

DIGITALIZATION AND SUSTAINABILITY IN PUBLIC SECTOR CORPORATE GOVERNANCE

IORGULESCU ANA-MARIA-LORENA

PHD STUDENT, FACULTY OF ECONOMICS AND BUSINESS ADMINISTRATION,
WEST UNIVERSITY OF TIMIȘOARA
ana.iorgulescu00@e-uvv.ro

DRĂGĂNESCU MARIUS AUGUSTIN

PHD STUDENT, FACULTY OF ECONOMICS AND BUSINESS ADMINISTRATION,
WEST UNIVERSITY OF TIMIȘOARA
marius.draganescu@e-uvv.ro

AVRAM ALEXANDRU

CONF. UNIV. DR., FACULTY OF ECONOMICS AND BUSINESS ADMINISTRATION,
WEST UNIVERSITY OF TIMIȘOARA
alexandru.avram@e-uvv.ro

Abstract

This paper examines the impact of digitalization and sustainability on corporate governance in Romania and the European Union. The study paper compares the digital progress of Romania with other European countries, using different specific indexes such as EGDI, SDG Index, ICT Development Index, and DESI indicators. Even if Romania is making progress regarding digital transformation and is involved in many programs that see an increase in digitalization, the results obtained in this paper show a low level compared to other countries from the EU. Romania has problems with cybersecurity, digital infrastructure, and digital inclusiveness. To increase its level of digitalization and sustainability, along with this level of corporate governance, it should be inspired by the good practices that North European countries adopted. So, with the integration of good strategies of corporate governance and measures of digitalization, this country can accelerate its transition to the best countries that have already achieved good results, creating this way a pathway to achieving objectives of sustainable development.

Keywords: corporate governance, public sector, digitalization, sustainability

ClassificationJEL: O16, G3

1. Introduction

The accelerated pace of technological development in recent years has substantially shaped different research domains, particularly in the context of public-sector corporate governance. As governments worldwide endeavor to integrate digital practices into public administration, aligning these efforts with sustainability objectives and enhancing competitiveness has become a must. When it comes to the public sector specifically, it has to be mentioned the fact that public companies or institutions are confronting great pressure regarding the adoption of quick and efficient digitalization. This process enhances operational efficiency and sustainability goals while preserving a competitive advantage in service delivery. As the digital era evolves, it is important to recognize that the governance challenge in the digital era is not just about managing technology but about reshaping structures to embed sustainability within the digital transformation process. This underlines the main role of governance in relation to digitalization, technological transformation, and sustainable development goals. Meanwhile, sustainability has emerged as a priority, with institutions aligning their policies to endorse the SDGs and other environmental aspirations.

Digitalization is a technological domain that can significantly influence the corporate governance of any organization, whether it is public or private. The impact is, of course, contingent upon the extent of implementation. A higher or lower level of digitization can have different effects on an organization. In Eastern European countries, it is seen as a way to overcome all the administrative challenges and all the bureaucracies; it is a way to start aligning with good practices such as the principles of the OECD. All these measures are not only about the integration of technology but also about the creation of strong, stable frameworks of corporate governance that align digital transformation and innovation with sustainable progress.

In recent years, the EU has pointed out the necessity for its member states to actively promote digital resilience and sustainability in public institutions, establishing these as the fundamental elements of modern corporate governance. This directive has encouraged states to implement strategies for more responsible resource management, mitigate environmental harm, and improve community services.

Recent EU-adopted policies, national reforms, and the evolving demands of citizens corresponding to each country's level of digitalization have made digitalization a priority for European countries. In Romania, digitalization serves as a tool for the government to enhance operational efficiency, increase the level of transparency, and mitigate the negative effects of traditional processes. Romania has initiated several digital projects, such as Ghiseul.ro, the website for electronic payments, and the National Health Insurance digital system, to improve government services for citizens. However, Romania still encounters significant challenges related to cybersecurity and digital inclusion, including gaps in digital skills, limited access to technology in rural areas, and ongoing threats to online security. Effective digitization requires not only technological integration but also the establishment of governance frameworks that can guarantee security, confidentiality, and ethical norms while simultaneously supporting sustainability objectives.

This article proposes to study the differences between Romania and other European countries in terms of the relationship between corporate governance and digitalization.

2. Literature overview

2.1 Digitalization in the public sector

Digitalization is revolutionizing public sector governance by improving connectivity, communication, and service provision. Policymakers are increasingly scrutinizing the governance of digital technologies to enhance sustainability. The sustainability concepts of the Brundtland Report, for instance, are being reexamined in the context of digitalization, presenting both opportunities and difficulties for societal and ecological prosperity. (Linkov et. al, 2018).

