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Digital Transformation and the SDGs: A Case Study on Egypt's E-government and SDG-16

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Abstract

The article explores the ways in which digital transformation – namely information and communication technologies, and artificial intelligence –can help achieve the 17 UN SDGs and 2030 Agenda while maintaining good governance. To do this, the article studies Egypt's digital transformation initiatives as part of its Vision 2030 strategy, focusing on how these efforts contribute to achieving the Sustainable Development Goals (SDGs). As a case study, this paper specifically examines the National Structural Reform Programme, Digital Egypt and National AI Strategy and their effects on achieving SDG-16, which aims to promote peace, justice, and strong institutions. Using a qualitative approach, the study employs secondary data from government reports and academic literature, to investigate the role of digital tools, including artificial intelligence (AI) and information and communication technologies (ICT), in improving transparency, accountability, and citizen engagement. Challenges associated with these digital initiatives, such as concerns regarding data privacy and security, are also discussed. The study offers valuable insights into how Egypt can harness digital transformation to foster a more just and equitable society, advancing its commitments to the SDGs and establishing a framework for effective governance.

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The Sustainable Development Goals (SDGs) are a collection of 17 global goals outlined by the United Nations General Assembly in 2015 for the year 2030. These goals are broad in scope and interdependent, covering a wide range of social and economic development issues. They include ending poverty and hunger, improving health and education, making cities more sustainable, combating climate change, and protecting oceans and forests[3]. Each goal has specific targets to be achieved over the next decade, requiring cooperation among countries, regions, and industries.

The Sustainable Development Goals (SDGs) were adopted by all United Nations Member States in 2015 as a universal call to action to end poverty, protect the planet, and ensure that by 2030 all people enjoy peace and prosperity. These 17 interlinked goals are designed to be a "blueprint to achieve a better and more sustainable future for all"[4].

Artificial Intelligence (AI) has emerged as a transformative technology with the potential to accelerate the achievement of these goals. AI refers to the simulation of human intelligence in machines that are programmed to think and learn like humans. The concept of AI has been around since the 1950s, originating from a group of ambitious researchers who proposed that a machine could simulate any aspect of learning or any other feature of intelligence (McCorduck, 2004).

Over the decades, AI has evolved from simple algorithms and theoretical concepts to sophisticated machine learning and deep learning systems, dramatically changing the landscape of technology and innovation. From improving

[3] United Nations. (2015). Sustainable Development Goals. URL: https://sdgs.un.org/goals (accessed 07.10.2024)
[4] Ibid.

healthcare and education to combating climate change, AI technologies offer innovative solutions to help reach the SDGs (Vinuesa et al., 2020).

The potential of digital technology, including AI, to transform governance and improve public services is increasingly recognized. The United Nations Conference on Trade and Development[5] notes that digital transformation can revitalize productivity, foster more sustainable growth, and reverse decades of environmental harm. In line with this, many governments, including Egypt, are increasingly turning towards digital transformation to shape the future, as policymakers, business leaders, and officials increasingly recognize its value in driving socioeconomic development (Elgohary, 2022).

Egypt's Vision 2030 strategy exemplifies this trend, emphasizing the role of digital transformation in governance reform, fostering peace and security, and reinforcing Egypt's regional leadership. This article explores how the Digital Egypt initiative leverages digital transformation to advance SDG-16, which focuses on peace, justice, and strong institutions. By analyzing Egypt's case, this research addresses the broader question: In what ways can digital transformation be harnessed to promote peace, justice, and strong institutions?

Methodology and Results

To explore this question more thoroughly, a case study has been conducted on Egypt's e-government action plans and efforts. Digital transformation is one of the main enablers of the Egypt Vision 2030, alongside technology and innovation, and data generation and availability[6]. As such, Egypt's emphasis on ICT and digital transformation for achieving its goals on the social, economic and environmental dimensions make it an interesting case to study the effects of digital transformation on the 17 SDGs, and most specifically SDG-16 regarding peaceful, just and strong institutions.

Hence, this research follows an exploratory approach, making use of qualitative secondary data. This data is made up of excerpts from Egypt's Ministry of Communications and Information Technology's Website, academic articles, news outlet articles and Egypt Vision 2030.

[5] United Nations Conference on Trade and Development (UNCTAD) (2018).
[6] MCIT. (2023). Egypt's ICT Strategy 2030. *MCIT Website.* URL: https://mcit.gov.eg/en/ICT_Strategy (accessed 07.10.2024)

Egypt's digital transformation efforts can be categorized under a typology of three main national agendas and action plans, namely the National Structural Reform Programme, Digital Egypt, and the National AI Strategy.

