The American University in Cairo
School of Global Affairs and Public Policy
Department of Public Policy and Administration

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This issue is respectfully dedicated to the memory of our esteemed Professor, Dr. Laila ElBaradei, whose legacy will continue to inspire and remain deeply cherished within our community.

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Our Editorial Board

Journal Editors

Preface

It is my distinct honor to introduce this latest issue of the Journal of Middle East Review of Public Policy and Administration (MERPPA), which assembles a series of scholarly contributions addressing pivotal challenges and transformations at the nexus of governance, innovation, inclusion, and development within the field of public policy.

This issue opens with Asmaa Abdel-Mawla Hassan's comparative analysis on *artificial intelligence governance in Egypt and the European Union*. Her study offers a nuanced perspective on how different regulatory approaches can converge on shared values—such as transparency, inclusivity, and safety—while highlighting mechanisms that foster responsible AI. This research not only elevates the discourse around harmonizing AI policy but also encourages leveraging robust regulatory models, such as the EU AI Act, to enrich national frameworks without compromising local priorities.

Amal Tobich's article turns our attention to *the political economy of Solar Energy in the MENA region, specifically in Jordan and Morocco*. Through a critical examination of socio-political impacts and governance structures, the paper explores how the rise of renewables can be both a catalyst for democratic reform and a tool for consolidating authoritarianism. This work deepens our understanding of how innovation in energy policy can reshape administrative responses to sustainability and governance.

On the social policy front, Nihal Mahmoud Hashem investigates *the economic participation of refugee women in Egypt.* Her research exposes the compounding barriers faced by displaced populations, from limited employment and educational opportunities to heightened risks of social exclusion. By evaluating both policy frameworks and lived realities, the article offers recommendations to unlock the potential of refugee women and promote more inclusive economic development.

In the realm of leadership and capacity building, Bassem Rashed's contribution assesses *the effectiveness of executive training centers in Egypt, the UAE, and Jordan.* His findings invite a critical reflection on how these institutions can rise to the challenge of preparing public leaders for complex governance environments, while also acknowledging persistent limitations and areas for improvement.

Finally, Dr. Karim Hamza provides a strategic analysis of *Egypt's ICT sector competitiveness,* benchmarking progress against global peers and mapping out actionable priorities for policy reform, talent development, industry collaboration, and innovation. This paper serves as a valuable guide for stakeholders aiming to strengthen Egypt's digital economy and support the country's broader vision for sustainable growth and global engagement.

Collectively, the works featured in this issue exemplify the journal's commitment to rigorous analysis and actionable insight. They reflect the diverse and interconnected dimensions of contemporary public policy, from the micro-level inclusion of marginalized groups to macro-level transitions in governance and economic competitiveness.

I extend my deep gratitude to our contributors, peer reviewers, and editorial team for their unwavering dedication, as well as to our readers and institutional partners for their continued support. I encourage you to engage with the scholarship presented here, to share your perspectives, and to contribute your own research in future issues as we endeavor to advance knowledge and practice in public policy.

Sincerely,

Shahjahan Bhuiyan

Professor and Interim Department Chair

Department of Public Policy and Administration & Associate Dean for Undergraduate Studies and Administration

School of Global Affairs and Public Policy

The American University in Cairo

July 25, 2025

The American University in Cairo
School of Global Affairs and Public Policy
Department of Public Policy and Administration

Middle East Review of Public Policy and Administration (MERPPA)

Toward Trustworthy AI: Insights from the Egyptian Charter and the EU AI Act

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Abstract

This research contributes to the evolving knowledge about artificial intelligence governance through a comparative analysis of Egypt and the European Union regarding their approaches toward regulating AI. It focuses on the Egyptian Charter for Responsible AI alongside the EU AI Act. The analysis examines the core values safeguarded and the mechanisms adopted by both. While Egypt has issued non-binding generic guidelines, the EU has introduced the first comprehensive, detailed legal framework. Using content analysis as a qualitative method, the study finds that Egypt and the EU share a commitment to safeguarding five key values: transparency and explainability, a human-oriented approach, inclusivity and fairness, privacy and data management, and safety. In addition, the study encourages taking advantage of attitudes in the EU AI Act, particularly mechanisms designed to support effective AI governance, such as adopting a risk management approach, supporting entrepreneurship and startups through regulatory AI sandboxes, and establishing regulatory authorities to uphold the rule of law and mitigate associated risks without compromising local priorities and specialties.

Keywords: *AI Governance, EU AI Act, Ethical AI, Risk Management.*

1. Introduction

Research in Artificial Intelligence (AI) was initiated in the mid-20th century. The term was first used by John McCarthy at the Dartmouth Conference in 1956 (Ali, 2023); however, AI has flourished and been developed and deployed in many sectors in the first decades of the 21st century, thanks to rapid improvements in machine learning techniques, big data, and supercomputers (Sargiotis, 2024). Recently, AI applications are even closer to our daily lives as the number of users of AI tools surpassed 310 million in 2024 and is expected to exceed 700 million by 2030 (Statista Research Department, 2024). The AI market is anticipated to expand more than six times in the nearest future, from $214 billion revenue in 2024 to $1,339 billion by 2030 (Haan, 2024), this could be interpreted by the massive expansion of generative AI and continuous development in language models (United Nations Systems, CEB, 2024)

AI refers to intelligence shown and executed by machines that replicate human intelligence (Prunkl, 2024; Sharawy, 2023). This kind of intelligence lacks emotions and awareness (Sharawy, 2023). It is deployed in many domains by private and public entities such as healthcare (Bullock et al., 2024; Sargiotis, 2024), education (Sharawy, 2023; Ali, 2023; Sargiotis, 2024), transportation (Ali, 2023), fintech (Soundenkar et al., 2024), security and military (Bullock et al., 2024; Dafoe, 2024).

Both private and public sectors benefit from applications and innovations powered by AI. The widespread use of AI has raised its influence on citizens. It resulted in various advantages, including improved health and wealth (Dafoe, 2024), enhanced task performance accuracy and efficiency, and more effective public service delivery (Mikhaylov et al., 2018). It also raised attention to some potential risks (Ali, 2023; Sargiotis, 2024), such as lack of transparency (Thelisson et al., 2019), the concentration of power (Dafoe, 2024; Thelisson et al., 2019), privacy violation (Ibrahim, 2022), inequality, and social discrimination (Yeung et al., 2020). Dafoe (2024) believes that "the impacts from AI could exceed the effects following the nuclear revolution or industrial revolution" (p. 21)

The excessive use of AI in various operations and processes has made it crucial for decision-makers to consider developing a set of rules and regulations that govern the use of AI and protect societal core values (Cancela-Outeda, 2024). These rules should not be limited to the present; it is vital to anticipate the future to effectively cope with the rapid changes in the AI industry and its applications. This raised the need for AI governance to build trust among AI users and guarantee its ethical use. It is crucial that society carefully governs AI usage (Bullock et al., 2024). Governance of AI refers to the set of norms, rules, regulations, and processes that organize and coordinate the relationships among all parties involved in developing and deploying AI, with the aim of achieving the public good (Bullock et al., 2024). There are three main stakeholders in AI development and deployment: the private sector, governments, public authorities, and individuals (Thelisson et al., 2019). AI governance should establish clear boundaries among different stakeholders in the AI ecosystem, preventing any of them from dominating another. Effective AI governance is expected to provide certainty, promote innovation and economic growth, and foster public trust in emerging technologies (Cancela-Outeda, 2024), while balancing and respecting human rights and societal core values.

Establishing norms and rules governing AI development and deployment is challenging due to the rapid evolution of AI technologies and the slow pace of rulemaking. In this research, a focus is paid to Egypt and the European Union. Egypt established the National Council for Artificial Intelligence (NCAI) in 2019 to regulate the ethical use of AI and address the potential risks to users and society. It published the Egypt AI Strategy in the same year (Pasquarelli, 2022). Later, in 2023, the Egyptian Charter for Responsible AI was introduced. On the other hand, the European Union (EU) has a pioneering role by issuing the first general legal framework (Mökander et al., 2022), regulation (EU) 2024/1689, entered into force on August 1, 2024.

This research examines the efforts made by Egypt and the European Union to harness AI technologies to mitigate potential risks. It analyzes the key values safeguarded by the guidelines and regulations issued by both parties. Additionally, it presents some adopted measures and mechanisms for the trustworthy use of AI technologies. The remainder of this paper is structured as follows: a background section highlighting some regulatory theories linked to approaches adopted by Egypt and the EU. Also, it proposes progress made by Egypt and the EU regarding AI governance, followed by a statement of research purpose and questions. The fourth and fifth sections are about the conceptual framework and methodology, respectively, while the sixth and seventh sections present the findings and discussion of this research. The final section concludes with key insights and their policy implications.

2. Research Purpose and Questions

This research aims to elaborate on efforts exerted toward the trustworthy use of AI by highlighting core values safeguarded by guidelines and regulations adopted by Egypt and the European Union, specifically in the Egyptian Charter for Responsible AI and the EU AI Act. Additionally, this research investigates mechanisms adopted by both parties to enhance effective AI governance, making a modest contribution to the evolving body of knowledge on AI and how to integrate AI technologies in societies effectively.

To reach the purpose mentioned, this study raises three main research questions:

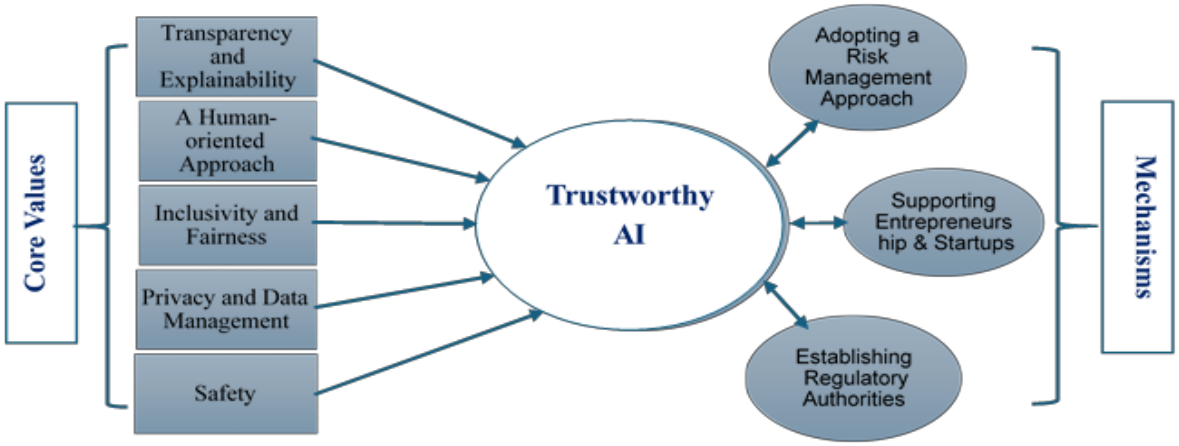
- What core values are safeguarded by the Egyptian Charter of Responsible AI and the EU AI Act?
- How do the Egyptian Charter of Responsible AI and the EU AI Act safeguard core values?
- What main mechanisms are adopted by both parties to ensure effective AI governance?

3. Conceptual Framework

The conceptual framework for this study centers on trustworthy AI. It integrates five core values concluded from the Egyptian Charter and the European AI Act: transparency and explainability, a human-oriented approach, inclusivity and fairness, privacy and data management, and safety. Additionally, it proposes three mechanisms that both parties follow to ensure trustworthy AI, including adopting a risk management approach, supporting entrepreneurship and startups, and establishing regulatory authorities.

This research proposes that effectively addressing and incorporating core values into AI guidelines and regulations will lead to trustworthy AI and effective AI governance. On the other side, robust mechanisms are required to ensure compliance with trustworthy AI rules. This research proposes that the successful implementation of those mechanisms is expected to have a positive impact on attaining trustworthy AI. The following diagram visually illustrates the main concepts in this study and their mutual relations.

Figure 1- Conceptual framework (illustrated by the author)



4. Methodology

This research employs a qualitative methodology, utilizing in-depth content analysis (Berg, 2009). Research entitling examination and interpretation of regulatory tools, official documents published by both the Egyptian Government and the European Union, and literature about AI Governance. The Egyptian Charter for Responsible AI and the European Union AI Act are two primary documents to be analyzed. This analysis aims to identify the core values protected by these rules and mechanisms to attain effective AI governance.

Analyzing attitudes and patterns provided in the regulatory tools helped identify themes through inductive reasoning. Inductive reasoning proceeds from the specific to the general (Berg, 2009). This study proposes a roadmap for policymakers and stakeholders to consider when developing future AI rules and regulations.

5. Findings

The findings of this paper focused on three major divisions, which are; defining AI and identifying its societal implications, a comparison of national regulatory frameworks between Egypt and EU and identifying the shared values, key mechanisms regarding the future of AI Governance.

5.1. Defining AI and Identifying its Societal Implications

Artificial intelligence is a rapidly evolving field, and its interpretation varies significantly across disciplines. This has led to a lack of a universally agreed-upon definition (Mökander et al., 2022). Nevertheless, both Egypt and the European Union have anchored their regulatory efforts to the definitions put forth by the Organization for Economic Co-operation and Development (OECD). Egypt initially adopted an earlier version of the OECD AI Principles (OECD, 2019), while the European Union has aligned with the more recent, updated OECD definition published in 2024. This latest definition emphasizes the autonomous and adaptive nature of AI systems, describing an AI system as "a machine-based system that, for explicit or implicit objectives, infers from the input it receives how to generate outputs such as predictions, content, recommendations, or decisions that can influence physical or virtual environments; different AI systems vary in their levels of autonomy and adaptiveness after deployment" (OECD, 2024a, p.4). This shared conceptual foundation, despite minor variations in adoption timelines, underscores a global recognition of AI's transformative potential.

However, alongside the opportunities presented by AI, researchers have extensively highlighted the potential risks to people's safety and fundamental rights, particularly when public authorities integrate AI into public services (Laux et al., 2024; Mikhaylov et al., 2018). Both Egypt and the EU acknowledge these critical concerns. Shared risks include a pervasive lack of transparency in AI systems, threats to privacy and the risk of data leaks, the unsettling fear of discrimination and bias within AI outputs, and the significant potential for marginalizing vulnerable groups. Beyond these universal concerns, Egypt also emphasizes specific risks pertinent to its national context, such as the apprehension of rising unemployment rates due to AI adoption and the potential erosion of unique cultural and linguistic nuances. This distinction in emphasis is also reflected in their preferred terminology: Egypt's National AI Strategy champions "responsible and ethical AI," whereas the European Union opts for "trustworthy AI" to

encapsulate systems that are not only safe but also ethically compliant and respectful of fundamental rights. The varying terminologies reflect nuanced priorities but converge on the fundamental goal of ensuring AI serves humanity positively.

5.2. National Regulatory Frameworks: Egypt's Soft Law vs. the EU's Comprehensive Legislation:

Every society endeavors to localize AI guidelines and policies to directly address its unique priorities, specific needs, and the distinct characteristics of its populace. This involves navigating various regulatory tools to safeguard societal values and achieve national objectives (Marwala, 2024). Egypt provides a clear example of this approach, with its foundational steps including the Egyptian Charter for Responsible AI and the accompanying National AI Strategy (OECD, 2024b). The Egyptian Charter is designed as a principles-based regulatory tool, emphasizing broad, outcome-oriented standards. It offers ethical guidelines focused on principles like transparency and fairness rather than imposing rigid, specific legal obligations (OECD, 2024b). This places it firmly within the category of "soft law" governance tools, meaning its rules are non-binding and do not carry direct legal consequences for violations. However, this initial approach is not an endpoint; rather, it paves the way for deeper conversations and potential future adoption of more dedicated and comprehensive AI regulations. Crucially, the Charter and Strategy champion a new form of governance by actively encouraging participatory and collaborative efforts among the diverse stakeholders within the AI ecosystem (Saran et al., 2024). This aligns with the "regulatory pyramid" proposed by Ayres and Braithwaite (1992), which advocates for starting with softer measures and incrementally escalating to more enforcement-oriented instruments as needed. Currently, Egypt's broader legal framework relevant to emerging technologies includes intellectual property law (no. 82/ 2002), consumer protection law (no. 181/ 2018), anti-cybercrimes law (no. 175/ 2018), personal data protection law (Law no. 151/ 2020), and general rules embedded within its civil and criminal laws.

In stark contrast, the European Union has taken a groundbreaking step by issuing the world's first comprehensive legal framework for AI: the EU AI Act (Mökander et al., 2022). This extensive Act, comprising 113 articles, aims to regulate the entire lifecycle of AI systems across all EU member states. Having entered into force on August 1, 2024 (Butt, 2024), the Act employs a robust command-and-control regulatory style seamlessly integrated with a risk-based approach (Hacker, 2023). The command-and-control model is evident in its strict requirements for conformity assessments and post-market monitoring procedures (Hacker, 2023). The risk-based approach is central to the Act's structure, classifying potential harm from AI systems into four distinct categories based on their severity and anticipated impact on people’s safety, health, and fundamental rights (Laux et al., 2024; Mökander et al., 2022). This regulatory philosophy, designed to control activities that create risks of harm, utilizes instruments such as established standards, outright prohibitions, and mandatory risk and impact assessments to regulate behavior proactively, before potential harm manifests (Botero Arcila, 2024). The Act deliberately mandates a multi-instrument approach rather than a one-size-fits-all regulation, specifically targeting those AI systems that pose the most significant risk to life, safety, and fundamental rights (Laux et al., 2024).

The EU AI Act meticulously classifies AI systems into four groups based on their risk profile. The first group comprises prohibited AI practices, which are deemed to present unacceptable risks, such as systems that manipulate individuals or affect their free will,

leading to unethical or harmful decisions (e.g., social scoring, dark-pattern AI, and manipulative systems). The second and most significant group consists of high-risk AI systems, which form the core subject of the Act. These include systems used in critical sectors like education, employment, justice, immigration, and law enforcement, all of which must adhere to stringent measures, including conformity declarations, before being placed on the market. The third and fourth groups, respectively, encompass limited-risk AI systems (e.g., chatbots and deepfake systems) and minimal-risk AI systems (e.g., spam filters and video games). For these latter two categories, the Act employs softer regulatory techniques, encouraging self-regulation through transparency requirements and codes of conduct for developers and deployers. The Act's intricate design carefully balances market conditions with the imperative to mitigate potential risks and protect users (Hacker, 2023), thereby balancing power dynamics between AI providers and users. This comprehensive approach is not an isolated initiative but builds upon the EU's existing robust framework for digital innovation, including the General Data Protection Regulation (entered into force on May 23, 2018), Digital Governance Act (June 23, 2022), Digital Market Act (November 1, 2022), and Digital Services Act (November 16, 2022).

