



Fusion Unleashed: A Comprehensive Analysis of Egypt's Digital Potential, the Growing Digital Economy, and its Socio-Economic Implications

Muhammad Eid BALBAA

Tashkent State University of Economics

Email: m.balbaa@tsue.uz

Abstract

This research paper explores the fusion-driven dynamics of Egypt's digital economy and its socio-economic implications, with a specific focus on the growth of e-commerce, FinTech, startups, and digital skills development. It explores the transformative effects of the digital economy on entrepreneurship, job creation, and inclusive participation in Egypt's evolving digital landscape. The study examines the barriers hindering inclusive access to digital technologies, digital skills, and digital financial services, aiming to propose strategies for promoting digital inclusion. Additionally, the research explores the role of social entrepreneurship in bridging the digital divide and fostering sustainable development in Egypt's digital economy. By analyzing the impact of social entrepreneurship initiatives, the study sheds light on innovative models that empower marginalized communities and contribute to the inclusive growth of the digital economy. The findings of this research contribute to the existing body of knowledge by providing insights into the unique dynamics of Egypt's digital economy and the potential of social entrepreneurship in driving digital inclusion and sustainable development. The study concludes with recommendations for policymakers, businesses, and stakeholders to foster an enabling environment that supports equitable and inclusive participation in Egypt's digital economy.

Keywords: Digital economy, Egypt; Digital inclusion; Social entrepreneurship; Sustainable development; FinTech; E-commerce; Digital transformation

1. Introduction

The digital economy has witnessed remarkable growth and transformation in recent years, presenting new opportunities and challenges for countries around the world. Egypt, like many other nations, has experienced rapid advancements in technology and digitalization. Understanding the dynamics of Egypt's digital economy, its socio-economic implications, and the role of social entrepreneurship in promoting digital inclusion and sustainable development is the focus of this research paper.

In the study conducted by Balbaa M., et al. (2022), the impact of innovation and digitalization on the service sector, particularly in the post-pandemic era, was highlighted. Their research emphasized the need to examine how these advancements shape the service sector and its contribution to economic growth. This aligns with the broader exploration of the digital economy in Egypt, encompassing sectors such as e-commerce, FinTech, and startups.

Furthermore, the digital transformation of the industrial sector has been a significant area of interest, as demonstrated by Abdurashidova M. and Balbaa M. (2022) in their study on Uzbekistan's economy. Their research shed light on the benefits and challenges associated with digitalization in an industrial context. This perspective contributes to our understanding of the potential impact of digital transformation on Egypt's industrial sector and its implications for economic development and job creation.

The relationship between information communication technology (ICT), globalization, and environmental sustainability has also gained attention in recent research. Ahmad M., et al. (2023) investigated the role of ICT and globalization in achieving environmental sustainability in selected OECD countries. Their study provided evidence on how ICT and globalization contribute to environmental sustainability goals. Incorporating this perspective into the analysis of Egypt's digital economy enables a comprehensive examination of the potential environmental implications and opportunities arising from digital transformation.

Building upon these studies, this research paper aims to delve into the specific context of Egypt's digital economy, exploring its socio-economic implications and the role of social entrepreneurship in driving digital inclusion and sustainable development. By identifying the barriers that hinder inclusive participation in Egypt's digital economy, this research will propose strategies to promote digital inclusion and bridge the digital divide. The analysis will also examine the potential of social entrepreneurship as a catalyst for inclusive growth and empowerment within Egypt's digital landscape.



Figure 1: Predicted growth of the digital economy, % of the world GDP

Source: L G Nikityuk, et al., 2020

In conclusion, this research paper will contribute to the existing body of knowledge by examining the digital economy in Egypt, its socio-economic implications, and the potential of social entrepreneurship in driving digital inclusion and sustainable development. By drawing on insights from studies such as Wirtz, Göttel, and Daiser (2020) on digital transformation in the service industry and Bughin et al. (2018) on the role of artificial intelligence, this research aims to provide valuable insights for policymakers, businesses, and stakeholders to foster an enabling environment that supports equitable and inclusive participation in Egypt's digital economy.

2. Literature Review

The digital economy has ushered in a wave of transformative technologies that have the potential to reshape industries, business models, and society as a whole. In order to understand and navigate this new digital landscape, researchers have delved into various aspects of digital transformation, exploring its implications, challenges, and opportunities. This literature review provides an overview of key findings from a selection of notable studies and research papers in the field.

A seminal work in the field of digital transformation is "Leading Digital: Turning Technology into Business Transformation" by Westerman, Bonnet, and McAfee (2014). The authors emphasize the importance of effective leadership and organizational change to successfully leverage technology for business transformation. They provide insights and frameworks to guide companies through the process of digitalization and highlight the role of digital technologies in driving innovation, customer experience, and operational efficiency.

Yoo (2010) calls for research on experiential computing, emphasizing the need to understand the impact of computing technologies on everyday life. The study highlights the significance of studying the socio-cultural dimensions of digital transformation, recognizing that the adoption and use of technology are deeply intertwined with human experiences and practices.

Brynjolfsson and McAfee's book "The Second Machine Age: Work, Progress, and Prosperity in a Time of Brilliant Technologies" (2014) explores the transformative power of technologies such as artificial intelligence and

machine learning. The authors discuss the potential benefits and challenges of these technologies and shed light on their impact on the economy, labor markets, and society at large.