National Structural Reform Programme

In response to the COVID-19 pandemic, which addressed a multidimensional economic and health crisis, Egypt has highlighted the need for investing in human capital, digital transformation, and social safety nets. In April 2021, Egypt's government announced the second wave of reforms following the 2016 economic reform strategy. This new reform plan is referred to as the National Structural Reform Programme (NSRP), which aims to maintain economic stability and economic development. Digitalization came as a cross cutting factor within the reform plan to unleash the potential of achieving social, economic, and environmental development (Kamel, 2021). Moreover, this new path was also carried out in order to address certain limitations, further diversify the economy to better protect against external shocks, generate efficiency, and improve living standards.

Building on the 2016 economic reforms, the National Structural Reform Programme intends to create an equitable environment for not only the private but also the public sector. Thus, it tackles the creation of this environment through strengthening the private sector participation and offering more financial means to the industrial sector. In increasing efficiency and facilitating more inclusive growth, digitizing the government services like automating several entities services and achieving zero paper strategy in the near future are examples for developing an integrated system for the government to help prevent bureaucracy and fight corruption. NSRP, also called as reform 2.0, includes five main pillars, focusing on promoting growth in ICT as the first and main pillar of the reform which could be seen as a way of aligning this pillar with Egypt's Vision 2030 three dimensions.

Digital Egypt (ICT 2030)

Following the creation of Egypt Vision 2030, the ICT strategy "Digital Egypt" was launched so as to respond to the objectives set forth in the Vision. These include fostering digital inclusion, developing the ICT structure, ensur-

ing cybersecurity, fighting corruption and building capacities and encouraging innovation. Digital Egypt is composed of three main pillars: Digital Transformation, Digital Skills and Jobs, and Digital Innovation. Moreover, the bases of these pillars are Digital Infrastructure and Legislative Framework.

Since its inception in 2020, a great deal has already been done under this strategy. The special website "digital.gov.eg" has been created for all government services, enabling citizens to request over 170 services online[7]. The aim of the portal is to advance the provision of services to citizens and to improve government performance. Additionally, citizens can obtain digital government services through a call center, mobile Application and local post offices. Mobile Technology Centers have also been created to offer services like obtaining vehicle licenses, driver's licenses (damaged or lost licenses), and electronic car stickers[8].

The Digital Institutional Development Sector of the Ministry of Communications and Information Technology has raised digital awareness and developed digital capabilities for about 1,265,000 employees and citizens.

Many initiatives have also been launched such as the National Institute for Governance and Sustainable Development's Together for a Digital Future and an incubation program in fintech, and the MCIT's Decent Life Initiative, the purpose of which is to raise digital awareness among citizens and empower them digitally. Decent Life aimed to bridge the digital gap between rural and urban areas and empower the people of the targeted villages with modern technology tools, and educate them about the digital services available on the platforms of various government agencies, including health, education, supplies and utilities, as well as the services available on the "Digital Egypt" platform and post offices, and digital financial services provided by banks, electronic payment companies and telecommunications companies, and develop their capabilities to use and benefit from them. Reportedly, the number of beneficiaries of the initiative reached 92,483 citizens in the villages of the first phase of the initiative in 20 governorates, with a female percentage of 58.07% and a male percentage of 41.93%[9].

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[7] El Sayed, H. (2024, October 6). The number of users of the Digital Egypt platform approaches 8 million users in 4 years. Youm 7. URL: https://www.youm7.com (accessed 07.10.2024)

[8] NIGSD. (2022). Governance and the New Administrative Capital. *Governance for Sustainable Development Review.* Cairo, Egypt. URL: http://nigsd.gov.eg/wp-content/uploads/2022/10/GSDR-EN.pdf (accessed 07.10.2024)

[9] MCIT. (2023). Egypt's ICT Strategy 2030. *MCIT Website.* URL: https://mcit.gov.eg/en/ICT_Strategy (accessed 07.10.2024)

Another major development in the strategy is the relocation of ministries to the New Administrative Capital. This move is intended to usher Egypt into a new era of digital transformation, not only through the modernization of buildings, and headquarters, but also through the upgrading of the performance of state employees by doting them with the ability to use state-of-the art scientific techniques and methods of administration to reach a smart, participatory government[10].

National AI Strategy

Egypt's National AI Strategy, spearheaded by the National Council for Artificial Intelligence established in 2019, outlines a comprehensive framework for harnessing the potential of AI to drive economic growth, social development, and technological innovation.

