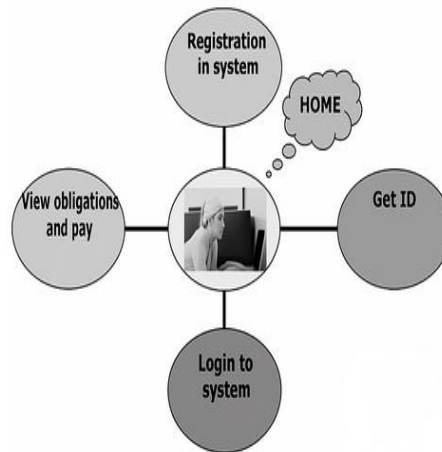


Fig. 1. Payment of financial obligations
 Source: adapted from Dragoş Dincă [17]

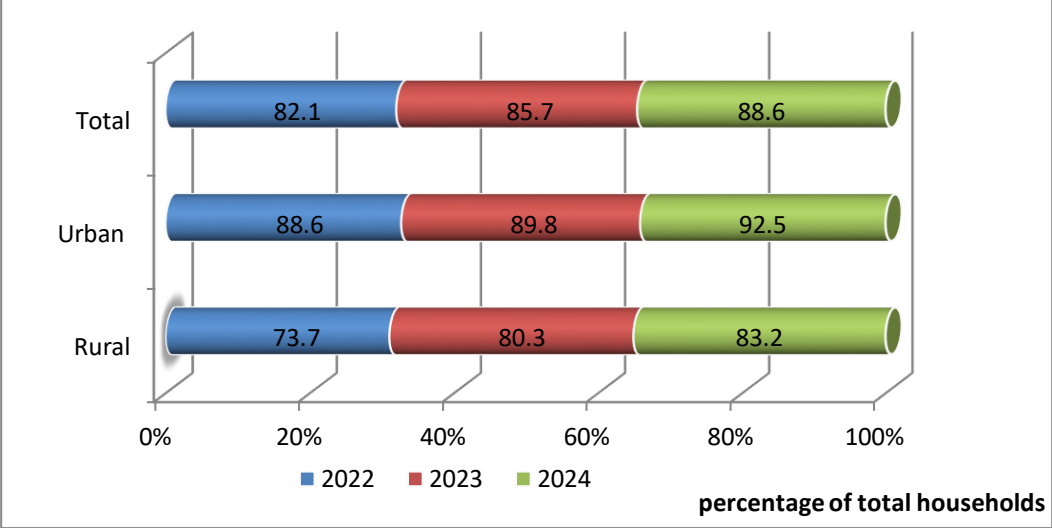
From a legislative point of view, the transposition and adoption of European legislation into domestic legislation has been achieved. However, the actual implementation process remains uneven and most often fragmented between different administrative levels. There are notable discrepancies between the regulatory framework and its implementation, especially at the level of local authorities and institutions with limited technological resources, for various reasons: either they are not interested, they do not want to, it is more convenient for them in the old version because the officials are already used to it, they have outdated technology and have not attracted sufficient funds for investment.

Urban local administrations have made important steps towards technological development as basic digital services are available in most cities. Those that are considered advanced can be accessed in larger cities, such as online appointments at counters, online issuance of various certificates or permits, public transport applications monitored in real time, connected traffic lights, fluidized traffic. These differences between cities show that the levels of implementation and use of digitalization differ even within the urban environment. More specifically, at the urban level, according to an impact study conducted by C. Vrabie, the consequence of this lack of initiatives is that less than 20% of city halls have a digitalization strategy or digital literacy programs for employees. [18]

Some representative figures for the 103 municipalities in Romania are:

- approximately 81% have 5G networks
- approximately 18% have public transport applications
- approximately 22% have electronic medical record systems [18].

