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PERFORMANCE IN ACCESSING FUNDING THROUGH DIGITAL EUROPE PROGRAMME

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Abstract: *The digital transformation of the European Union is a strategic priority, and the Digital Europe Programme (DIGITAL) is an essential mechanism to strengthen the digital infrastructure, improve technological innovation, and develop digital skills. This study aims to assess the role of DIGITAL in supporting the European Digital Agenda and to evaluate Romania's performance in accessing this funding instrument. The research addresses the question: 'To what extent does the DIGITAL serve as a catalyst for the EU's digital transformation, and how effectively has Romania accessed and utilized the funding opportunities provided by this initiative?' This study employed a qualitative and descriptive approach, based on the analysis of official EU regulations, policy documents, and data available through the DIGITAL Dashboard. Findings indicate that Romania has secured a relatively small share of DIGITAL funding, with disparities in allocations across beneficiary types and regions. While this instrument has generated benefits in Romania, current funding remains insufficient to bridge the digital divide and challenges persist. The study suggests that strengthening the role of European Digital Innovation Hubs and National Contact Points could support fund absorption and project implementation, ensuring Romania's alignment with EU digitalization objectives and enhancing its economic competitiveness. It also highlights the importance of integrating DIGITAL with other instruments, such as the National Recovery and Resilience Plan and Horizon Europe. This research contributes to understanding how DIGITAL is operationalized at national level, identifying both opportunities and structural challenges in Romania's current digital funding landscape, and offering recommendations to improve strategic alignment and implementation.*

Keywords: *Digital transformation, Digital Europe Programme, Romania's performance, European technological sovereignty, Cyber security, Digital skills development, European Digital Innovation Hubs, Artificial Intelligence.*

JEL Code: *O33, O38, L86.*

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Introduction

Over the past two decades, the European Union has pursued a comprehensive digital transformation strategy. The Lisbon Strategy initially set the foundation for the EU's digital ambitions, emphasizing the role of information and communication technologies (ICTs) in achieving economic growth and social progress. Building upon this, the Digital Agenda for Europe (European Commission, 2010) formally recognized ICTs as key enablers for the EU's strategic objectives, driving digitalization across sectors. Furthermore, the Digital Single Market Strategy (European Commission, 2015) aimed to improve access to digital goods and services, create an integrated digital market, and enhance the growth potential of Europe's

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digital economy. By 2020, the EU introduced the "Shaping Europe's Digital Future" strategy (European Commission, 2020), emphasizing the development of people-centric technologies, economic competitiveness, and democratic digital governance. In 2021, the Digital Compass outlined four key digital targets for 2030 - focusing on digital skills, e-government, digital business transformation, and resilient digital infrastructure - to ensure Europe's leadership in the global digital landscape (European Commission, 2021).

A key strategic priority on the European Union (EU) agenda is digital transformation, which serves as a fundamental driver for sustainable growth, enhanced global competitiveness, and social inclusion. Recent efforts underline the critical role of digital infrastructure in strengthening economic and social resilience. The EU has allocated substantial financial resources, particularly through its long-term budget for 2021–2027 and the NextGenerationEU initiative, to accelerate digitalization, thus demonstrating a strong commitment to advancing digital transformation.

In this context, the Digital Europe Programme (DIGITAL) was launched as a key funding mechanism to consolidate digital infrastructure, promote the uptake of emerging technologies, and develop digital skills needed for the transition to a digitalized environment (European Commission, n.d.).

Romania, as a member state of the European Union, is facing significant challenges in the field of digitalization, as highlighted by its constant ranking in the Digital Economy and Society Index (DESI) (European Commission, n.d.). However, the funding available through DIGITAL represents a major opportunity to bridge the digital divide with other member states and accelerate the deployment of advanced technological solutions.

The objective of this paper is twofold: to assess the role of the Digital Europe Programme as a catalyst for the EU's digital transformation; and to evaluate how effectively Romania has accessed and utilized the funding instruments provided through DIGITAL. To address these aims, the following research question is formulated: 'To what extent does the Digital Europe Programme serve as a catalyst for the European Union's digital transformation, and how effectively has Romania accessed and utilized the funding opportunities provided by this initiative?'

The study has both academic and practical significance, as it provides insights into the operationalization of DIGITAL at national level, and identifies highlighting both opportunities and structural challenges in the current funding landscape.

This paper includes a literature review focused on key concepts and recent developments in EU digital policy and funding instruments. It then outlines the research design and methodology, including the formulation of hypotheses and data sources. The core of the article analyzes the Digital Europe Programme as a strategic framework and examines Romania's performance in accessing and using the program's funding. The article concludes with key findings and conclusion.

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Literature Review

Strategic Priorities and Conceptual Foundations of the Digital Europe Programme

The literature underlines that DIGITAL is a strategic tool of the EU to accelerate the digital transformation, increase global competitiveness, and strengthen European technological sovereignty. Bıçakcı (2024) highlights that DIGITAL is not just a funding mechanism, but a transformative project that led to socioeconomic changes through investments in essential technologies such as artificial intelligence (AI), cloud computing, cyber security, digital infrastructure, and digital single market.

Burinskienė and Nalivaikė (2024) argue that development of digital infrastructure, such as broadband Internet access and cloud services, which are foundational to establishing a cohesive digital single market, vital for maintaining competitiveness within the global economy.

Mărcuț (2020) offers a perspective on the EU's global digital policy stance, highlighting the "Brussels Effect," which transforms EU norms into global benchmark for data protection, digital content regulation, and internet governance. This aligns with the EU's aspiration for technological sovereignty, wherein DIGITAL plays a vital enabling role.