Mergel et.al. (2019) emphasize that digitization involves transforming analog data into digital format, thereby electronically replicating existing analog systems and processes without altering administrative, organizational, or procedural frameworks. The process of digitalization involves the integration of state-of-the-art technologies, such as e-governance platforms, AI, and data analytics, into public administration to emphasize operations and encourage greater public engagement. Researchers adopt diverse terminology to depict the implementation of ICT in modern administration, such as e-governance, e-government, digital transformation, etc. (Fischer et.al., 2021). The simultaneous development of governance and innovation, especially with the integration of ICTs and online services, has enabled innovations driven by users and created a need for ongoing information policies to improve collaboration among different stakeholders. (Scupola&Zanfei, 2015)

The Interreg Europe policy brief on "Digital transformation of public services" presents several intriguing elements and illustrations of the digitization of public sector. Local governments

find the process of digitization in the public sector to be a stimulating activity, involving interdisciplinary difficulties in meeting the demands of the public. The European Commission has established the Digital Decade, a policy program for 2030, to improve the level of digitalization in the public sector. Another example is the Single Digital Gateway initiative, which aims to consolidate various national portals into a unified access point for citizens and businesses, ensuring the consistent application of EU rules across member states. (Varisco et.al., 2024)

Regarding the level of digitalization in EU member states, there is a highly common index that comprises it. DESI represents, according to the European Commission, an annual report that sees the progress of digital development for the EU member states. Its reports and graphics were stated alone from 2014 to 2022, and in 2023, it was decided to be included in the State of the Digital Decade report, which has a similar scope as it used to have.

In the context of EU, some models of e-government have made notable strides in terms of digital transformation and represent a good point of reference for other countries seeking to develop their digital infrastructure. Estonia continues to be a leading model in e-government, having successfully established an integrated digital infrastructure that allows citizens to access most services online, setting a benchmark for digital innovation (Kitsing, 2008). However, there are countries in the EU that face different problems due to cybersecurity issues, limited digital literacy, etc. (Vintar&Nograšek, 2010).

2.2 Sustainability and Corporate Governance

Corporate governance represents a set of regulations, policies, and processes that run and supervise a corporation, establish its goals and objectives, and monitor its performance. Over time, corporate governance has evolved from a seemingly obscure assemblage of laws, regulations, and contracts to a recognized catalyst for competitive advantage and profitability, serving as a framework for strategic decision-making and the attainment of corporate objectives. (Guterman, 2023)

Corporate governance encompasses the relationships and interactions between a company's management, board of directors, shareholders, and other stakeholders. Corporate governance establishes the guidelines and methods for leading an organization, setting its objectives, and establishing the methods for achieving those objectives and assessing performance. (OCDE, 2023)

Sustainability reflects a long-term outlook that shapes socially responsible enterprises. (Carroll, 1999; Dahlsrud, 2008; European Commission, 2011). Sustainable development was originally defined by the World Commission on Environment and Development in 1987 as 'meeting the needs of the present without jeopardizing the ability of future generations to meet their own needs' (Krechovska&Prochazkova, 2014).

Sustainability in public sector governance entails the incorporation of environmental, social, and economic elements into decision-making processes. The United Nations' adoption of the SDGs has established a framework for nations to synchronize their policies with worldwide sustainability goals. Achieving these objectives necessitates confronting several problems, including governance obstacles, implementation difficulties, and the requirement for improved indicators and evaluation procedures. Digital technologies, including big data and artificial intelligence, present new opportunities to improve sustainability through innovative data sources and analytical capabilities (Castro et. al., 2021).

The European Union has played an essential part in promoting sustainable governance through its laws, including the Interoperable Europe Act, which underlines the necessity for smooth data exchange and collaboration across various regions and industries. The Act enhances interoperability, facilitating the creation of digital services that are efficient and promote sustainable outcomes by minimizing administrative costs and optimizing resource management. (Varisco et.al., 2024)

2.3 The intersection of digitalization and sustainability

In the modern era, where the role of digitalization in tackling global sustainability issues is growing, the topics of Digital Sustainability (DS) and Corporate Digital Responsibility (CDR) have become highly prominent. With the challenge of adapting to the digital landscape while addressing social and environmental demands, companies and institutions must increasingly focus on the intersection of technological advancement and sustainable development. The digital dimension has not only become a crucial component of contemporary business strategies but also serves as a driving force behind global initiatives. For instance, the SDGs outline an ambitious roadmap to tackle global challenges by 2030, highlighting the significance of ICTs in reaching these goals. (Covucci et al., 2024)

The integration of digitalization and sustainability presents both unique opportunities and challenges for public sector governance. Utilizing digital technologies can improve transparency, boost accountability, and increase efficiency, thereby helping to advance sustainable development objectives. (Seele, P., & Lock, I., 2017). A thorough literature assessment underscores the necessity for a framework to categorize the effects of digitalization on sustainability. The authors argue that while digital technologies can support sustainable practices like resource efficiency and improved data sharing, they also pose significant risks, particularly in terms of environmental degradation. (Sacco et al., 2021)

Ellalee et al.'s research suggests that e-government projects may facilitate sustainable development by enhancing transparency, accountability, and resource management. Their analysis indicates that efficient e-government frameworks enhance service delivery and foster inclusive growth by tackling social and environmental challenges in conjunction with economic development. (Ellalee et al., 2023)

So, the intersection of digitization and sustainability in corporate governance is a vital subject that necessitates additional investigation. By comprehending the benefits and obstacles linked to this convergence, companies can create efficient governance models that foster both digital innovation and sustainable development.