Tabel 1. Share of households connected to the internet, by area of residence, in 2022, 2023 and 2024



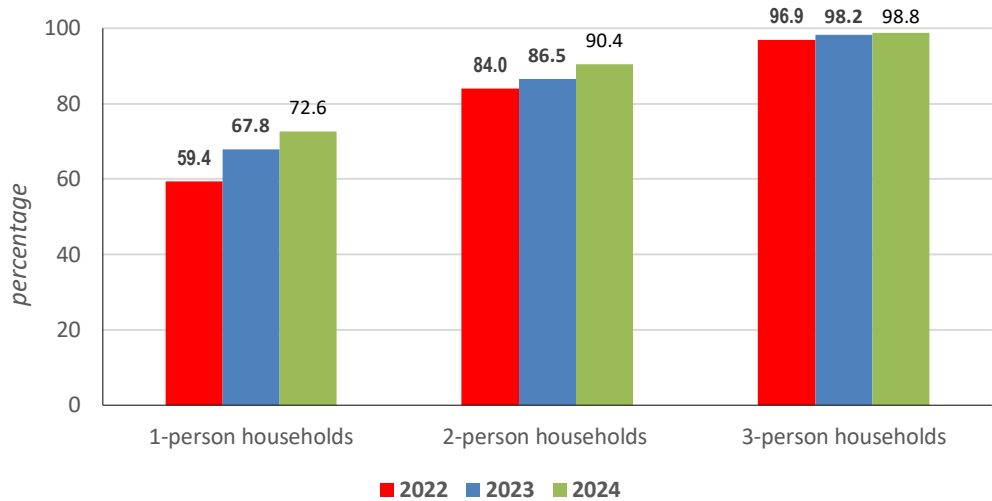
Source: INS 2023, 2024 [19, 20]

According to the table above from the data communicated by the INS (2023, 2024) it results that at the national level the percentage of those who have access to the internet network at home is 88.6% of all households in Romania. The increase compared to the previous year is 2.9 percent. These increases can be observed for both rural and urban areas.

In recent years, emphasis has been placed on the aspect of digitalization in rural areas, with internet access being an essential step for connecting and exchanging information and services online. In most rural areas, high-speed internet access is low, and the quality of the connection is not constant, given the poorly developed infrastructure. These areas are not of major interest to economic agents, also due to the depopulation process. Young people migrate to better developed areas, to big cities, or even leave the country for a consistent income and a higher standard of living. The citizens who remain are older. They generally use their mobile phones as their internet connection device, and most often it is to communicate with loved ones and for social media. Thus, the gaps between rural and urban areas are widening.

An important aspect to research is the number of people and devices with internet connection in households. The percentage of people aged 16 to 74 who have ever used the internet is also on an upward trend, with an increase of 2.2 percentage points compared to 2023.

Tabel 2. Share of households with internet access at home, by household size, in 2022, 2023 and 2024



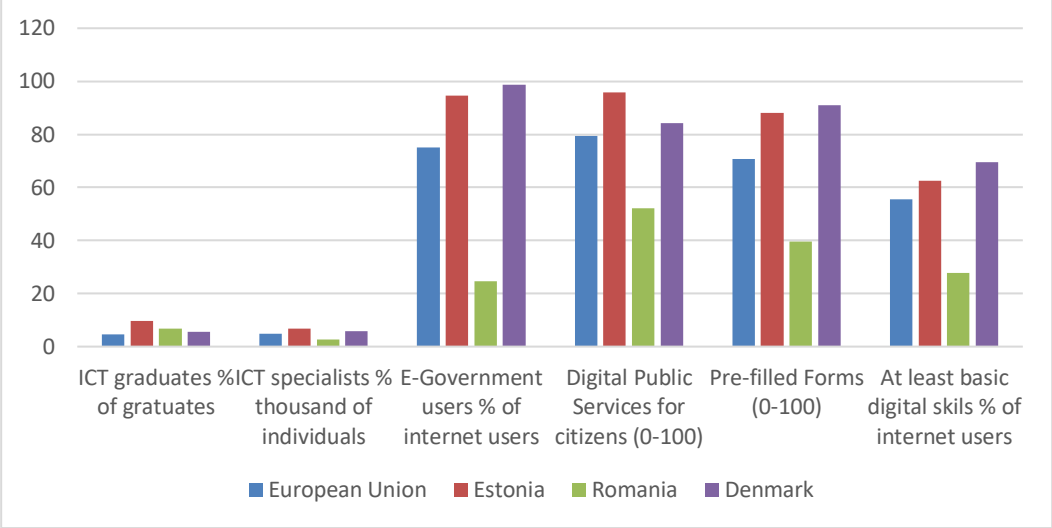
Source: INS 2023, 2024 [19, 20]

