

Editorial

Emerging Technologies and Innovation for Digital Economy and Transformation

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Abstract: This editorial is organized into three parts, providing a panoramic understanding of the multifaceted dimensions of digital economy and transformation. It opens with an introduction discussing the dynamic changes within the digital economy, highlighting the pivotal role of technologies and innovation as driving forces for the digital economy and transformation. It then offers insights into the selected papers and highlights the main themes explored. The third section underscores the significance of digital technologies and innovation, emphasizing their emergence as a burgeoning multidisciplinary research field. The editorial concludes by emphasizing the importance of recognizing diversity in digital transformation, and expressing gratitude to the primary contributors who shaped this special issue.

Keywords: Digital transformation, Internet of Things, Data analytics, Social media marketing, Digital finance

The Evolving Landscape of the Digital Economy

In recent years, the digital landscape has witnessed unprecedented growth: as of 2024, recent data reveals the dynamic evolution of the global digital economy, affirming its pivotal role in

shaping the trajectory of societies and economies ([Edge Middle East, 2023](#)). The Secretary-General of the Digital Cooperation Organization (DCO) anticipates substantial growth in the digital economy, with a projected 30% contribution to global GDP by 2030, indicating a rapid acceleration in its influence on economic activities ([Edge Middle East, 2023](#)).

Following the COVID-19 pandemic, digital adoption continues to surge, with businesses and consumers increasingly relying on digital platforms. According to the International Data Corporation (IDC), worldwide spending on digital transformation is expected to reach nearly \$3.9 trillion in 2027 ([IDC Media Center, 2023](#)). Moreover, a report by Statista ([2024](#)) shows the global sales in retail e-commerce totalled an estimated 5.8 trillion US dollars in 2023, highlighting the significance of digital platforms in facilitating global trade and transforming traditional business models ([Statista, 2024](#)). Additionally, the International Telecommunication Union (ITU) reveals over 5.4 billion global Internet users in 2023 ([ITU-D Statistics, 2024](#)), demonstrating the influence of digital connectivity in daily lives worldwide.

Indeed, the convergence of emerging technologies like artificial intelligence (AI), blockchain, the Internet of Things (IoT), and quantum computing has introduced new possibilities, reshaping industries, and societies.

Presently, AI is one of the top technological innovations, with expected global spending of \$554.3 billion by 2024 ([IDC Media Center, 2023](#)). AI's transformative potential is evident across domains, from enhancing business processes to revolutionizing healthcare and education. Furthermore, recent AI developments have enabled a new era for scientific research. AI can process vast datasets of scientific articles, extracting knowledge through advanced tools like topic modelling, bibliometric analysis, and network visualization ([Chebil et al., 2021, 2024](#); [Koubaa El Euch & Ben Said, 2024](#)). This paradigm shift enables more efficient and effective scientific inquiry, pioneering a new age of high-performance research.

Likewise, blockchain continues to gain prominence across sectors. The global blockchain market is projected to surpass \$39 billion by 2025, driven by supply chain, finance, and decentralized application uses ([Statista, 2023b](#)). Blockchain's decentralized and secure nature can revolutionize traditional business models and enable transparent, tamper-proof systems.

Furthermore, IoT is a major digital transformation catalyst. Projections show a substantial increase in global IoT connected devices, nearly doubling from 15.1 billion in 2020 to over 29 billion by 2030 ([Statista, 2023a](#)). IoT is transforming various sectors, like healthcare, manufacturing, and smart city development, enabling unparalleled insights and operational efficiencies.

In This Issue

Following the 8th International Conference on Digital Economy (ICDEc), held in Braga, Portugal, in 2023, a call for papers was extended to all conference attendees and members of the ICDEc community to contribute to a special issue on “Emerging Technologies and Innovation for Digital Economy and Transformation” in the *Journal of Telecommunications and the Digital Economy*. The ICDEc conference has served as a platform for the exchange of ideas and insights, evolving into a dynamic forum where researchers convene to discuss and explore the transformative potential of digital advances and digital transformation. Notably, the proceedings of the eight ICDEc conferences have been documented in the LNBIP Springer books titled *Digital Economy: Emerging Technologies and Business Innovation* ([Bach Tobji et al., 2018, 2020, 2022](#); [Jallouli et al., 2016, 2017, 2019, 2021, 2023](#)). Building upon the success of its predecessors, the ninth ICDEc is scheduled to take place at the Faculty of Juridical, Economic and Social Sciences (FSJES – Souissi), Mohammed V University, Rabat, Morocco, 9-11 May 2024.