Moreover, literature highlights that the post-pandemic economic recovery in the EU was built on three key pillars: green transition, digitalization and economic and social resilience. Miron et al. (2022) analyze in detail the strategies and financial instruments implemented through the Multiannual Financial Framework (MFF) 2021-2027 and NextGenerationEU (NGEU), with accent on the Recovery and Resilience Facility and highlighting difficulty of efficiently accessing European funds, especially in countries such as Romania, which faces challenges in implementing digital reforms and ensuring a coherent framework for funding absorption.

Positioning digitalization as a strategic priority of the EU and underlying the allocation of substantial financial resources through mechanisms such as RRF, Horizon Europe, Digital Europe, are also addressed by Miron et al. (2024), with accent on the relationship between budgetary allocations for digital transformation and its prioritization within the EU agenda.

Enhancing Economic Competitiveness through Digital Investment

DIGITAL's initiatives are designed to drive economic competitiveness by fostering innovation and developing digital skills across the EU. This strategic focus is essential for sustaining economic growth and creating new opportunities for member states while the integration of digital technologies across various sectors reflects the program's commitment to enhancing the EU's position in the global digital economy (Miron et al., 2024; Maurer, 2021). By supporting these initiatives, DIGITAL contributes significantly to the economic competitiveness.

Ogrean et al. (2024) provide a micro-level perspective from Central Region of Romania, where sectors like smart manufacturing, e-health, and smart cities show digital divide. The study that many organizations are at the early stages of transformation, constrained by a lack of digital skills and limited access to finance. Their findings reinforce the importance of targeted support mechanisms in translating macro-level strategies into actionable improvements.

Promoting Technological Sovereignty

The role of DIGITAL in fostering technological sovereignty is multi-dimensional. Bormane and Blaus (2024) to the EU's strategy for achieving technological sovereignty, ensuring that Europe can independently develop and deploy digital technologies without reliance on external entities, while López-Nores et al. (2022) highlight the importance of establishing a European data economy and digital single market to to safeguard the interests of the EU and maintain control over data and technology. Bicakci (2024) frames this sovereignty as essential for EU resilience and competitiveness. This strategic approach is crucial for preserving the autonomy and integrity of the EU's digital landscape, for strengthening its technological trajectory and reduce vulnerability to external actors.

Adressing Challenges and Barriers

Despite its strategic objectives, the program faces challenges that need to be addressed to achieve its objectives fully. The digital divide and cybersecurity concerns remain significant barriers to the successful implementation of DIGITAL initiatives, as Garau et al. (2023) highlight. Ensuring equitable access to digital technologies and secure digital environments across all member states is essential for realizing the program's goals. Furthermore, harmonizing digital standards and regulations within the EU is crucial for facilitating cross-border collaboration and technological advancements (Savitska, 2025). Overcoming these barriers is key to unlocking the full potential of the Digital Europe Programme and enhancing the technological sovereignty and competitiveness of the European Union.

Similarly, Tiganasu and Lupu (2023) show that institutional quality and administrative capacity directly influence the absorption of EU funds. Their research on Central and Eastern Europe reveals that stronger institutions with high levels of digitalization had a better capacity to attract and use European funds efficiently, thus facilitating economic convergence. However, administrative barriers, institutional bottlenecks, excessive bureaucracy, and corruption are identified as major obstacles to the absorption of European funds, limiting their capacity to generate spillover effects on the economy.

In Romania, Coban (2023) illustrates how low adoption rates of cloud computing (11%), big data analytics (5–6%), and AI (1%) signal insufficient digital maturity. Copăceanu and Mazăre (2023) further emphasize that bureaucracy and lack of experience in managing European-funded, challenges in addressing the requirements for projects, lack of technical assistance undermine Romania’s capacity to implement DIGITAL-funded projects effectively.

Stoican and Chirieac (2021) stress the need for integrated approaches to the twin transition (digital and green), their interconnection and underly the obstacles in Achieving a Digital and Green Europe. In this context, mechanisms such as NextGenerationEU and the Recovery and Resilience Facility direct significant resources toward digitalization, infrastructure strengthening, and technological innovation, contributing to the objectives of climate neutrality and economic competitiveness.

The Role of Intermediaries (EDIHs) and Skills Development

The European Digital Innovation Hubs (EDIHs) play an essential role in a variety of forms of institutional work at organizational, network, and ecosystem levels and support the uptake of digital technologies, by bridging the gap between organizations and new technologies, creating collaborative structures and influencing regulations to facilitate digitalization (Colovic et al., 2024). EDIHs serve as institutional intermediaries by offering technical, regulatory, and coordination support in creating the necessary conditions for the success of digital projects.

Coban (2023) and Ogrean et al. (2024) highlight the relevance of services such as technology pre-testing, digital skills development, and support in accessing finance - all critical functions typically provided by EDIHs. Although not always explicitly named, these intermediaries are particularly valuable in underdeveloped regions. However, significant disparities in regional uptake and digital maturity remain pronounced.

Furthermore, human capital constraints significantly affect implementation. Rathod et al. (2024) and Pirinen et al. (2024) highlight acute shortages in cybersecurity professionals and the role of the European Cybersecurity Skills Framework (ECSF) in addressing these gaps. The European Cybersecurity Skills Framework (ECSF) is once again seen as a tool that aims to align skills and facilitate collaboration between higher education institutions, industry, and public authorities. Projects like CyberSecPro and NERO demonstrate how European financial instruments support upskilling and reskilling initiatives tailored to market needs.