5.3. Shared Values, Key Mechanisms, and the Future of AI Governance

The first value is transparency and explainability, which is paramount for building trust among AI users. This is achieved through specific measures, such as the requirement to provide proper and sufficient information about the purposes, scope, and decision-making processes of AI systems, empowering end-users with the right to interpret the logic behind AI systems' decisions. Additionally, developers of AI systems must declare the degree of human-machine intervention in their systems. The second value governs the relationship between human and AI systems, stipulating that AI systems must prioritize the welfare of society rather than merely replacing human labor. This necessitates human oversight for all AI systems related to the public domain, thereby promoting accountability for recommendations and decisions generated by AI systems. Thirdly, inclusiveness and fairness are emphasized, ensuring that AI systems do not lead to any form of discrimination and actively "leave no one behind." This means all vulnerable groups in society must be adequately represented in the training data and algorithms that govern the outputs of AI systems. Both Egypt and the EU address this by encouraging the localization of AI technologies, deploying diverse teams that include domain experts to validate AI system results, and ensuring input data is sufficient and comprehensive for all beneficiaries. The fourth value is intrinsically linked to privacy and data management. This is addressed by requiring the confidentiality of sensitive data, imposing strict restrictions on data transmission and access by third parties, and mandating that developers provide a robust data management plan. The fifth and final identified value is safety. Both Egypt and the EU have established clear rules to ensure that AI systems do not cause harm to health and life, with particular concern and provisions for vulnerable groups such as children, the elderly, and people with disabilities.

Beyond these shared values, the research highlights other crucial findings concerning the mechanisms adopted by Egypt and the EU AI Act. Firstly, AI developers and providers are mandated to furnish a risk management plan that addresses all phases of the AI system's lifecycle, with particular emphasis on the post-market phase, to proactively eliminate any potential risks. Secondly, there is a strong emphasis on

supporting small and medium enterprises (SMEs), which are recognized as essential for fostering the national AI industry and facilitating the localization of emerging technologies. Governments are encouraged to provide appropriate technical, financial, logistical, and legal support. The EU Act notably introduces regulatory AI sandboxes as a direct mechanism to foster innovation while simultaneously mitigating risks. These AI Regulatory Sandboxes, functioning as learning tools, create a safe space to test the use of AI systems and gather valuable knowledge for proper amendments (Wansley, 2016). They also allow for crucial future modifications to the list of high-risk AI systems (Annex III of the EU AI Act, Article 7) to adapt to the inherently changing nature of AI technology.

The EU AI Act's scope is notably comprehensive, addressing deployers from both public authorities and the private sector providing public services. It explicitly extends its implementation to providers, importers, distributors, and users of Artificial Intelligence within the European Union, as well as those outside the European Union if they place AI products on the EU market or have a direct impact on European residents (Edwards, 2021). This expansive reach effectively addresses the transnational nature of AI services and applications. However, it's important to note that the Act does not apply to AI systems used for military, defense, or security purposes, or for personal, non-professional use (Edwards, 2021). Ultimately, this research concludes that effective AI governance is unattainable without the presence of robust entities responsible for establishing standards for AI development and deployment, monitoring various AI stakeholders, and ensuring their compliance with AI laws and guidelines. While Egypt tends to centralize this authority, the EU demonstrates a varied approach, involving national-level, union-level, and private sector participation, regulating collaboration among them to ensure adherence to its comprehensive rules. This comparative analysis underscores the global effort towards harnessing AI responsibly, while also highlighting the diverse pathways nations are taking to achieve this critical objective.

6. Discussion

This section provides a detailed examination of the identified core values adopted by Egypt and the EU. Although Egypt and the European Union have different starting points in regulating AI systems, both share the same commitment to safeguarding common societal values. Additionally, this section elaborates on selected measures and mechanisms adopted by both parties to ensure effective AI governance.

6.1. Core Values Safeguarded

6.1.1. Transparency and Explainability

Transparency in AI systems, particularly concerning data collection, usage, and decision-making processes, presents significant challenges (Ibrahim, 2023). This challenge has led both Egypt and the EU to identify transparency as a core value within their respective frameworks: the Egyptian Charter for Responsible AI (2023) and the EU AI Act (2024). The Egyptian Charter requires AI developers to provide "clear, explainable, and transparent AI solutions" (Egyptian Charter, Article 8, Implementation Guidelines). The EU AI Act goes further, mandating that developers and providers offer detailed, sufficient, and transparent information about their systems, including their purpose, scope, and decision-making processes (Mökander et al., 2022). They must also provide contact information and clear details on potential effects on vulnerable groups, along with necessary corrective actions.

Under Article 21 of the EU AI Act, providers of AI systems are obligated to furnish proper and sufficient information to the competent authority upon a reasoned request, enabling conformity checks. This includes providing detailed logs of AI system activities when necessary. Furthermore, explainability is crucial, as Sargiotis (2024) notes, requiring AI system outputs to be comprehensible to end-users. This aligns with Article 2 of the Egyptian Charter's General Guidelines and Article 50 of the EU AI Act. The EU Act specifically requires developers and deployers to inform users about the degree of machine and human intervention in decision-making and to specify the accuracy level of AI systems. The Egyptian Charter grants users the right to understand the logic behind an AI system's output in a clear and comprehensible manner, empowering them to challenge predictions, recommendations, or decisions (Egyptian Charter, Article 4, General Guidelines). The Egyptian Charter also promotes broader transparency by encouraging open dialogues among all stakeholders in the AI ecosystem to raise awareness about ethical AI use, highlighting both benefits and potential risks (Egyptian Charter, Article 12, General Guidelines).

6.1.2. A Human-oriented Approach

AI systems, while designed to benefit humanity, also pose potential risks to human autonomy (Laitinen & Sahlgren, 2021; Prunkl, 2024). The Egyptian Charter emphasizes that AI systems should prioritize the well-being of people (Egyptian Charter, Article 1, General Guidelines), aiming to contribute to Sustainable Development Goals when used in government. A unique aspect of Egypt's human-oriented approach is its concern about rising unemployment rates due to excessive AI adoption, particularly affecting unprepared populations (Ibrahim, 2023). Therefore, the Charter states that AI systems should not be designed to replace human labor and suggests measures like training programs to facilitate a fair transition in case of job losses (Egyptian Charter, Article 6, General Guidelines).

Both the EU AI Act and the Egyptian Charter mandate human oversight of AI systems. The Egyptian Charter stipulates that natural persons must be responsible for the behavior and outcomes of AI systems throughout their lifecycle (Egyptian Charter, Article 10, General Guidelines). This ensures humans retain the ability to make final decisions, and to stop, modify, or retire any AI-generated output, thereby promoting accountability and user trust. Similarly, the EU Act requires appropriate human oversight for high-risk AI systems to ensure legal compliance. It also cautions overseers against "automation bias"—over-reliance on system recommendations—and emphasizes their ability to interpret final decisions and discern when to rely on, disregard, or modify AI outputs, including the power to halt processes if necessary. The Act further stresses that individuals responsible for oversight must be qualified, trained, and authorized, even requiring dual verification by natural persons for some high-risk AI systems. The scope of human oversight is detailed in Article 11 of the Egyptian Charter and Article 14(4) of the EU AI Act.

6.1.3. Inclusivity and Fairness

A growing concern surrounds the potential for AI technologies to exacerbate discriminatory practices and bias against minority groups (Sargiotis, 2024). Fairness in AI systems, as Hendrycks et al. (2021) suggest, means treating similar cases alike, requiring AI developers to address potential biases in both input datasets and algorithms. Both the Egyptian Charter and the EU Act mandate that input training data must be comprehensive and adequately representative of prospective beneficiaries,

including minorities (Habbal et al., 2024). Developers are encouraged to use diverse data and unbiased models to promote fairness in outputs (Egyptian Charter, Article 6, Implementation Guidelines).

Promoting diversity within the AI workforce is also advocated by Sargiotis (2024) to mitigate bias and address the needs of all societal groups. The Egyptian Charter specifically encourages AI developers to form diverse teams, including system architects, AI engineers, data scientists, cybersecurity experts, domain experts, and project managers (Egyptian Charter, Article 3, General Guidelines; Article 4, Implementation Guidelines). Domain experts are particularly vital for validating the relevance of AI system results. Recognizing that AI technologies are often developed by international companies, creating a risk of cultural gaps when implemented nationally (Sargiotis, 2024), Egypt's AI strategy emphasizes the importance of localization (Ibrahim, 2023). The Egyptian Charter requires foreign companies deploying AI systems in the Egyptian market to demonstrate that their systems are trained using legally accessible local data and respect local traditions and norms (Egyptian Charter, Article 13, Implementation Guidelines). This includes addressing the cultural impact of systems, especially in Natural Language Processing, to preserve Arabic as Egypt’s primary language, along with local dialects and linguistic variations (Egyptian Charter, Article 9, Implementation Guidelines).

Both in Egypt and the EU, AI systems are required to undergo examination before market placement or use to prevent any form of discrimination. The EU Act mandates post-market monitoring to mitigate biases, particularly for continuous machine-learning systems that evolve based on user data, requiring developers to take precautions against future bias (EU AI Act, Article 15(4)). Furthermore, acknowledging that AI should serve humanity broadly, both frameworks emphasize the role of AI in improving the lives of people with disabilities. The EU Act requires AI systems to comply with the Web Accessibility Directives 2016/2102 and 2019/882 to ensure inclusivity and equitable access for all.

6.1.4. Privacy and Data Management

The AI revolution, heavily reliant on big data, poses significant risks to privacy. Egypt’s National AI Strategy (2019) proposes a data classification scheme based on sensitivity, applying appropriate security measures. For instance, customer information and human resources data are deemed high-risk, while marketing information is lower risk (p. 48). Though the Egyptian Charter doesn't detail specific measures for these categories, the National AI Strategy (2019) promotes a comprehensive data strategy for AI developers. This strategy defines roles and responsibilities for data actors (owners, curators, users), collaboration processes, and governing policies, emphasizing transparency through clear communication about data sharing, purpose, and economic benefits, while addressing concerns (p. 49).

The EU AI Act imposes key measures for privacy protection (Musch et al., 2023). This includes the obligation to protect sensitive information such as ethnic group data, religious beliefs, political opinions, and biometric data. The Act requires AI developers and deployers to maintain detailed activity logs for this data and provide them to competent authorities when necessary (Butt, 2024). Additionally, it mandates data anonymization and encryption, prohibits unauthorized data transmission, transfer, and access by third parties, and requires written consent from data owners, except for publicly available data (Musch et al., 2023). This aligns with Article 11 of the Egyptian

Charter's implementation guidelines. The Act also safeguards the privacy of any information provided by AI system providers and deployers to competent authorities.

Data management is a crucial component of effective AI governance, as it protects privacy and mitigates bias (Musch et al., 2023). A data management plan, as outlined in Article 10(2) of the EU AI Act, encompasses the type of data, collection purposes and tools, original source, preparation and processing, design choices, and data availability and suitability. Article 17 of the EU Act requires developers to provide such a plan as part of their Quality Management System, covering all cycles of data processing and investigating potential bias or discrimination during training, testing, and validation.

6.1.5. Safety

Both the Egyptian Charter (Article 3, General Guidelines) and the EU AI Act (Article 1) strongly emphasize the safe use of AI systems, ensuring that no harm to health or safety should be anticipated or result from their use, with particular consideration for vulnerable groups like children, older adults, women, and individuals with disabilities. The degree of safety is a primary criterion for determining an AI system's risk level (EU AI Act, Article 7). The Egyptian Charter advocates for future laws that would establish certification mechanisms to ensure AI systems are safe and adhere to ethical standards.

This focus on safety must extend across all AI system lifecycles (Egyptian Charter, Article 1, Implementation Guidelines). Continuous testing is crucial to ensure system safety before market deployment (Smuha et al., 2021). For example, rigorous validation during data collection is essential to eliminate biases that could impact individual safety and health. Furthermore, new AI systems should provide a pilot or proof of concept for review to confirm technical viability and compliance with safety requirements before being made available to users.

6.2. Mechanisms Toward Trustworthy AI

6.2.1. Adopting a Risk Management Approach

Both the Egyptian Charter and the EU AI Act underscore the importance of risk management. The Egyptian Charter requires AI system developers to adopt a systematic risk management approach throughout all phases of the AI system's lifecycle (Egyptian Charter, Article 7, Implementation Guidelines). Similarly, the EU AI Act mandates that high-risk systems establish a comprehensive risk management system (Mökander et al., 2022; EU AI Act, Article 9). The EU Act provides detailed elements for such a system, requiring providers to identify and analyze known and foreseeable risks, evaluate them, and adopt appropriate mitigation measures. Risk management must specifically consider potential risks to privacy and safety (Habbal et al., 2024), including a thorough assessment regarding vulnerable groups.

Schuett (2024) highlights that a robust risk management plan is crucial for controlling AI systems and mitigating potential risks, including misuse and accidents. This proactive approach involves regularly monitoring the market after AI systems are released to check for any potential data drift and its consequential effect on system output, ensuring continuous safety and effectiveness.

6.2.2. Supporting Entrepreneurship and Startups

Recognizing that the AI industry is largely dominated by big businesses, which can reinforce global power imbalances, Egypt's AI Strategy (2019) emphasizes the crucial objective of encouraging youth initiatives in AI technology. Empowering young

entrepreneurs with legal, ethical, and technical knowledge is seen as vital for shaping the future of AI development in Egypt. Furthermore, the Egyptian Charter (2024) encourages prioritizing support for small and medium-sized enterprises (SMEs) and startups developing AI systems, ensuring their access to data without compromising privacy (Egyptian Charter, Article 13, General Guidelines).

The European Act shares a similar interest in supporting SMEs and startups, notably introducing regulatory AI sandboxes as a valuable tool to foster innovation (Truby et al., 2022; EU AI Act, Articles 57 to 62). This aims to ensure new AI systems align with the AI Act and mitigate risks associated with new high-risk AI systems. The Act obliges member states to establish AI regulatory sandboxes, either jointly or individually, within two years after August 2024, and to open these sandboxes for voluntary participation from developers. Member States are required to allocate sufficient financial, technical, and human resources to establish these sandboxes, facilitating and harmonizing efforts among various actors in the AI ecosystem.

Regulatory AI sandboxes provide a controlled environment for AI developers and innovators to work on and test new AI systems. SMEs and startups receive priority access under the supervision of competent authorities (Truby et al., 2022). Developers in these sandboxes are permitted to test their systems using real datasets lawfully collected for other purposes, under supervision, with adequate measures to prevent risks to fundamental rights or data subject safety (Ranchordas, 2021). These sandboxes foster collaboration and the sharing of insights and best practices between developers and authorities, reinforcing a reality-based approach focused on the real-world consequences of AI applications (Hallamaa & Kalliokoski, 2022). European States can establish general sandboxes or specialized ones for specific sectors like healthcare, justice, and financial services (Truby et al., 2022). Under the EU AI Act, AI sandboxes play a vital role in effective AI governance by linking authorities and developers, allowing authorities to identify potential risks during the testing phase (Butt, 2024). Competent authorities, in collaboration with AI developers, are tasked with addressing and mitigating these risks before AI systems are deployed commercially (Ranchordas, 2021). This supervision is expected to lead to more ethical and responsible AI and reinforce public trust in new AI technologies. Additionally, close monitoring of emerging challenges and risks simplifies the process of adjusting regulatory frameworks.

6.2.3. Establishing Regulatory Authorities

A crucial measure for achieving trustworthy AI and ensuring the ethical use of its systems is the establishment of robust regulatory bodies. These bodies are essential for setting standards and guidelines for AI development and deployment. They monitor stakeholders within the AI ecosystem, ensure their compliance with AI guidelines (Cancela-Outeda, 2024), facilitate effective collaboration, and provide AI solutions for governmental challenges.

In Egypt, all AI projects are expected to be undertaken and supervised under the umbrella of the Egyptian Ministry of Communication and Information Technology (MCIT) (Egyptian Charter, Article 16, Implementation Guidelines), aiming to maintain the credibility and quality of AI system inputs and outputs. The first dedicated governmental authority for AI in Egypt is the National Council for Artificial Intelligence (NCAI), established on November 21, 2019. Affiliated with MCIT and chaired by its Minister, the NCAI includes representatives from government entities,

the private sector, independent experts, and heads of relevant bodies. Its mandate includes implementing and governing Egypt's AI strategy in coordination with experts and entities (OECD, 2024b). The Council is expected to develop implementation mechanisms based on international best practices and recommend national policies and frameworks for AI, covering technical, legal, and economic aspects. The NCAI is also tasked with identifying national priorities for AI applications, focusing on innovative, safe, and sustainable solutions and services. It recommends capacity-building programs and supports Egypt's AI industry, including initiatives to enhance public understanding of AI technologies and their potential risks (IBM, 2025).

In addition to the NCAI, Egypt has established the Applied Innovation Center (AIC) and the AI Center of Excellence (CoE). The AIC promotes the use of emerging information and communication technologies, particularly developing AI solutions for national challenges across public sectors like healthcare, agriculture, justice, and natural language processing (MCIT, 2020). It collaborates with research institutes, academia, and international entities to produce innovative ICT solutions (Ibrahim, 2023). The CoE aims to implement Egypt's National AI Strategy, developing and implementing AI projects in government. It also serves as a hub connecting AI developers with governmental entities seeking AI solutions. The CoE focuses on capacity-building and aims to curb brain drain in the AI industry by employing talented Egyptian researchers. Furthermore, it is expected to develop guidelines and standards promoting safe and responsible AI development and deployment.

At the European level, the EU AI Act introduces several entities at both national and Union levels to ensure compliance with its mandates and to harmonize efforts towards responsible and ethical AI development and deployment. Key entities include:

- **Notifying Authorities (NA):** Established by national governments of member states (EU AI Act, Articles 3(19), 28, 70), these authorities have legal personality and are responsible for designating and monitoring conformity assessment bodies, ensuring their competencies and independence.
- **Conformity Assessment Bodies (CAB):** Independent organizations mandated to evaluate AI systems for conformity with Act requirements (EU AI Act, Articles 3(21), 29, 43, 47). They receive declarations of conformity from providers and issue CE certificates, indicating compatibility with applicable standards. Both NAs and CABs must be objective, impartial, and independent, with sufficient resources and experienced personnel from various disciplines (IT, law, fundamental rights), acting with professional integrity and being liable for their conformity activities.
- **Market Surveillance Authorities (MSA):** Mandated to monitor market activities to ensure AI systems deployed comply with legal requirements (EU AI Act, Articles 3(26), 46, 70). Their role is crucial in mitigating risks from system updates or continuous learning AI systems. MSAs are also empowered to oversee corrective actions and enforce compliance by imposing sanctions on violators.

Collectively, these regulatory authorities and entities are expected to establish a thriving AI ecosystem, reinforce guidelines and regulations, and foster innovation while effectively mitigating risks.

7. Conclusion and Policy Implications

This research highlights the importance of regulating AI to achieve trustworthy AI as an emerging technology, as well as the challenges associated with this process. Egypt and the European Union share the same commitment to fostering AI governance through safeguarding a set of core values and establishing some mechanisms and measures to that end. Both started differently in regulating the development and deployment of AI systems. Egypt published the Egyptian Charter for Responsible AI in 2023, which is considered a principle-based approach, including general and implementation guidelines. The European Act (2024) introduced the first comprehensive regulatory framework with enforceable obligations.

Five core values were identified through an analysis of regulatory documents, official websites, and relevant literature. Those values, when properly addressed, will reinforce trust among AI users and guarantee the protection of life, health, and fundamental rights. Transparency and explainability are crucial among stakeholders in the AI ecosystem, and continuous human oversight is mandatory throughout the lifecycle of AI systems. Another core value is inclusivity and fairness. This value entitles that AI systems should be designed for the welfare of all members of society, respecting their diverse circumstances. Egypt and the EU gave specific concern to vulnerable groups, such as people with disabilities, children, and the elderly people.

