Volume 10, Issue 6, June – 2025 International Journal of Innovative Science and Research Technology
ISSN No:-2456-2165 https://doi.org/10.38124/ijisrt/25jun1805

Transforming the Healthcare System Through Communication and Innovation Amid Globalisation and Recession

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Publication Date: 2025/07/07

Abstract: This study carries out an analysis of the evolution of the healthcare sector in Romania, identifying the main decision-making factors influencing the transformation of the healthcare system, with a focus on digital communication and the efficiency of technological processes. Using comparative methods, the analysis explores how digitalisation and innovation support the optimisation of healthcare services amid the challenges posed by globalisation and economic recession. The main hypothesis posits that the coherent adoption of technologies can enhance access, quality, and efficiency in medical service provision. The analysis assesses communication channels, the mix of social media techniques, the implementation of different national digitalisation strategies, as well as the technical challenges encountered at the level of public institutions. The fundamental research question investigates to what extent the integration of digital communication contributes to the efficiency of healthcare services in an increasingly globalised world. The results highlight the transformative potential of digital technologies in increasing the accessibility and quality of the medical act, but also the need for coherent and sustained interventions for a more efficient implementation and sustainable modernisation of the healthcare system.

Keywords: *Digitalisation; Healthcare Communication; Healthcare System; Globalisation; Digital Transformation; Recession; National Resilience Strategies.*

How to Cite: Cristian Stana; Alexandra Constantin; Alexandra-Ioana Murariu; Radu-Alexandru Budu (2025) Transforming the Healthcare System Through Communication and Innovation Amid Globalisation and Recession. *International Journal of Innovative Science and Research Technology*, 10(6), 2647-2652. https://doi.org/10.38124/ijisrt/25jun1805

I. INTRODUCTION

Digital transformation has become an essential component of economic and social progress in the 21st century, especially through the expansion and development of emerging technologies such as artificial intelligence (AI), Internet of Things (IoT), and cloud computing (Drăgan and Stănciulescu, 2020). Additionally, all these innovations enable the processing and storage of large-scale datasets (big data), and transform the delivery and management of healthcare services. In the field of healthcare, these technologies have begun to revolutionise the way medical services are carried out, as well as their provision, optimising the achievement of a diagnosis as quickly and efficiently as possible, but also the creation of a personalised patient file in order to obtain the correct treatment (World Bank, 2023).

Since 2015, digitalisation has become one of the main centres of economic acceleration in many states, especially in Romania, as it holds significant potential in the field, mainly due to the high internet speeds and the constant development of the IT sector (WHO, 2021; European Commission, 2022; Bădescu and Dumitrescu, 2021). Currently, the IT sector in Romania is one of the most competitive at the level of European countries, and the workforce is both well-trained and high-skilled. However, the adoption of these technologies in the healthcare system remains uneven and often delayed, leading to limiting the potential benefits of digital transformation (Ciobanu and Marinescu, 2023).

Moreover, global health systems have been subjected to major challenges in recent decades generated by demographic changes such as population ageing, as well as by recurrent crises, including the COVID-19 pandemic, economic recessions, and neighbouring geo-political conflicts (OECD, 2020; WHO, 2021). In such contexts, the transformation of health systems, but especially their adaptation through

ISSN No:-2456-2165 https://doi.org/10.38124/ijisrt/25jun1805

innovation, has become a necessity to ensure mass accessibility for the population (OECD, 2020).

Nonetheless, communication plays an essential role in this transformation as it extends beyond the patient-doctor relationship, involving the interinstitutional need, personalised information of the individual and the use of digital devices to streamline the data processing process, diagnosis and last but not least, the application of the patient treatment process (Ciobanu and Marinescu, 2023). In this regard, digitalisation and emerging technologies, such as telemedicine, electronic health record, artificial intelligence and data analysis represent key components in the modernisation of the health system, facilitating both cost reduction and increased efficiency and equity in order to provide the most balanced and free access to all (Pârvu and Cristea, 2022; Popescu and Ionescu, 2022; European Health Forum, 2021).