Internet connection is highest in households in the Bucharest-Ilfov (92.9%), North-West (89.1%) and West (87.7%) regions. The lowest are the South-East (81.7) and South-Muntenia (82.9) regions [21].

The DESI index shows us how Romania ranks internationally, by comparing the three countries with the European average.

Romania, according to the DESI 2024 index, ranks 6th in the number of ICT graduates, above the EU average. The figures from the second indicator convey the fact that graduates are not found on the labor market, it is clear that they do not work within companies in the country. For the other indicators, the figures clearly show that Romania ranks below the EU average, unfortunately occupying 28th place.

Tabel 3. DESI Index 2024



Source: DESI Index 2024 [22]

In Romania, the differences in digital governance are not only between urban and rural areas, but also between the east and west of the country. Thus, the west has university cities and more dynamic economies that stimulate the demand for digital services. The public administration has invested more in digitalization, accessing European funds.

The east is more rural, depends more on agriculture, the infrastructure is developing, highways have started to be built, and city halls and county councils have not managed to attract substantial funds.

We took the case of two large cities in Romania, county capitals, Cluj-Napoca and Iași, making a comparison regarding the implementation of e-government in 2024. According to the data in the table below, the level of digitalization of the administrative infrastructure is higher in the case of the city of Cluj-Napoca. This can also be explained by the fact that since 2017, Cluj has benefited from smart city projects. Iași accelerated digitalization in the period 2022-2025, but the integration of applications is not achieved at a satisfactory level, most services operating on separate platforms. Cluj has implemented digital education programs addressed to its residents (through Cluj Education Hub in partnership with the local education system) and 72% of Cluj residents use digital public services at least once a month. At the level of Iași, the percentage is 58%. Cluj-Napoca has managed to achieve interoperability between several departments (taxes, urban planning, registry) facilitating communication. Approximately 70% of administrative processes are digitalized (e.g. documents, internal flows, archiving). Iași still faces fragmented systems, and some operations must be done manually, and the degree of digitalization is approaching 50%.

Digitalization at the level of the municipality of Cluj-Napoca is high, thanks to constant investments and the degree of use by citizens, Iași has made progress in recent years and is at the stage of consolidating digital platforms and cybersecurity.

Tabel 4. The state of digitalization in local government in the cities of Cluj-Napoca and Iași, 2024

No.	Application / Functionality	Cluj-Napoca	Iași
1	Electronic services portal (portal/citizens)	Implemented (fully) - municipal portal with "Online Services / Online Procedures" sections for submissions, applications and information for citizens; extended list of procedures.	Implemented (functional) - ePortal for forms, notifications, appointments; many services can be initiated online, but some flows remain phased.
2	Online payments (fees, taxes, fines)	Implemented - online payment of local taxes and fees available through the counter / payment integration on the portal.	Implemented / Partially - online payments available, but integration for some services is limited/phased (depends on flow).
3	Document management system / e-registration (file tracking)	Implemented (advanced) - mentioned electronic document management and automated flows (tracking files, authorizations, etc.).	Partially implemented - document management systems (DocManager etc.) and digitalization initiatives exist; full integration of the "citizen file" at the municipal level is in progress.
4	Citizen reporting solution	Implemented - MyCluj / reporting platform, reporting applications (online reporting guide).	Implemented - "Online Complaints" section on the ePortal; users can submit complaints and track status.
5	Mobile application / mobile services	Implemented (yes) - mobile applications / services for notifications and communication (mentioned on the website).	Partial / pilot - mobile functionalities for certain services (depends on local projects), not on the same scale as in Cluj.
6	Digital file / unified citizen file	Implemented / expanding - Cluj reports digitized flows and electronic document management; announcements regarding the expansion of functionalities (in practice: many services track files electronically).	Planned / Partial - Iași has projects to digitize flows; the "digital file" at the municipal scale is still in the implementation process (stages).
7	Interoperability & connection to PNI / Government Cloud (PNRR)	Planned / Connection in progress - Cluj involved in local projects and participating in ADR initiatives; full implementation depends on technical integration.	Planned / Connection in progress - Iași mentions alignment with national projects in county strategies; actual connection and level of integration varies.
8	Transparency services / open data / public spending	Implemented (partially) - data on budget execution, transparency and public document portals; there are APIs/JSON for some data	Implemented (partially) - activity reports and publication of some financial data; open data is present, but machine-readable accessibility varies.