Research Gaps and Study Contribution

The reviewed literature collectively establishes the strategic importance of DIGITAL but exposes several gaps. First, empirical insights at the national level remain limited, particularly regarding fund absorption mechanisms and institutional performance. Second, there is limited exploration of how DIGITAL interacts with other instruments (e.g., RRF, Horizon Europe) in practice. Third, implementation asymmetries among EU Member States are not sufficiently addressed.

This study addresses these gaps by providing a Romania-focused analysis of the implementation of DIGITAL. It contributes to understanding the national-level operationalization of the program, identifies structural challenges and opportunities within the current digital funding landscape, and proposes recommendations to enhance strategic alignment and implementation.

Data and Methodology

A qualitative and descriptive research design was adopted to answer the research question and assess three hypotheses regarding the role and impact of the Digital Europe Programme (DIGITAL) at EU and national level. The study follows a deductive logic and relies on

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documentary analysis and the interpretation of secondary data from official sources, including EU strategic documents, reports, and statistical dashboards (e.g., DESI, DIGITAL Dashboard).

The first hypothesis (H1) assumes that DIGITAL reflects the EU's commitment to digital transformation, as defined in the Multiannual Financial Framework (MFF) 2021–2027, with significant implications for European technological sovereignty and competitiveness (H1). The second hypothesis (H2) explores the limited performance of Romania in accessing DIGITAL funds, with regional and typological disparities. Building on these findings, the third hypothesis (H3) assesses the contribution of DIGITAL-funded projects in Romania to bridging the digital divide.

The methodology consists of two main stages. First, a documentary analysis of official EU policy and programming documents is used to assess the strategic positioning of DIGITAL (H1). Second, the study applies descriptive statistical analysis to data from public sources (e.g., Digital Dashboard, DESI, official reports) to evaluate Romania's performance (H2) and the scope of funded interventions (H3).

The use of quantitative indicators (e.g., volume of financing, success rate of proposals, regional allocation, typology of beneficiaries) serves to the analysis of the hypotheses through a structured, theory-informed and deductive research approach. The analysis relies on publicly available and verifiable data, ensuring transparency and replicability.

The Model and Findings

The Digital Europe Programme - a strategic framework for the EU digital transformation

The Digital Europe Programme (DIGITAL) represents a strategic initiative of the European Union designed to accelerate the digital transformation of the European economy, public sector and society. The EU's digital agenda includes multiple funding instruments, dedicating significant resources to digitalization through initiatives such as Digital Europe, Horizon Europe, and the Connecting Europe Facility, among others (Figure 1). As part of Multiannual Financial Framework (MFF) 2021-2027, the Digital Europe Programme aims to strengthen the strategic autonomy of the EU, enhance cyber security resilience and the deployment of digital technologies in various industries. By supporting innovation and increasing European competitivity in the global digital economy, DIGITAL provides a structured framework to bridge the technological gaps and promote sustainable digital development.

The figure 2 illustrates DIGITAL's six key strategic objectives (SO), each of them targeting a fundamental area of digital transformation across the European Union. DIGITAL aims to develop and deploy the digital capacities essential for the economic growth and strategic autonomy of the EU. Among its key proprieties, High Performance Computing (HPC) plays on essential role in advancing scientific research, industrial applications and digitalization of public administration.

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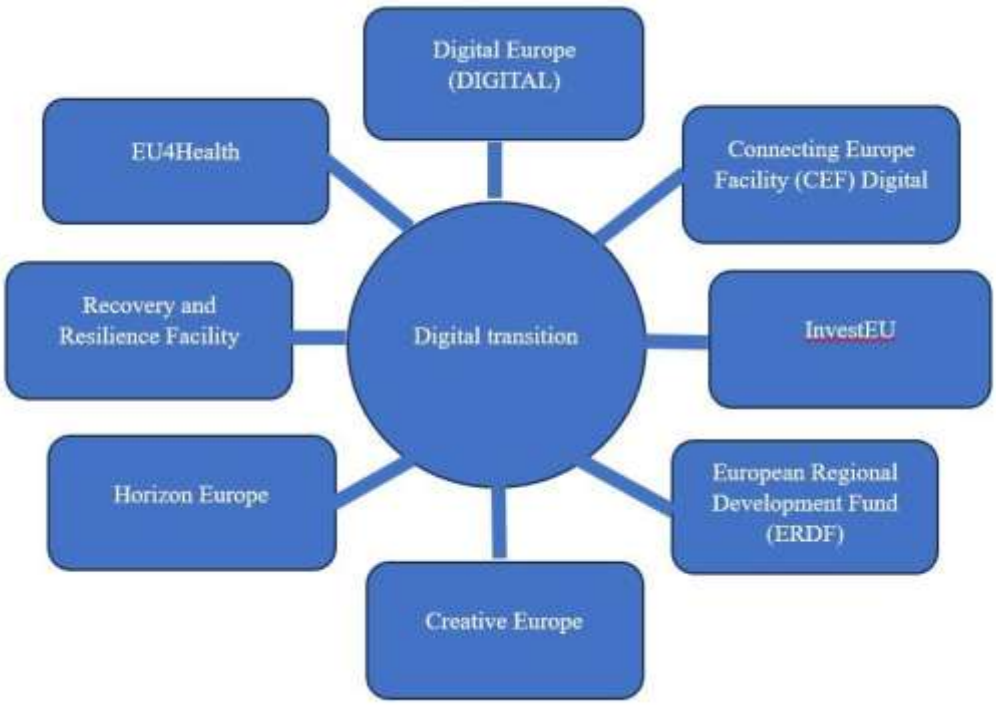

Figure 1. EU funding opportunities available for the 2021-2027 fostering digital transformation

Source: Miron et al. (2024)

A significant art of the funding envisages the supercomputing infrastructures, with a particular focus on the EuroHPC Joint Initiative, that support progress in artificial intelligence (AI), climate modelling and big data analytics. Another key pillar of DIGITAL is artificial intelligence, cloud computing and data space, which facilitate cross-border digital integration and support the digitalization of public services and businesses.