This paper aims to carry out an assessment on the extent to which Romania's healthcare system has embraced digital innovation and communication strategies notably in the face of globalisation and socio-economic volatility. Consequently, the following sections present a review of relevant literature, outline the methodological approach, and discuss comparative findings across selected European Union member states.

II. LITERATURE REIVEW

Over the past two decades, health systems have evolved beyond their traditional role as service providers, emerging as central pillars of the population's well-being, but also central actors in the solid structure of the current global economy and geopolitics (European Observatory on Health Systems and Policies, 2022). According to the World Health Organization (WHO, 2021), health is recognized as a global public good, thus investments in infrastructure, human resources and medical innovation are essential for the permanent stability of the macroeconomics. Likewise, investment in healthcare infrastructure, workforce development, and innovation is now widely recognised as a strategic necessity for ameliorating productivity, reducing inequality, and nurturing public trust (Kickbusch and Gleicher, 2012).

Similarly, evidence from the OECD (2020) and WHO (2021) point out that states with a more digitalised health systems and robust infrastructure have coped much more effectively with external shocks, such as the recently outbreak of the Covid-19 pandemic. These resilient systems tend to integrate digital tools such as electronic health records, telemedicine platforms, and health information exchanges to support real-time decision-making and enhance service continuity during crises. In addition, they are better adapted and constantly developed, thus becoming more useful and efficient in times of recession or financial crises.

Furthermore, globalisation has had ambivalent effects on national health systems. On one hand, it has facilitated the international exchange of medical technologies, expertise, and best practices. On the other hand, it has amplified structural vulnerabilities particularly in lower-capacity systems that face difficulties responding to global crises such as pandemics or financial downturns (Reeves at al., 2014; Ciobanu and Marinescu, 2023).

In the Romanian context, these tensions are acutely visible and several studies have put emphasis on the fact that while Romania has made commitments to healthcare digitalisation, the implementation of reforms remains inconsistent, often hindered by underfunding, fragmented governance, and insufficient digital literacy among healthcare professionals (Bădescu and Dumitrescu, 2021; Rădoi and Petrescu, 2022; Institute for Public Policy, 2022). Although the National Recovery and Resilience Plan (PNRR) outlines an ambitious agenda for healthcare digitalisation, delays in execution and project cancellations have raised concerns about institutional readiness and strategic coherence (Ministerul Sănătății România, 2024). In contrast, investments from the Recovery and Resilience Facility in the European context reflect a formal recognition of the strategic role of health in the post-pandemic economic recovery (European Commission, 2022).

Moreover, technological innovation in healthcare provides multiple advantages including minimising clinical errors, enabling remote consultations, streamlining data flows, and supporting the creation of integrated patient profiles (Drăgan and Stănciulescu, 2020; European Commission, 2023). However, the success of these interventions depends heavily on coherent digital governance and well-structured communication channels. Additionally, digital communication plays a very important role in crisis management because it ensures the timely dissemination of accurate health information, counters misinformation, and promotes behavioural change. In this vein, successful communication strategies are typically characterised by transparency, consistency, and adaptability across platforms and audience segments (Ciobanu and Marinescu, 2023; European Health Forum, 2021).

In Romania, despite access to European funding and favourable technological conditions, the lack of interoperable systems, weak coordination mechanism, and a reactive rather than proactive policy stance have limited the impact of digital initiatives (European Commission, 2022; Popescu and Ionescu, 2022). As a result, critical digital opportunities such as telemedicine or online patient services have either stalled or failed to generate the expected systemic benefits.

III. METHODOLOGY

The current study employs a comparative research design with the aim of examining the extent to which digitalisation and innovation have influenced the transformation of the healthcare system in Romania, particularly in comparison with other European Union (EU) member states. Given the context of accelerated globalisation and the lingering effects of economic downturns, this research focuses on identifying systemic gaps in the uptake of digital health technologies. Emphasis will be placed on digital communication, thus streamlining technical-administrative and user processes.