3. Research methodology

This study seeks to provide a comparative examination of Romania and other European Union nations, utilizing data from many sources, such as Eurostat, the Sustainable Development Report, and the World Data Bank. The analysis will focus on key indicators such as the EGDI, SDGI, ICT Development Index, and DESI.

4. Findings

4.1. The digitalization and sustainability in Romania's public sector

The convergence of digitalization and sustainability in public sector governance in Romania is increasingly acknowledged as a vital area for advancement. The COVID-19 crisis has expedited the integration of digital technologies within public administration, revealing both advantages and obstacles. Aristovnik et al. observe that although Romania has progressed in digitalization, it remains behind other EU nations in establishing comprehensive digital governance frameworks that are consistent with sustainability objectives (Aristovnik et al., 2021).

The Romanian government has launched multiple initiatives to incorporate digital solutions into public administration, which is crucial for attaining the SDGs. Firoiu et al. assert that the effective execution of the 2030 Agenda in Romania necessitates the proactive involvement of civil society and the adoption of optimal e-government practices (Firoiu et al., 2019). This is especially pertinent as Romania aims to enhance its e-services delivery, which is vital for promoting sustainable economic growth and increasing citizen involvement.

The link between digitalization and sustainability is particularly evident in initiatives aimed at reducing corruption and improving tax compliance through the implementation of digital public services. As highlighted by Fanea-Ivanovici et al. (2019), increasing transparency in governmental processes via digital platforms is a critical component in fostering sustainable progress in Romania. The adoption of digital technologies to streamline administrative procedures and minimize bureaucratic inefficiencies can enable the public sector to allocate resources more efficiently towards sustainability-focused initiatives.

Romania faces challenges in terms of digitalization, but it is also trying to take some initiatives. Authority for Digitization of Romania (ADR) is an institution created in 2020 with the purpose of digitalizing Romanian society.

4.2. The digitalization and sustainability within European Union

Within the broader framework of the European Union, digitalization is essential for promoting sustainability in public sector governance. The EU has formulated an extensive digital strategy designed to bolster the digital economy and foster sustainable practices among member states. This strategy underscores the significance of digital technology in realizing the SDGs, which considers the evolution of corporate governance in the EU and its ramifications for sustainability (Mihail & Dumitrescu, 2021).

The European Union's focus on digitalization is highlighted by initiatives like the **Digital Single Market Strategy**, aimed at boosting public sector efficiency and fostering sustainable economic growth across member states. This aligns with the findings of Deselnicu and Alexandrescu (2020), whose analysis of EU sustainability indicators shows significant progress in digital governance among member countries.

The incorporation of digital tools in public administration has improved citizen engagement and participation in governance. Burlacu et al. (2022) highlight that digital initiatives in the EU have enhanced transparency and accountability, key factors for promoting sustainable development. This aligns with the EU's focus on participatory governance, encouraging citizen contribution to sustainability-related decision-making.

4.3. The E-Government Development Index (EGDI)

EGDI is a metric of digital government progress, determined by averaging three distinct component indices: OSI, TII, HCI.

Table 1. EGDI– 2024

Survey Year	Country Name	E-Government Rank	E-Government Index
2024	Denmark	1	0.98474
2024	Estonia	2	0.97274
2024	Iceland	5	0.96707
2024	United Kingdom of Great Britain and Northern Ireland	7	0.95773
2024	Finland	9	0.95746
2024	Netherlands	10	0.95384
2024	Germany	12	0.93821
2024	Sweden	14	0.93262
2024	Norway	15	0.93153
2024	Spain	17	0.9206
2024	Ireland	20	0.91377
2024	Lithuania	21	0.91104
2024	Austria	22	0.90653

Annals of the „Constantin Brâncuși” University of Târgu-Jiu, Economy Series, Issue 6/2024, Volume I			
2024	Switzerland	26	0.90035
2024	Malta	28	0.8886
2024	Latvia	29	0.88522
2024	Ukraine	30	0.88407
2024	Croatia	32	0.88175
2024	Slovenia	33	0.87589
2024	France	34	0.87442
2024	Greece	36	0.86737
2024	Poland	37	0.8648
2024	Serbia	39	0.86184
2024	Russian Federation	43	0.85325
2024	Liechtenstein	44	0.85284
2024	Luxembourg	45	0.84658
2024	Portugal	49	0.84153
2024	Italy	51	0.83557
2024	Czech Republic	54	0.82394
2024	Bulgaria	55	0.81453
2024	Belgium	56	0.81212
2024	Hungary	59	0.8043
2024	Slovakia	60	0.80214
2024	Albania	62	0.8
2024	Republic of Moldova	70	0.77195
2024	Romania	72	0.76364
2024	Belarus	77	0.74449
2024	Montenegro	81	0.72111
2024	Monaco	82	0.71747
2024	North Macedonia	84	0.70704
2024	Andorra	88	0.68931
2024	San Marino	102	0.65509
2024	Bosnia and Herzegovina	107	0.63293