In the global context marked by geopolitical risks and an increase in cyber-attacks, DIGITAL focusses on cyber security and digital trust. The European Cybersecurity Competence Centre (ECCC) was established to coordinate initiatives in this field and support the implementation of cyber security policies at Member States level. DIGITAL also facilitates the cross-border cooperation in the digital security field, contributing to an integrated and efficient European framework in addressing emerging cyber threats. In addition to technological and security infrastructure, this instrument has as a priority the development of advanced digital skills, allocating funds to specialized training programs. These initiatives are essential to address the increasingly demand for digital competences in various sectors and ensure that the European workforce is prepared for the digital transition.

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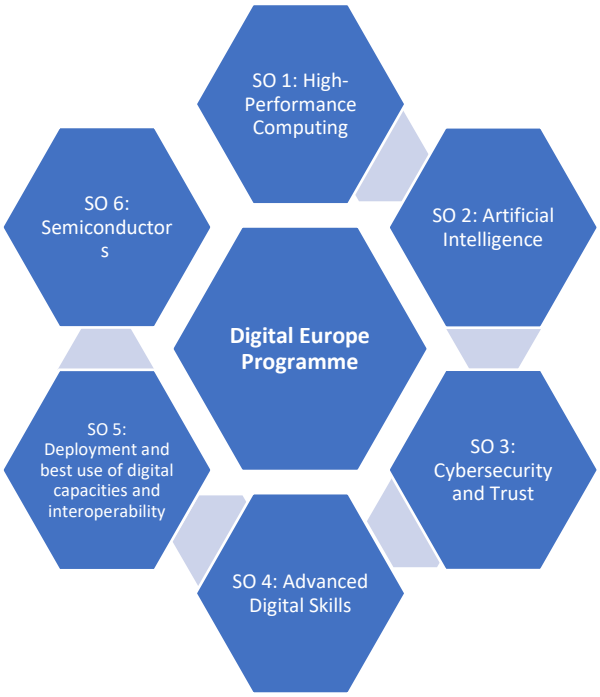

Figure 2. The objectives of the Digital Europe Programme

Source: Author's compilation based on data available on https://digital-strategy.ec.europa.eu/en/activities/digital-programme

To accelerate the adoption of digital technologies, DIGITAL includes a specific component dedicated to digital deployment and best practices, through the European Digital Innovation Hubs (EDIHs). These hubs play an essential role in supporting small and medium size enterprises (SMEs), industrial entities and public institutions in their process of digitalization. In addition, in response to the global crisis of semiconductor, in September 2023, DIGITAL introduced a dedicated initiative, under the Chips Act, with the aim of strengthening the position of Europe in microelectronics and semiconductors production, reducing the dependency of non-European markets.

The financial framework of DIGITAL reflects its strategic importance. Initially, a budget of EUR 7588 million was allocated for 2021-2027, with the aim of supporting the projects in the five key priorities. Subsequently, with the adoption of Chips Act, an additional EUR 800 million was allocated to address the shortage of semiconductors. However, after some relocations to the Secure Connectivity Programme and other budgetary adjustments to strengthen the role of European agencies such as the European Union Agency for Cybersecurity (ENISA), the financial programming increased with 6% compared to its initial allocation, up to 8178.7 million, highlighting the EU commitment to digital development and economic resilience (Figure 3).

In terms of the management mechanism, DIGITAL uses direct and indirect management to ensure an efficient allocation of funds. Under direct management, the European Commission supervises all financial operations, including launching calls for proposals, evaluating

proposals and monitoring projects implementation. This management type represents around 20% of the total EU budget allocated for 2021-2027. By contrast, indirect management the budgetary and operational responsibilities are transferred to partner institution, national agency, international organizations and specialized EU bodies. This approach allows EU to benefit from the external expertise and to ensure that financial resources are distributed in an efficient and transparent manner.

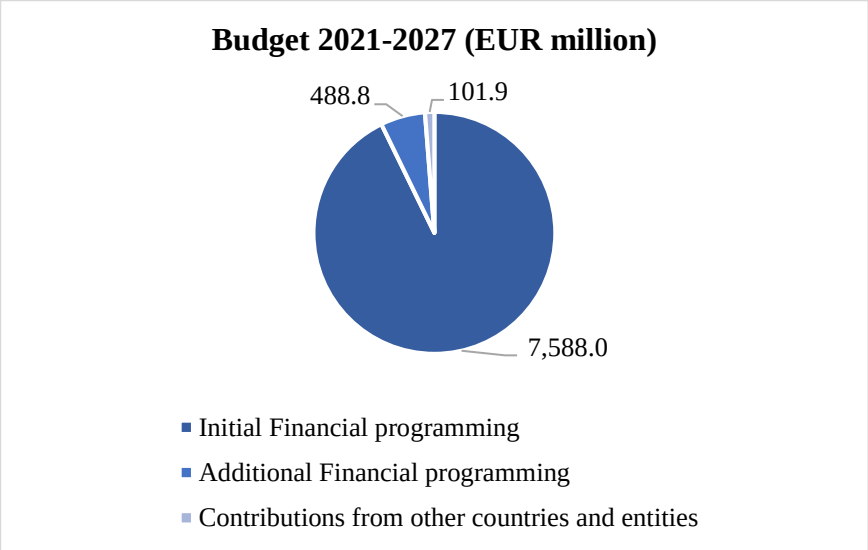

Figure 3. The budget of the Digital Europe Programme

Source: Author's compilation based on data available on https://digital-strategy.ec.europa.eu/en/activities/digital-programme

DIGITAL is open for international cooperation, providing financing opportunities also for non-EU countries. While participation is mainly targeted at EU Member States, several associated countries, including Norway, Iceland, Liechtenstein, Ukraine, Moldova, the Wester Balkan and Turkey, are also eligible for financing. In addition, Switzerland will be able to participate from 1 January 2025, subject to transitional arrangements. Given the strategic sensitivity of some digital investments, participation in projects in cyber security area is conditioned by some specific security requirements, as set out in Art. 12.5 and 12.6 of the Digital Europe Programme Regulation (EU) 2021/694. These provisions are intended to protect the EU's digital infrastructure and ensure the security of European digital ecosystem.