The strategy follows four main pillars: AI for Government, AI for Development, Capacity Building and International Relations[11].

The first pillar refers to the integration of AI into government processes. By leveraging AI technologies, the government aims to streamline operations, enhance efficiency, and improve decision-making. This includes automating administrative tasks, optimizing resource allocation, and providing more responsive and personalized public services.

The second pillar is the application of AI for development. Egypt recognizes the transformative potential of AI in addressing critical challenges such as poverty, inequality, and climate change. Through partnerships with local beneficiaries and technology companies, the strategy seeks to foster the development and deployment of AI-powered solutions in sectors like agriculture, healthcare, education, and energy. This involves identifying specific use cases, executing pilot projects, and promoting knowledge transfer to ensure sustainable and equitable development.

Recognizing the importance of a skilled workforce, the third pillar places a strong emphasis on capacity building. By raising public awareness about AI, integrating AI into formal education, and offering vocational and professional

[10] Essam-El Din, G. (2023, March 30). Moving to the New Capital. Ahram Online. URL: https://english.ahram.org.eg/NewsContentP/50/492623/AlAhram-Weekly/Moving-to-the-new-capital.aspx (accessed 07.10.2024)

[11] MCIT. (2023). Egypt's ICT Strategy 2030. *MCIT Website.* URL: https://mcit.gov.eg/en/ICT_Strategy (accessed 07.10.2024)

training programs, Egypt aims to equip its citizens with the necessary skills to thrive in the AI era. This includes developing AI talent, fostering innovation, and promoting entrepreneurship.

Finally, the fourth pillar promotes international cooperation by actively participating in AI-related discussions, representing the interests of African and Arab countries, and championing relevant initiatives. The goal is to shape the global AI agenda, contribute to international standards, and foster knowledge exchange by engaging with international organizations like UNESCO, OECD, La Francophonie, ITU, WIPO, amongst others.

* * *

The case of the Egyptian Government reform plans and efforts exerted to enhance the social, economic and environmental dimensions of the Egyptian landscape through digital transformation provides many interesting insights.

First, it is clear that the Egyptian government's plans place more of an emphasis on communication and information technologies than artificial intelligence. This is in part due to the novelty and ever changing nature of AI; but also due to the fact that digital literacy remains a challenge in Egypt. In fact, a study by NAOS Solutions found that in 2023 the percentage of Internet Users in the total population was estimated to be 72%. This explains Egyptian ministries' keenness and focusing their efforts aim to prepare society, institutions and citizens to absorb modern digital technologies and deal with them safely, by working to eliminate digital illiteracy, spread digital culture and digitally qualify citizens to deal with information technology data, concepts and tools, in implementation of the commitment contained in Article 25 of the Egyptian Constitution, which obliges the state to develop a comprehensive plan to eliminate alphabetical and digital illiteracy among citizens of all ages, and to develop mechanisms for its implementation with the participation of civil society institutions, according to a specific time plan.

Despite this focus on ICT applications, Egypt has made significant efforts in bridging the digital divide. These range from easily providing citizens with government documents/services, to capacity building initiatives, to ratifying laws which gives stakeholders the right to file lawsuits electronically in economic

courts (Aboelazm, 2022). This diversity and overarching nature of the digital transformation strategy ensures on ground and long lasting effects to combat redundancy, inefficiency, and corruption. Consequently, by improving transparency, accountability, and citizen engagement, Egypt's government 2.0 can harness digital transformation to foster a more just and equitable society, advancing its commitments to good governance and stronger institutions (SDG-16), and the SDGs as a whole.

SDG-16 has received particular attention, with an emphasis on how governments would be able to achieve "peace, justice, and strong institutions" and carry out its goals to create inclusive, responsible, and effective organizations. Amongst the 17 Sustainable Development Goals, SDG-16 was considered as the most zealous and difficult to achieve. This paper' premise however has been that peace, justice and strong institutions are the catalysts necessary to achieve the remaining goals such as eradicating poverty, bridging the gender gap and gender inequality and pave the way to better education and more sustainable cities.

This result is mirrored in Ramadan and Abdel-Fattah's research, which found the relationship between e-government and SDG realization to be statistically significant. E-government was operationalized as the utilization of information and communication technologies (ICTs) to deliver improved government services to citizens, businesses, and other governments. This digital transformation aims to increase efficiency, reduce costs, achieve governance, and streamline processes within the public sector. Looking specifically towards the Egyptian context, Ramadan and Abdel-Fattah found that, despite Egypt's relatively limited number of e-services at the time, the existing ones contributed to achieving approximately 65% of the SDGs and 20% of their targets (Ramadan & Abdel-fattah, 2022). This statistically proves the relationship between ICT and the SDGs, but also between good governance and stronger institutions and the SDGs.