Source: data collected from UN E-Government Knowledgebase

Table 1 presents the European countries and their ranking according to the E-Government Index—2024. Denmark and Estonia are the leading countries, with highly appropriate values of 0.98474 for Denmark and 0.97274 for Estonia. Romania occupies the 72nd position in this ranking, with an EGDI value of 0.76364. The explanation for the leading countries of this index is their advanced implementation and integration of digital technologies in governance.

Correlating the information from this table with the information provided by the E-Government Survey 2024: Europe as a region is the global leader in digital transformation, with its member states having very high values of the analyzed index. Undoubtedly, varying degrees of digitalization exist within Europe. The leading countries, as previously discussed, prioritize digitalization. Denmark, for example, is focused on developing digital portals for citizens and providing health services through online platforms. Its National Digital Strategy (2022-2025) promotes cross-sector cooperation, while the Cyber and Information Security Strategy (2022-2024) aims to enhance cybersecurity. Denmark also integrates sustainability by exploring AI, robotics, and 5G to improve services and support green initiatives, underscoring its commitment to a sustainable digital future. In contrast, Romania faces significant challenges related to cybersecurity and the integration of digital transformation into its governance.

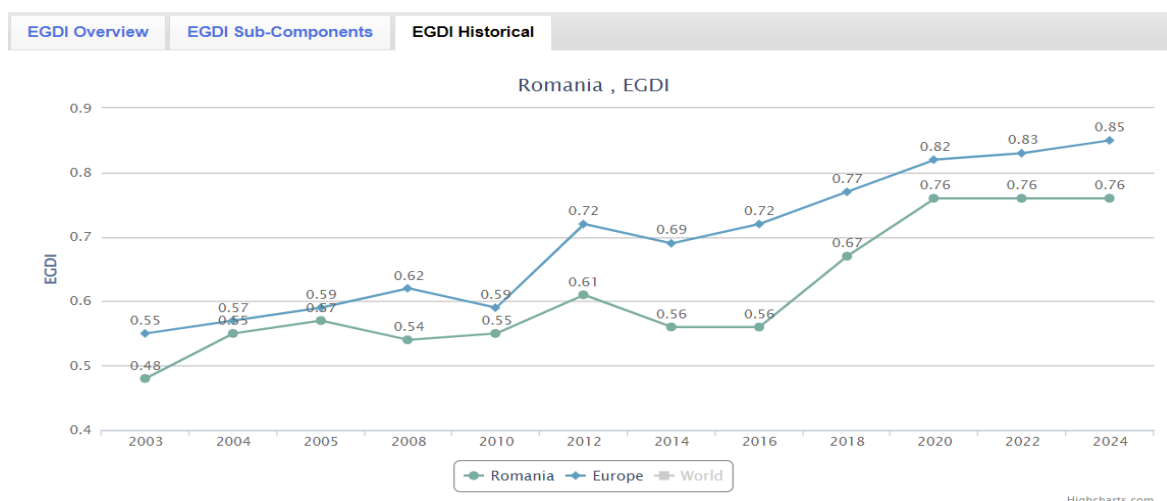


Figure 1. The evolution of EGDI: Romania vs European Union (2003-2024)

Source: UN E-Government Knowledgebase

Figure 1 illustrates the evolution of the EGDI from 2003 to 2024 in both Romania and the European Union. Observing the line trend of Romania and the European Union over time reveals a consistent fluctuation pattern. The years 2020-2024 recorded the highest values of the EGDI for Romania, specifically at 0.76. The health global crisis in the previous year prompted Romania to implement and adopt various strategies to enhance its level of digitalization, leading to a significant increase in the EGDI value from 2018 to 2020.

4.4 The ICT Development Index (IDI)

IDI is a combined index that is used to monitor and compare developments regarding information and communication technology between countries.