ISSN No:-2456-2165 https://doi.org/10.38124/ijisrt/25jun1805

The methodological approach is based on the analysis of secondary data sets, prepared from official sources such as Eurostat, OECD, World Bank and AI Index. These data were selected on different time intervals, and may also include the COVID-19 period, a pandemic that accentuated digital pressures and trends in the health sector. National-level sources, such as the Romanian National Institute of Statistics (2023) and reports from the Ministry of Health (Ministerul Sănătății România, 2024), were also consulted to capture local nuances and institutional dynamics. Fundamental variables such as the level of increase in investments in digital health, the use of electronic infrastructure, the degree of digital literacy among medical staff, as well as the number of hospitals desired to be modernized through European funds were monitored.

The comparison between Romania and other states in the European Union was made based on the DESI indicator, used as a synthetic indicator of the digital process. Our research started from the hypothesis that the digital transformation of health in Romania was delayed due to the lack of coherent digitalisation policies, major underfunding, and pour coordination between the two parties. Thus, the study involves not only highlighting current gaps but also outlining strategic directions for public interventions, which support the sustainable and fair digital transition, which is patient-centred, norms aligned with European best practices.

The methodology aimed to achieve economic objectives such as identifying the existing gaps between the assumed strategies and the actual implementation of digitalization in health, as well as the comparative evaluation of Romania's performance in relation to other EU countries in terms of digital infrastructure.

IV. RESULTS AND DISCUSSIONS

This section presents the main results of the comparative analysis regarding the level of digitalisation and innovation in healthcare systems, with Romania serving as a reference point and compared to other relevant countries such as Bulgaria, Germany, France, and Sweden. The purpose of these analyses is to highlight the level of investment in digitalisation, but especially the degree of implementation of emerging technologies, the efficiency of digital processes and communication strategies in times of crisis, such as recessions and the pandemic period. The analysis highlights clear differences in development caused by structural, political or economic factors and provides insights into future directions.

The findings are based on official statistics and performance metrics extracted from Eurostat, the Digital Economy and Society Index (DESI), and national policy reports (European Commission, 2022; Romanian National Institute of Statistics, 2023; Ministerul Sănătății România, 2024). According to the 2022 DESI report, Romania ranks among the lowest-performing EU countries in terms of digital public services, digital skills, and overall eHealth infrastructure, with a composite score of 30.6 out of 100 (European Commission, 2022). The limited availability and uneven distribution of digital platforms, combined with minimal interoperability across healthcare institutions, continue to hinder the delivery of integrated services (Figure 1).

Fig 1 The DESI Index at the Level of Five European Countries: Romania, Bulgaria, Germany, France, and Sweden.
Source Authors' own computation from Eurostat database.

According to Figure 1, Bulgaria is in a similar scenario, with low uptake in eHealth and telemedicine lacking, and spending is close to the minimum level within the EU. Germany and France, the two largest EU economies, are constantly investing in digitalisation and telemedicine, supported by rigorous economic policies such as the DVG Law, initiatives and normative acts. Likewise, in the case of Sweden, this is a model of digital inclusion, where this technological component is promoted at an advanced level, emphasising high skills in digitalisation within the population. Sustainable financing is the main incentive for the development of digitalization at a higher level, compared to other states.

Table 1. Status of Selected Health Infrastructure Projects in Romania 2021-2024 (PNRR)

Crt. No.	Project name	County / Institution	Observations (status)
1	Hospital no. 2 Vaslui – construction of precincts	Vaslui	In danger – delayed auction
2	Extension of Bistrita County Hospital	Bistrita-Nasaud	Uncertain progress
3	New Infectious Diseases Hospital Brașov	Brasov	Contract initially terminated
4	Piatra Neamt County Hospital – new building	Piatra Neamț	Work not started (Q1 2024)
5	"C.C. Iliescu" Institute – new construction	Bucharest	Delays in the design phase