The other two values are privacy and safety. Concerns related to these values were addressed in the Egyptian Charter and the EU AI Act by imposing specific obligations on the developers and providers of AI systems to control data breaches and mitigate any risk to health and life. Moreover, the paper discussed three measures and mechanisms adopted by Egypt and the EU to foster AI trustworthiness, including the adoption of a risk management plan, supporting SMEs and startups, and the establishment of competent regulatory authorities. The European Act outlines robust regulations regarding the three mechanisms that enlighten the way to decision-makers in other countries on how to design a comprehensive legal framework for AI development and deployment. These insights should be considered in local specialties and priorities. This research concludes that bridging the gaps in AI policy and implementation through effective collaboration among AI stakeholders is crucial to balance innovation and ethical considerations.

After discussing key values and mechanisms that lead to trustworthy AI, the study highlights new areas that require further investigation. Suggesting that future studies might explore more values and mechanisms aiming at effective AI governance, and focus on empirical research considering the application of measures and mechanisms adopted by the EU AI Act and investigate the degree of its feasibility and effectiveness in mitigating risks associated with AI technology, it is preferable to consider interdisciplinary teams to ease understanding the evolving nature of AI and its societal impact.

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Annex I

The following table indicates terms discussed in this paper and their corresponding articles from the Egyptian Charter for Responsible AI and the EU AI Act.

Discussed Values and Mechanisms	The Egyptian Charter for Responsible AI- 2023	The EU AI Act- (EU) 2024/1689
Transparency and explainability	General Guidelines: Articles 2, 4, 12 Implementation Guidelines: Article 8	Articles 16, 21, 50
Human-oriented approach	General Guidelines: Articles 1, 6, 10, 11	Article 14
Inclusivity and fairness	General Guidelines: Article 3 Implementation Guidelines: Articles 4, 6, 9	Articles 10, 15
Privacy and data management	Implementation Guidelines: Articles 3, 10, 11, 12	Article 10 Data management plan: Article 17
Safety	General Guidelines: Article 3 Implementation Guidelines: Article 1	Articles 1, 7
Adopting a risk management approach	Implementation Guidelines: Article 7	Article 9
Supporting entrepreneurship and startups	General Guidelines: Article 13	Regulatory AI sandboxes Articles 57 to 62
Establishing regulatory authorities	General Guidelines: Article 8 Implementation Guidelines: Article 16	Notifying Authorities: Articles 3 (19), 28, 70 Conformity Assessments Body: Articles 3 (21), 29, 43, 47 Market Surveillance Authority: Articles 3(26), 46, 70

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Powering Change: Solar Energy Innovations and Governance in the MENA Region "Jordan and Morocco Case Studies- Track A"

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Abstract

This paper examines the political economy of Solar Energy in the Middle East and North Africa (MENA) region, focusing on Jordan and Morocco. It analyzes the socio-political impacts of transitioning from fossil fuels to innovative renewable energy, especially how Solar Energy shapes authoritarian practices and governance structures. The study seeks to understand how various actors—state and non-state—embed Solar Energy discourses within democratic and authoritarian meanings, and whether this shift towards renewable energy fosters innovative political reforms or consolidates authoritarianism. By employing qualitative methods, including content analysis, this research evaluates the role of Solar Energy in building resilience within energy policies and governance. It assesses whether Solar Energy expansion leads to more inclusive energy politics or reinforces centralized, authoritarian control. Additionally, the research contributes to broader discussions on how innovation in renewable energy can shape public administration and policy responses to sustainability transitions in the MENA region.

Keywords: *Innovation, Solar, Governance, Authoritarianism, Resilience.*

1. Introduction

The Middle East and North Africa (MENA) region is undergoing profound transformations in its pursuit of energy security, climate change mitigation, and sustainable economic development. Central to this transformation is the adoption of renewable energy, particularly Solar Energy, which offers significant opportunities for reducing carbon emissions, diversifying economies, and ensuring long-term energy security. However, the transition to Solar Energy also presents substantial challenges, particularly in the realms of governance, public administration, and institutional adaptation. The extent to which MENA countries can leverage Solar Energy innovation will depend on how effectively they navigate the political economy of energy transitions, which is shaped by entrenched governance structures, particularly in authoritarian regimes.

The adoption of Solar Energy in MENA countries, notably Morocco and Jordan, has been closely linked to centralized governance models. These models facilitate the rapid deployment of large-scale solar projects, a key advantage in meeting ambitious renewable energy targets. For instance, Morocco has emerged as a regional leader in Solar Energy, with projects like the Noor Ouarzazate complex highlighting the country's ability to harness political control for large-scale renewable energy initiatives (Aoui, 2020). However, while these models

are efficient in project delivery, they are often criticized for lacking transparency, inclusivity, and equitable distribution of benefits. This lack of local engagement can marginalize communities, undermining the potential for broad-based socio-economic development and stifling local innovation (Vidican, 2015). In contrast, decentralized energy models, which emphasize stakeholder participation and adaptability, can foster more inclusive governance, though they require resilient policy frameworks to overcome political fragmentation and resource limitations (Hertog, 2013).

The intersection of authoritarianism and renewable energy transitions introduces another layer of complexity. In authoritarian regimes, renewable energy projects can serve to reinforce centralized control, consolidating power within the state apparatus. In Morocco, for example, the monarchy has utilized the transition to Solar Energy as a means to enhance both national energy security and political legitimacy (Aoui, 2020). While these projects offer the potential for economic growth and environmental benefits, they also risk exacerbating existing power imbalances, as local communities may be excluded from decision-making processes that affect their land and resources. On the other hand, more fragmented governance systems, such as Jordan's, face challenges in creating a coherent energy policy framework that balances decentralization with the need for efficient governance. In Jordan, the reliance on foreign aid and the absence of a clear energy sovereignty strategy complicate efforts to ensure the long-term sustainability and inclusivity of Solar Energy initiatives (IRENA, 2021).

Another crucial dimension of the energy transition in MENA countries is policy resilience. As the region contends with geopolitical instability, energy volatility, and climate-related risks, the ability of energy policies to adapt to these uncertainties is a key determinant of success. Resilient policies are those that integrate social, environmental, and economic objectives, while remaining flexible enough to address both short-term crises and long-term sustainability goals (Tagliapietra, 2018). Morocco's alignment of its renewable energy strategy with national economic objectives serves as an example of policy resilience, as it has successfully attracted international investment while pursuing energy diversification (IRENA, 2021). In contrast, Jordan's approach, which has focused on smaller-scale, decentralized solar initiatives, demonstrates a reactive but necessary form of policy resilience in response to regional energy crises.

This paper explores the complex interplay of innovation, authoritarianism, and policy resilience in the context of Solar Energy transitions in Jordan and Morocco. By examining the political and institutional dynamics that shape renewable energy adoption in these two countries, the paper seeks to provide a nuanced understanding of how energy transitions are both a technological and political process. In particular, it considers whether Solar Energy serves as a catalyst for political reform or merely reinforces existing power structures. Through this analysis, the study contributes to a broader understanding of the political economy of energy transitions in MENA and offers insights into how the region's governance models can evolve to foster more inclusive, sustainable, and resilient energy systems.

This research is situated within the broader theoretical frameworks of political economy and energy justice, emphasizing the need for governance structures that are capable of navigating the complexities of energy transitions in the context of authoritarianism. The paper argues that the adoption of Solar Energy in MENA countries, while offering

significant environmental and economic benefits, must be carefully managed to avoid reinforcing authoritarian governance and exclusionary practices. Ultimately, the successful integration of Solar Energy in the region will depend on the ability of governments to balance technological innovation with inclusive, transparent governance practices that promote social equity and long-term sustainability.

2. Research Problem and Questions

The analyzed literature has a gap in presenting a comprehensive analysis of the potential impact of the global energy transformation on the region and on its internal and external policies (Simone Tagliapietra, 2018; David Ramin Jalilvand, 2021). The research aims to provide an indepth understanding of how governance structures, innovations, and policy frameworks shape the adoption of Solar Energy .

This paper explores the political economics of Solar Energy in the MENA region by using Jordan and Morocco as case studies. First, it examines the ways in which public policy reforms, governance models, and sociopolitical dynamics interact with the use of renewable energy. Second, it examines whether the growth of Solar Energy promotes inclusive, democratic reforms or strengthens current authoritarian practices. The study intends to add to current discussions regarding how public administration in the MENA region can adapt to swift global changes while staying dedicated to equity, sustainability, and innovation by analyzing how state and non-state actors situate Solar Energy within conflicting narratives of democratization and control .

To shed some light on these puzzles, the paper addresses three specific sets of questions, related to 1) Innovation in Energy Transitions 2) Centralized Governance and Authoritarianism 3) Policy Resilience and Sustainability .

1. How Solar Energy technology advancements affect energy policies and governance models?
2. How authoritarian governance affects the resilience, adoption, and implementation of Solar Energy policies?
3. How changes in public administration, namely in terms of creativity, adaptation, and resilience to regional and global upheavals, are reflected in the Solar Energy transitions?
4. How well energy policy frameworks in the case studies manage internal and international issues while promoting inclusive, sustainable reforms?

3. Conceptual Framework

The research integrates these interrelated concepts: Innovation, Authoritarianism, and Policy Resilience to investigate the sociopolitical dynamics of Solar Energy transitions in the case studies of Jordan and Morocco. Using broader theories of governance, political economy, and energy justice, this paper investigates how the MENA region's current power, governance are impacted and transformed by renewable energy transitions.

3.1. Innovation in Energy Transitions:

This study employs Institutional Theory (North, 1990) to examine how political institutions influence the trajectory of energy innovations in Jordan and Morocco. Institutional Theory provides a lens to analyze how formal and informal governance

structures shape technological transitions and public policies. It underscores the role of institutions in either enabling innovation or entrenching existing power dynamics, particularly in authoritarian contexts .

The framework situates innovation as both a technological and governance tool, encompassing eco-innovations like photovoltaic (PV) systems, concentrated solar power (CSP), and decentralized energy mechanisms. It also explores how innovations interact with political systems to either reinforce centralized control or foster decentralization and inclusivity. By framing innovation within these dual roles, the study examines how governance structures, particularly Morocco's centralized model and Jordan's more decentralized approach, influence the adoption and distribution of Solar Energy technologies (Rennings, 2000; North, 1990) .

3.2. Governance and Authoritarianism:

The MENA region is significantly influenced by authoritarian environmentalism, where top-down governance strategies are used to tackle environmental issues, often with little local involvement (Lust-Okar, 2005; Schedler, 2006). In countries like Morocco, centralized governance allows for large-scale Solar Energy projects, which can be implemented quickly but may also exclude local communities and stifle bottom-up innovation. While such an approach can be efficient, it often reinforces central authority, limiting political participation and local adaptation to energy transitions. By using Political Economy Theory (CFI, 2015), this paper examines how the centralization of energy decision-making is influenced by both state power and international dependencies, showing how these forces shape energy transitions in authoritarian contexts. The theory highlights how energy transitions under centralized systems may prioritize efficiency and state control over inclusivity and local needs .

3.3. Policy Resilience and Sustainability:

Policy Resilience and Sustainability provide a framework to analyze the capacity of energy policies to adapt to shocks and evolving political, economic, and environmental conditions while maintaining long-term goals (Carlo Drago, 2022). The resilience of energy policy frameworks in both countries will be critical to the long-term success of Solar Energy initiatives. As the region is facing global environmental challenges, its ability to adapt and navigate political complexities will determine the sustainability of its energy transitions (UNICEF, 2021).

4. Methodology

The paper employs a qualitative research approach to investigate the sociopolitical dynamics of Solar Energy transitions in the MENA region using Jordan and Morocco as case studies. The methodology combines a comparative case study analysis and a comprehensive desk review, to explore the interaction of innovation, governance, and energy justice.

These countries are selected for their governance systems—Morocco’s centralized, stable monarchy versus Jordan’s resource-poor but similarly monarchic context—providing a comparative insight to analyze how political and institutional factors influence renewable energy governance. The case study method allows for an in-depth exploration of contextual specificities while identifying broader patterns and implications for the region.

This paper attempts to provide a qualitative and theoretically grounded understanding of the socio-political and economic effects of Solar Energy expansion in MENA region. With an emphasis on Jordan and Morocco, the study uses a trans-regional approach to examine how governance models, mobilization narratives, and fundamental political and economic dynamics are affected by renewable energy transitions and the innovation trends globally.

5. Findings

This paper critically examines the role of solar energy within the broader context of energy transitions and political shifts in the Middle East and North Africa (MENA) region. The findings are contextualized through a comparative analysis of case studies from Jordan and Morocco, specifically focusing on their respective renewable energy policies and investment landscapes.

5.1. Energy Transitions and Political Shifts in the MENA Region: The Role of Solar Energy:

The MENA region, home to half of the world's known oil and gas reserves (Yergin, 2006), holds a pivotal role in the global energy landscape. In response to growing domestic energy demands and the need for economic diversification, several countries in the region have outlined ambitious plans to scale up renewable energy production, particularly solar energy (Hertog, 2013). Despite this, the region remains in a state of flux, and shifts in the energy sector could significantly influence political and economic developments both within the region and globally (Vidican, 2013). The dual pressures of declining oil prices, increasing energy demand, and a complicated balance between energy imports and exports present significant challenges for policymakers in MENA countries (Fattouh, ElKatiri, & Luciani, 2013).

Implementing energy transitions requires profound political and economic reforms, which will reshape socio-political structures and give rise to new institutional discourses (Jalilvand, 2021; Vidican, 2013). The integration of solar energy into national energy strategies is a highly political process, influenced by governance institutions, foreign investment, and public-private partnerships. These factors play a critical role in determining each country's specific approach to energy transition (Hertog, 2013).

External pressures, such as fluctuating oil prices, increased domestic energy consumption, and disproportionate energy imports and exports causing deficits, present further difficulties for policymakers. Energy sector changes demand substantial political and economic reforms, which in turn affect the very fabric of sociopolitical arrangements. These reforms are producing new institutional changes and discourses within the region (Jalilvand, 2021; Vidican, 2013).

The energy transitions in Jordan and Morocco illustrate how different governance models shape their respective solar energy policies. Jordan, with its decentralized political system, adopts a more market-oriented approach to renewable energy. In contrast, Morocco's centralized monarchy allows for large-scale, state-driven projects, highlighting the significant influence of political structures on energy transitions (Hertog, 2013).

5.2. Renewable Energy Policies and Investment: Current Landscape

Jalilvand (2021) stresses the need for MENA countries to move beyond cooperation agreements toward the actual operationalization and implementation of renewable energy trade. This shift requires developing robust institutional and regulatory frameworks to facilitate the transition to renewables, particularly solar energy, and to harness technological advancements. Broader economic trends, such as the convergence of traditional energy sectors (oil, gas, and power) with emerging sectors like hydrogen, amplify synergies and foster the development of renewable energy markets.

Beyond economic pressures, the region's political fragility—exemplified by the Arab Spring—has driven political shifts that have significantly impacted energy policies in countries like Jordan and Morocco (El-Anis, 2012; Abu-Rumman, 2020). While Jordan has not experienced the same levels of instability as Libya, Syria, and Yemen, the pro-democracy movements in Jordan continue to exert pressure on the government, prompting the need for political and economic reforms. Abu-Rumman (2020) examines the interconnections between Jordan's domestic and foreign policies and its energy strategies over the past few decades, concluding that these efforts have succeeded in balancing Jordan's relations with both regional and international powers.

IRENA (2021) offers an evaluation of the policies surrounding solar energy in Jordan, focusing on both achievements and the challenges that remain in the integration of renewables. The agency highlights Jordan's efforts to establish a legislative and procedural framework that supports renewable energy, alongside the strengthening of human capacity and forming strategic partnerships with the private sector. Jordan's economy remains heavily reliant on energy imports, which strains its resources and presents energy security risks. In response, the Jordanian government faces a significant dilemma: whether to pursue macroeconomic restructuring, as suggested by the IMF, or to maintain its control over the economy (El-Anis, 2012).

IRENA (2021) and the United Nations Economic and Social Commission for Western Asia (2019) stress that the next phase of renewable energy policy must focus on the deployment and integration of renewables, fostering the enabling conditions at the sector level to unlock future growth. Efforts to create demand and electrify end-uses will be crucial to maximize the long-term benefits of solar energy.

In Morocco, despite the significant criticisms surrounding the environmental and social impacts of large-scale renewable projects, the country continues to push forward with its solar energy ambitions. Aoui (2020) examines the environmental concerns raised by large-scale solar projects in Morocco, particularly in the country's poorest and most energy-stressed regions. Despite these challenges, Morocco's efforts to diversify its energy mix and reduce dependency on fossil fuel imports continue to advance. With Morocco's re-entry into the African Union, the country is positioning itself as a political and economic power in the region, enhancing its relations with European nations and reinforcing its role as a global player in renewable energy (Aoui, 2020).

5.3. Case Studies:

5.3.1 Solar Energy Policy and Innovation in Jordan:

Jordan's energy sector has long been hindered by a lack of domestic energy resources, relying heavily on energy imports, which accounted for over 90% of its energy

consumption as of 2014 (Ministry of Energy & Mineral Resources, 2018). The introduction of large-scale solar projects, such as the Mafraq Solar Park and AlRisha Solar Plant, was facilitated by the Renewable Energy and Energy Efficiency Law (REEE) and foreign financial support. These projects underscore Jordan's dependence on external funding and public-private partnerships to overcome its technological and budgetary challenges.

Jordan's governance structure, characterized by centralized decision-making under its monarchical system, has allowed for the rapid implementation of energy projects. However, this centralized governance model has also led to tensions between the state's goals and the needs of local communities, especially in rural areas (Lust, 2006). Despite these challenges, Jordan has demonstrated resilience in attracting foreign investment and technological expertise, particularly through collaborations with international institutions like the World Bank and the European Union. As Rennings (2000) argues, external financial support and technology transfer are essential for enhancing the policy resilience of resource-poor countries like Jordan.

5.3.2 Solar Energy Policy and Innovation in Morocco:

Morocco has emerged as a leader in solar energy innovation, driven by a strategic ambition to reduce its dependency on imported energy and become a global renewable energy hub. The country's National Energy Strategy 2030 aims to produce over 52% of its energy from renewable sources by 2030, with solar energy playing a central role in achieving this target (CMS, 2024).

Morocco's ambitious solar projects, including the Noor Ouarzazate Solar Complex and the Midelt Hybrid Solar Plant, serve as prime examples of the country's commitment to renewable energy (Ristau, 2023). Morocco's centralized political system has facilitated streamlined decision-making, enabling the integration of solar energy into the national grid and positioning Morocco as a significant player in the global renewable energy market. Unlike Jordan, where foreign investment plays a pivotal role, Morocco's strong domestic capacity to innovate and manage large-scale energy projects has allowed it to create a more self-sustaining solar energy framework, adaptable to global energy trends (Ersoy et al., 2022).