In other words, ICT can help build a peaceful, inclusive and just societies by enhancing government transparency and accountability, facilitating peacebuilding dialogues and promoting social cohesion, providing access to legal services, enabling the digitization of justice systems, creating more efficient and transpar-

ent administration of justice, detecting and combating corruption, promoting integrity in institutions through digital platforms that facilitate the reporting of corruption incidents and supporting investigations.

Moreover, ICT can support the establishment of reliable and inclusive digital identity systems, facilitate capacity building and knowledge sharing among institutions and stakeholders involved in peace, justice, and governance through online training programs.

ICT can also be utilized to develop and implement early warning systems for conflict prevention and crisis response. It can provide platforms for alternative dispute resolution (ADR) mechanisms, such as online mediation and arbitration. This approach can reduce the burden on judicial systems and promote efficient and accessible justice. Furthermore, ICT provides platforms for dispute resolution, promote civic engagement, utilize data analysis for policy development, ensure cybersecurity and data protection, support peacekeeping and security operations, and bridge the digital divide.

Thus, digital transformation not only contributes to the 17 SDG, but is intrinsic to their realization. It offers the transformative potential in eradicating poverty, promoting sustainable agriculture, improving healthcare access, fostering quality education, and addressing numerous other pressing challenges. ICT has proven to be a powerful enabler for bridging gaps and amplifying the impact of efforts towards achieving the SDGs. By leveraging digital innovations, such as mobile technology, data analytics, connectivity, and smart systems, ICT has revolutionized sectors ranging from finance and agriculture to education and healthcare. It has democratized access to financial services, empowered marginalized communities, enhanced agricultural productivity, facilitated remote learning, expanded healthcare reach, and enabled efficient resource management. The integration of ICT in the pursuit of the SDGs has unlocked new opportunities, fostered innovation, and accelerated progress towards a more sustainable and inclusive future. However, it is essential to acknowledge that digital divides, including the digital gender divide and disparities in access to ICT infrastructure and skills, persist in many parts of the world.

As AI systems often rely on large datasets, data privacy and security are significant concerns. There is a need to ensure that personal information used to train AI algorithms is protected and that AI applications comply with data

protection regulations. The misuse of AI technologies can lead to privacy infringements and security vulnerabilities, emphasizing the importance of ethical AI development and deployment practices (Smith & Chang, 2023).

AI systems can inadvertently perpetuate or even exacerbate bias if they are trained on biased data sets. This can lead to unfair outcomes in various applications, from hiring practices to judicial sentencing. Addressing bias in AI involves ensuring diversity in training datasets and developing algorithms that can identify and mitigate potential biases. Researchers and practitioners must work collaboratively to create fair and equitable AI systems (Taylor, Floridi & Van der Sloot, 2017).

The rise of AI and automation brings concerns about job displacement and the future of work. While AI can create new job opportunities, it can also lead to the obsolescence of certain professions. The societal impact of rapid technological change necessitates policies and educational programs that can help the workforce adapt to new roles and industries. Governments, educators, and industry leaders must collaborate to ensure that the benefits of AI are equitably distributed (Patel & O'Malley, 2023).

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This study focuses specifically on Egypt's digital transformation efforts in relation to SDG-16, allowing for an in-depth examination of this single context. However, the findings cannot be easily generalized to other countries or contexts. And while the SDGs are interconnected, this research does not comprehensively explore how digitalization impacts other SDGs.

This paper heavily draws upon secondary sources such as government reports, academic articles, and online resources. While these sources provide valuable insights into the impact of digitalization on achieving SDG16, the absence of primary data limits the ability to establish causality between Egypt's digitalization measures and improvements on the SDG-16 targets. Moreover, as much of the data comes from government reports and publicly available resources, there is a risk of portraying digitalization progress in a biased manner. Official reports may present an overly optimistic view of its success. Engaging directly

with stakeholders – such as government officials, civil society groups, and citizens – could provide a clearer understanding of how digitalization affects governance and SDG-16 outcomes.

Finally, this paper does not explore the technical challenges or limitations of the digital infrastructure itself, such as cybersecurity risks, digital literacy among the population, or the scalability of AI and ICT solutions. These technological factors may significantly influence the effectiveness of digital transformation initiatives but are not assessed in detail in this study. This could be explored in greater depth with more specific legal or technical expertise.