ISSN No:-2456-2165 https://doi.org/10.38124/ijisrt/25jun1805

6	Cardiology-Oncology Hospital Constanta	Constanta	No execution until 2024

Source: Processed by the Author According to PNRR/2022/C12/MS/I2.1/Hospital Infrastructure

Table 1 above illustrates the Romania's initiatives assumed through the National and Resilience Plan (PNRR) to equip certain hospitals and to offer as many facilities as possible to Romanian citizens. The analysis of the health infrastructure projects financed through the PNRR highlights serious structural problems, a significant number of objectives proposed, approved and subsequently financed have not been implemented, or are even in a negative state of refinancing. Despite European funding availability, the implementation of national priorities remains impeded by limited administrative and technical capacity at the local level, as well as the failure of institutionalised coordination (Institute for Public Policy, 2022).

Table 2. Distribution of Income at the Level of European States

Country	**DESI Score 2022**	**eHealth electronic access (HER)**	**Telemedicine level of implementation**	**Health expenditure (% GDP)**
Romania	30,6	~59% of eHealth indicators, but only 0–50% online access	Old telemedicine network (2014), reduced deployment	5.2% (lowest in the EU)
Bulgaria	37,7	~66 % eHealth indicators according to DESI	Limited concrete data	~5.6 % (EU minimum)
Germany	52,9	Increasing level (+17 ppt annually) – eHealth access above the EU average	Robust national programmes (DVG Act, KHZG)	11.5% of GDP
France	53,3	Full access to EHR – 100% indicators	20.7 mil. teleconsultations in 2020, +2 000 %	11.3% of GDP
Sweden	65,2	Decentralized yet robust EHR access (~96% e-government)	Regional integrated telemedicine, digital inclusion programs	10.9% of GDP

Source: Authors' Own Computation from Eurostat Database

Table 2 compares Romania's performance with other selected EU countries (Bulgaria, Germany, France, and Sweden) based on several healthcare digitalisation indicators, including EHR accessibility, telemedicine development, and health expenditure as a percentage of GDP. The Romanian healthcare system's limited financial allocation of just over 5% of GDP, coupled with its outdated digital infrastructure places it at a significant disadvantage compared to higher-performing states (European Observatory on Health Systems and Policies, 2022; World Bank, 2023). The DESI indicators illustrate both the quantitative disparity in investment and access, and the qualitative difference in institutional and regulatory frameworks.

V. DISCUSSION

Romania's underperformance in health digitalisation is rooted in both systemic and structural challenges, despite the country's access to modern information technology and skilled professionals in the private sector. Thus, the public health infrastructure remains outdated, poorly coordinated, and insufficiently financed (Bădescu and Dumitrescu, 2021; Rădoi and Petrescu, 2022).

On one hand, countries like Germany and France have demonstrated that sustained investment and well-defined policy frameworks, such as Germanyțs Digital Healthcare Act (DVG), can accelerate digital transformation even within complex bureaucratic systems (European Commission, 2023). Similarly, Franceţ̦s rapid increase in teleconsultations notably during the pandemic exemplifies how targeted investment and adaptive regulation can create scalable solutions in crisis contexts (Popescu and Ionescu, 2022).

In contrast, Romania's telemedicine system has remained largely underdeveloped since its initial pilot in 2014, with minimal upgrades or scaling. The decentralised model observed in Sweden can provide an alternative model of governance and emphasises regional autonomy, high levels of digital literacy, and citizen trust in e-government tools (European Health Forum, 2021). Moreover, the repeated delays and cancellations of hospital infrastructure projects in spite of PNRR allocations reflect deeper issues in project management and accountability (Ministerul Sănătății România, 2024). Hence, the Romanian experience demonstrates that access to external funding alone is

ISSN No:-2456-2165 https://doi.org/10.38124/ijisrt/25jun1805

insufficient without effective administrative capacity, inter-institutional collaboration, and coherent strategic planning.