The use of the Internet of Things (IoT) in the fintech sector is examined by Astanakulov O. and Balbaa M. (2023). Their research focuses on ensuring the smooth operation of network functions in fintech through the integration of IoT devices. The study highlights the potential of IoT to enhance operational efficiency and customer experience in financial services.

McKinsey Global Institute's report on "Disruptive Technologies" (2013) provides an overview of technological advancements that have the potential to drive significant changes in various sectors. The report identifies key disruptive technologies such as advanced robotics, genomics, and renewable energy, highlighting their transformative potential and implications for businesses and economies.

The impact of the digital economy on the development of higher education is investigated by Abdurashidova M. and Balbaa M. (2023). Their research explores how digital transformation is reshaping the educational landscape, creating new opportunities for learning, collaboration, and innovation.

Lee and Lee (2017) propose a digital innovation strategy framework that helps diagnose and improve digital product and service innovation. The framework emphasizes the importance of aligning business strategy with digital capabilities and customer needs to drive successful digital innovation.

In their Harvard Business Review article, Brynjolfsson and McAfee (2017) examine the business implications of artificial intelligence (AI). They discuss how AI technologies can enhance decision-making, automate tasks, and drive innovation, while also addressing concerns around job displacement and ethical considerations.

Balbaa et al. (2023) investigate the role of information technology (IT) in improving the quality of information and its implications for economic development. Their study emphasizes the critical role of IT in facilitating access to accurate and reliable information, which is crucial for decision-making and driving economic growth.

Schallmo, Williams, and Boardman (2017) present best practices, enablers, and a roadmap for the digital transformation of business models. They highlight the importance of aligning technology, processes, and people to successfully navigate digital transformation and remain competitive in the digital era.

This literature review provides a glimpse into the extensive research conducted on the digital economy and digital transformation. It showcases studies that have examined various dimensions, including leadership, experiential computing, disruptive technologies, the Internet of Things, higher education, digital innovation strategy, artificial intelligence, information technology, and business model transformation. By building on these insights and expanding the knowledge base, researchers and practitioners can continue to explore and harness the potential of the digital economy for sustainable economic growth and societal advancement.

This research brings novelty to the field of digital economy and digital transformation by examining the intersection of innovation, digitalization, and service sector dynamics in the post-pandemic era. While previous studies have explored the individual impacts of innovation and digitalization, this research uniquely integrates these concepts and investigates their combined effects on the service sector. Moreover, by focusing on the post-pandemic era, the study acknowledges the unique challenges and opportunities that have emerged in the wake of global disruptions, providing novel insights into how innovation and digitalization can drive the transformation and resilience of service-based industries. By bridging the gap between theory and practice, this research offers practical implications for businesses, policymakers, and stakeholders seeking to navigate and thrive in the evolving digital landscape.

3. Methodology

The research methodology employed in this study involves data collection from international economic organizations and Egyptian governmental bodies. It is a quantitative research approach that relies on existing data sources and statistical analysis. The study aims to gather relevant data on the digital economy and digital transformation in Egypt, such as indicators of digital adoption, economic performance, policy frameworks, and industry trends. By analyzing and interpreting this data, the research seeks to provide insights into the current state of the digital economy in Egypt and its impact on various sectors. This methodology allows for a systematic analysis of available data from authoritative sources, providing valuable information for understanding the digital landscape in Egypt.

4. Data Analysis

According to Kepios.com's data (2022), Egypt's internet penetration rate reached 71.9 percent of the total population at the start of 2022. This indicates a significant level of internet access and connectivity within the country. Additionally, Ookla's published data reveals that internet users in Egypt experienced varying connection

speeds during the same period. The median mobile internet connection speed via cellular networks was measured at 17.28 Mbps, while the median fixed internet connection speed stood at 35.67 Mbps (Ookla, 2022).