		(examples in the public portal).	
9	Innovations: chatbots / AI / virtual assistants	Pilot / planned - there are local initiatives to test automated services / partnerships with IT ecosystem (more frequent experimentation in cities with IT clusters).	Pilot - some experimental projects (e.g.: mentions of virtual assistant at the municipality/county level), but fewer mature implementations.

Source: own processing [23, 24, 25, 26, 27]

3.2 Barriers to implementing e-government

- lack of a clear and concise strategy for implementing e-government, possibly establishing a series of constraints from the central level to the local level or even bearing consequences. From the central level, decisions are made, laws are adopted, information and requirements are transmitted to the territory. At the local level, in some cases, the essence of these directives is lost, and in others things proceed normally, in the sense of respecting and fulfilling the tasks set. This is why such large discrepancies appear between local authorities of the same level.
- lack of technology (hardware and software) adequate to the needs and responsibilities of the position. There are many situations in which physically and/or morally worn-out equipment has become ineffective, generating a state of frustration and dissatisfaction for the employee, which is transmitted further to the final beneficiary who is waiting for the problem to be resolved.
- citizens' distrust in the capacity of public authorities given previous dissatisfaction and experiences.
- staff's failure to adapt to new technology, digital skills are minimal and the idea that too much technology will lead to the elimination of some positions and implicitly to layoffs still persists.
- citizens' accessibility to new technologies – traditional methods should not be completely eliminated.
- political and institutional risk – budget cuts or significant cost increases.
- inter-institutional coordination – coordination between institutions leaves much to be desired, each has its own complex and time-consuming procedures, and IT systems are not compatible to interconnect.

4. Conclusions and recommendations

The context of the digitalization of public administration in Romania is dual: on the one hand, progress is being made, on the other hand, gaps with the European Union average persist.

An acceleration of digitalization is observed, especially in urban areas, as large cities benefit from technological infrastructure, digital skills and higher administrative capacity. In contrast, the rural area has lagged behind, and the gaps are evident. In this regard, the

impact of the political environment cannot be neglected, as significant amounts of money are allocated to larger cities, but also depending on the political color of those in power. However, viewed as a whole, the state of e-government in Romania is in a process of evolution, with real possibilities of catching up with other EU member states. This is possible if the main actors would create a unified, transparent framework, monitored with clear rules and mandatory to be respected and implemented.

In order to achieve the established objectives and to capitalize on the potential of digitalization, at its true value, central and local public authorities must implement compatible electronic systems to achieve institutional interoperability, effectively increase online services and strengthen digital skills.

Another aspect is that of gaining the trust of citizens by periodically updating information systems, both hardware and software [28]. It is recommended that attention be directed also towards organizing digital training courses for civil servants correlated with their needs. Thus, the degree of reluctance of employees towards technology will be reduced. In conclusion, access to the internet and digital infrastructure have expanded faster than the digital skills of users.

The use of AI can contribute to improving operational processes, increasing efficiency and reducing human errors.

The Romanian Digitalization Agency should be given the necessary rights and strength to be able to coordinate digitalization.

Romania is in a transition stage, moving towards an efficient digital governance, but the development is uneven, multidimensional and requires rapid mechanisms to reduce gaps.

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