Furthermore, it is also important to acknowledge that digital inequalities and low digital literacy among healthcare workers act as further barriers to progress. In this vein, studies reveal that a large proportion of Romanian healthcare personnel report limited confidence in using digital tools, which undermines the implementation of eHealth systems (Rădoi and Petrescu, 2022; Ciobanu and Marinescu, 2023).

Consequently, the data collectively suggest that while Romania has the technological potential to develop a modern, patient-centred healthcare system, it lacks the structural foundation and political commitment to drive reform at scale. Likewise, the country risks further widening its digital gap with Western EU member states if urgent interventions to address these weaknesses are not implemented.

VI. CONCLUSIONS

This study set out to evaluate the extent to which digital communication and innovation contribute to the transformation of Romania's healthcare system in the broader context of globalisation and economic uncertainty. The comparative analysis has revealed that despite access to substantial European funding and a favourable technological environment, Romania continues to face significant obstacles in the effective implementation of healthcare digitalisation.

Among the most critical challenges identified are the absence of a coherent national digital strategy, inadequate institutional coordination, insufficient digital literacy among healthcare professionals, and persistent underinvestment in health infrastructure (Rădoi and Petrescu, 2022; Ciobanu and Marinescu, 2023). Moreover, despite the fact that countries such as Germany, Sweeden, and France have demonstrated success through decentralised models, clear legal frameworks, and robust public funding, Romania remains at the lower end of the EU spectrum in key digitalisation metrics (European Commission, 2022; European Observatory on Health Systems and Policies, 2022).

To address these shortcomings and support a sustainable transformation of the health sector, the following recommendations are proposed in Table 3 below.

Table 3. Strategic Recommendations for the Digital Transformation of the Romanian Healthcare System

Recommendation	Objective	Supporting source
1. Develop a coherent national strategy for digital health	Establish a unified framework integrating legal, financial, and technological priorities	Fragmented governance and lack of policy continuity hinder implementation (Bădescu and Dumitrescu, 2021; Institute for Public Policy, 2022)
2. Invest in digital education and training for healthcare professionals	Improve digital competencies and adaptability of medical staff	Digital literacy remains a critical barrier to adoption (Rădoi and Petrescu, 2022; Ciobanu and Marinescu, 2023)
3. Strengthen inter-institutional coordination mechanisms	Ensure effective planning and execution of digital infrastructure projects	Recurrent project delays and management failures under PNRR highlight poor coordination (ministerul Sănătății România, 2024)
4. Accelerate the implementation of interoperable systems	Expand access to EHRs and telemedicine, especially in underserved areas	Romania lags behind in digital service availability and connectivity (European Commission, 2022; Popescu and Ionescu, 2022)
5. Introduce a performance-based monitoring and evaluation framework	Promote accountability, efficiency and transparency in project implementation	Necessary to measure impact and inform policy adjustments (World Bank, 2023; European Commission, 2023)

Source: Authors' Compilation based on Bădescu and Dumitrescu (2021), Rădoi and Petrescu (2022), Ciobanu and Marinescu (2023), European Commission (2022, 2023), Institute for Public Policy (2022), Ministerul Sănătății România (2024), World Bank (2023), Popescu and Ionescu (2022)

In a future perspective, it is essential for Romania to focus its efforts on developing a more integrated digital governance system, which ensures greater connectivity of administrative procedures, accelerated on investments. Strengthening human capital through continuous education and training focused on acquiring digital and sustainable skills will support initiatives such as adapting medical staff to the new demands of the labour market. In this context, the constant monitoring and evaluation of the implemented policies will facilitate rapid and efficient adjustments, increasing the positive impact of reforms. Thus, if implemented systematically and inclusively, digitalisation has the potential to reduce inequalities in healthcare access, improve quality of care, and enhance national resilience to future crises. Yet, digital transformation is not just a technical process because it requires political commitment, institutional maturity, and long-term financial investment (World Bank, 2023; European Commission, 2023).