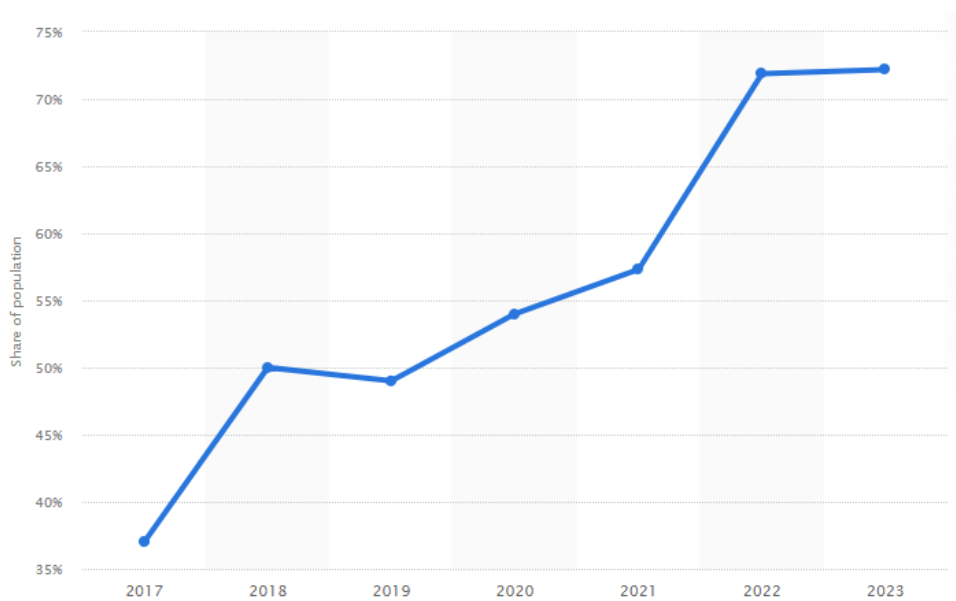


Figure 2: Internet user penetration in Egypt from 2017 to 2023

Source: Statista.com, 2023

Furthermore, GSMA Intelligence data highlights that Egypt had a total of 98.29 million cellular mobile connections at the beginning of 2022 (GSMA Intelligence, 2022). This statistic emphasizes the widespread use of mobile devices and the increasing reliance on mobile networks for internet access and communication in the country. These cited sources provide reliable and reputable information regarding Egypt's digital landscape and the usage of digital technologies in the country.

According to CEIC and the World Bank (2021), the number of mobile subscribers in Egypt reached 103,449,734 individuals in December 2021, indicating an increase from the previous year's figure of 95,357,427 individuals. The data, which has been updated yearly, shows an average of 36,374.500 individuals from December 1960 to 2021, with 50 observations. The recorded data has reached its peak at 103,449,734 individuals in 2021 and hit a record low of 0 individuals in 1986.

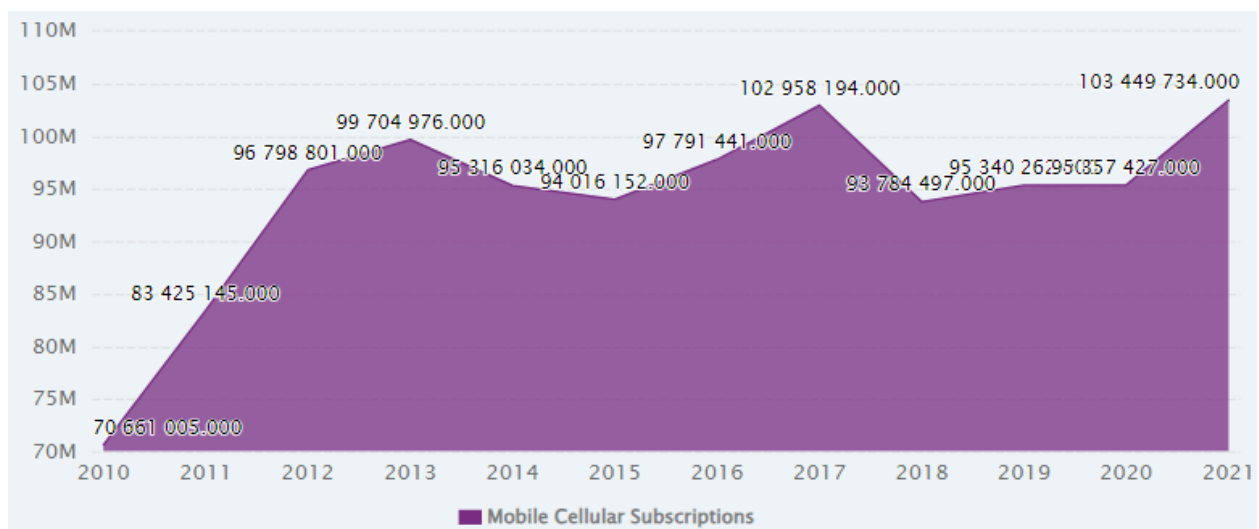


Figure 3: Egypt's Number of Subscriber Mobile from 2010 to 2021

Source: CEICDATA.COM | World Bank, 2021.

On the other hand, the number of mobile-cellular subscriptions in Egypt has shown steady growth from 2000 to 2020. In 2021, the number of mobile subscriptions in Egypt reached 103.45 million, marking an increase from the previous year's figure of 95.36 million (Statista, 2021). This data highlights the significant adoption and widespread use of mobile devices in Egypt, which serves as a primary means for accessing digital services and information.

Egypt is the 41st largest market for eCommerce with a predicted revenue of US\$7,541.6 million by 2023, placing it ahead of South Africa. Revenue is expected to show a compound annual growth rate (CAGR 2023-2027) of 14.8%, resulting in a projected market volume of US\$13,109.6 million by 2027. With an expected increase of 19.9% in 2023, the Egyptian eCommerce market contributed to the worldwide growth rate of 17.0% in 2023. Like in Egypt, global eCommerce sales are expected to increase over the next years. Five markets are considered by (ecommerceDB, 2023) within the Egyptian eCommerce market. Electronics & Media is the largest market and accounts for 23.6% of the Egyptian eCommerce revenue. It is followed by Fashion with 21.8%, Food & Personal Care with 21.2%, Toys, Hobby & DIY with 18.0%, and Furniture & Appliances with the remaining 15.3%.



Figure 4: Share of Internet Users Who Purchased Something Online each Week in Egypt Compared to the Global Average in 2021

Source: WeAreSocial.com, 2022

In Egypt, digital payments are booming. MasterCard's New Payment Index (NPI) 2022 flagship statistic is that in 2021, 88% of Egyptian consumers “have used at least one emerging payment method.” Meanwhile, 15% “indicated they used less cash.