6. Discussion

Solar energy plays a dual role as both a political and environmental instrument, providing valuable insights into how energy transitions in the MENA region can either support or undermine authoritarian governance structures. This discussion draws on the political economy of solar energy transitions in Jordan and Morocco, emphasizing the combined influence of innovation and governance in shaping renewable energy landscapes. The literature highlights the intricate nature of these transitions, where both international forces and centralized political systems significantly shape the trajectory of energy development in these countries.

6.1 Innovation and Authoritarian Governance:

The conceptual framework of innovation, authoritarianism, and policy resilience offers a lens through which to examine the interplay between the political and economic environments of Jordan and Morocco, and how these environments influence and are influenced by renewable energy patterns, particularly solar power (Schuetze, 2021). As

the literature suggests, solar energy innovation has revolutionized energy production in both nations; however, this shift is deeply political rather than simply technological.

In Jordan, the development of solar energy has been primarily state-driven, with the government playing a central role in coordinating large-scale projects. These initiatives are heavily dependent on foreign partnerships, underscoring Jordan's reliance on external investment and technological expertise (IRENA, 2021). This reliance not only addresses immediate energy security and diversification concerns but also reveals the autocratic and centralized governance system in Jordan, where decision-making is concentrated in the monarchy. The centralized political structure has enabled rapid implementation of energy projects, but it has also limited opportunities for democratic interaction with local communities. As Lust (2006) highlights, authoritarian regimes often prioritize efficiency and effectiveness in policy implementation, but this comes at the cost of inclusivity and local accountability. This centralization, while facilitating large-scale projects, reflects a governance model that limits citizen participation and oversight in critical decisions affecting their futures.

Similarly, Morocco's solar energy projects, such as the Noor Ouarzazate Solar Complex, showcase the monarchy's strategic capacity to lead the country towards becoming a regional leader in renewable energy. Like Jordan, Morocco adopts a top-down governance approach, with the state serving as the central hub for decision-making and policy implementation. Morocco's substantial progress in solar energy is a direct result of the monarchy's authority over energy policy and its ability to attract foreign investment (Sibel Raquel Ersoy et al., 2022). However, this centralized model has raised concerns about the exclusion of local communities, particularly in rural areas, from the benefits of renewable energy projects. As Atman Aoui (2020) notes, the top-down approach to solar energy development may exacerbate social inequalities, particularly in marginalized regions that remain disconnected from the economic opportunities these projects promise.

While both countries have achieved significant advancements in solar energy, the absence of public involvement in these projects highlights broader challenges within authoritarian environmentalism. Large-scale projects are often implemented without consideration for the social and economic impacts on vulnerable communities (Lust-Okar, 2005). Moreover, the dependence of both Jordan and Morocco on external financial and technical support further exposes the vulnerabilities in their energy transition strategies. While foreign partnerships bolster energy reforms, they also tie the countries' energy futures to the goals of international donors, which may overlook local needs and priorities. As Rennings (2000) points out, although external assistance strengthens policy resilience, it can also entrench a form of energy governance that may not align with the long-term interests of the local population.

In contrast, Morocco's capacity to finance and implement large-scale solar projects using domestic resources reflects a more independent approach to energy innovation. This self-reliance, despite its own limitations, provides Morocco with greater control over its energy future and offers a counterpoint to Jordan's reliance on external stakeholders. The state-driven development model in both countries raises critical questions about the democratic deficits inherent in such governance systems, where energy transitions may serve more to consolidate power rather than foster inclusivity or democratization.

6.2 Policy Resilience and Adaptation:

The long-term viability of solar energy transitions in both Jordan and Morocco hinges on the resilience of their energy policies. Jordan's ability to balance foreign investment with local government capabilities is central to ensuring the resilience of its solar energy policies. While the country has made considerable progress, particularly in attracting foreign financial support, this reliance on external funding and expertise raises concerns about policy autonomy and resilience. As noted by Hertog (2017), such dependence on foreign investment may jeopardize Jordan's long-term energy sovereignty, particularly as global energy priorities shift and external interests evolve.

In contrast, Morocco has demonstrated a greater capacity for creating and implementing solar energy programs independently, largely due to its robust institutional frameworks and political stability under the monarchy. Morocco's National Energy Strategy 2030, which aims to source over 50% of its energy from renewables, illustrates a clear commitment to energy sustainability (CMS, 2024). However, as Aoui (2020) suggests, the absence of inclusive policymaking in Morocco's energy transition raises concerns about its social equity. The country's focus on large-scale renewable energy projects, while advancing its energy goals, may inadvertently exacerbate existing social inequalities, particularly in rural and underserved areas.

Furthermore, policy resilience in both countries is closely tied to strong government commitments to renewable energy development, backed by effective policies, regulations, and long-term planning. As the United Nations (2024) argues, the development of renewable energy markets depends not only on government commitment but also on creating an enabling environment for private sector participation. However, the challenge remains for policymakers to ensure that these energy transitions are not only technically successful but also equitable, fostering job creation, competitive advantages, and technological advancements along the renewable energy value chain (Vidican, 2015).

The tension between centralized authority structures and the need for adaptive, inclusive energy policies is particularly evident in the regulation of solar energy projects. In both Jordan and Morocco, extensive solar projects have been developed with minimal public involvement, largely relying on international finance and collaborations. This reflects a broader trend in authoritarian governance, where the emphasis is placed on state-driven development rather than participatory decision-making (Schuetze, 2021; Rignall, 2015). The challenge going forward is to shift towards more inclusive and transparent energy governance that better reflects the needs and aspirations of local communities, especially marginalized populations.

6.3 Innovation as a Double-Edged Sword:

The study's findings indicate that innovation in solar energy can both reinforce existing power structures and serve as a catalyst for change. While solar energy has the potential to decentralize energy production and promote greater inclusivity, the top-down, state-led approach in both Jordan and Morocco has limited the potential for democratic engagement in the energy transition process. This tension between innovation and governance reflects broader conflicts in the MENA region, where deeply entrenched authoritarian political institutions often clash with technological advancements that could democratize energy access and production.

Non-state actors, including private sector participants, international donors, and civil society organizations, have played a crucial role in driving solar energy transformations in both countries. However, their ability to influence or challenge the prevailing governance structures has been constrained by the political environments in both nations. Vidican (2015) emphasizes that the challenge for policymakers extends beyond simply deploying renewable energy technologies; it also involves ensuring that these technologies are integrated into transparent, fair, and locally responsive governance frameworks. Without such frameworks, renewable energy innovations risk becoming tools of political control rather than vehicles for inclusive development.

This study illustrates the complex interaction between innovation, authoritarian governance, and policy resilience in shaping solar energy transitions in Jordan and Morocco. Solar energy has the potential to profoundly alter both the environment and the economy. However, its political ramifications—especially within the context of authoritarianism in MENA countries—cannot be overlooked. To ensure that the benefits of renewable energy are equitably distributed across all segments of society, it is essential to adopt a more inclusive and participatory approach to energy governance. For solar energy to become a tool for democratization, rather than a means of strengthening authoritarian control, both Jordan and Morocco must actively involve local communities and civil society in the energy transition process, ensuring that the political and social benefits of renewable energy are shared widely.

Although, the case studies have both made great progress towards making Solar Energy a key part of their energy strategy, the political environments in which these changes take place have different effects on the results. Morocco has established itself as a leader in renewable energy thanks to the country's massive, state-driven solar projects made possible by the monarchy's strong, centralized administrative structure. But this centralized strategy also calls into question the energy transition's equity and inclusivity, especially in rural communities that may not fully benefit from such advancements.

In contrast, with a different approach, Jordan's energy transition, is more dependent on foreign investments and technology partnerships, albeit being as ambitious. This has allowed Jordan to overcome its resource limitations. Nevertheless, democratic participation in the formulation and execution of energy policy is restricted by the nation's authoritarian governing structure. Although this centralization ensures efficiency in the short term, it may eventually impede the growth of more inclusive energy governance methods.

Both cases show how innovation in Solar Energy and governance are intricately related. As demonstrated by these two instances, the political economy of Solar Energy in the MENA area implies that although advances in renewable energy have the potential to spur environmental and economic change, they may also serve to uphold established power structures. Innovation's dual nature raises important concerns regarding the sustainability and inclusivity of these energy transitions since it can both undermine and strengthen authoritarian government. In both situations, policy resilience plays a critical role in making sure that Solar Energy projects support larger social objectives of sustainability, equality, and democratic governance rather than only acting as instruments of state control.

7. Conclusion

The relationship between innovation, authoritarian governance, and policy resilience that Solar Energy ties the region's sociopolitical dynamics and not just a technological or environmental change.

Going forward, navigating these conflicts between inclusive governance and state authority will be crucial for Jordan, Morocco, and the larger MENA area. Even though incorporating Solar Energy into national energy plans has enormous potential for sustainability and economic growth, policies that put social inclusion first and guarantee that the advantages of the switch to renewable energy are shared fairly must be carefully considered. This would necessitate a move towards decentralized, more participatory energy governance models that encourage local involvement and public-private partnerships. Only then will Solar Energy be able to genuinely improve the MENA region's political resilience and environmental sustainability.

To sum up, the paper adds to the larger conversation about energy transitions, authoritarianism, and governance in the MENA area by illuminating the ways in which advancements in renewable energy are changing the region's political economy in addition to its energy landscape. The Solar Energy transition's prospects and challenges emphasize how crucial it is to match governance reforms that put inclusion, sustainability, and resilience first with technology breakthroughs in the face of a rapidly shifting global energy landscape.

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Employment Opportunities for Refugee Women in Egypt: Between the Challenges of Exile and Gender Restrictions

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Abstract

This study examines the economic participation of refugee women in Egypt, focusing on employment opportunities and barriers to access. It explores how forced displacement exacerbates challenges like limited education and employment, increased economic vulnerability, and higher risks of gender-based violence, all of which affect their personal and professional lives. The research also considers social obstacles within host communities that hinder refugee women's economic and social integration.

The study investigates the Egyptian government's strategies for including refugee women in both formal and informal economic sectors, analyzing how employment can foster integration and provide stable income. While Egypt's policy framework supports refugee integration—offering access to education, health care — economic instability, and a growing refugee population strain the government's ability to meet these needs. Ultimately, the study assesses current policies and offers recommendations to enhance refugee women's employment prospects in the formal labor market, advocating for their recognition to promote inclusive development.

Keywords: *exile, asylum, refugee women, gender, economic inclusion.*

1. Introduction

The issues of "political asylum" and "forced displacement" have become central to global and national public policy agendas. This is due to the intersection of asylum and displacement with multiple other policy domains, including legal status, socioeconomic integration, and the equitable provision of services such as education, healthcare, labor access, and sustainable development. Effectively addressing these multifaceted challenges necessitates a holistic and multidimensional approach, one that rigorously engages with the material conditions and social capabilities of the displaced populations.

According to the 2023 Global Trends Report by the United Nations High Commissioner for Refugees, asylum seekers, internally displaced persons, and stateless persons, the number of forcibly displaced people worldwide reached 117.3 million by the end of 2023. This figure includes those who are fleeing persecution, armed conflict, violence, and other forms of systemic rights violations that threaten public and personal safety (United Nations High Commissioner for Refugees UNHCR, 2023). Among these, 37.4 million individuals are registered refugees, and an additional 5.9 million are asylum seekers. In Egypt, the growing number of refugees poses considerable challenges to national policy.

As of September 2024, the UN Refugee Agency in Egypt, in cooperation with the Egyptian government, reported approximately 792,783 registered refugees and asylum seekers. These include about 277,656 registered refugee families, of whom 71% are women and children. Women alone account for 51%, and 30% of them are aged between 18 and 59 years. Despite these proportions, precise and disaggregated statistics about the total number of women among Egypt's refugee population remain largely unavailable (UNHCR, August 2024).

According to the same source (the UN Refugee Agency in Egypt), most Sudanese refugees—whose numbers increased sixfold between April 2023 and August 2024—are women and children. In 2023, the UNHCR provided livelihood support to 5,842 individuals, including job market guidance and links between potential employers and workers, ensuring that at least minimum employment standards were met. Approximately 477 individuals found jobs in the Egyptian labor market, and more than 100 refugees were employed in handicrafts. The agency also supported 407 entrepreneurs with seed funding and coaching to start their own ventures. Nonetheless, based on UNHCR and International Organization for Migration (IOM) data, many refugees—particularly women—work in informal sectors such as domestic work, cleaning, caregiving, and driving. This trend reflects both their limited access to the formal economy and their exposure to exploitative or unsafe working conditions (UNHCR, 2024; IOM, 2024).

2. Research Problem and Questions

The research problem addressed in this study centers on refugee women's economic participation and the multidimensional challenges they face in accessing employment within the Egyptian labor market. This issue lies at the intersection of exile-related dynamics and gender-based inequalities. Accordingly, the study is guided by the following central question:

To what extent does the Egyptian government implement public policies and strategies that promote the economic inclusion and social integration of refugee women?

Of this main research question, other sub questions arise,

- What are the primary barriers—encompassing legal, social, economic, and administrative factors—that impede asylum seekers' and refugees' full enjoyment of their fundamental socioeconomic rights in Egypt?
- How effectively do Egypt's domestic laws and international commitments to refugees translate into practical policy implementation and enforcement, particularly in light of increasing refugee populations and national economic instability?
- What are the key socio-economic, cultural, and policy-level challenges that specifically hinder refugee women's successful integration into Egypt's formal and informal labor markets?

3. Significance of the Study

This study makes a critical contribution to the public policy discourse of the Egyptian government concerning asylum and gender. Theoretically, it elucidates concepts such as asylum and exile, examining their distinct dimensions in contrast to the notion of

migration. Practically, it focuses on the case of refugee women, who are among the most vulnerable to intersecting political, economic, and social risks. The study emphasizes the importance of integrating gender considerations into Egypt's national asylum policies. By adopting a gender lens, public policy can more effectively address inequalities in access to services and opportunities, while mitigating the risk of gender-based violence and exclusion in the labor market. Ensuring gender-responsive refugee policies enhance resilience, inclusion, and social justice.

4. Theoretical and Conceptual Framework

This research is grounded in a nuanced theoretical and conceptual framework that distinguishes among the interrelated phenomena of migration, asylum, exile, and displacement, while also incorporating a critical gender perspective. Migration, as defined by the International Organization for Migration (IOM, 2022), is understood as the movement of individuals across international borders or within a state, irrespective of their legal status or the causes of movement. This expansive definition encompasses both voluntary relocation—driven by employment, education, or family reunification—and involuntary displacement prompted by poverty, violence, political instability, or natural disasters (Amnesty International, n.d.). The broad characterization of migrants as individuals who do not seek or hold refugee status underscores a critical conceptual demarcation between migration and asylum/forced displacement.

In contrast, the concept of a refugee is anchored in international law, specifically within the 1951 United Nations Convention Relating to the Status of Refugees (United Nations, 1951). This legal framework defines a refugee as an individual who, owing to a well-founded fear of persecution based on race, religion, nationality, membership in a particular social group, or political opinion, is outside their country of nationality and is either unwilling or unable to avail themselves of its protection. Refugee status is thus not merely a matter of geographical relocation but a legal category that confers specific rights and protections under international law. The distinction between refugees and asylum seekers is equally significant; while refugees have already been granted protection, asylum seekers are individuals who have fled their countries and are seeking recognition as refugees but have not yet received such status. The right to seek asylum is enshrined as a fundamental human right, though the realization of this right remains contingent on state policies, institutional capacity, and geopolitical considerations (Amnesty International, n.d.).

Displacement, a broader concept, encompasses the forced movement of individuals due to armed conflict, generalized violence, human rights violations, or natural and anthropogenic disasters (IOM, 2022). Displacement is characterized by coercion and the loss of agency, distinguishing it from voluntary migration. Unlike migrants, who may exercise a degree of choice over their movement, displaced individuals are compelled to relocate under circumstances beyond their control. As Angoustures (2019) argues, displacement is not merely a physical transition but an existential condition, entailing the negotiation of new social, legal, and institutional landscapes. This theoretical distinction is critical for understanding the unique vulnerabilities and protection needs of displaced populations.

Exile introduces a further dimension, marked by forced separation from one's homeland due to political, economic, or social pressures. Exile is not merely spatial displacement, but a profound psychological and existential state characterized by

alienation, nostalgia, and the continuous negotiation of identity. Nouss (2019) suggests that viewing refugees as exiled people expands the discourse from a legal right to asylum to an ethical and political "right to exile," acknowledging the deep human dimensions of displacement.

From a gender perspective, displacement is particularly complex for women and girls, who are disproportionately vulnerable to abuse, exploitation, and restricted access to essential services. Refugee and displaced women encounter a range of institutional and cultural barriers that hinder their full economic and social integration. These barriers are exacerbated by gendered factors, including limited education or professional qualifications, domestic responsibilities, cultural norms from countries of origin, and discriminatory practices within host communities. Gender is not merely a biological characteristic but a socially constructed category encompassing roles, expectations, and opportunities that shape individuals' experiences in displacement contexts (Blidon, 2015). Such gender-based challenges intersect with legal status and social identity, deepening the marginalization of displaced women.

5. Methodology

This study employs a qualitative case study approach, designed to critically analyze public policies concerning refugee integration and the economic inclusion of refugee women. This methodological choice facilitates an in-depth examination of the structural barriers that impede refugee women's access to both the formal and informal labor markets in Egypt. By focusing on a specific context, the case study approach enables a nuanced understanding of the intersection between gender, displacement/asylum, and economic participation.

The analysis is grounded in a comprehensive review of multiple sources. National legal frameworks are systematically examined to identify the regulatory environment governing refugee rights and labor access. Reports from international organizations, including the United Nations High Commissioner for Refugees (UNHCR) and the International Organization for Migration (IOM), are analyzed to capture global standards and country-specific insights. Additionally, existing gender and refugee policy programs in Egypt are scrutinized to assess the extent to which they address the specific needs of refugee women. Field research data, including refugee profiles published between 2021 and 2023, provide empirical insights that further enrich the analysis. This multi-source approach ensures a robust and contextually grounded understanding of the challenges faced by refugee women in Egypt’s labor market.

6. Findings

This paper relied on several axes to answer its main research question and sub questions. These axes starts by displaying the realities of asylum and barriers to socioeconomic rights, then highlighting the legal commitments compared to practical constraints within the Egyptian context and finally discussing the challenge of integrating refugee women into the Egyptian labor market.

6.1. Realities of Asylum and Barriers to Socioeconomic Rights:

Access to socioeconomic rights, particularly employment, is a critical indicator of refugee integration. According to the 1951 Refugee Convention and international human rights law, refugees are entitled to socioeconomic rights, including the right to

work. However, a range of structural and contextual factors often hinders the practical realization of these rights. Research indicates that refugee access to labor markets is highly variable, shaped by host country policies, prevailing labor market conditions, legal and administrative frameworks, and sociocultural factors, including language barriers. Such barriers can significantly restrict refugees' ability to achieve economic self-sufficiency, exacerbating their marginalization.

Ager and Strang (2008) conceptualize refugee integration through three core domains: achievement, citizenship and rights, and social connections. Achievement encompasses access to essential services such as employment, education, housing, and healthcare. Citizenship and rights pertain to legal status, political participation, and the recognition of refugees as rights-bearing individuals. Social connections reflect the capacity of refugees to establish interpersonal relationships and engage with host communities. These domains are interconnected, and deficiencies in one area often undermine progress in others.