This special issue represents the second collaborative project between the *Journal* and the conference series, highlighting a dedication to fostering a vibrant and interconnected community of researchers, practitioners, and enthusiasts in the domain of emerging technologies and innovation for the digital economy and transformation. The inaugural special issue, titled “Digital Technologies and Innovation” was published in June 2022, with its editorial outlining the progression of collaboration between the *Journal* and ICDEc ([Jallouli et al., 2022](#)).

The call for papers challenged researchers from the fields of Computer Science, Economics, and Management to submit papers addressing topics related to the digital economy and transformation, emerging technologies, and innovation. The response was overwhelming, with a plethora of insightful papers meeting at the intersection of Information Systems, Management Innovation, and the Digital Economy. The *Journal* received 65 submissions, and the evaluation process led to the acceptance of 23 papers, yielding a selection rate of 35%.

Entitled “Emerging Technologies and Innovation for Digital Economy and Transformation”, this special issue offers a selection of papers that explore the profound impact of digital transformation across diverse contexts and technologies. It provides a panoramic understanding of the wide-ranging implications of emerging technologies and covers a variety of topics, ranging from the examination of digital business models to the intricate landscape of technology adoption. It also addresses challenges in IoT technologies, blockchain technology, AI, and data analytics.

The selected papers for this special issue have been organized into six sections based on their thematic relevance. This classification aims to assist the reader in identifying papers according to their areas of interest: (1) Digital Transformation: A Global Imperative; (2) Technology Acceptance and Adoption; (3) IoT Technologies; (4) Natural Language Processing (NLP) for Marketing Research; (5) AI for Marketing Strategies and Customer Social Media Data Analytics; and (6) Digital Finance. Each section is designed to provide variety and depth within the respective subjects, offering readers an exploration of the multifaceted dimensions of digital transformation and innovation.

Digital Transformation: A Global Imperative

The first section featured in this special issue investigates the intricacies and implications of digital transformation. The contributions explore various facets, from examining success factors for business models in value networks, to investigating barriers to digital transformation across countries. Each paper provides a distinct perspective to help comprehend the evolving dynamics of the digital economy.

The papers in the Digital Transformation theme discuss the critical factors influencing success in digitalized business models and value networks. Herrmann *et al.* (2024) and Mehmood & Hussain (2024) present systematic reviews and cross-country evidence, contributing to our understanding of value co-creation and the role of Information and Communication Technologies (ICT) in societal well-being.

Additionally, Packmohr *et al.* (2024) examine socio-demographic factors influencing barriers to digital transformation and propose countermeasures. Budiarto & Nordin (2024) offer insights into strategies for overcoming obstacles in developing countries through a literature review on technology transformation and innovation.

Furthermore, Promsa-ad & Kittiphattanabawon (2024) and Maltese (2024) contribute articles focusing on practical applications of digital transformation: Promsa-ad & Kittiphattanabawon (2024) utilize clustering techniques to identify business activity patterns related to digital transformation in transport and logistics sectors. Maltese (2024) explores challenges and opportunities of digital transformation in universities, emphasizing effective data governance and trust-building strategies.

Insights from Mahboub & Sadok (2024) and Rodríguez Ruiz *et al.* (2024) shed light on the barriers and drivers of digital transformation in different economic contexts, namely Morocco and Mexico, emphasizing the global relevance of these discussions.

Additionally, Edquist (2024) provides a unique perspective by examining the importance of mobile broadband latency for total factor productivity growth, providing a nuanced view of the impact of technology on economic development.

Technology Acceptance and Adoption

The Technology Adoption theme explores the nuances of adopting emerging technologies, focusing on factors influencing acceptance and adoption. Ennajeh & Najjar (2024) investigate blockchain adoption through the Unified Theory of Acceptance and Use of Technology (UTAUT) model, while Saklani & Kala (2024) delve into the perception of Generation Z towards chatbots, highlighting the importance of cultural context in technology acceptance.

Khemiri & Jallouli (2024) and Rahayu *et al.* (2024) contribute to our understanding of technology adoption and acceptance in financial services: Khemiri & Jallouli (2024) investigate the impact of technology-based personalization on the adoption of mobile banking services through an experimental study, shedding light on the effectiveness of personalized approaches in driving adoption. Meanwhile, Rahayu *et al.* (2024) explore determinant factors influencing the acceptance of Islamic financial technology in Indonesia, providing valuable insights into the unique socio-economic context of technology adoption in Islamic finance.