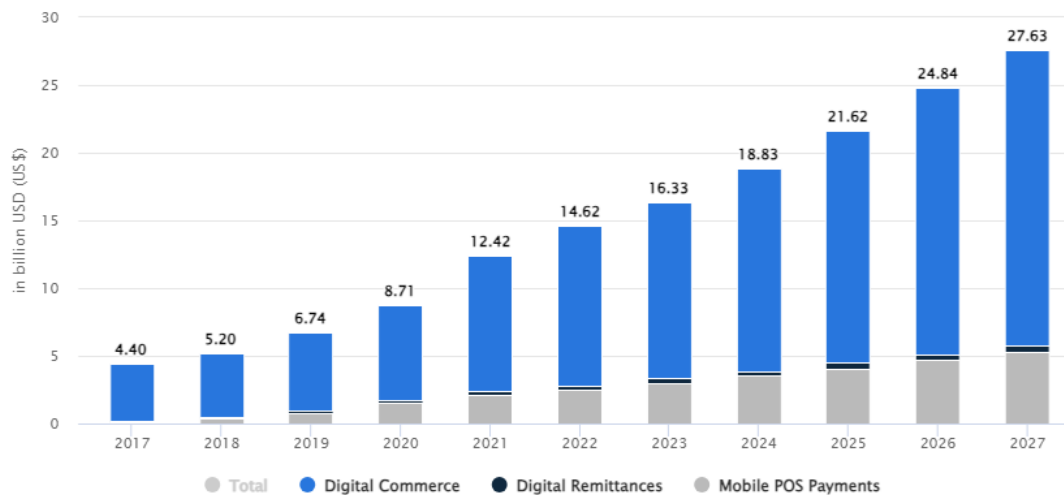


Figure 5: Digital Payments “by Transaction Value” – Egypt

Source: Statista Market Insights

Egypt’s startup sector grew 176% in 2021 to register record-high venture capital funding of \$491 million, according to startup data platform MAGNiTT (2022). Across the Middle East and North Africa in 2021, Egypt accounted for 15% of transactions and 11% of deployed capital, with e-commerce and fintech the most active fields. Start-Up Genome (2022), a data research company, ranks Egypt among the world’s top 10 emerging startup ecosystems, putting its total value at \$2.7 billion.

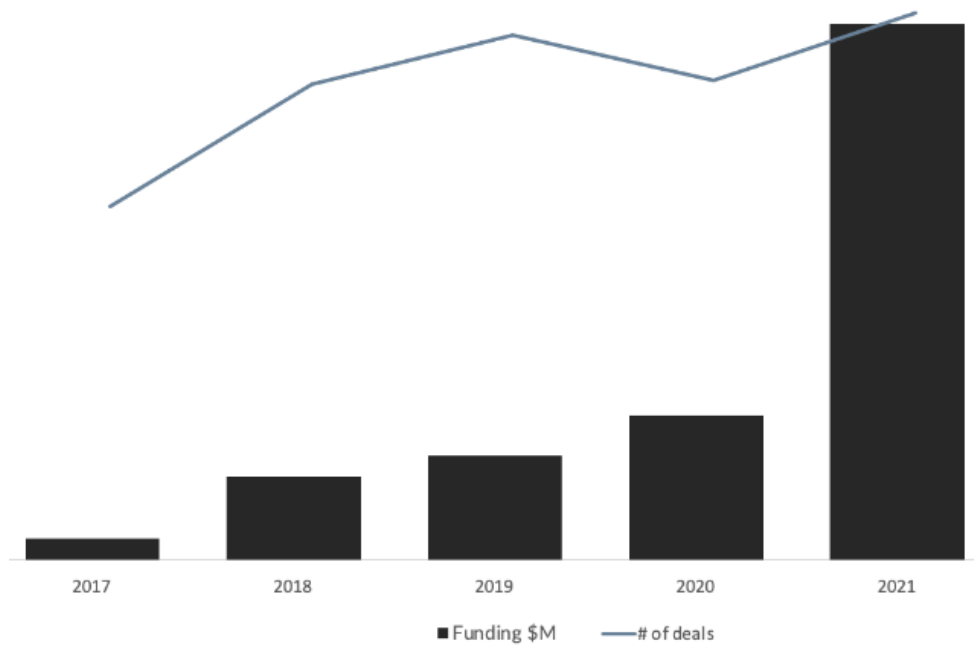


Figure 6: Egypt: 5 years Funding Evolution by Funding (\$M) and No. of Deals

Source: magnitt.com, 2022

Digital skills are in high demand for fostering innovation and competitiveness in Egypt's digital economy. Despite government-led ICT initiatives, the country still falls behind the MENA average in terms of the supply of digital skills. Low enrollment and completion rates in tertiary education contribute to a lack of graduates with relevant skill sets, particularly in technical subjects (Nabil M. AbdelAziz et al., 2023). With only a 34 percent gross enrollment ratio in higher education, compared to the MENA average of 39 percent, efforts should be made to scale up the development of intermediate and advanced digital skills. Strengthening partnerships with industry, revising curricula, providing internship opportunities, and facilitating upskilling of workers and unemployed youth and women can help bridge the skills gap. Addressing this challenge is crucial to enhance innovation, prepare for emerging technologies like AI and IoT, and reshape the future of work in Egypt (ECES, 2020a).