The challenges facing refugees are particularly acute in urban settings, where they may encounter harassment from local authorities, xenophobia, and discrimination alongside multiple difficulties in accessing livelihoods and achieving economic independence. Such circumstances necessitate a focused analysis of how refugees respond to these challenges in light of the surrounding social, economic, and political contexts. Furthermore, it is critical to examine the role of national policies and humanitarian agencies in either empowering or obstructing refugees in this intricate landscape of interests, motives, and orientations. Jacobsen (2006) emphasizes that understanding the dynamics of refugee adaptation and integration requires an analysis of the legal, social, and economic barriers that hinder their ability to establish stable lives. Research underscores the importance of human and social capital as pivotal factors in enhancing refugees' livelihoods. The skills and experiences that refugees bring with them can provide opportunities for participation in the local economy, whether through employment or entrepreneurial initiatives. However, realizing this potential necessitates governmental support through enabling policies that dismantle legal, social, and economic barriers, ensuring refugees' rights without compromising the host countries' national considerations, particularly security concerns (Jacobsen, 2006).

Theoretical perspectives on forced displacement, exile, and refugee resettlement further highlight the need to redefine refugee status and classification within societies to reshape the social, legal, and political perception of refugees in a more positive and humane light. Such classifications affirm rights and responsibilities, distinguishing between “voluntary” refugees who flee preemptively in anticipation of conflicts or crises and “forced” refugees who are compelled to leave due to direct threats to their safety (Kunz, 1981). Moreover, refugees can also be categorized based on their social and political positions, particularly when their displacement is driven by their views or roles in the context of political turmoil.

The psychological dimensions of displacement and exile are equally significant, as refugees often endure a sense of marginalization resulting from estrangement and threatened identity. Exile affects both personal and collective identity, altering refugees' sense of belonging and prompting them to reconstruct their identities and lives amid complex and intersecting challenges. Numerous studies have addressed the concept of "social marginalization" experienced by refugees, illustrating how some maintain strong connections to their past while others feel estranged and isolated from the new

society. These social and psychological relationships are critical in the resettlement process, highlighting the necessity for refugees to rebuild their social, economic, and cultural lives in a new environment, often facing significant cultural differences between the host society and their own experiences. Furthermore, the process of refugee integration is not straightforward, potentially leading to four distinct outcomes: assimilation, adaptation, separation, or marginalization. A triad of factors, including conditions in the country of origin, circumstances of displacement, and characteristics of the host country, shapes these outcomes. Among the latter, three main variables are influential: the degree of cultural compatibility between refugees and the host society, state policies on population management and inclusion, and social attitudes within the host country, which can either support diversity and inclusion or foster exclusion and discrimination (Kunz, 1981).

Gendered dimensions further complicate these integration dynamics. Refugee women face unique challenges due to the intersection of their gender roles with their status as displaced individuals. According to El-Hassan (2021), refugee women often encounter multiple layers of discrimination based on gender, ethnicity, religion, and migration status, increasing their vulnerability to violence, poverty, and social marginalization. Al-Hamad (2024) emphasizes that refugee women are more likely to experience prolonged unemployment and, even when employed, are often confined to part-time, temporary, or informal jobs. Such employment conditions not only undermine their economic independence but also negatively affect their psychological well-being. Studies further indicate that access to supportive services, including language training, childcare, and legal assistance, is critical for enhancing refugee women's economic integration. Moreover, participation in the labor market can significantly improve their physical and mental health, foster a sense of purpose, and strengthen social networks within host communities.

6.2. Egyptian Context: Legal Commitments vs. Practical Constraints:

Egypt hosts a significant number of asylum seekers and refugees, governed by a series of international legal frameworks that shape the Egyptian government’s policies towards the treatment of these populations. Egypt is a signatory to the 1951 United Nations Convention relating to the Status of Refugees and its 1967 Protocol, as well as the 1969 Organization of African Unity (OAU) Convention, which addresses the specific aspects of refugee problems in Africa, guaranteeing refugees’ rights to protection from refoulement (forced return), access to employment, education, and healthcare (United Nations Convention, n.d.). Moreover, Egypt is committed to other international human rights instruments, including the Universal Declaration of Human Rights, which affirms fundamental rights such as the right to life, liberty, and personal security, and the International Covenant on Civil and Political Rights, which guarantees equality before the law and prohibits discrimination. It is also a party to the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW), which mandates the protection of women’s rights, including refugee women. Additionally, Egypt has endorsed the New York Declaration for Refugees and Migrants (2016) and the Global Compact on Refugees (2018), reinforcing its commitment to international cooperation and shared responsibility in refugee protection (UNHCR, 2024).

On a domestic level, refugees who are not registered with the United Nations High Commissioner for Refugees (UNHCR) fall under Law No. 89 of 1960, which governs the entry and residence of foreigners in Egypt. This law makes no distinction between

refugees and other foreign nationals, leading to restrictions on their movement, residence, and employment. The Egyptian government has delegated the responsibility of registering asylum seekers and refugees, determining their legal status, and issuing identification documents to UNHCR. This registration system is categorized into three statuses. The first status focus on those with the white paper (asylum-seeker certificate), valid for six months, who have applied for protection without full documentation. The second one are those holding the yellow card (asylum-seeker card), valid for 18 months, who have provided the necessary identity documents and are eligible for legal residence. The third are those with the blue card (refugee card), valid for three years, who are officially recognized as refugees and granted legal residence (UNHCR, 2019).

However, the absence of a formalized national asylum system leads to inconsistent policies among stakeholders - governmental and non-governmental - resulting in protection gaps, particularly for unregistered displaced persons. Studies have highlighted four fundamental rights that must be safeguarded for refugees by both the host state (Egypt) and UNHCR: humane and efficient access to asylum, issuance of essential documents (residency, travel, and work permits), protection of family unity or reunification, and comprehensive access to public healthcare (Hetaba-Sabry, 2023).

A field study, conducted with interviewed Syrian refugees in Egypt, indicated that discrimination and xenophobia remain critical challenges, with 45% of refugees experiencing such treatment compared to 37% of non-refugee foreigners. Refugee women are particularly vulnerable, with only 26% participating in the labor market compared to 55% of refugee men, reflecting gendered disparities in economic inclusion (UNHCR, 2023). Moreover, refugee women experience higher rates of discrimination and social marginalization. Employment opportunities are also limited, with 55% of refugee men and 26% of refugee women employed, while 12% of refugees are unemployed, and 32% are not seeking employment. Among refugee women, 10% are unemployed and 64% are not interested in joining the labor market (UNHCR, 2023). Educational access also presents a challenge, with 25% of refugees expressing a need for suitable educational opportunities compared to 21% of non-refugees. Furthermore, 49% of refugees report needing vocational training, 47% require computer skills training, 44% request legal awareness about refugee rights, 34% seek basic business management training, and 31% express a desire to participate in youth entrepreneurship programs (UNHCR, 2023). This data indicates the critical need for skill development among refugees, particularly women, to enhance their socioeconomic integration.

In response to these issues, the Egyptian government has recently introduced a draft national asylum law, approved by the Egyptian House of Representatives, aimed at creating a regulated framework for refugee status and rights. This law proposes the establishment of a Permanent Committee for Refugee Affairs under the Cabinet, responsible for managing refugee data, processing asylum applications, and ensuring coordinated efforts. The law also considers national security and economic concerns, balancing refugee rights with state interests and security. It grants refugees the right to work, access fair wages, and engage in independent professions provided they hold recognized qualifications and obtain temporary permits. By consolidating these policies under a centralized institutional structure, the law aims to enhance refugee protection and ensure a more consistent approach to managing asylum and refugee affairs in Egypt.

6.3. Challenges of Integrating Refugee Women into the Egyptian Labor Market:

In the context of strategies, plans, and initiatives aimed at supporting refugee women socially and providing them with opportunities for economic inclusion, Egypt launched the Leadership, Empowerment, Access, and Protection (LEAP) program in 2016. This initiative was developed to respond to the urgent and long-term needs of refugee women and host communities, implemented in collaboration with the National Council for Women, the United Nations High Commissioner for Refugees (UNHCR), private sector companies, and civil society organizations, with financial support from the Government of Japan. The LEAP program aims to achieve several objectives, including enhancing livelihoods, providing protection services, and offering psychosocial support, while also promoting social cohesion between refugee women and host communities through interactive joint projects. Specifically, the program focuses on economically empowering refugee women through vocational training and job creation, raising awareness about the risks of gender-based violence, and providing psychosocial support to survivors. Moreover, it seeks to build trust and strengthen community relations through joint initiatives.

According to UN Women (2024), the program has achieved significant socio-economic outcomes, supporting 1,245 women from refugee and host communities in securing employment opportunities in the private sector. The vocational training covered diverse fields, including handicrafts, information and communication technology repair, and elderly care services. As a result of these efforts, 40% of refugee women participating in the program were able to secure permanent jobs or receive direct job offers. Additionally, partnerships were established with 15 community organizations in Greater Cairo and Alexandria, enabling these organizations to function as vocational training centers that enhance the economic capabilities of refugee women. The program also integrated initiatives to raise awareness of and combat gender-based violence, benefiting 1,269 women through dedicated programs that informed them of their rights and the mechanisms available to access resources and services for addressing violence. To further support survivors, the program provided safe spaces for women and girls exposed to violence, offering essential recovery services and psychosocial support, including therapeutic drama and expressive arts, aimed at improving mental health, enhancing critical thinking, and strengthening stress management skills. In collaboration with the International Labor Organization, the program also developed workplace checklists to prevent exploitation and ensure safe working conditions, while raising awareness among refugee women and national partners about the importance of decent work standards, thus contributing to the creation of work environments free from violence (UN Women, 2024).

Furthermore, in May 2019, the Egyptian government announced the development of a National Action Plan to implement United Nations Security Council Resolution 1325 on Women, Peace, and Security. This plan aims to enhance women's participation in peacebuilding and security efforts, ensure their protection during conflicts, and promote their roles in decision-making processes related to peace and security. The initiative is a collaborative effort involving the Egyptian Ministry of Foreign Affairs, the National Council for Women, and the Cairo International Center for Conflict Resolution, Peacekeeping, and Peacebuilding, supported and coordinated by UN Women. This approach reflects the state’s vision of integrating women—including refugee women—

as essential partners in achieving national and regional stability and security (United Nations, 2023).

Moreover, the Egyptian government, alongside the United Nations and other stakeholders, launched the Joint Platform for Migrants and Refugees in 2021. This platform serves as a coordinated mechanism between the Egyptian government, United Nations agencies, development partners, civil society organizations, and other relevant stakeholders in migration and asylum issues. It aims to identify political, economic, and humanitarian challenges and opportunities in the country, enhance migrant and refugee access to essential services such as education and healthcare, and address protection needs, with a particular focus on vulnerable groups such as women and children (United Nations, 2021).

Despite these announced programs and initiatives, refugee women and displaced persons in Egypt continue to face significant challenges in terms of economic participation, social marginalization, and gender inequality. Existing gender-discriminatory laws, alongside complex regulations governing refugees' access to the labor market, significantly reduce their chances of achieving a decent standard of living, directly affecting their employability and economic inclusion (Hassan, 2021). Many refugee women encounter substantial barriers to entering the formal labor market in Egypt due to structural, legal, and social factors. Legally, Egypt has reservations on Article 24 of the 1951 Refugee Convention and its 1967 Protocol, which guarantees the right to work for refugees. These reservations imply that refugees and Egyptian citizens do not enjoy equal opportunities in legal employment. Furthermore, the national legal framework regulating foreign labor in Egypt – till June 2024- does not differentiate between refugees and other foreigners. As a result, Law No. 12 of 2003 governs the employment of foreign workers, including refugees and asylum seekers, under four main conditions: ensuring reciprocity, obtaining a residence visa, securing a work permit, and complying with the legal limit on foreign labor employment. These conditions impose strict and costly requirements on refugees, effectively excluding many from the formal labor market.

Consequently, numerous refugees, particularly women, are forced to seek opportunities in the informal economy, where they face severe economic hardship and exploitation, including low wages, precarious job conditions, limited opportunities for career advancement, and a lack of social protection. Refugee women endure harsh economic conditions that compel them to work in this parallel (informal) economy, which lacks the minimum legal protections such as social insurance and minimum wage guarantees. As a result, they are often subjected to exploitation, with lower wages compared to their peers, limited prospects for professional development or promotion, and exposure to occupational safety and health risks. These factors not only undermine their job security but also compound their socio-economic vulnerability, especially within the broader context of exile and displacement (Morsi, 2024).

In an economy characterized by limited participation, instability, and high unemployment, the average wages of refugee women who manage to secure jobs are significantly lower than those of men, further exacerbating their economic instability (El Saadany, 2021). Studies indicate that only about 11.2% of young refugee women (aged 15-29) are employed in paid positions. Regarding unemployment rates, refugee women experience significantly higher unemployment, facing longer periods of joblessness compared to men, with an average duration of 141 weeks for women,

compared to 109 weeks for men. Many remain unregistered in the workforce, making it difficult to accurately assess their economic contribution. Depending on this context, the legal and regulatory challenges, coupled with gender-based discrimination, hinder refugee women's access to decent work, thereby perpetuating their social and economic marginalization.

7. Discussion and Recommendations

To enhance the economic inclusion of refugee women, the study recommends a multifaceted approach grounded in data-driven policy development, legal reform, labor market support, cross-sector collaboration, and gender-sensitive evaluation mechanisms. First, it is essential to establish accurate and comprehensive refugee databases that are disaggregated by gender and age, enabling policymakers to prioritize the specific perspectives and needs of refugee women when designing employment solutions. This data-driven foundation will facilitate targeted interventions that address the unique barriers faced by refugee women in the labor market.

Legal reform constitutes a critical component of improving economic inclusion. The enactment of Egypt's proposed national asylum law should be prioritized, alongside measures to simplify the bureaucratic procedures for issuing work permits. Such reforms must formally recognize the right of refugee women to participate in the workforce, thereby reducing legal and administrative obstacles that currently limit their access to employment opportunities.

In terms of labor market access and support, tailored programs are needed to enhance refugee women's skills and integration. Providing Arabic language training and vocational courses can significantly improve their employability, while mechanisms for recognizing foreign credentials will facilitate the formal acknowledgment of their previous qualifications and work experience. Furthermore, creating safe work environments equipped with clear anti-harassment policies is essential to ensure that refugee women can engage in paid work without fear of discrimination or abuse.

Cross-sector coordination plays a vital role in amplifying the impact of these initiatives. Strengthening cooperation among government agencies, non-governmental organizations, and the private sector can foster the development of mentoring and entrepreneurship programs specifically designed to support refugee women. Additionally, addressing the psychosocial needs of refugee women through the provision of safe spaces and trauma-informed services is necessary to promote their overall well-being and capacity to participate economically.

Finally, the implementation of gender-sensitive monitoring and evaluation frameworks is crucial to ensure accountability and measure progress toward gender equity in refugee employment initiatives. These frameworks should systematically assess the effectiveness of programs in addressing the unique challenges faced by refugee women, guiding continuous improvement and policy refinement. These recommendations could pave the way for a strategic framework, establishing a comprehensive roadmap to advance the economic inclusion of refugee women in Egypt.

8. Conclusion

The employment and economic inclusion of refugee women in Egypt constitute a critical focus of this study. Despite increasing efforts and the formulation of various

policies at both local and international levels to address this complex issue, the effectiveness of these policies and initiatives remains limited in practice, particularly regarding refugee women's participation in the Egyptian labor market and especially within the formal sector. The study highlights the multidimensional nature of the challenges faced by refugee women in accessing employment, which calls for carefully designed interventions and innovative policies to support their economic inclusion.

At the political and administrative levels, the research findings emphasize the necessity of developing policies that respond to the specific needs of refugee women, incorporating a gender-sensitive approach. This includes facilitating the recognition of foreign qualifications and enhancing skills development in line with the demands of the local labor market. Administrative procedures must also address the intersecting issues faced by refugee women by promoting cross-sector collaboration to provide comprehensive and integrated support. Furthermore, combating stereotypes rooted in xenophobia, discrimination, and violence against refugee women is imperative to ensure their safety and protection in the workplace.

In conclusion, the study recommends raising awareness among employers, communities, and service providers about refugee women's rights and their potential contributions to social and economic development at both micro and macro levels within the country. Such efforts are essential to foster an inclusive environment that enables refugee women to participate effectively in Egypt's economy and society.

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Bridging the Gap: The Role of Executive Education Centers in Leadership Development in the MENA Region

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Abstract

Executive training centers play a vital role in developing public leaders by offering targeted programs that enhance leadership skills and competencies. Through a combination of coaching, classroom instruction, and experiential learning, these institutions aim to equip leaders with the tools needed to navigate complex organizations, drive strategic initiatives, and foster innovation. However, there is a growing skepticism about the effectiveness of these programs in truly contributing to leadership development. This study explores the theoretical underpinnings of executive training centers and analyzes case studies from Egypt, UAE, and Jordan. It concludes that while these centers are important, they face various challenges that limit their impact and hinder its efficacy, especially in the MENA region.

Keywords: *Executive training centers, Leadership, Public Leaders, Education Centers.*

1. Introduction

Leadership in the public sector is a critical element that shapes the effectiveness and efficiency of governance and public service delivery. As societies face increasingly complex challenges, ranging from economic instability and public health crises to social inequality and environmental sustainability, the need for strong, visionary leadership becomes paramount. Effective public sector leaders not only navigate these challenges but also inspire and mobilize teams to achieve strategic objectives that align with the public interest.

Public sector leadership encompasses a diverse range of roles and responsibilities, reflecting the multifaceted nature of government organizations. Leaders in this domain are tasked with administering vast resources, setting strategic directions, and managing relationships across various stakeholders, including government entities, non-profits, and the communities they serve (Çetin, 2015). Unlike leadership in the private sector, which often focuses on profit maximization, public sector leadership is fundamentally about public value creation—ensuring that services meet the needs of citizens while upholding principles of transparency, accountability, and equity. Despite the critical role that leadership plays in public administration, investment in leadership development remains insufficient. Many countries have recognized the need for comprehensive strategies to cultivate future leaders who can navigate these complexities effectively (Andersen &others, 2015). Such strategies often include training/education programs that emphasize transformational leadership styles, characterized by inspiration, motivation, and

fostering a shared vision among team members, which have been shown to enhance organizational performance in public settings (Backhaus & Vogel, 2022)

In this context, executive training/education centers play a crucial role in the development of leadership skills and management capabilities across various sectors, as these centers have the potential to bridge the gap between theory and practice by bringing public policy research and expertise to a broader community (Rasmussen & Callan, 2016). Executive training/education centers are tailored to meet the specific needs of organizations and individuals; as they provide specialized training programs designed for executives, managers, and business leaders, focusing on enhancing their strategic thinking, decision-making, and interpersonal skills (Flanagan, 2023). The programs designed by these centers often include a mix of theoretical frameworks and practical applications, utilizing methods such as case studies, simulations, and interactive workshops to foster an engaging learning experience.