Given the strategic importance of the Digital Decade Strategy 2030, DIGITAL plays a key role in shaping the Europe's digital future. By allocating financial resources to essential digital technologies, strengthening cyber security and supporting digitalization of public and private sectors, DIGITAL actively contributes to enhancing EU competitiveness in the global digital economy. With a well-structured financial and operational framework, it represents a driver of the European technological autonomy, ensuring sustainable and inclusive digital development.

The budgetary implementation of DIGITAL reflects a moderate implementation rate, highlighting both its strategic commitments and the challenges inherent in implementing large scale digital investments. At the end of 2023, the implementation rate of commitments was 46.5 %. However, the payment implementation rate remains significantly lower, at only 20.6 %. This discrepancy between commitments and payments suggests possible delays in project implementation, administrative bottlenecks or the complexity of allocating funds to technology initiatives. There is a progressive increase in commitments and payments in 2023 compared with 2021, highlighting an acceleration in the use of funds, probably due to the maturity of projects and increased absorption capacity. However, the low rate of payments underlines the need to improve administrative efficiency, simplify procurement procedures and strengthen monitoring mechanisms to optimize financial execution and ensure the achievement of digital transformation objectives within the foreseen timeframe. The inclusion of the Chips Act in DIGITAL adds an additional layer of complexity, requiring more agile financial management to support Europe's strategic autonomy objectives in the field of semiconductor technologies.

The implementation of DIGITAL reflects a clearly targeted allocation to the digital transition, with a total contribution of 3.7 billion EUR over the period 2021-2023, which represents 100% of the budget committed for these years. This budget implementation confirms the strategic role of strengthening the European Union's digital capacities, accelerating the development of digital infrastructures, cybersecurity and the uptake of emerging technologies. Unlike the green transition, where the cumulative contribution amounts to only 336.3 million EUR (around 4% of the 2021-2027 budget), the digital transition benefits from full funding, highlighting the EU's commitment to bridge the technological divide and boost European digital competitiveness. Overall, DIGITAL is an example of the efficient implementation of EU funds for digitalization, with significant implications for European technological autonomy and increasing economic resilience in an increasingly competitive global landscape.

Accessing funds through DIGITAL in Romania

DIGITAL is a key initiative of the EU aiming to support the digital transformation of Member States' economies and societies. According to the data available in the dashboard of the Digital Europe Programme, the total costs of the selected projects under DIGITAL is 3.17 billion, with an EU contribution in amount of 1.81 billion. From the total of participation, considered as acts of involvement of legal entities in grant agreements, 22.47% are SME participation (Table 1).

Table 1. Significant figures of DIGITAL and Romania's participation

Country	Total Cost		EU Contribution		Signed Grants		Participation	
All countries	3.17 billion €	100%	1.81 billion €	100%	549	100%	6133	100%
Romania	88.08 million €	2.77%	48.44 million €	2.68%	73	13.3%	217	3.54%

Source: Author's compilation based on data from the DIGITAL Dashboard

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Romania, as Member State, benefits from funding opportunities through this instrument, to develop digital infrastructure, enhance digital skills and consolidate cyber security. Its participation in DIGITAL reflects both specific needs for digital development and the country's commitment to achieve the objectives set at European level. Romania ranks 9 in the top of Member States and associated countries, considering the number of its participations, 217. With total costs of the selected projects of 88.08 million EUR and EU contribution of 48.44 million EUR, it represents around 2.7% from the total costs and contribution registered for the entire program. The number of grants that have been signed represents a proportion of 13.30% from the total number of grants signed within DIGITAL.

The success rate of its proposals, scoring 50.62%, is slightly above the average rate of Member States and of DIGITAL as a whole, indicating a good capacity to elaborate projects in line with requirements of financing authority. However, the success rate in accessing funds is not equivalent with maximizing their economic and technological impact, given that the absolute envelope of the fundings remains relatively reduced compared to other Member States.

Compared to advanced economies in the EU, such as Germany, which ranks 1st with 239.99 million EUR EU contribution, France, 2nd place with 181.29 million EUR and Italy, 3rd place with 169.60 million EUR, Romania benefits from a more modest EU contribution, but compared to other countries in the region, it is in a competitive position. It is important to notice that the first six countries situated in the top as receiving the higher the EU contribution, namely Germany, France, Italy, Belgium, Spain and Greece concentrate 53% of the total EU contribution in DIGITAL (Figure 4).