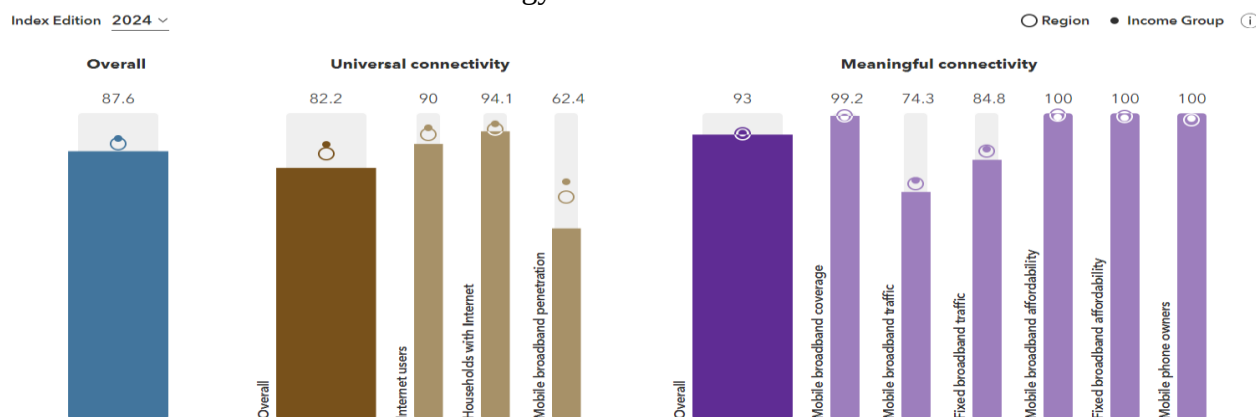


Figure 2. ICT Development Index- Romania

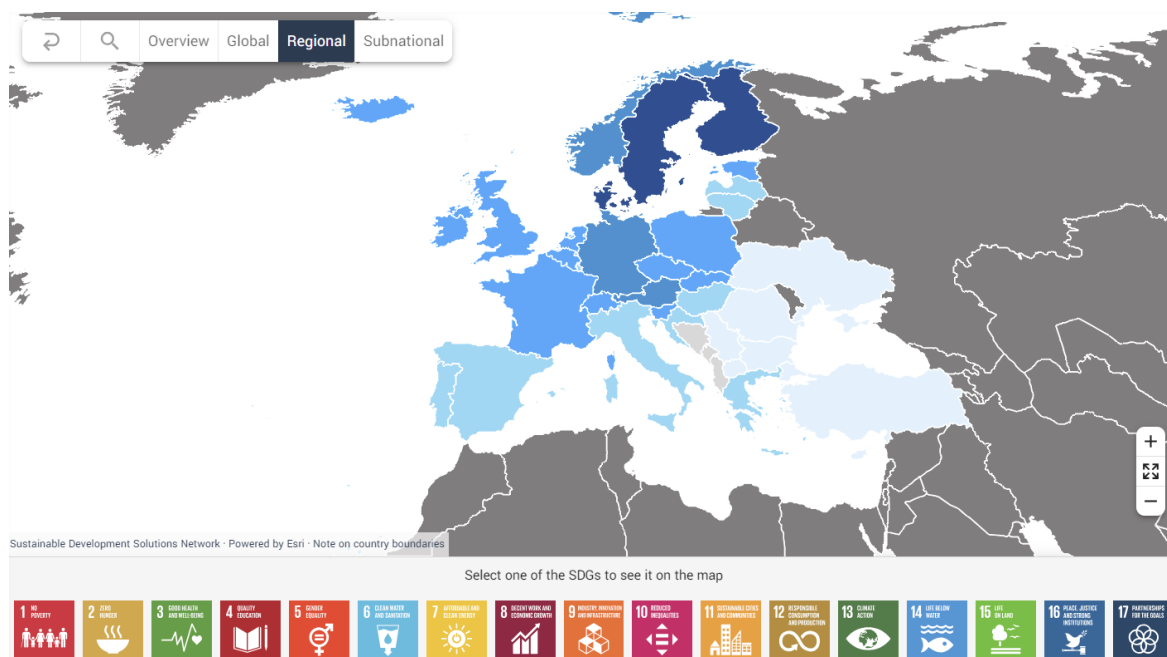
Source: ITU Data Hub

Figure 2 presents the IDI of Romania and European countries. The overall value of this index for Romania is 87.6 compared to 90.1 for Europe, which can be considered a high value.

The overall value of universal connectivity is relatively high. The European countries register a value of 86.8. Evaluating the components of this index, we can observe that Romanian citizens, with a score of over 90, are Internet users and have households with Internet access. In terms of meaningful connectivity, the overall score is 93, with the top components of this index being mobile broadband coverage, mobile broadband affordability, fixed broadband affordability, and mobile phone ownership.

4.5 The SDG Index

The SDG Index evaluates countries based on their progress across the 17 Sustainable Development Goals, while the SDG Dashboard uses a traffic-light system to illustrate each country's status on these goals. This tool helps pinpoint priority areas for action, highlighting that all countries encounter significant challenges in meeting the SDGs.



Overall Score

Click on the map to see detailed performance.

The overall score measures the total progress towards achieving all 17 SDGs. The score can be interpreted as a percentage of SDG achievement. A score of 100 indicates that all SDGs have been achieved.