Though tailored to specific roles, leadership-training programs for directors, managers, and executives typically emphasize both hard and soft skills. Hard skills are the technical competencies required to carry out job responsibilities, while soft skills are the personal attributes, such as communication and empathy that are crucial for inspiring and guiding teams.

While it is widely recognized in the developed countries (Rasmussen & Callan, 2016), the significance of executive training/education centers in cultivating the capabilities of public leaders is becoming increasingly apparent in the MENA region. Driven by the distinctive governance, economic, and social challenges confronting the region, these centers are emerging as crucial tools for enhancing leadership development within government institutions. This paper aims to investigate the methodologies employed by these centers, the effectiveness of their programs, and their overall impact.

2. Research Problem and Questions

Despite the increasing investment in executive training programs for public administrators, there is li¬mited empirical evidence assessing their effectiveness and impact on governance outcomes. Many programs vary significantly in structure, content, and delivery methods, leading to questions about which approaches yield the best results. Therefore, this research seeks to provide a better understanding for the role of executive training centers in developing transformative leaders who can navigate complex public sector challenges.

By doing so, this research aims first, to identify the best practices in MENA region by analyzing and comparing various training methodologies employed by different training institutions in UAE, Jordan, and Egypt. Second, to understand the factors that could contribute to the success or failure of these training/education programs in achieving their objectives.

In order to fulfill the primary objective of this paper, the research seeks to address three fundamental questions:

1. What are the principal roles of executive education centers in shaping public leaders and administration?
2. Which training methodologies are most efficacious in cultivating the skills requisite for effective public administration?

3. What factors contribute to the success or failure of executive training programs in attaining their intended objectives?

By addressing these research questions and conducting a comparative analysis of various training centers in the MENA region, this paper seeks to provide a holistic view of the role of executive training centers in cultivating effective public leaders. The study will also illuminate the principal challenges confronting these centers in their efforts to adapt to evolving environments and propose recommendations for decision-makers to optimize the benefits derived from the programs offered by these centers.

3. Conceptual Framework

This research paper is based on two main concepts, which are Public Leadership and Executive Training Centers.

3.1. Public leadership: it is widely defined as the process of mobilizing individuals, organizations, and networks to formulate and enact purposes, values, and actions aimed at creating valued outcomes for the public sphere (Hartley, 2018). This definition emphasizes not only the role of formal leaders but also the influence of various actors across different sectors, public, private, and voluntary, who contribute to public discourse and action. In simple words, Leadership is the ability of individuals in public service to influence others, plus guide, and manage public resources effectively while addressing community needs.

A variety of literature differentiate between two types of leadership styles; hard and soft leadership. This differentiation has evolved in more nuanced approaches that are known as "Transactional and Transformational Leadership". While transformational leaders inspire and motivate employees by internalizing organizational values and goals, transcending self-interest to achieve collective objectives, transactional leadership involves the use of contingent rewards and punishments to align individual goals with organizational objectives (Jacobsen, Andersen, Bøllingtoft, and Eriksen, 2021)

In this context, it is important to mention that public leadership is affected by a variety of factors, including the intricate political environment with its competing interests and values. Additionally, rapid social changes, such as demographic shifts and technological advancements, present new challenges for leaders. Furthermore, the specific governance structure, whether centralized or decentralized, influences how leaders engage with stakeholders and implement policies (Crosby & Bryson, 2017).

3.2. Executive training/education centers: these centers are defined as institutions providing specialized training/educational programs aimed at enhancing leadership skills, managerial competencies, and strategic thinking among public sector leaders. The concept of executive training has evolved over the years, adapting to the changing needs of the public sector. In MENA region, the concept can be traced back to the early 20th century when many MENA countries were under colonial rule, focusing primarily on administrative training to ensure efficient governance in colonies (Blackburn, Harrington, Vidler, and Weddle, 2021). However, as nations gained independence, the emphasis shifted towards building a competent civil service

that could support nation-building efforts. While early programs focused on technical skills, modern programs emphasize leadership, strategic thinking, and innovation.

In this regard, training programs are considered the ways through which executive training centers deliver their knowledge and mechanisms to promote the effectiveness of leaders in either public or private sector. Effective executive training programs often include a combination of coaching, classroom instruction, feedback, and experiential learning. These components aim to develop leaders' abilities to manage complex organizations, inspire teams, and drive change.

The paper uses the concepts of "education" and "training" interchangeably. It posits that executive training centers can significantly influence effective leadership. By offering pertinent training programs, these centers can harmonize theory with practice, fostering skilled public leaders who can enhance institutional performance. Nevertheless, to optimize program effectiveness, several key considerations and challenges are crucial, which the study will draw the attention to it in its last part.

4. Methodology

This research depends mainly on the Case Study Approach, which is considered as a qualitative research method that involves an in-depth, contextual analysis of a specific subject, event, or phenomenon. This approach is widely used across various fields, including social sciences, business, education, and health, to explore complex issues in real-life settings .

This research employs a collective case study methodology to investigate general phenomena across multiple cases simultaneously. By analyzing selected case studies from prominent executive training/education centers in the MENA region, including the National Training Academy (NTA) in Egypt, Mohammed Bin Rashid School of Government (MBRSG), and the King Abdullah Institute of Governance (KAIG) in Jordan, this research aims to identify successful program elements and outcomes. These centers were selected due to their government affiliation and specific focus on leadership development.

In addition, through a desk analysis, the paper navigates the literature relevant to the topic of the study, besides offering some global and regional statistics about the subject of the study, in order to support the main findings related to the executive training centers in MENA regions that are analyzed in the research paper.

5. Findings

In a comparative framework between case studies, this section will address the main question of the study. It will explore the principal roles of executive education/training centers in shaping public administration, identify their specific and best methodologies, and finally analyze the factors that influence the success or failure of their programs in achieving intended objectives.

5.1. Role of Executive centers between theory and practice:

As the complexities of public sector challenges grow, executive education centers provide structured learning environments that equip leaders with the necessary skills, insights, and ethical frameworks to navigate their roles effectively.

5.1.1 Training and Education roles in theory:

The literature in leadership development determined some major roles for these centers in shaping public leaders and enhancing administrative capacities, these roles include:

- Skills Acquisition: One of the primary functions of executive education centers is to foster leadership development through targeted skill acquisition. Programs are designed to enhance critical competencies such as strategic thinking and decision-making, negotiation, conflict resolution, and crisis management. These skills are essential for public leaders who must navigate the intricacies of policy implementation and stakeholder engagement (Tushman, O'Reilly, Fenollosa, Kleinbaum, & McGrath, 2007).
- Capacity Building: These centers aim to build capacity within organizations by enhancing individual and team performance. By offering tailored training programs, they help public leaders understand their roles more effectively and improve their operational capabilities. This capacity building is critical for fostering a more efficient and responsive public administration (Aina, Igbokwe, Ibrahim, Aladeshawe, Mmrikwe, Jegede, Ajuwon, and Aigbogun, 2024)
- Networking Opportunities: Executive education provides a platform for public leaders to connect with peers across various sectors. This networking fosters collaboration and knowledge sharing, enabling leaders to learn from each other's experiences and best practices. Such interactions can lead to innovative solutions to common challenges faced by public administrations (Gonyea, 2023)
- Research and Insights: Many executive education centers are affiliated with academic institutions, allowing them to leverage cutting-edge research and insights into governance and public policy. This academic backing ensures that the training content is grounded in the latest theories and practices, equipping leaders with relevant knowledge to address contemporary issues (Gonyea, 2023).
- Customization of Programs: These centers often tailor their programs to meet the specific needs of organizations or governmental bodies. By aligning educational content with the unique challenges faced by public leaders, executive education can drive meaningful change within administrations.
- Focus on Ethical Leadership: In an era where ethical governance is paramount, executive education emphasizes the importance of integrity and accountability in leadership roles. Programs often include discussions on ethical dilemmas and frameworks for making principled decisions, which are essential for maintaining public trust (Mayer, Aquino, Greenbaum, & Kuenzi. 2012).
- Continuous Professional Development: Executive education promotes lifelong learning among public leaders, encouraging them to stay updated with evolving trends and practices in governance. This commitment to continuous professional development helps ensure that leaders are well-prepared to adapt to changes in the

political landscape and societal needs (Marathe, Gupta, Ramachandra, & Kakani. 2020)

5.1.2 Training and Education roles: MENA Experience:

MENA education/training centers practices are not far from theory, which can be analyzed in different aspects as follows:

- ***Mission Alignment***: established in 2005, MBRSG focuses on enhancing the skills of public sector leaders and improving government performance. This goes in line with the mission of KAIG, which emphasizes good governance in Jordan, addressing local challenges while promoting accountability and transparency, while NTA's mission is closely tied to national development goals, particularly in empowering youth and women in leadership roles. It serves as a catalyst for human development, aiming to bridge the leadership gap in Egypt, which aligns with Egypt's Vision 2030.
- ***Program Diversity:*** The three case studies, while offering diverse leadership development programs, differ in their specific focus. NTA provides a wide range of programs tailored to different levels of leadership within the public sector, including specialized initiatives for women and other special programs that specifically match the needs of the target organization. MBRSG, on the other hand, offers fewer but highly specialized programs aimed at senior leaders, ensuring a focus on high-impact governance issues. KAIG, meanwhile, offers programs focused on foundational governance principles, essential for building capacity within the Jordanian public sector.
- ***Training Methodology:*** While the case studies share similarities in their training methodologies, they also exhibit distinct approaches. MBRSG effectively blends theoretical knowledge with practical insights, ensuring that leaders are well-equipped to address contemporary challenges. NTA's experiential learning approach fosters practical skills through real-world applications, making its programs highly relevant to participants' daily roles. KAIG's collaborative approach with various stakeholders ensures that its training is aligned with the evolving governance needs in Jordan.
- ***Impact on Governance:*** The different training approaches employed by the case studies result in varying impacts on governance. NTA's focus on youth and women positions it as a transformative force in Egyptian governance, potentially leading to a more inclusive leadership landscape. MBRSG's emphasis on research-driven governance strategies helps shape effective policies that can lead to sustainable development in the UAE. KAIG plays a crucial role in strengthening institutional capacity in Jordan, promoting a culture of accountability that is vital for effective governance.

Figure 1- Primary comparison between case studies

Feature	NTA (Egypt)	MBRSG (UAE)	KAIG (Jordan)
Date of Establishment	2017 - 2018	2005	2010
Mission	Empowering Egyptian public sector leadership	Advancing governance practices	Promoting good governance
Key Programs	Presidential Leadership School, Women Leadership School, State Leadership School	Executive education programs	Specialized training for public sector leaders and employees
Training Approach	Experiential learning with tailored programs	Academic rigor combined with practical application	Collaborative approach with stakeholders
Target Audience	Public sector leaders at various levels	Senior government officials	Public sector leaders and employees

To conclude this section, NTA, MBRSG, and KAIG each contribute uniquely to leadership development within their regions, aligning with the theoretical roles of executive education centers in shaping public policy and administration. While each institution is committed to fostering effective leadership capable of navigating contemporary challenges in governance, their approaches differ in terms of the priority given to a certain role. MBRSG prioritizes research in training and educating leaders, NTA focuses more on practical training, and KAIG balances both approaches with a focus on specific values to improve the performance of leaders and institutions.

5.2. Navigating the effectiveness: a Framework of best techniques:

Identifying the most effective methodologies for executive training centers is crucial for achieving optimal outcomes. To do so, we must delve deeper into the specific tools and techniques employed by these centers to enhance the performance of leaders.

5.2.1 Mixed Techniques:

The leadership literature highlights some major techniques and tools deployed in the training programs for the leaders. These tools include the following:

- Experiential Learning: it is a process where individuals gain knowledge and skills through direct engagement in experiences. This approach often involves simulations

and role-plays, real-world problem-solving scenarios, and interactive group activities that reflect the complexities of leadership roles (Morris, 2019). By engaging in these activities, executives can apply theoretical concepts in practical situations, enhancing their decision-making skills and situational awareness (Mastering Leadership with Experiential Learning, 2023).

According to a 2020 report by the Association for Experiential Education, 90% of participants in experiential learning programs reported improved problem-solving skills and an enhanced ability to evaluate complex situations. Further statistics shows good results for experimental learning; a survey conducted by the Center for Creative Leadership revealed that organizations investing in experiential learning reported a 50% increase in leadership efficacy compared to those sticking to conventional training approaches (What role does experiential learning play in enhancing leadership skills for managers, 2024). Some of the best organizations that have successfully implemented experimental learning for leadership include Starbucks, University of Michigan's Ross School of Business, Tech Innovations Corp, and National Outdoor Leadership School (NOLS).

- Coaching and Mentoring: Coaching and mentoring have become increasingly popular, in part because of the limitations of classroom education. Coaching, whether one-on-one or in group settings, is a cornerstone of executive training. This personalized approach allows leaders to explore their strengths and weaknesses with the guidance of an experienced coach or mentor. Mentoring programs often pair less experienced leaders with seasoned professionals to facilitate knowledge transfer and professional growth (Comte, & McClelland, 2017). A study by the International Coach Federation reporting a 70% improvement in work performance for individuals who have a coaching relationship (The Impact of Mentorship on Leadership Growth and Development). In addition, a recent study by the Association for Talent Development found that 75% of executives attribute their success to mentorship (The future of coaching and mentoring in the workplace).
- Structured Training Programs: Many executive training centers offer structured programs that combine various learning formats, including workshops, seminars, and online courses. These programs often focus on essential leadership skills such as strategic thinking, emotional intelligence, and effective communication. For instance, the Program for Leadership Development at Harvard Business School integrates both in-person and virtual sessions to create a comprehensive learning experience (Day, Bastardoz, Bisbey, Reyes, & Salas, 2021).
- Peer Learning and Group Discussions: Peer learning involves executives sharing insights and experiences with one another in a collaborative environment. This technique not only enhances learning but also fosters a sense of community among leaders. Group discussions and projects are common practices that encourage diverse perspectives and collective problem solving (Croswell, 2024). This technique goes in line with another method known as "case studies analysis"; where lecturers, along with executives/trainees, analyze real-world case studies to learn from both successful and failed leadership scenarios. This method provides practical insights that can inform future decision-making processes.
- Feedback Mechanisms: Feedback mechanisms are structured processes that gather, analyze, and utilize information about performance, behavior, or outcomes to inform

improvement and development. Feedback exercises are integral to leadership development, providing leaders with insights into their performance and areas for improvement. Structured feedback sessions help executives refine their communication skills while enhancing their self-awareness (Habba, 2024, April 3).

Feedback has various forms, such as a 360-Degree Feedback that involves collecting feedback from various stakeholders within the organization, including peers, subordinates, and supervisors. In addition, there are other forms like anonymous surveys, real-time feedback, Constructive Feedback Training, etc. The integration of robust feedback mechanisms within executive training programs is essential for fostering effective leadership development.

Figure (2) - A brief summary of famous learning techniques

Learning Technique	Mission	Strengths	Weaknesses
Experiential Learning	To provide hands-on experience in real-world scenarios.	- Enhances self-awareness - Improves decision-making skills - Fosters teamwork and collaboration - Builds resilience and adaptability	- Can be resource-intensive - May require skilled facilitators - Risk of insufficient debriefing
Coaching	To offer personalized guidance and feedback.	- Increases self-awareness - Targets performance improvement - Develops specific leadership skills - Provides objective perspectives	- May be costly depending on the coach's expertise - Success depends on the coach-mentee relationship
Mentoring	To facilitate knowledge transfer from experienced leaders.	- Accelerates career advancement - Enhances job satisfaction - Builds confidence and self-esteem - Provides personalized support	- Quality of mentoring can vary significantly - Potential for mismatched mentor-mentee pairs
Role-Playing	To simulate real-life leadership challenges.	- Boosts confidence in handling difficult situations - Encourages immediate feedback - Improves communication skills - Enhances empathy and perspective-taking	- May feel artificial to participants - Requires careful scenario design to be effective

Case Study Analysis	To analyze real-world scenarios for practical insights.	- Develops critical thinking skills - Enhances problem-solving abilities - Provides context for theoretical concepts - Encourages collaborative learning	- May not always reflect current realities - Can be time-consuming to analyze thoroughly
Peer-to-Peer Learning	To facilitate knowledge sharing among peers.	- Encourages collaboration and teamwork - Increases engagement through shared experiences - Promotes diverse perspectives on problem-solving - Fosters a sense of community among participants	- May lead to inconsistent quality of information shared - Requires a commitment from all participants - Potential for dominant voices overshadowing quieter peers
Feedback Mechanisms	To provide constructive insights on performance.	- Encourages continuous improvement - Fosters open communication culture - Enhances self-awareness and accountability - Supports skill refinement	- May lead to defensiveness if not delivered properly - Requires a culture of trust to be effective

The methodologies employed by executive training centers are diverse and tailored to meet the unique needs of leaders at various stages of their careers. By integrating experiential learning, coaching, structured programs, peer interactions, case studies and feedback mechanisms, these centers equip executives with the skills necessary for effective leadership in today's dynamic business environment

5.2.2 MENA Centers: Similar but distinctive Practices:

Although MBRSG, KAIG, and NTA employ similar teaching techniques in delivering knowledge, they vary in their emphasis on specific techniques. MBRSG stands out for its focus on experiential learning, allowing participants to engage directly with real-world challenges. KAIG effectively uses role-playing and simulation exercises, enabling participants to practice decision-making in controlled environments that mimic actual leadership scenarios. NTA emphasizes interactive learning methods, fostering engagement and collaboration among participants.

In addition to the aforementioned teaching techniques, both MBRSG and KAIG incorporate coaching elements into their programs. This personalized support enhances individual growth, a technique not prominently used by NTA.

What is more prominent and effective for NTA is its employing for the Competency-Based Education "CBE" , which allows participants to progress based on their mastery of specific competencies rather than traditional time-based metrics. This personalized approach is particularly effective for adult learners who may have varying levels of experience, ensuring that all participants can benefit from the training.

Additionally, KAIG and MBRSG's structured feedback processes are crucial for developing self-awareness among participants, while NTA focuses on interactive learning methods that engage participants actively in their education process. Their emphasis on peer-to-peer learning fosters collaboration among participants, while the integration of digital tools enhances the overall learning experience

In a brief comparison of focused learning techniques, MBRSG employs a facilitator-centered approach, where instructors guide discussions rather than deliver traditional lectures. This method encourages active participation from students, fostering a collaborative learning environment. The use of case-based learning allows participants to engage with real-world scenarios, enhancing critical thinking skills. KAIG focuses on interactive and experiential learning techniques, such as role-playing and inquiry-based learning. This approach encourages participants to explore topics actively through questioning and research, making the learning experience dynamic and engaging. Collaborative learning is emphasized, allowing students to learn from each other's perspectives. NTA adopts a structured teaching style that combines lectures with practical applications relevant to participants' professional contexts. The emphasis on peer-to-peer learning fosters collaboration among participants, enhancing the overall educational experience. NTA's approach ensures that training is comprehensive while remaining applicable to the specific needs of its audience.

5.3. Factors of success and failure of executive training programs:

While executive training centers does play a crucial role in developing effective leaders within organizations, its success or failure can be influenced by various factors. In this section, we will draw on insights from academic literature and industry practices to identify key elements that contribute to the effectiveness of executive training programs in leadership development.