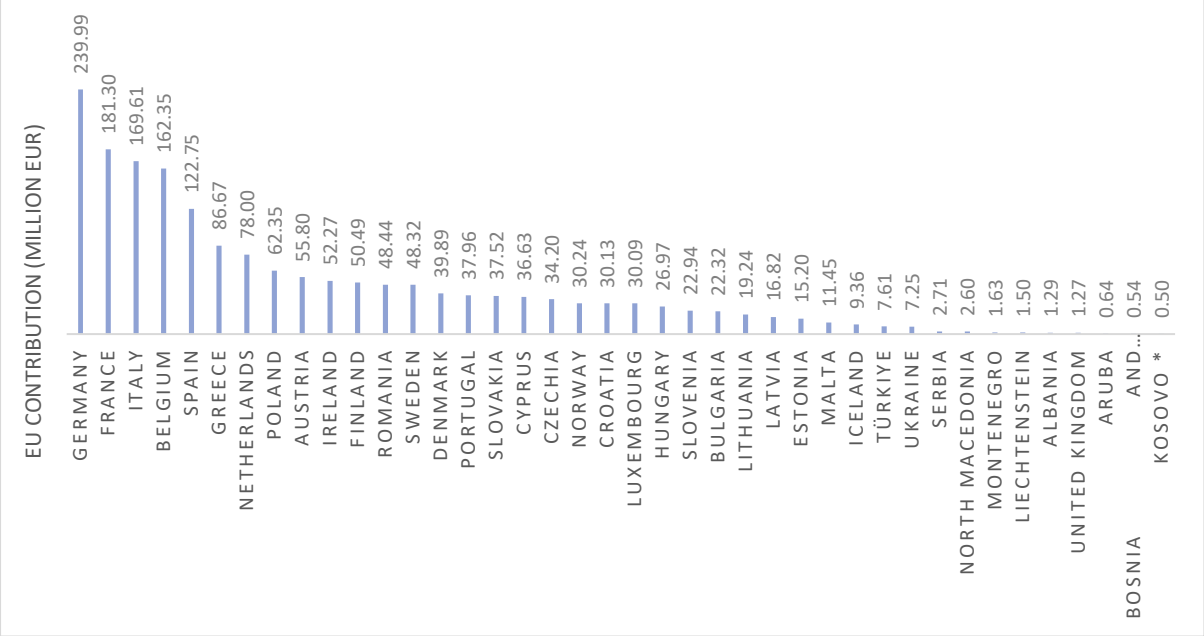

Figure 4. Overview of EU contribution by country

Source: Author's compilation based on data from the DIGITAL Dashboard

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The distribution of funds at major socio-economic regions (NUTS1) shows a significant concentration in "*Macroregiunea trei*", which absorbed more than a half of the total funds allocated to Romania, followed by "*Macroregiunea unu*" and "*Macroregiunea doi*", with similar allocations. By contrast, "*Macroregiunea patru*" received only 4.9% of the funds. This uneven distribution highlights a polarization of access to financial resources, with a predominance of regions benefiting from more developed digital infrastructure and those hosting innovation and research centers integrated into European networks.

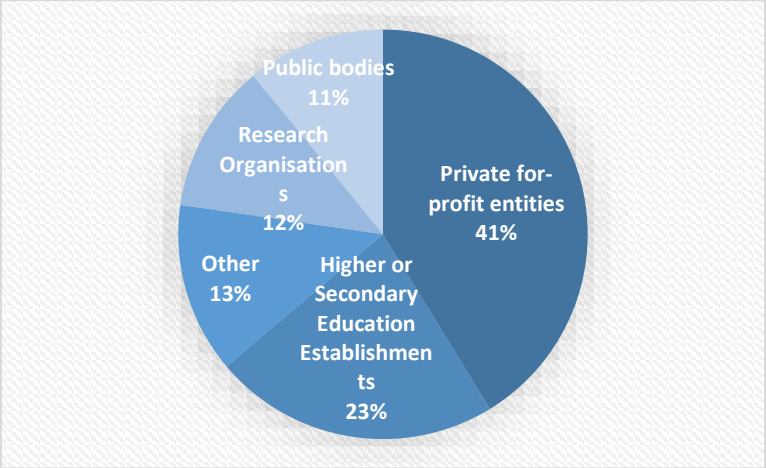

Figure 5. Distribution according to organization type

Source: Author's compilation based on data from the DIGITAL Dashboard

The main organizations benefiting from European Funds in Romania include IT companies, prestigious academic institutions, research organizations and public bodies, as shown in Figure 4. The most significant funds were allocated to the Romanian National Cyber Security Directorate, Expertware SRL, National University of Science and Technology Politehnica Bucharest and Eviden SRL. This distribution highlights a concentration of funds in strategic sectors such as cyber security, digitalization of education and IT infrastructure development. The first 12 organizations register 50% from the total EU contribution accessed in Romania through DIGITAL (Figure 6).

An important aspect of Romania's participation in the DIGITAL is the implication of small and medium-sized enterprises (SMEs), which play a key role in technological innovation and development of digital infrastructure. While SMEs applied for European funding in amount of 139 million EUR, they obtained only 15.15 million EUR, representing 31.28% from the total EU contribution to Romania under DIGITAL. Although this percentage is significantly higher than the average recorded for the entire program, the absolute value of funding received compared to the requested amount suggests that despite active participation of SMEs, there are difficulties in obtaining funds, either due to high competition or due to challenges in project elaboration. In total, 56 Romanian SMEs participated in the program and EXPERTWARE SRL, EXIMPROD ENGINEERING, I-ENERGYLINK SRL are among the most important beneficiaries.