- > 80
- 75 - 80
- 70 - 75
- 65 - 70
- < 65
- Information unavailable

Figure 3. SDG Index – EU

Source: Sustainable Development Report

Figure 3 shows the current situation of the SDG Index in the European Union. The legend reveals that North European countries (Sweden, Finland, and Denmark) have the highest values of the SDG index, scoring over 80, followed by Germany and Austria (around 75-80). Romania's score is among the lowest, 62.61, which means it has many more components of the SDG index to improve.

4.6.DESI Indicators

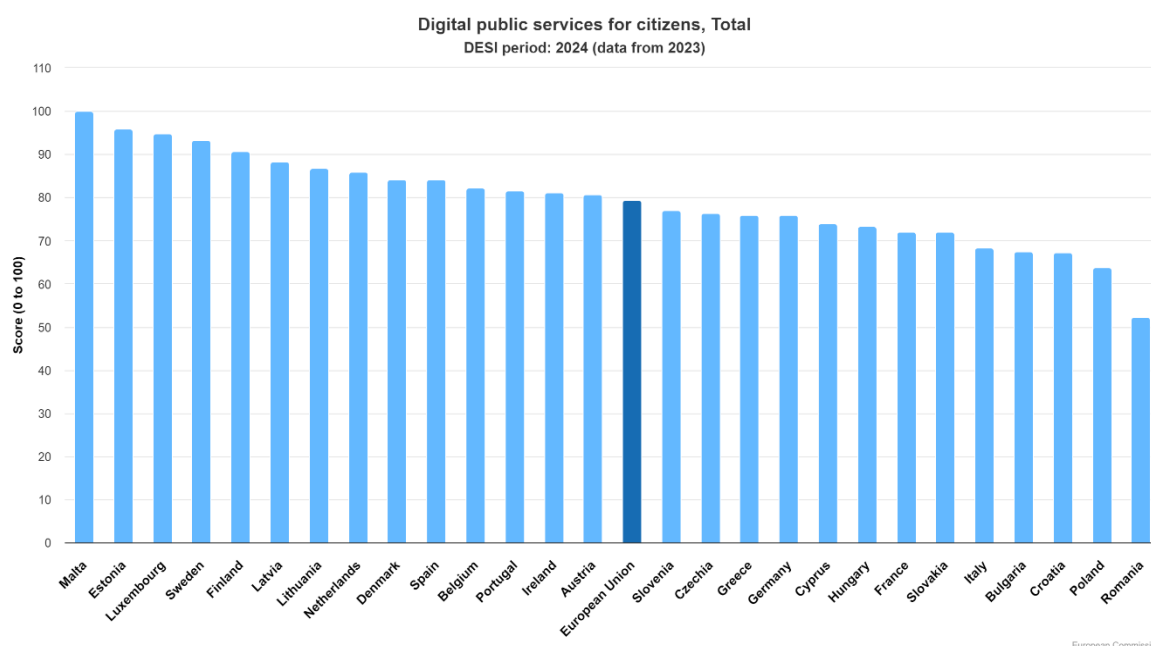


Figure 4. Digital public services for citizens, Total
Source: eGovernment Benchmark Reports (2012-2024)

Figure 4 illustrates the digital public services available to citizens across Europe. The online provision of public services gauges the degree to which citizens can fully complete key administrative tasks for major life events online. It evaluates seven life events: family, career, studying, health, transport, moving, and starting a small claims procedure. The indicator is an aggregate score that is determined by several factors, including:

1. There are numerous online services accessible to users nationwide.
2. National users can access online information.
3. Digital portals are utilized to deliver services.
4. Cross-border users can access a multitude of online services.
5. Cross-border users can access online information.

Malta has the highest index score (100), while Romania, which ranks last in the ranking, has the lowest score (52.18).