Nonetheless, this research is subject to several limitations. First, it relies on secondary data which may not always reflect real-time changes or capture institutional practices. In addition, the use of comparative indicators such as DESI provides a useful overview but may mask important contextual variations between countries. Furthermore, the study does not include primary fieldwork, such as interviews

ISSN No:-2456-2165 https://doi.org/10.38124/ijisrt/25jun1805

with policy-makers or healthcare workers, which could offer deeper insights into operational barriers and behavioural dimensions. Thus, future research should therefore complement quantitative assessments with qualitative approaches, including stakeholders' analysis, case studies of successful local initiatives, and evaluations of patient experiences in digitally enabled healthcare settings.

ACKNOWLEDGMENT

The preferred spelling of the word "acknowledgment" in America is without an "e" after the "g." Avoid the stilted expression "one of us (R. B. G.) thanks ...". Instead, try "R. B. G. thanks...". Put sponsor acknowledgments in the unnumbered footnote on the first page.

REFERENCES

[1]. Bădescu, G., & Dumitrescu, A. (2021). Challenges and opportunities in digital health adoption in Romania. Romanian Journal of Public Health, 12(3), 45-56.
[2]. Ciobanu, V., & Marinescu, F. (2023). Public health communication during crises: A Romanian case study. Journal of Health Communication, 28(3), 210-225.
[3]. Drăgan, M., & Stănciulescu, M. (2020). The impact of AI and big data on healthcare services: Romanian perspective. Journal of Medical Systems, 44(6), 105.
[4]. European Observatory on Health Systems and Policies. (2021). Romania: Health System Review. Copenhagen: WHO Regional Office for Europe.
[5]. European Commission. (2022). Country Report: Romania – Digital Economy and Society Index (DESI).
[6]. European Commission. (2022). Digital Economy and Society Index (DESI) 2022 - Romania. Brussels: European Commission.
[7]. European Commission. (2023). eHealth and Digital Transformation Report. Brussels: EC Publications.
[8]. European Health Forum Gastein. (2021). Digital Health in Eastern Europe: Opportunities and Challenges.
[9]. European Observatory on Health Systems and Policies. (2022). Digital Health in Europe: Trends and Challenges. WHO Regional Office for Europe.
[10]. Institute for Public Policy (2022). Health Innovation and Digitalization in Romania. Bucharest: IPP.
[11]. Kickbusch, I., & Gleicher, D. (2012). Governance for health in the 21st century. WHO Europe.
[12]. Marmot, M. (2021). The Health Gap: The Challenge of an Unequal World. Bloomsbury.
[13]. Ministerul Sănătății România. (2024). Lista obiectivelor aprobate pentru finanțare prin PNRR. [Online] https://www.ms.ro/media/documents/CORECT-Lista-obiective-aprobate-pentru-finantare-prin-PNRR-377.pdf
[14]. National Institute of Statistics Romania. (2023). Demographic and Health Indicators. Bucharest: INS.
[15]. OECD. (2020). Health at a Glance 2020: OECD Indicators. Paris: OECD Publishing.
[16]. Popescu, M., & Ionescu, C. (2022). Telemedicine in Romania: Current status and future perspectives. Health Informatics Journal, 28(4), 101-115.
[17]. Rădoi, L., & Petrescu, D. (2022). Digital literacy in the Romanian healthcare workforce: Barriers and solutions. Health Policy and Technology, 11(2), 158-165.
[18]. Romanian National Institute of Statistics. (2023). Health Statistics Yearbook. București.
[19]. Pârvu, D., & Cristea, R. (2023). Telemedicina în România: Stare și perspective. Journal of Medical Systems, 47(1), 45-60
[20]. Reeves, A., Basu, S., McKee, M., Meissner, C., & Stuckler, D. (2014). Does investment in the health sector promote or inhibit economic growth?. Globalization and Health, 10(1), 1-11
[21]. WHO (2021). Global Strategy on Digital Health 2020-2025. Geneva: World Health Organization.
[22]. World Bank (2023). Digital Transformation and Health Systems. Washington, DC: World Bank Publications.
[23]. World Bank (2023). Digital Health: A Call for Action. Washington, DC.