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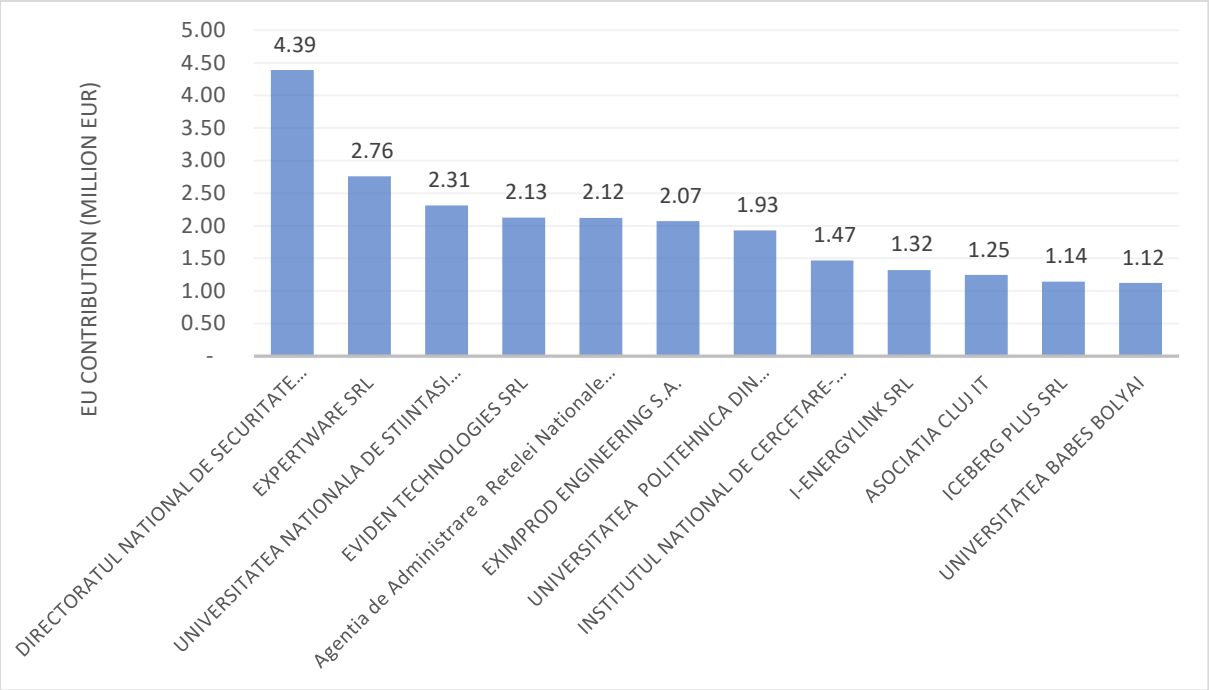

Figure 6. Top 12 organizations in Romania based on EU contribution

Source: Author's compilation based on data from the DIGITAL Dashboard

Under the Digital Europe, Romania has been involved in several large-scale projects, with a total EU contribution of 378.4 million EUR. The most significant projects include Genomic Data Infrastructure (GDI) and Digital Innovation Zone EDIH (eDIH-DIZ), as part of initiatives dedicated to the development of digital infrastructure in healthcare system. Another major project is AgriDataSpace, that received EU financing to create a European framework for data management in agriculture, demonstrating a strategic interest for the digitalisation of this sector. Regional Digital Innovation Hubs, such as Wallachia eHub (WeH) and Transilvania Digital Innovation Hub (TDIH) highlight the focus on creating regional digital ecosystems to facilitate the deployment of emerging technologies in economy. The MERIT project represents a relevant academic initiative to train specialists smart, secure and interconnected technologies and contribute to reducing the shortage of high qualified workforce in digital sector.

Another important element of Romania's participating under DIGTAL is the extensive network of international collaborations, demonstrating an active integration into the European digital ecosystem. The most significant partnerships were established with Spain, Greece, Italy, Germany, Belgium, Sweden and France. This distribution of collaborations indicates a well-defined strategy of integration into European research and innovation consortia, given that partner states are recognized for the technologic advancement and expertise in digitalization field. The active participation in these cooperation networks can facilitate the knowledge transfer, access to advanced technologies and strengthen of Romania's position in the European digital ecosystem.

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The analysis of factors influencing the access and absorption of funds from the DIGITAL highlights a series of administrative, economic, technological, and strategic challenges that impact the efficiency of funding (Table 2).

Table 2. Factors, obstacles, and improvement measures for accessing DIGITAL funding

Factors	Obstacles	Improvement Measures
Administrative and Institutional Factors	Excessive bureaucracy in public institution.	Optimize the existing procedures for accessing European funds.
	Limited administrative capacity – lack the expertise of applicants in accessing funds.	Develop training programs to improve capacity for accessing DIGITAL funding.
	Institutional bottlenecks and lack of inter-institutional coordination.	Develop training programs for public officials and project managers to improve capacity for managing DIGITAL projects.
Regional Disparities and Fund Absorption Capacity	Digital infrastructure gaps – Less developed regions struggle to implement projects due to inadequate digital infrastructure.	Allocate dedicated funding for infrastructure development in underfunded regions to ensure equitable digital growth.
	Lack of digital skills – Insufficient digital literacy in certain regions reduces fund absorption rates.	Strengthen digital training programs and facilitate collaborations between educational institutions and businesses.
Economic and Technological Factors	Limited co-financing access – SMEs and startups face difficulties securing co-financing for projects.	Introduce flexible co-financing schemes with EU-backed guarantees to ease financial constraints.
	Degree of digitalization of the economy – More digitalized economies access funds more easily, benefiting from existing infrastructure.	Foster international public-private partnerships to encourage digital innovation and strengthen digital ecosystems at national and European levels.
	Regulatory and interoperability challenges – Divergent national regulations hinder cross-border digital projects.	Promote the adoption of harmonized EU regulations to ensure seamless integration of digital solutions.
EU Strategy and Political Priorities	Conditionalities imposed related to cofinancing and security restrictions.	Transparency and cooperation with national authorities to identify additional sources for cofinancing.
Awareness and Access to Information	Low awareness of funding opportunities – Many eligible beneficiaries are unaware of DIGITAL financing mechanisms.	Enhance promotional efforts through webinars, training sessions, and collaboration with National Contact Points (NCPs).
	Difficulty in forming European consortia – Many organizations struggle to identify and connect with suitable partners.	Strengthen the role of European Digital Innovation Hubs (EDIHs) and NCPs to facilitate networking and international partnerships.