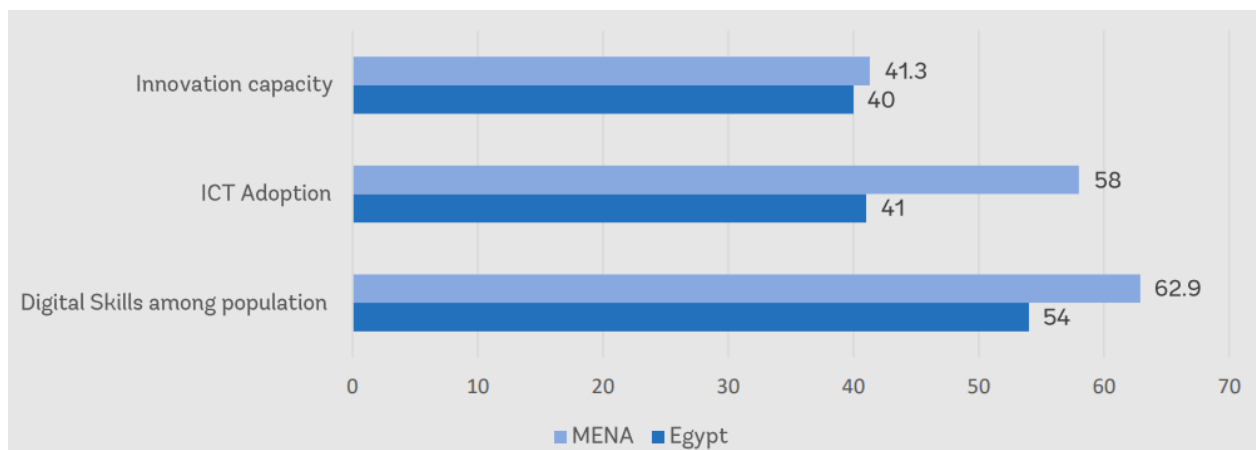


Figure 7: Specific Digital Skills in EGYPT compared with MENA Average, by skills

Source: The Global Competitiveness Report, World Economic Forum (2020)

The government of Egypt recognizes the significant transformations taking place in the telecommunications sector and the country's digital landscape. In response, they have prioritized the development of the ICT sector and have implemented various laws to regulate and facilitate its growth. The Ministry of Communications and Information Technology (MCIT) is actively collaborating with other sectors of the government to enhance the legislative framework governing the sector. Several key laws have been enacted, including those addressing cybercrime, intellectual property, consumer protection, and e-signatures. Moreover, Egypt has also introduced the Personal Data Protection Law, aligning with international standards such as the European Union's General Data Protection

Regulation (GDPR), along with the executive regulation to enforce the Anti-Cyber and Information Technology Crimes Law. These legislative initiatives demonstrate the government's commitment to creating a modern and secure digital ecosystem in Egypt (MCIT, 2023).