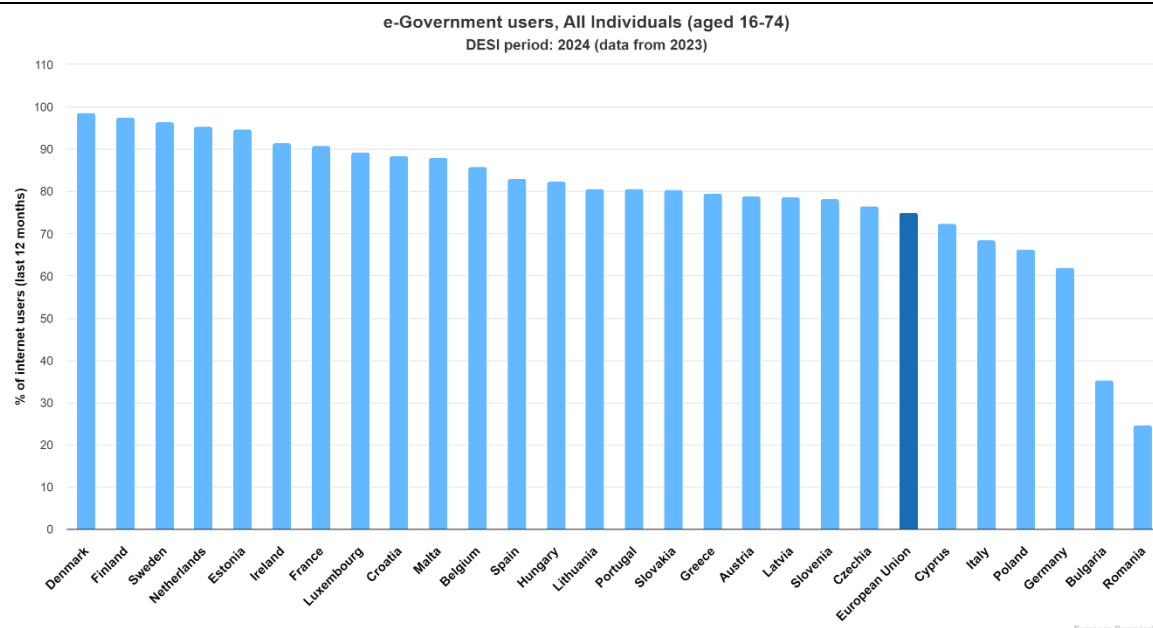


Figure 5. e-Government users, all individuals (aged 16-74)

Source: Eurostat, table ISOC_CIEGI_AC: E-government activities of individuals via websites

Figure 5 explains another DESI index. This metric measures the percentage of individuals who have collaborated with public authorities online through websites or mobile apps within the past 12 months.

In this case, Denmark and Finland are the leading countries, serving as role models for other European countries. Romania stands at the opposite pole, with a percentage of 24.64% of its citizens interacting with authorities through online platforms.

5. Conclusions

The analysis of digitalization and sustainability in the corporate governance public sector reveals some interesting results. After the analysis of all the indicators from above, such as the EGDI, SDG Index, DESI indicators, and ICT Development Index, it is clear that there is a significant disparity regarding the implementation and adoption of digital transformation and sustainability within the corporate governance frameworks.

Leading countries like Denmark and Estonia have successfully integrated digital transformation into their governance structures and constitute role models for other countries. Through their actions regarding the digitalization problem, they succeeded in setting trends and benchmarks for increased operational efficiency and sustainable practices. At the opposite pole, there is Romania, whose progress, although admirable from the pandemic of COVID-19, from 2020 onwards. This country faces lots of difficulties in terms of limited digital literacy, cybersecurity risks, and inadequate frameworks for transparency.

This study underlines the necessity of establishing strong governance frameworks that can encourage digital resilience and support sustainability goals. The alignment of the digital transformation concept with the United Nations Development Goals (SDGs) represents an essential aspect to improve transparency, efficiency, and the engagement of inhabitants in public sector governance. Further research should focus on the identification of some good strategies countries can implement or adopt to bridge the digitalization gap and enhance sustainable governance practices.