5.3.1 Organizational Alignment:

- Success Factor: when training initiatives reflect the organization's vision and objectives, they are more likely to gain support from leadership and participants. Research indicates that organizational alignment is vital for achieving desired outcomes, as it ensures that all parts of the organization work together toward common goals (Beer, Finnstrom, & Schrader, 2016).
- Failure Factor: A lack of organizational alignment often leads to programs that do not resonate with participants. Many leadership development programs fail because they adopt a "one size fits all" approach without considering the unique context of the organization. This misalignment can result in disengagement and a lack of applicability in real-world scenarios (Beer, Finnstrom, & Schrader, 2016).

5.3.2 Executive Support and Sponsorship:

- Success Factor: Leadership support helps secure necessary resources, encourages participation, and communicates the importance of development initiatives throughout the organization (Bregman, 2013).
- Failure Factor: Insufficient executive sponsorship can lead to inadequate resource allocation and diminished commitment to training efforts. Programs without visible support from leadership often struggle to achieve desired outcomes, as participants may perceive them as low priority (Bregman, 2013).

5.3.3 Clear Objectives and Goals:

- Success Factor: Clearly defined objectives for training programs ensure that all stakeholders understand the expected outcomes. SMART (Specific, Measurable, Achievable, Relevant, and Time-bound) goals facilitate focused learning and provide a framework for evaluating success (Gurdjian, Halbeisen, & Lane, 2014)
- Failure Factor: Vague or poorly articulated goals can result in confusion among participants regarding the purpose of the training. This lack of clarity often leads to disengagement and ineffective learning experiences (Gurdjian, Halbeisen, & Lane, 2014)

5.3.4 Participant Engagement and Involvement:

- Success Factor: Actively involving participants in the design and delivery of training enhances engagement and ownership over their learning process. Techniques such as peer-to-peer learning, interactive workshops, and feedback mechanisms foster a collaborative environment conducive to skill development (Malagisi, 2015).
- Failure Factor: Low participant involvement can lead to disconnect between training content and the actual needs of learners. Programs that do not consider participant input may fail to address relevant challenges, resulting in poor retention and application of skills (Malagisi, 2015).

5.3.5 Rigorous Evaluation Strategies:

- Success Factor: Implementing robust evaluation strategies helps measure the effectiveness of training programs over time. Continuous assessment through participant feedback, performance metrics, and follow-up evaluations allows organizations to refine their approaches based on data-driven insights (Jacobsen, Andersen, Bøllingtoft, & Eriksen, 2021).
- Failure Factor: A lack of systematic evaluation can lead to stagnation in program development. Without understanding what works and what does not, organizations may continue investing in ineffective training methods (Jacobsen, Andersen, Bøllingtoft, & Eriksen, 2021).

5.3.6 Learning Agility:

- Success Factor: Programs that foster learning agility encourage leaders to adapt their skills and approaches based on changing circumstances. This flexibility is essential in today's dynamic business environment (Rowland, 2017).

- Failure Factor: Training initiatives that do not promote adaptability may leave leaders ill-equipped to handle new challenges or shifts within their organizations. Resistance to change among participants can hinder the overall effectiveness of leadership development efforts (Rowland, 2017).

To conclude, the efficacy of executive training centers in leadership development is contingent upon a confluence of interrelated factors. By proactively mitigating potential challenges and capitalizing on opportunities within these factors, organizations can optimize the effectiveness of their leadership development initiatives, thereby positively influencing their overall institutional performance.

6. Discussion and Policy Recommendations

Based on the findings, this study reaffirms that leadership training can actually make a difference for leaders and hence executive training centers play an important role in this process. It also become clear that the combined programs, that include promoting transactional and transformational is most effective; implying that leadership training programs should take into account that leadership requires a varied set of tools, which training programs should be designed to equip and sharpen. In addition, training program based on an action learning design, which combine theoretical learning with practical application and feedback, offer a powerful tool for leadership development.

The comparison between our case studies revealed that while executive training centers in the MENA region share similarities in their program offerings and training methodologies, our comparative analysis highlights distinct approaches and focal points. Its specific mission and objectives often drive each center's unique emphasis on certain tools.

The comparison also showed that there are two ways of training public leaders in these executive centers, either by applying by themselves to the program and succeed in passing all its phases, or by being nominated by their institution for a special leadership program. In both cases, it is crucial for these centers to bear in mind some considerations; such as the type of leaders they are aiming to produce, the cultural background of the trainees that create resistance to change and the nature of work environment in which they work, their ability to digest the program content and then apply it effectively.

Although there is a wide literature, supporting the role that executive training centers could play in leadership development, the past two decades has witnessed a rising literature focusing on the reasons of the failure of these programs as it was mentioned in the third part of the findings. However, some other reasons were ignored; such as the cultural attitudes towards leadership in the public institutions can hinder the adoption of new management practices taught in in executive training centers. It is very important to realize that overcoming entrenched bureaucratic norms is essential for successful implementation.

On the other hand, in order to avoid the weak effectiveness of executive centers, training programs has to be resilient in a way that really meets the public leaders' requirements, while navigating the best relevant techniques and tools that match these requirements.

Finally, the study noticed that current literature highlights the significance of feedback and assessment in preventing leadership program failures. Our study reinforces this idea

and proposes a broader, multifaceted evaluation approach. This involves providing immediate feedback to trainees during the program, conducting follow-up assessments every three months, encourage team members to evaluate their selected leaders before and after the program, and delivering comprehensive assessment reports to trainees' institutional leaders to be used as criteria for promoting them later. This multi-faceted approach adds a layer of seriousness to the program and motivates trainees to apply their learnings.

7. Conclusion

Using the comparative analysis for our case studies, the paper highlighted the role of executive training/education centers in leadership development theoretically and in practice, navigating its approaches, methodologies and tools employed to effectively enhance the program outcome, and finally addressing the factors that contribute to the success or failure of the training programs in achieving its objectives.

In conclusion, it is imperative to say that there is no leadership formula. It is rather a long process of learning and experience just like building the general character throughout our life. In order to get the greatest benefit of the program, it is required to embrace the process and actively coach the members to find their own leadership voice. This customized engagement makes all the difference as there is no one size fits all leadership style.

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Egypt's ICT Competitiveness: A Strategic Assessment Using Porter's Diamond Model and Lessons from Leading Emerging Economies

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Abstract

Egypt's information and communication technology (ICT) sector stands at a critical juncture, transitioning from a factor-driven to an efficiency-driven economy. This paper benchmarks Egypt's ICT competitiveness against three successful emerging economies—India, Vietnam, and the Philippines—using Porter's Diamond Model, the Global Competitiveness Index (GCI), and the Global Innovation Index (GII). The analysis reveals that while Egypt benefits from a large domestic market, expanding infrastructure, and a youthful workforce, it continues to lag in innovation capacity, digital readiness, and regulatory efficiency.

Drawing on comparative evidence and national competitiveness frameworks, the study identifies key areas requiring policy attention: research and development, industry-academia collaboration, talent development, and regulatory reform. Lessons from peer economies demonstrate how targeted interventions—such as FDI-friendly innovation policies and startup ecosystems—can help Egypt move beyond cost-based outsourcing toward a value-driven digital economy. The paper concludes with a set of actionable, stage-specific policy recommendations aligned with Egypt's Vision 2030, offering a roadmap for strengthening the country's ICT sector and enhancing its role in the global digital landscape.

Keywords: *Egypt, ICT sector, Porter's Diamond Model, Global Competitiveness Index, Global Innovation Index, policy recommendations, economic development*

1. Introduction

The global Information and Communications Technology (ICT) sector has become a pivotal driver of economic growth, innovation, and competitiveness in both developed and developing countries. As nations seek to position themselves in the global digital economy, the ability to foster a robust ICT sector is increasingly seen as a critical determinant of national competitiveness (Freeman, 2004; Porter, 1990; World Economic Forum, 2019). Egypt, with its strategic location, large population, and growing digital economy, has identified the ICT sector as a key area for economic development. However, the country's ICT sector is currently situated between the Factor-Driven and Investment-Driven stages of economic development, indicating significant opportunities for growth, as well as substantial challenges that must be addressed to enhance its global competitiveness (Dahshan, 2015; Gartner, 2010; OECD, 2020).

This study aims to provide a comprehensive analysis of Egypt's ICT industry clusters using Porter's Diamond Model and international benchmarks such as the Global Competitiveness Index (GCI) and the Global Innovation Index (GII) (Porter, 1990; WIPO, 2021; World Economic Forum, 2019). By comparing Egypt's ICT sector with those of rival economies, specifically India, Vietnam, and the Philippines, this research seeks to identify key areas for improvement and propose policy recommendations that can help Egypt transition towards a more Innovation-Driven or Efficiency-Driven economy (Hatzichronoglou, 1996; WIPO, 2020; OECD, 2020).

The study focuses on three key objectives:

1. Evaluating the current competitiveness of Egypt's ICT sector using established economic models and global indices.
2. Benchmarking Egypt's ICT sector against those of India, Vietnam, and the Philippines, identifying best practices and areas where Egypt can enhance its competitiveness.
3. Proposing a set of structured policy recommendations aimed at strengthening Egypt's ICT sector and positioning it as a leading regional hub for innovation and technology.

Through this analysis, the research will contribute to the broader discourse on national competitiveness and economic development in the context of the digital economy, providing actionable insights for policymakers, industry stakeholders, and academics (Berger, 2008; Liu & Nath, 2013; Huggins & Izushi, 2009).

2. Methodology

This study adopts a structured comparative benchmarking approach to assess Egypt's ICT sector. It integrates Porter's Diamond Model with global indices such as the Global Competitiveness Index (GCI) and the Global Innovation Index (GII) to evaluate Egypt's competitiveness across key dimensions including infrastructure, innovation, and workforce development.

Egypt is benchmarked against three peer countries—India, Vietnam, and the Philippines—selected for their successful ICT transformations and shared characteristics as emerging economies. The comparison focuses on identifying policy interventions, institutional reforms, and investment patterns that contributed to their advancement.

Data sources include policy documents, government reports, international development studies, and academic literature. The analysis combines qualitative insights with quantitative metrics to uncover structural gaps and transferable lessons.

Findings are used to formulate stage-specific policy recommendations, aligned with Porter's development stages, to support Egypt's transition from a factor-driven economy toward innovation-led ICT competitiveness.

3. Analyzing Egypt ICT Industry Cluster

In Egypt, the government acknowledges the critical role of the ICT industry in enhancing national competitiveness. The "ICT 2030 Strategy" outlines a comprehensive approach to strengthening the sector through seven key pillars: ICT infrastructure, digital content, electronics design and manufacturing, industry programs

and initiatives, and legislative and policy frameworks. Central to this strategy is the "Digital Egypt" program, which prioritizes Digital Transformation, Digital Skills and Jobs, and Digital Innovation. The government has allocated LE124.8 billion ($17 billion) for investments in cloud computing, broadband, and electronics design and manufacturing, with goals to double ICT GDP, create jobs, and boost exports (Oxford Business Group, 2022; Central Bank of Egypt, 2020; UNCTAD, 2022).

While these efforts have improved overall economic performance, the country continues to struggle in maintaining a leading global position. Economic clusters like ICT sector, have yet to fully realize their potential due to regulatory hurdles and a shortage of specialized skills.

3.1 Egypt ICT Industry Outlook:

Egypt is an emerging market economy, classified within the CIVETS and Next 11 groups, indicating high growth potential, a young population, and a strategic geographic location (International Monetary Fund, 2021). The ICT sector has expanded significantly, contributing 16.3% to GDP in 2021/2022, up from 15.2% in 2019/2020 (U.S. Department of Commerce, 2022). Industry value increased from EGP 80.1 billion (USD 4.5 billion) in 2017/2018 to EGP 107.7 billion (USD 6.8 billion) in 2019/2020, with ICT exports rising from USD 3.2 billion to USD 4.5 billion. Employment in the sector reached 281,000 in 2020 (ITIDA, 2022; MCIT, 2022).

Investment in ICT grew 35% in 2019/2020, reaching USD 3.5 billion, fueled by the “Digital Egypt” strategy, which promotes digital transformation, economic modernization, and workforce development (Oxford Business Group, 2022). The country has become a leading offshore outsourcing destination, offering cost advantages, a multilingual workforce, and a favorable investment climate. Software, IT services, and BPO exports have increased, while hardware and digital goods exports continue to expand (U.S. Department of Commerce, 2022; ITIDA, 2022).

Despite these advancements, key challenges persist. Skill shortages and talent mismatches hinder sector growth, as many IT graduates lack expertise in AI, cloud computing, and cybersecurity, limiting global competitiveness (WIPO, 2022; World Economic Forum, 2019). Regulatory complexities, including bureaucratic hurdles and inconsistent policies, create barriers for businesses and discourage foreign investment. Cybersecurity risks are also rising with increased digital transactions, making data protection laws and cyber resilience essential priorities (WIPO, 2022). Additionally, the digital divide remains a challenge, with rural areas still lacking reliable internet and digital infrastructure, limiting economic inclusion and nationwide digital transformation (World Economic Forum, 2019).

Government reforms have improved infrastructure, regulatory efficiency, and investment incentives, making Egypt more attractive for foreign investors (Forbes, 2023; OECD, 2020). The depreciation of the Egyptian pound has further boosted cost competitiveness, strengthening Egypt’s position as a regional ICT hub (ITIDA, 2022; Oxford Business Group, 2022).

Beyond outsourcing, Egypt is emerging as a key player in the Middle East and Africa’s venture capital landscape. Successful startups like Swvl and Fawry have attracted major investments, particularly in fintech and e-transport, highlighting Egypt’s growing innovation ecosystem (UNCTAD, 2019; OECD, 2020).

3.2 Egypt's ICT Economic Clusters Initiative:

Egypt's ICT industry is expanding rapidly, driven by strategic initiatives that enhance competitiveness and economic development. These efforts focus on policy reforms, infrastructure investment, and talent development to position Egypt as a key player in the global digital economy (U.S. Department of Commerce, 2022; ITIDA, 2022; MCIT, 2022).

Egypt's approach includes three main policy types. Facilitating policies improve the business environment by upgrading infrastructure, simplifying regulations, expanding financial access, and enhancing workforce skills. Traditional framework policies support SMEs, research, and regional development, leveraging ICT clusters to foster collaboration and innovation. Development policies strengthen ICT clusters by providing funding, attracting talent, and expanding market opportunities (Porter, 1996; Wolman & Hincapie, 2015; Benner, 2012).

To attract investment, Egypt has established dedicated IT hubs such as Smart Village and Maadi Technology Park, catering to multinational firms and local startups. The Export IT program offers cash rebates of up to 20% on value-added exports, encouraging global expansion. Additionally, the Software Engineering Competence Centre (SECC) fosters technological advancement, while InnovEgypt integrates entrepreneurship into university curricula (U.S. Department of Commerce, 2022; ITIDA, 2022; MCIT, 2022).

Egypt’s smart city vision is illustrated in the New Administrative Capital, designed with advanced cloud computing infrastructure. The expansion of tech parks, including Smart Village Egypt and TIEC, further supports job creation and digital transformation. Meanwhile, the Haya Karima (Decent Life) program enhances rural connectivity through fiber optic expansion and upgraded telecom services, ensuring digital inclusion nationwide (MCIT, 2022; MCIT, 2021).

3.3 Egypt's ICT Industry Stakeholder Ecosystem:

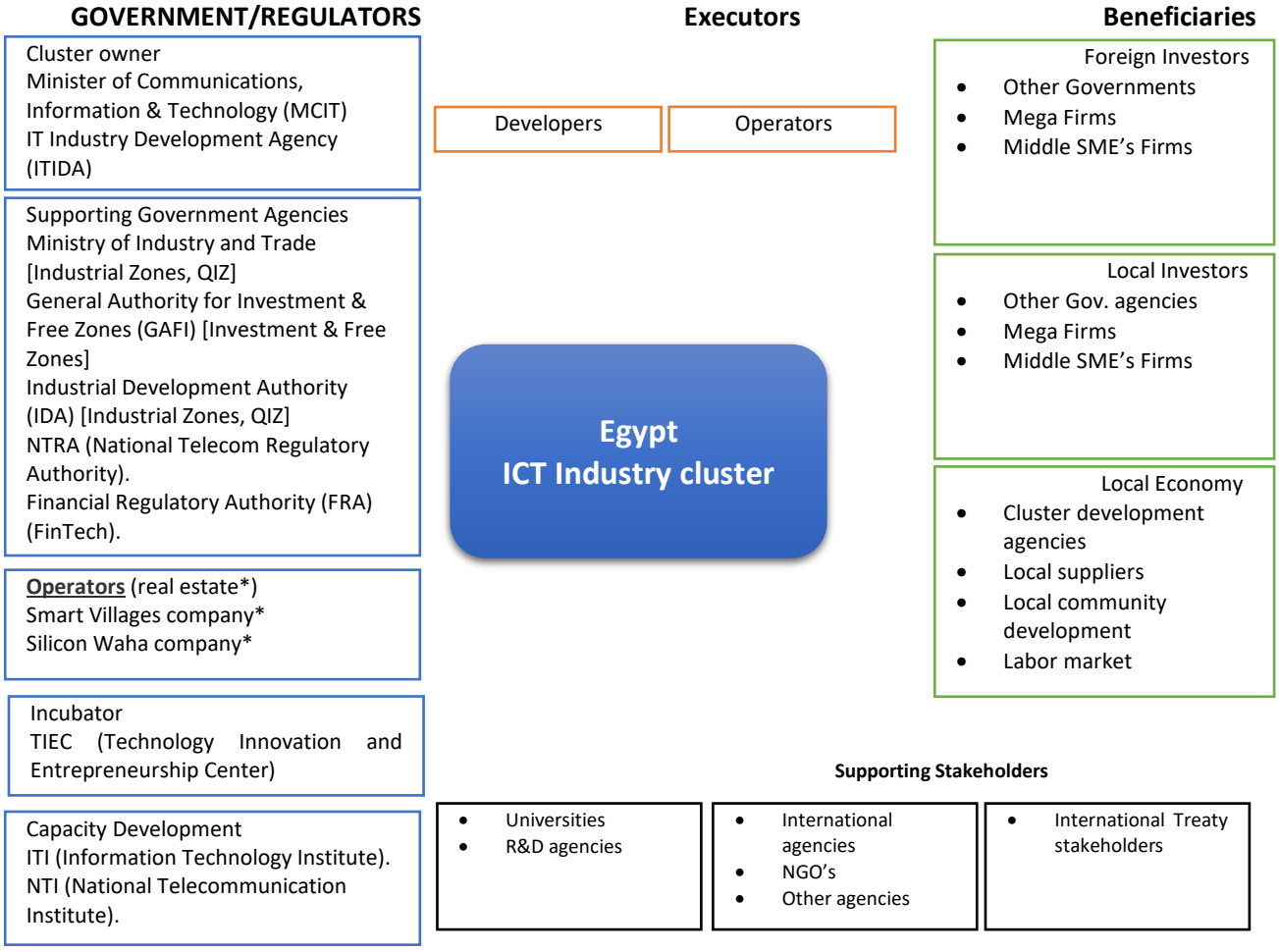
Egypt’s ICT sector is supported by government regulators, direct beneficiaries, and supporting organizations, each contributing to its growth and competitiveness (Ketels & Memedovic, 2008; Brun & Jolley, 2011).