Source: Author's compilation

Administrative and institutional barriers, such as excessive bureaucracy and limited public sector capacity, slow down the funding process and reduce the accessibility of financial resources. Additionally, regional disparities in digital infrastructure further exacerbate inequalities in fund absorption. From an economic and technological perspective, the lack of co-financing opportunities for SMEs and startups, along with regulatory fragmentation across EU Member States, restricts participation in transnational digital

projects. Furthermore, at the EU strategy level, stringent funding conditions create uncertainty for applicants. A major obstacle remains the lack of awareness and access to information, as many potential beneficiaries are not sufficiently informed about funding opportunities or struggle to form international consortia.

To address these challenges, several improvement measures can be recommended, including strengthening the role of European Digital Innovation Hubs (EDIHs) and National Contact Points (NCPs) as essential for facilitating partnerships and providing technical assistance to applicants. By implementing these strategic measures, Romania could significantly improve its participation in the program and accelerate its digital transformation.

Conclusions

This study set out to evaluate the contribution of the Digital Europe Programme (DIGITAL) to the EU's digital transformation and to assess Romania's performance in accessing and utilizing this funding. Guided by three hypotheses and relying on documentary analysis and descriptive statistical evaluation, the research contributes to a deeper understanding of how DIGITAL is operationalized at the national level.

The findings confirm the first hypothesis (H1): DIGITAL is a strategic, well-structured funding mechanism embedded in the Multiannual Financial Framework 2021–2027, reflecting the EU's commitment to technological sovereignty and global competitiveness through investments in infrastructure, cybersecurity, and digital skills. These conclusions align with prior literature highlighting the EU's shift toward strategic digital autonomy (e.g., Bıçakçı, 2024; Bormane & Blaus, 2024; López-Nores et al., 2022).

The second hypothesis (H2) is also validated. The analysis of Romania's participation reveals that the country has secured a relatively small share of the total funding, with significant disparities - both regionally and institutionally - with higher education institutions and private firms absorbing most of the funding, while public institutions and some regions remain underrepresented.

The findings of the research also test the third hypothesis (H3). DIGITAL-funded projects in Romania have a positive impact on digital infrastructure and skill development, but their scale and distribution remain insufficient to significantly reduce the digital divide with other EU Member States. Persistent barriers such as bureaucratic complexity, limited awareness among stakeholders, and limited co-financing opportunities for SMEs constrain Romania's capacity to fully leverage DIGITAL support.

Building on insights from the literature (Garau et al., 2023; Savitska, 2025; Tiganasu & Lupu, 2023) and the current analysis, several actionable measures can be proposed to improve Romania's absorption rate and alignment with EU priorities:

- Strengthening institutional capacity for managing DIGITAL-related projects;
- Enhancing support for SMEs and start-ups through co-financing mechanisms and advisory services;

- Expanding the role of European Digital Innovation Hubs (EDIHs) as regional enablers of innovation and technical assistance (Colovic et al., 2024; Coban, 2023; Ogrean et al., 2024);
- Increasing the visibility and functionality of National Contact Points (NCPs) to better guide beneficiaries;
- Establishing a national monitoring framework to track the effectiveness of DIGITAL-funded initiatives.

While DIGITAL is an essential funding mechanism it cannot alone address Romania's digitalization challenges. A coordinated approach leveraging complementary funding sources - such as the National Recovery and Resilience Plan (NRRP) and Horizon Europe or other program, as well as private investments - is necessary to bridge the digital divide and create a sustainable digital ecosystem. The NRRP provides substantial allocations for digital infrastructure and skills development, while Horizon Europe offers funding for digital research and technological innovation, offering long-term competitiveness through international collaboration. A strategic integration of these mechanisms would enable Romania to accelerate digital transformation, strengthen its technological landscape, and close the gap with more digitally advanced EU Member States.

By offering an assessment of DIGITAL implementation in Romania, this study contributes empirically and conceptually to understanding how EU digital funding mechanisms function at the national level. In practical terms, it offers actionable recommendations for policymakers, funding authorities, and innovation intermediaries seeking to improve fund absorption, institutional coordination, and alignment with EU digital objectives.

This research provides valuable insights, but some limitations must be acknowledged. The analysis relies on quantitative data from official EU sources, which, while highly reliable, do not fully capture the qualitative aspects of digital transformation, such as governance efficiency, and project impact assessments. Moreover, the lack of comparative analysis with other Central and Eastern European (CEE) countries limits the ability to identify regional best practices.

Future research could address these gaps by exploring comparative case studies across CEE countries, investigating the role of institutional ecosystems in fund absorption, or analyzing synergies between DIGITAL, NRRP, and Horizon Europe. Such studies could provide a more integrated perspective on EU digital funding and its capacity to support convergence and strategic autonomy across the Union.

In conclusion, the Digital Europe Programme offers unprecedented opportunities for accelerating the digital transformation of the European Union. However, its full potential remains underutilized in Romania due to structural inefficiencies, administrative challenges, and regional funding disparities. To maximize the economic and technological impact of DIGITAL funding, Romania must implement a strategic, integrated, and results-driven approach, focusing on administrative efficiency, institutional capacity-building, and diversified access to EU digital financing instruments.

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