6. Bibliography

- [1] Aristovnik, A., Kovač, P., Murko, E., Ravšelj, D., Umek, L., Bohatá, M., ... & Tomažević, N. (2021). The use of ict by local general administrative authorities during covid-19 for a sustainable future: comparing five european countries. *Sustainability*, 13(21), 11765. <https://doi.org/10.3390/su132111765>
- [2] Burlacu, S., Pârgaru, I., Iacob, O. C., & Gombos, S. P. (2022). Digital public administration and the perspectives of sustainable development in romania. *European Journal of Sustainable Development*, 11(4), 230. <https://doi.org/10.14207/ejsd.2022.v11n4p230>
- [3] Carroll, A.B. (1999) 'Corporate social responsibility: Evolution of a definitional construct', *Business and Society*, 38(3), 268–295
- [4] Castro, G., Fernández, M., & Colsa, Á. (2021). Unleashing the convergence amid digitalization and sustainability towards pursuing the Sustainable Development Goals (SDGs): A holistic review. *Journal of Cleaner Production*. <https://doi.org/10.1016/J.JCLEPRO.2020.122204>.
- [5] Covucii C., Confetto M.G., Kljucnikov A., Panait M., 2024, Unrevealing the nexus between digital sustainability and corporate digital responsibility: A dual-track systematic literature review towards a framework of corporate digital sustainability, <https://doi.org/10.1016/j.techsoc.2024.102743>
- [6] Dahlsrud, A. (2008). How corporate social responsibility is defined: An analysis of 37 definitions. *Corporate Social Responsibility and Environmental Management*, 15(1), 1–13
- [7] Deselnicu, D. C. and Alexandrescu, B. A. (2020). Comparative analysis of sustainable development indicators at e.u. and romanian level. *Proceedings of the 8th International Conference on Advanced Materials and Systems*. <https://doi.org/10.24264/icams-2020.iv.5>
- [8] Ellalee, Haider and Al-Qaysi, Israa I, (2023), Digital Government a Pathway to Sustainable Development, <https://mpr.ub.uni-muenchen.de/118178/>
- [9] European Commission (2011). Communication From The Commission To The European Parliament, The Council, The European Economic And Social Committee And The Committee Of The Regions - A renewed EU strategy 2011-14 for Corporate Social Responsibility', COM (2011) 681 final
- [10] Fanea-Ivanovici, M., Mușetescu, R., Pană, M. C., & Voicu, C. (2019). Fighting corruption and enhancing tax compliance through digital public services: a way to increase sustainable development in romania..<https://doi.org/10.20944/preprints201902.0050.v1>
- [11] Firoiu, D., Ionescu, G. H., Băndoi, A., Florea, N. M., & Jianu, E. (2019). Achieving sustainable development goals (sdg): implementation of the 2030 agenda in Romania. *Sustainability*, 11(7), 2156. <https://doi.org/10.3390/su11072156>
- [12] Fischer, Caroline & Heuberger, Moritz & Heine, Moreen. (2021). The impact of digitalization in the public sector: a systematic literature review. 14. 1-21. 10.3224/dms.v14i1.13.
- [13]Guterman A.S., 2023, Sustainability and Corporate Governance, <https://www.researchgate.net/publication/371902191>
- [14] Kitsing, M. (2008). Explaining the e-government success in Estonia. *Digital Government Research*.
- [15] Krechovská M., Prochazkova P.T, 2014, Sustainability and its Integration into Corporate Governance Focusing on Corporate Performance Management and Reporting, [10.1016/j.proeng.2014.03.103](https://doi.org/10.1016/j.proeng.2014.03.103)
- [16] Linkov, I., Trump, B., Poinssatte-Jones, K., & Florin, M. (2018). Governance Strategies for a Sustainable Digital World. *Sustainability*, 10, 440. <https://doi.org/10.3390/SU10020440>.
- [17] Mergel, Ines, Edelmann, Noella & Haug, Nathalie (2019). Defining digital transformation: Results from expert interviews. *Government Information Quarterly*, 36 (4), 1-12. DOI:10.1016/j.giq.2019.06.002

- [18] Mihail, B. A. and Dumitrescu, D. (2021). Corporate governance from a cross-country perspective and a comparison with Romania. *Journal of Risk and Financial Management*, 14(12), 600. <https://doi.org/10.3390/jrfm14120600>
- [19] OECD (2023), *G20/OECD Principles of Corporate Governance 2023*, OECD Publishing, Paris, <https://doi.org/10.1787/ed750b30-en>.
- [20] Sacco P., Gargano E. R., Cornella A, Sep 2021, Sustainable Digitalization: A Systematic Literature Review to Identify How to Make Digitalization More Sustainable. TRIZ Future conference, Bolzano, Italy. pp.14-29, [10.1007/978-3-030-86614-3_2](https://doi.org/10.1007/978-3-030-86614-3_2). [ff10.1007/978-3-030-86614-3_2](https://doi.org/10.1007/978-3-030-86614-3_2). [ffhal-04067819](https://doi.org/10.1007/978-3-030-86614-3_2)
- [21] Seele, P., & Lock, I. (2017). The game-changing potential of digitalization for sustainability: possibilities, perils, and pathways. *Sustainability Science*, 12, 183-185. <https://doi.org/10.1007/s11625-017-0426-4>.
- [22] Scupola, A., & Zanfei, A. (2015). Governance and innovation in public sector services: The case of the digital library. *Gov. Inf. Q.*, 33, 237-249. <https://doi.org/10.1016/j.giq.2016.04.005>
- [23] Laura Varisco, Marc Pattinson, Andrea Halmos, Digital transformation of public services, 2024
- [24] Vintar, M., & Nograšek, J. (2010). How much can we trust different e-government surveys? The case of Slovenia. *Information Polity*, 199–213, DOI 10.3233/IP-2010-0207.
- [25] World Commission on Environment and Development, *From One Earth to One World: An Overview*. Oxford University Press, Oxford, 1987.
- [26] <https://digital-strategy.ec.europa.eu/en/policies/desi>
- [27] <https://www.eumonitor.eu/9353000/1/j9vvik7m1c3gyxp/vlv0g0nbwlmc?ctx=vhsjeu461wp8>
- [28] https://commission.europa.eu/index_en
- [29] <https://www.oecd.org/>
- [30] <https://www.adr.gov.ro/>
- [31] <https://digital-strategy.ec.europa.eu/en>
- [32] <https://digital-decade-desi.digital-strategy.ec.europa.eu/>
- [33] <https://eu-dashboards.sdgindex.org/>
- [34] <https://datahub.itu.int/>
- [35] <https://publicadministration.un.org/egovkb/en-us/>