In conclusion, this article has argued that digital transformation – defined in terms of ICT and AI – offer a multitude of ways to advance the 17 UN SDGs. It has identified SDG-16 focusing on peace, justice and stronger institutions as a catalyst for the remaining goals, arguing that without good governance, peace, transparency and citizen engagement, Agenda 2030 would be unachievable. To further explore the role of ICT and AI in creating just, transparent and more inclusive institutions, this paper adopted a case study method and studied the Egyptian digital reform plans set forth to attain Egypt Vision 2030; National Structural Reform Programme, Digital Egypt and National AI Strategy. Their analysis has proven that information and communication technologies offer interconnectedness and instantaneous paperless service provision, while artificial intelligence enables efficiency, interpretability and specific task solving.

Whilst their use is not without risk and further consideration should be granted to the ethical use of artificial intelligence, using digital means to improve the inner workings of the public sector by enabling effective resource utilization, integrating workflows and minimizing redundancy and human error, and reducing the financial costs and transaction times, is integral to the success of Egypt Vision 2030, SDG-16, and the 17 UN SDGs.

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Цифровая трансформация и ЦУР: развитие электронного правительства в Египте и достижение 16-й цели устойчивого развития

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Аннотация: В статье рассматриваются способы, с помощью которых цифровая трансформация – понимаемая как развитие информационно-коммуникационных технологий и искусственного интеллекта – может способствовать достижению 17 Целей устойчивого развития ООН и Повестки дня 2030, обеспечивая при этом эффективное государственное управление. В статье анализируются инициативы Египта по цифровой трансформации в рамках его стратегии «Vision 2030», уделяется особое внимание тому, как эти усилия способствуют достижению Целей устойчивого развития. В фокусе исследования – Национальная программа структурных реформ, Цифровой Египет и Национальная стратегия ИИ и их влияние на достижение 16-й цели устойчивого развития, которая направлена на содействие миру, справедливости и формирование устойчивых институтов. С опорой на качественные методы авторы обобщают вторичные данные, полученные из правительственных отчетов и научной литературы для изучения роли цифровых инструментов, включая искусственный интеллект (ИИ) и информационно-коммуникационные технологии (ИКТ), в повышении прозрачности, подотчетности и социально-политической вовлеченности граждан. Также авторы рассматривают проблемы, связанные с этими цифровыми инициативами, такие как опасения относительно конфиденциальности и безопасности данных. Египет может использовать цифровую трансформацию для создания более справедливого и равноправного общества, выполняя свои обязательства по ЦУР и создавая основу для эффективного государственного управления.

Ключевые слова: цифровая трансформация, искусственный интеллект, информационно-коммуникационные технологии, ЦУР, государственное управление, ЦУР-16, электронное правительство, Египет, экономический рост, Egypt Vision 2030, Цифровой Египет

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Список литературы / References::

Aboelazm, K. (2022). The Role of Digital Transformation in Improving the Judicial System in the Egyptian Council of State. *Journal of Law and Emerging Technologies,* 2(1), 11–50.

Elgohary, E.M. (2022). The Role of Digital Transformation in Sustainable Development in Egypt. *The International Journal of Informatics, Media and Communication Technology,* 4(1), 11–121.

Kamel, S. (2021). The Potential Impact of Digital Transformation on Egypt. Giza, Egypt: Economic Research Forum (ERF).

McCorduck, P. (2004). Machines Who Think: A Personal Inquiry into the History and Prospects of Artificial Intelligence. A.K. Peters. CRC Press.

Patel, K. & O'Malley, M. (2023). The Future of Work: Adapting to AI and Automation in the Workforce. Technology, Work, and Employment, 38(2), 195-210

Ramadan, I. & Abdel-Fattah, M. (2022). A Proposed Model for Enhancing E-Government Services to Achieve the Sustainable Development Goals in Egypt. Case Study. *Journal of Theoretical and Applied Information Technology,* 100(1).

Smith, J. & Chang, E. (2023). Data Privacy in the Age of Artificial Intelligence: Challenges and Solutions for Privacy Protection in AI Systems. *Journal of Cybersecurity and Privacy,* 3(1), 22-37.

Taylor, L., Floridi, L. & Van der Sloot, B. (2017). Group Privacy: New Challenges of Data Technologies. Springer.

Vinuesa, R., Azizpour, H., Leite, I., Balaam, M., Dignum, V., Domisch, S. & Ashfaq, A. (2020). The Role of Artificial Intelligence in Achieving the Sustainable Development Goals. *Nature Communications,* 11(1).