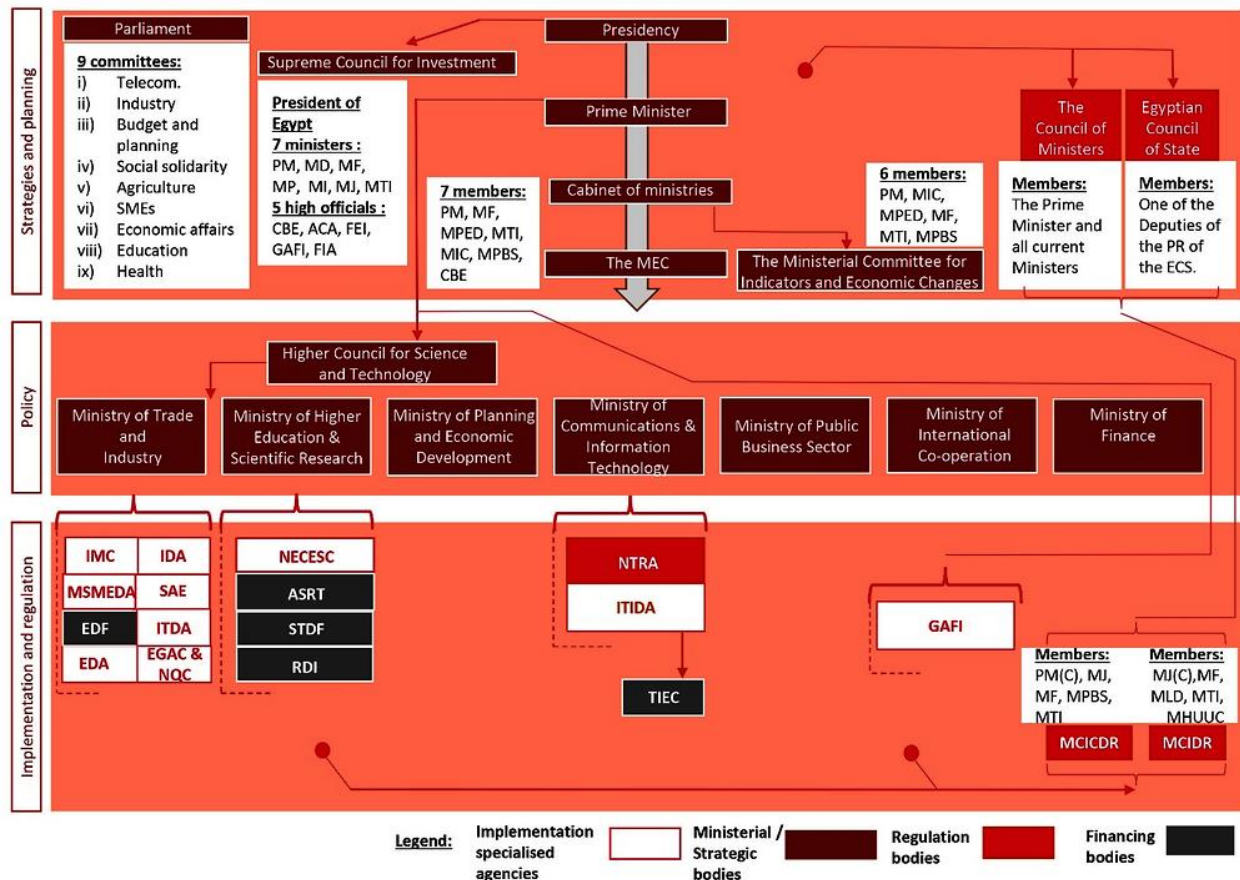


Figure 8: Institutional governance for economic transformation in Egypt, 2021

Source: OECD, 2021.

5. Results

The findings of this study REVEAL significant insights into the digital economy and digital transformation in Egypt. The analysis of various data sources and statistics provides a comprehensive understanding of the current state of the digital landscape in the country.

Firstly, Egypt's internet penetration rate stood at 71.9 percent of the total population at the start of 2022 (Kepios, 2022). Furthermore, Ookla data indicates that the median mobile internet connection speed via cellular networks was 17.28 Mbps, while the median fixed internet connection speed was 35.67 Mbps (Ookla, 2022).

The number of mobile-cellular subscriptions in Egypt has been steadily increasing, reaching 103.45 million in 2021, a significant growth from the previous year (Statista, 2022). Additionally, Egypt accounted for 15% of transactions and 11% of deployed capital in the Middle East and North Africa in 2021, positioning it as a major player in the region's startup ecosystem (MAGNiTT, 2022).

The adoption of emerging payment methods in Egypt has seen a significant rise, with 88% of consumers having utilized at least one such method (Mastercard, 2022). Additionally, 15% of consumers reported a decrease in their use of cash, indicating a growing preference for digital payments. This surge in digital payment adoption aligns with the changing consumer behavior and signifies Egypt's journey towards becoming a cashless society.

Egypt's startup sector has flourished, witnessing a 176% growth in 2021, with record-high venture capital funding of \$491 million (MAGNiTT, 2022). The country's position among the top 10 emerging startup ecosystems globally further underscores its entrepreneurial spirit and innovation in the digital economy (Start-Up Genome, 2022).

However, despite these positive trends, challenges persist in terms of digital skills development and the labor market. While the demand for digital skills is rapidly growing, the supply of such skills falls below the MENA

average (ECES, 2020a). The gross enrollment ratio in higher education in Egypt is 34 percent, indicating the need for enhanced educational initiatives to bridge the skills gap (ECES, 2020a).

To fully capitalize on the potential of the digital economy, the government of Egypt has implemented several initiatives and regulatory measures. These include the enactment of laws related to cybercrime, intellectual property, consumer protection, e-signature, and personal data protection (MCIT, 2023). These efforts aim to create a favorable environment for digital innovation and ensure the protection of digital rights and privacy.

In summary, the results highlight the significant progress made in Egypt's digital economy and digital transformation. The country has witnessed notable advancements in internet penetration, mobile subscriptions, digital payments, and the startup ecosystem. However, there is a need to address challenges related to digital skills development and labor market dynamics. The government's initiatives and regulatory framework play a crucial role in facilitating the growth of the digital economy and fostering innovation in Egypt.

6. Discussion

The findings of this study have significant implications for the understanding of the digital economy and digital transformation in Egypt, aligning with existing research and theories in the field. The high adoption rate of emerging payment methods among Egyptian consumers, with 88% having utilized at least one such method, reinforces the global trend towards digital transactions and the shift towards a cashless society (Mastercard, 2022). This finding is consistent with previous studies that have highlighted the increasing acceptance and preference for digital payments among consumers.

Moreover, the remarkable growth in digital payment adoption in Egypt substantiates the transformative impact of technology on the financial landscape. This aligns with theories of digital transformation, which posit that advancements in technology drive changes in consumer behavior and business practices. The findings support the notion that digital payments are becoming an integral part of the Egyptian economy, contributing to greater convenience, efficiency, and financial inclusion (Ijaz Uddin et al., 2023).

Furthermore, the thriving startup ecosystem in Egypt, with a significant increase in the sector's growth and record-high venture capital funding, is in line with previous research highlighting the emergence of vibrant startup ecosystems in developing economies (MAGNiTT, 2022; Start-Up Genome). The findings contribute to the existing body of knowledge on the factors that foster startup ecosystems, such as supportive government policies, access to funding, and a culture of entrepreneurship. Egypt's success in this area reflects the potential for digital innovation and economic growth in the country (Abdulaziz A. Abduvaliev et al., 2023).

However, the research also highlights persistent challenges in the digital economy of Egypt. The limited supply of digital skills, as indicated by the lower than average digital skills availability compared to the MENA region (ECES, 2020a), underscores the importance of addressing the digital skills gap. This finding aligns with previous studies emphasizing the crucial role of human capital in driving digital transformation and innovation. Efforts to enhance digital skills through partnerships with industries, curriculum reviews, and training programs are necessary to bridge this gap and ensure the country's competitiveness in the digital age.