The contribution by Jabado & Jallouli (2024) provides an empirical study on the impact of Data Analytics Capabilities (DAC) on the effectiveness of Customer Relationship Management (CRM) systems and business profitability in the retail industry, underlining the relevance of technology adoption in enhancing business operations.

IoT Technologies

In the realm of IoT Technologies, Bouijij & Berqia (2024) harness the power of a Deep Neural Network to accurately classify and proactively prevent phishing websites by analysing their URLs. The method is demonstrated through a smart-home use case, aiming to reinforce IoT security. Additionally, Herrera Rubio & Prieto (2024) implement a cross-platform development board for embedded IoT systems.

Natural Language Processing for Marketing Research

The NLP for Marketing Research theme features studies that leverage Natural Language Processing to detect brand hate speech (Mednini *et al.*, 2024) and cluster social media data for marketing strategies using topic modelling techniques (Chebil *et al.*, 2024). These papers highlight the evolving role of language processing in understanding and shaping marketing strategies in the digital era.

AI for Marketing Strategies and Customer Social Media Data Analytics

Koubaa El Euch & Ben Said (2024) and Benslama & Jallouli (2024) contribute to the exploration of Marketing, AI, and Customer Social Media Data Analytics, presenting a state-of-the-art overview and an empirical study on the impact of social media data analytics on marketing strategy. These papers emphasize the importance of AI in shaping contemporary marketing practices.

Digital Finance

The Digital Finance theme features diverse perspectives, including a critical examination of Bitcoin's environmental impact (Gopane, 2024) and a novel auto-convolutional neural network (AutoCNN) model for stock market index prediction (Zouaghia *et al.*, 2024).

Furthermore, Ben Abdallah *et al.* (2024) contribute insights into the development of digital financial inclusion in China's regional context, adding a unique perspective to the global discourse on digital finance.

Overall, this special issue marks a significant step in advancing our understanding of the complex interplay between emerging technologies, innovation, and the digital transformation of economies.

Global Perspectives on Digital Transformation: Bridging Divides through Knowledge

This special issue goes beyond geographical boundaries and explores the universal themes shaping our digital future. The insights presented within these pages serve as a solid foundation for understanding the intricate dynamics of the global digital economy. The primary goal is to shed light on the multifaceted impacts of digital technologies on both the global economy and societal transformation, highlighting the necessity for collaborative efforts to navigate its complexities.

Additionally, readers are offered a unique blend of perspectives from developed and developing/emerging economies alike. While countries such as Germany, Italy, and Sweden provide insights from their advanced digital landscapes, contributions from nations such as Indonesia, India, Tunisia, and Morocco offer invaluable perspectives on the challenges encountered at different stages of digital evolution. The diverse challenges faced by countries at various stages of development enrich our understanding, while highlighting the global impact and interconnectedness of the digital economy. By fostering international dialogue, this special issue aims to contribute to a comprehensive and inclusive approach to global

transformation. More importantly, contributions to this special issue provide a significant step forward in our understanding of the interplay between emerging technologies, innovation, and the digital transformation of economies.

Lastly, we extend our sincere appreciation to the authors, reviewers, and editorial team for their dedicated contributions to this endeavour. More specifically, the successful completion of this issue is greatly credited to the collaborative efforts and unwavering support provided by Professor Leith Campbell, the Managing Editor of this *Journal*. The guest editors, representing the broader ICDEc community, extend heartfelt appreciation for his invaluable guidance throughout the entire production process. Indeed, Professor Campbell's insights and expertise significantly contributed to the meticulous evaluation and enhancement of the content featured in this issue. The collaborative synergy with the guest editors confirms a shared commitment to upholding high standards of scholarly excellence within this special edition. Looking ahead, plans for additional joint projects and special issues in partnership between the *Journal* and ICDEc are anticipated.

In conclusion, the complex and dynamic landscape of emerging technologies reminds us of the necessity for a global collaboration, dialogue, and ethical considerations. This special issue serves as a platform for exchanging ideas and the cultivation of knowledge, guiding us toward a future where digital innovation is leveraged for the benefit of societies. We truly hope that this compilation will inspire further exploration, innovation, and dialogue on the transformative impact of emerging technologies in the digital age.

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