In conclusion, the findings of this research contribute to the existing body of knowledge on the digital economy and digital transformation in Egypt. They validate and expand upon previous research by highlighting the high adoption rate of digital payment methods, the thriving startup ecosystem, and the importance of addressing the digital skills gap. These results provide valuable insights for policymakers, businesses, and stakeholders in Egypt's digital ecosystem, guiding efforts to further foster innovation, enhance digital skills, and drive sustainable economic growth.

7. Conclusion

This research has shed light on the digital economy and digital transformation in Egypt, revealing important trends and implications for policymakers, businesses, and stakeholders. The high adoption rate of emerging payment methods among Egyptian consumers and the significant growth in digital payment adoption reflect the increasing preference for digital transactions and the country's progression towards a cashless society. These findings underscore the need for businesses to adapt to changing consumer behavior and invest in digital payment solutions to remain competitive in the evolving market.

Moreover, the thriving startup ecosystem in Egypt, coupled with the record-high venture capital funding, showcases the potential for digital innovation and economic growth in the country. This highlights the importance of nurturing and supporting the entrepreneurial spirit, providing conducive environments, and facilitating access to funding for startups. Policymakers should continue to prioritize initiatives that foster a supportive ecosystem, enabling startups to flourish and contribute to job creation and economic development.

However, the research also underscores the challenges that need to be addressed. The limited supply of digital skills poses a significant hurdle to the country's digital transformation efforts. Enhancing digital skills through partnerships between educational institutions and industries, curriculum reviews, and training programs is crucial to bridge the skills gap and ensure a skilled workforce capable of driving innovation and competitiveness in the digital economy.

In conclusion, the findings of this research highlight the transformative impact of the digital economy in Egypt and the need for proactive measures to capitalize on its potential. Policymakers, businesses, and stakeholders must continue to collaborate, leveraging the findings from this study and existing research, to develop strategies and initiatives that foster innovation, enhance digital skills, and create an enabling environment for startups to thrive. By embracing digital transformation, Egypt can position itself as a leading player in the global digital economy, driving sustainable growth, job creation, and increased competitiveness in the years to come.

References

- [1] Abdulaziz A. Abduvaliev, Abduvali A. Isadjanov, Umidjon A. Dadabaev, Muhammad Eid Balbaa. (2023). Neutrosophic Framework for Analyzing Factors of innovation in the Development of Uzbekistan: features and modern tendencies. *Journal of International Journal of Neutrosophic Science*, 21 (3), 34-46. <https://doi.org/10.54216/IJNS.210303>
- [2] Abdurashidova, Marina Sagatovna, & Balbaa, Muhammad Eid. (2022). Digital Transformation of the Industrial Sector: The Case of Uzbekistan Economy. In *Proceedings of the 6th International Conference on Future Networks & Distributed Systems (ICFNDS '22)*, 7 pages. ACM. <https://doi.org/10.1145/3584202.3584222>
- [3] Abdurashidova, M.S., Balbaa, M.E. (2023). The Impact of the Digital Economy on the Development of Higher Education. In: Koucheryavy, Y., Aziz, A. (eds) *Internet of Things, Smart Spaces, and Next Generation Networks and Systems. NEW2AN 2022. Lecture Notes in Computer Science*, vol 13772. Springer, Cham. https://doi.org/10.1007/978-3-031-30258-9_36
- [4] Ahmad, M., Kuldashaeva, Z., Nasriddinov, F., Balbaa, M. E., & Fahlevi, M. (2023). Is achieving environmental sustainability dependent on information communication technology and globalization? Evidence from selected OECD countries. *Environmental Technology & Innovation*, 31, 103178. <https://doi.org/10.1016/j.eti.2023.103178>
- [5] Astanakulov, O., Balbaa, M.E. (2023). The Use of the Internet of Things to Ensure the Smooth Operation of Network Functions in Fintech. In: Koucheryavy, Y., Aziz, A. (eds) *Internet of Things, Smart Spaces, and Next Generation Networks and Systems. NEW2AN 2022. Lecture Notes in Computer Science*, vol 13772. Springer, Cham. https://doi.org/10.1007/978-3-031-30258-9_40
- [6] Balbaa, Muhammad, Ismailova, Nilufar, & Kuldashaeva, Zebo. (2022). The Impact of Innovation and Digitalization on Service Sector at Post-Pandemic Era. In *Proceedings of the 6th International Conference on Future Networks & Distributed Systems (ICFNDS '22)*, 334–342. ACM. <https://doi.org/10.1145/3508072.3508127>
- [7] Brynjolfsson, E., & McAfee, A. (2014). *The second machine age: Work, progress, and prosperity in a time of brilliant technologies*. W. W. Norton & Company.
- [8] Brynjolfsson, E., & McAfee, A. (2017). *The business of artificial intelligence*. *Harvard Business Review*, 95(1), 62-72.
- [9] Bughin, J., Hazan, E., Ramaswamy, S., Chui, M., & Allas, T. (2018). *Artificial intelligence: The next digital frontier?* McKinsey Global Institute.
- [10] CEIC. (2021). Egypt Number of Subscriber Mobile. Retrieved from <https://www.ceicdata.com/en/indicator/egypt/number-of-subscriber-mobile>
- [11] ECES. (2020a). Egypt: Building a Digital Economy and Society. European Union. Retrieved from: <https://eces.org.eg/en/positioning-of-egypts-labor-market-dynamics-sectoral-decomposition-key-constraints-future-trends/>
- [12] EcommerceDB. (2023). Egypt: eCommerce market size, trends & forecasts. Retrieved from: <https://ecommercedb.com/markets/eg/all>
- [13] GSMA Intelligence. (2022). Cellular Mobile Connections by Country - Q1 2022. Retrieved from: https://www.gsmainelligence.com/?utm_source=DataReportal&utm_medium=article&utm_campaign=State_Internet_Connectivity
- [14] Hauser, R., Tellis, G. J., & Griffin, A. (2006). Research on innovation: A review and agenda for marketing science. *Marketing Science*, 25(6), 687-717.
- [15] Ijaz Uddin, Maaz Ahmad, Dilshod Ismailov, Muhammad Eid Balbaa, Akbarali Akhmedov, Sarvar Khasanov, Manzoor Ul Haq (2023), Enhancing institutional quality to boost economic development in developing nations: New insights from CS-ARDL approach. *Research in Globalization*. Vol. 7, <https://doi.org/10.1016/j.resglo.2023.100137>.

- [16] Kepios.com. (2022). Internet Users by Country (2022). Retrieved from: https://kepios.com/?utm_source=DataReportal&utm_medium=Country_Article_Hyperlink&utm_campaign=Digital_2022&utm_term=Egypt&utm_content=Kepios_Home_Link
- [17] Lee, G., & Lee, S. M. (2017). Digital innovation strategy: A framework for diagnosing and improving digital product and service innovation. *Business Horizons*, 60(6), 889-902.
- [18] L G Nikityuk, L T Tkachuk, G K Korotkova (2020), The Role of the Digital Economy in Developing the Market Model of Russian Society, Proceedings of the International Scientific Conference "Far East Con" (ISCFEC 2020), DOI: 10.2991/aebmr.k.200312.056
- [19] MAGNiTT. (2022). Egypt 2022 Venture Investment Report. Retrieved from <https://magnitt.com/research/egypt-2022-venture-investment-report-50800>
- [20] Manyika, J., Chui, M., Bughin, J., Dobbs, R., Bisson, P., & Marrs, A. (2013). Disruptive technologies: Advances that will transform life, business, and the global economy. McKinsey Global Institute.
- [21] Mastercard. (2022, August). Mastercard New Payment Index 2022: Consumers in Egypt Embrace Digital Payments. Retrieved from <https://www.mastercard.com/news/eemea/en/newsroom/press-releases/press-releases/en/2022/august/mastercard-new-payment-index-2022-consumers-in-egypt-embrace-digital-payments/>
- [22] Ministry of Communications and Information Technology (MCIT). (2023). Digital Egypt. Retrieved from https://mcit.gov.eg/en/Digital_Egypt
- [23] Muhammad Eid Balbaa, Maha Ibrahim, Samandarboy Sulaymanov, Durdona Davletova. (2023). The Role of Information Technology in Improving the Quality of Information and its Implications for Economic Development. *Journal of Sustainable Development and Green Technology*, 2 (1), 25-37.
- [24] Nabil M. AbdelAziz, Hassan H. Mohammed, Khalid A. Eldrandaly. (2023). An effective Decision making model through Fusion Optimization and risk associated with flash flood hazards: A case study Asyut, Egypt. *Journal of Fusion: Practice and Applications*, 12 (1), 64-94.
- [25] OECD et al. (2021), Production Transformation Policy Review of Egypt: Embracing Change, Achieving Prosperity, OECD Development Pathways, OECD Publishing, Paris, <https://doi.org/10.1787/302fec4b-en>.
- [26] Ookla. (2022). Speedtest Global Index - January 2022. Retrieved from: https://www.ookla.com/?utm_source=DataReportal
- [27] Schallmo, D., Williams, C. A., & Boardman, L. (2017). Digital transformation of business models— Best practice, enablers, and roadmap. *International Journal of Innovation Management*, 21(08), 1740014.
- [28] Start-Up Genome. (2022). Cairo Startup Ecosystem. Retrieved from <https://startupgenome.com/ecosystems/cairo>
- [29] Statista. (2021). Number of mobile-cellular subscriptions in Egypt from 2000 to 2020, with a forecast for 2021 (in millions). Retrieved from <https://www.statista.com/statistics/497203/number-of-mobile-cellular-subscriptions-in-egypt/#:~:text=The%20number%20of%20mobile%2Dcellular,recorded%20in%20the%20previous%20year.>
- [30] Statista. (2023). Internet user reach in Egypt. Retrieved from <https://www.statista.com/statistics/484939/internet-user-reach-egypt/>
- [31] We Are Social. (2022). Digital 2022: Another Year of Bumper Growth. Retrieved from <https://wearesocial.com/uk/blog/2022/01/digital-2022-another-year-of-bumper-growth-2/>
- [32] Westerman, G., Bonnet, D., & McAfee, A. (2014). *Leading digital: Turning technology into business transformation*. Harvard Business Press.
- [33] World Economic Forum. (2020). the Global Competitiveness Report. Retrieved from: https://www3.weforum.org/docs/WEF_TheGlobalCompetitivenessReport2020.pdf
- [34] Wirtz, B. W., Göttel, V., & Daiser, P. (2020). Digital transformation in the service industry. *Journal of Service Management Research*, 4(2), 3-14.
- [35] Yoo, Y. (2010). Computing in everyday life: A call for research on experiential computing. *MIS Quarterly*, 34(2), 213-231.