- Government and Regulatory Stakeholders: The Egyptian government plays a central role in policy development, investment strategies, and regulatory oversight. Key entities include MCIT, ITIDA, the Industrial Development Authority, GAFI, NTRA, and FRA, ensuring a stable business environment and investment incentives (Egyptian General Authority for Investment and Free Zones, 2022). Infrastructure projects like Smart Village and Silicon Waha support technology firms, while institutions such as the Information Technology Institute (ITI) and TIEC focus on talent development and innovation (ITIDA, 2022; MCIT, 2022).
- Beneficiary Stakeholders: Egypt’s strategic location and skilled workforce have attracted global tech leaders like Microsoft, Oracle, IBM, and Google, alongside major telecom operators such as Telecom Egypt, Vodafone, Orange, and Etisalat Misr. Local firms like Raya, SEE, and Alkan Telecommunication primarily focus on IT services, with limited R&D investment. The fintech sector, led by Fawry and Paymob, is also expanding. The sector fuels job creation, local business

growth, and digital transformation, supporting Egypt's broader economic development.

- Supporting Stakeholders: Industry associations like EITESAL and CCIT advocate for business interests, while universities such as Cairo University and AUC supply skilled professionals and foster research partnerships. Financial institutions and venture capital firms provide funding for startups, while international organizations (World Bank, UNDP, EBRD) offer technical and financial assistance. NGOs and civil society groups promote digital inclusion and data privacy. Collectively, these stakeholders strengthen Egypt's digital economy and global competitiveness.

Figure 1: Egypt's ICT Industry Cluster Stakeholders Map



4. Benchmarking Egypt's ICT Industry Competitiveness

To assess Egypt's position in the global ICT landscape, this study benchmarks its performance against three emerging economies: India, Vietnam, and the Philippines. These countries have demonstrated effective strategies for leveraging ICT to drive national development and rank among the top performers in the Global Innovation Index (WIPO, 2021; WIPO, 2020). They were selected due to shared characteristics with Egypt—comparable population sizes, evolving digital economies, and similar macroeconomic structures. In contrast, Middle Eastern comparators were excluded due to structural and income-level differences that make direct benchmarking less relevant.

The analysis draws on Porter's Diamond Model (Porter, 1996), which assesses national competitiveness based on factor conditions, demand conditions, related and supporting industries, and firm strategy and rivalry. Complementing this model, the Global Competitiveness Index (World Economic Forum, 2019) and the Global Innovation Index (WIPO, 2022) provide internationally recognized metrics on infrastructure, education, innovation capacity, and institutional strength. These tools allow for a structured comparison of Egypt's ICT sector against its peers and help identify both internal weaknesses and external lessons. The Ease of Doing Business Index and the Competitive Industrial Performance Index were excluded from the analysis due to their limited relevance to ICT-specific performance.

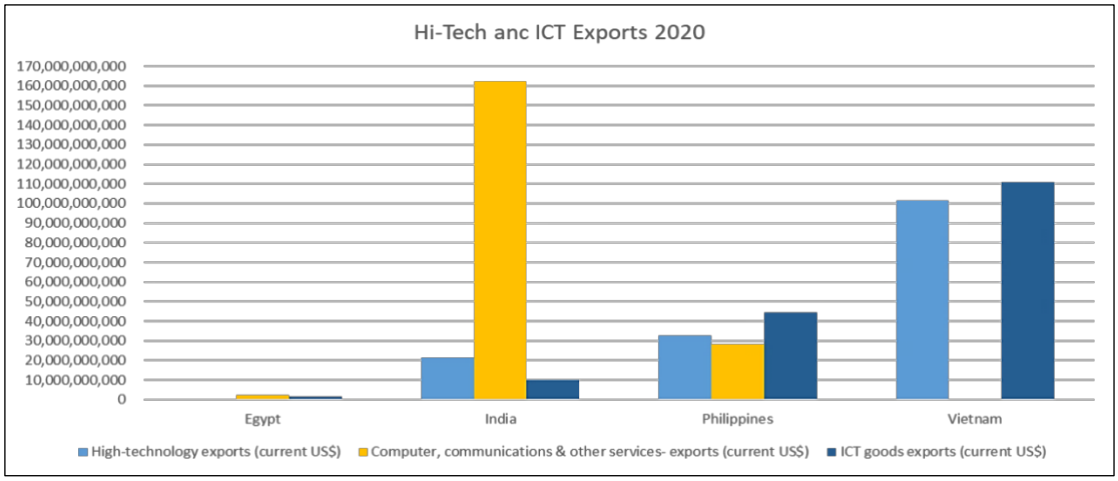
Figure 2- Metadata Comparative Analysis (Egypt, India, Vietnam, and the Philippines)

GDP	GDP per capita (current US$)	GDP (current US$)	Population, total	Land area (sq. km)
Egypt	3,569	365,252,651,279	102,334,403	995,450
Philippines	3,299	361,489,325,231	109,581,085	298,170
Vietnam	2,786	271,158,442,449	97,338,583	310,070
India	1,928	2,660,245,248,868	1,380,004,385	2,973,190

Source: Author data extracted from World Bank database - World Development Indicators (2023)

Compared to its peers, Egypt has a higher GDP per capita than India and Vietnam but operates within a smaller overall economic scale, which limits its capacity to influence global ICT trends. Nevertheless, Egypt benefits from a large domestic market exceeding 100 million people, which provides a substantial consumer base for digital services, fintech, and e-commerce (WIPO, 2021). Additionally, the government's commitment to digital transformation—reflected in initiatives such as "Digital Egypt"—and the growing number of ICT graduates position the country for significant innovation potential. Egypt's geographic advantage at the crossroads of Africa, the Middle East, and Europe, coupled with its multilingual and cost-competitive workforce, further enhances its appeal as an ICT outsourcing destination (Oxford Business Group, 2022; ITIDA, 2022).

Figure 3- ICT industry Exports Comparative Analysis (Egypt, India, Vietnam, and the Philippines)



Source: Author data extracted from World Bank database - World Development Indicators

Despite these strengths, Egypt faces persistent challenges that limit its ability to advance beyond a factor-driven growth model. Infrastructure gaps remain a major obstacle, especially in broadband access, rural connectivity, and cloud computing

infrastructure (WIPO, 2021; ITU, 2022). Digital readiness is also constrained by low cybersecurity awareness, limited adoption of advanced technologies such as artificial intelligence, and weak digital literacy outside urban centers (World Economic Forum, 2019). Furthermore, Egypt's innovation ecosystem is still underdeveloped, with insufficient research and development institutions, limited startup incubators, and modest venture capital activity (WIPO, 2020; UNCTAD, 2022). These deficiencies are compounded by a regulatory environment marked by bureaucratic inefficiencies, inconsistent enforcement, and limited protections for digital assets, which discourage private sector investment and startup formation (OECD, 2020).

Figure 4- Table comparing Competitiveness performance

Category	*Egypt*	*India*	*Vietnam*	*Philippines*
Competitiveness Strengths	• Large domestic market with over 100 million people, offering promising growth prospects. • Potential for innovation growth. • Large potential pool of ICT professionals.	• Global ICT leader with significant strides in infrastructure. • Vibrant innovation ecosystem with robust R&D institutions. • Large pool of skilled ICT professionals.	• Rapidly expanding market due to government support and foreign investment. • Emerging startup hubs with growing support systems. • Dynamic workforce, particularly in IT services.	• Steady growth supported by the BPO industry and government initiatives. • Emerging as a startup hub with growing support systems. • Dynamic workforce, particularly in BPO services.
Competitiveness Challenges	• Infrastructure quality and connectivity require further improvement. • Digital readiness needs assessment and enhancement. • Innovation ecosystem needs evaluation. • Regulatory framework requires scrutiny.	• High competition within a large market may challenge growth. • Complex regulatory environment.	• Infrastructure and digital readiness improvements are needed. • Emerging regulatory frameworks require further development.	• Regulatory environment requires ongoing improvements. • Digital readiness needs further enhancement.
Development Stage	• **First Stage**: Factor Driven. Egypt relies on basic factors of production, such as a large semi-skilled labour pool and natural resources.	• **Third Stage**: Innovation Driven. India has reached the ability to produce innovative products and services through advanced methods and technologies.	• **Second Stage**: Investment Driven. Vietnam is attracting foreign investments, necessitating improvements in infrastructure and regulatory frameworks.	• **Second Stage**: Investment Driven. The Philippines is attracting foreign investments, improving infrastructure, and regulatory frameworks.

Source: World Bank database (2024)

In contrast, India's advancement to an innovation-driven stage reflects the success of state-backed R&D investments, strong university-industry linkages, and a dynamic startup ecosystem in ICT and software services (WIPO, 2021). Vietnam, currently in the investment-driven stage, has improved its digital infrastructure and streamlined

investment regulations to attract high-tech foreign direct investment, while also nurturing homegrown startups in emerging digital sectors (WIPO, 2022). The Philippines offers a valuable model for service-oriented ICT growth, leveraging its English-speaking workforce, public-private training programs, and business process outsourcing (BPO) sector to achieve steady competitiveness gains (World Economic Forum, 2019).

Egypt's GDP per capita of $3,569 (World Bank, 2023) places it ahead of India ($1,928) and Vietnam ($2,786), though still below the Philippines ($3,299). However, in terms of innovation metrics, Egypt lags behind all three peers, particularly in business sophistication, creative outputs, and knowledge and technology production (WIPO, 2020). These gaps suggest that while Egypt has succeeded in building a foundation for digital participation, it has yet to develop the institutional depth and market conditions required for innovation-led growth.

Overall, the benchmarking exercise underscores the need for Egypt to invest in next-generation digital infrastructure, strengthen the enabling environment for innovation, and modernize its regulatory frameworks. By drawing lessons from the comparative experiences of India, Vietnam, and the Philippines, Egypt can formulate targeted reforms to transition from a cost-based outsourcing economy toward a more dynamic, innovation-driven ICT sector.

4.1 Global Competitiveness Index (GCI):

The Global Competitiveness Index (GCI) 2019 offers a comprehensive lens for assessing Egypt's economic positioning across twelve key pillars. When benchmarked against India, Vietnam, and the Philippines, Egypt shows relative strength in infrastructure and market size but continues to face significant challenges in ICT adoption, macroeconomic stability, and innovation capability (World Economic Forum, 2019).

Egypt's infrastructure receives a strong score of 73.05, reflecting substantial public investment in transport, telecommunications, and digital connectivity. Similarly, its market size score of 73.57 highlights the advantage of a large domestic consumer base that creates favorable conditions for scaling digital services, e-commerce, and fintech applications. The health pillar also performs relatively well, scoring 65.02, suggesting a comparatively robust healthcare system capable of supporting workforce productivity (World Economic Forum, 2019).

However, these strengths are offset by persistent weaknesses. Egypt's ICT adoption score remains low at 40.57, trailing both Vietnam (69.03) and the Philippines (49.69), indicating slow integration of advanced technologies across public and private sectors. This technological lag limits productivity gains and constrains digital transformation. Macroeconomic stability is another area of concern, with Egypt scoring 44.72, a figure notably lower than India (90.00) and the Philippines (89.95). Ongoing issues such as inflation, fiscal deficits, and exchange rate volatility undermine investor confidence and pose structural risks to long-term growth (World Economic Forum, 2019).

The innovation capability score, at 39.62, underscores Egypt's limited performance in research and development, startup dynamism, and private sector innovation. By comparison, India scores 50.94, reflecting stronger state-industry-academia collaboration and a more mature innovation ecosystem. Egypt's institutional quality,

measured at 51.33, is mid-range among the four countries—below India (56.75) but slightly above Vietnam (49.82) and the Philippines (49.98)—suggesting some progress in governance, though regulatory unpredictability remains an issue (World Economic Forum, 2019).

Overall, Egypt is currently situated in the second stage of development: Investment-Driven, as defined by Porter's framework. While it has moved beyond reliance on basic factor conditions, its advancement toward an innovation-driven economy is hindered by weak digital integration, macroeconomic volatility, and underdeveloped knowledge outputs. Addressing these barriers is critical for Egypt to unlock sustained ICT-led growth and enhance its global competitiveness.

Figure 5- Table comparing Competitiveness performance

Category	Egypt	India	Vietnam	Philippines
Competitiveness Strengths	• Large domestic market offering growth prospects. • Improving institutional quality and infrastructure. • Increasing focus on innovation capability.	• Strong institutional framework and well-developed infrastructure. • High ICT adoption and digital readiness. • Vibrant innovation ecosystem and skilled talent pool.	• Significant investments in infrastructure and ICT adoption. • Emerging as a startup hub with strong government support. • Stable macroeconomic conditions.	• Strong BPO industry and growing digital economy. • Improving infrastructure and ICT adoption. • Substantial English-speaking workforce.
Competitiveness Challenges	• ICT adoption is lagging. • Macroeconomic stability faces fluctuations. • Need for significant improvement in digital readiness and skill development.	• Bureaucratic inefficiencies persist. • Regulatory barriers in product markets and financial inclusion challenges. • Vulnerable to global economic shifts.	• Health services and rural infrastructure require further development. • Skill mismatches in the labor market. • Needs improvement in business dynamism and financial system.	• Challenges in regulatory environment and financial system development. • Need to enhance innovation capability and address informality in the labor market.
Development Stage	• **Second Stage: Investment Driven** Egypt is transitioning with ongoing reforms, focusing on improving infrastructure and digital readiness. While	• **Third Stage: Innovation Driven** India is a newly industrialized economy with a strong ICT sector and innovation ecosystem. Despite its	• **Second Stage: Investment Driven** Vietnam is a developing economy with rapid growth supported by government initiatives. It is transitioning to	• **Second Stage: Investment Driven** The Philippines is a developing economy with steady growth driven by sectors like BPO and a growing digital

	the country benefits from a large domestic market and growing innovation focus, challenges include lagging ICT adoption and macroeconomic fluctuations.	leading position, it faces regulatory inefficiencies and infrastructural challenges.	higher value-added industries, with strengths in ICT and infrastructure but needs improvements in health services and skill development.	economy. However, it needs advancements in innovation capability, digital readiness, and regulatory reforms.

Source: GCI 2019 data (World Economic Forum, 2019)

4.2 Egypt Global Innovation Index (2022):

The Global Innovation Index (GII), developed by WIPO in partnership with the OECD and other institutions, serves as a comprehensive framework for evaluating a country's innovation capacity. It measures both inputs—such as infrastructure, human capital, and institutions—and outputs, including knowledge creation, technology application, and creative production (WIPO, 2020; WIPO, 2021).

Egypt has made visible efforts to strengthen its innovation ecosystem through initiatives promoting R&D, entrepreneurship, and technology transfer. However, in comparative terms, it continues to lag behind peer countries such as India, Vietnam, and the Philippines in overall innovation performance (WIPO, 2021). While infrastructure and market sophistication have improved moderately, Egypt still struggles to build the institutional, educational, and financial systems required for sustained innovation.

India stands out as a regional leader, consistently ranking higher in the GII due to its robust ICT sector, large base of science and engineering talent, and a thriving startup environment supported by significant R&D investment and venture capital activity (WIPO, 2021). Vietnam, meanwhile, has rapidly improved its innovation indicators through coordinated government policy, foreign investment incentives, and support for high-tech exports and creative sectors. The Philippines, driven by its BPO industry, has also enhanced its creative outputs, digital infrastructure, and education systems to support innovation-led services (WIPO, 2021).

Figure 6- Egypt GII 2020 performance compared to rival countries

Row Labels	GII 2020	Institutions	Human capital & research	Infrastructure	Market sophistication	Business sophistication	Knowledge & technology outputs	Creative outputs
Viet Nam	37.02	58.82	28.09	38.20	57.25	30.75	29.39	33.44
India	36.39	64.38	34.07	36.83	55.55	29.21	34.45	23.08
Philippines	35.28	56.26	27.91	36.15	42.89	36.33	37.11	24.18
Egypt	25.09	49.33	21.76	33.54	40.90	18.05	19.38	15.55

Source: Author data extracted from GII 2020 (World Intellectual Property Organization, 2020).

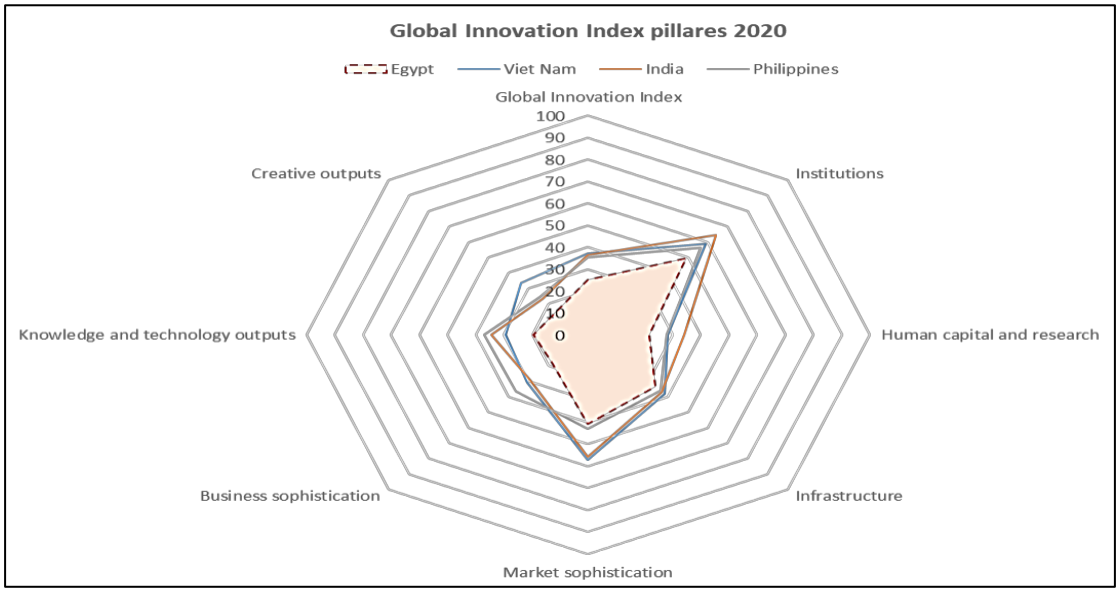
In comparison, Egypt's GII 2020 score of 25.09 is substantially lower than Vietnam (37.02), India (36.39), and the Philippines (35.28). Egypt scores particularly low in human capital and research (21.76), business sophistication (18.05), knowledge and technology outputs (19.38), and creative outputs (15.55) (WIPO, 2020). These figures

indicate limited university-industry collaboration, weak commercialization of R&D, and underutilized intellectual property potential.

Egypt's infrastructure score (33.54) and market sophistication (40.90) show moderate improvement, suggesting a foundation for growth. However, these gains have yet to translate into corresponding output scores. For example, in the tech industry domain, Egypt underperforms significantly in high-tech exports (2.06% of total trade) and mobile app creation, where it lags far behind regional peers (WIPO, 2020).

Workforce indicators also reveal structural weaknesses. Only 5.3% of Egyptian graduates are in science and engineering fields—well below India (64.89%) or the Philippines (55.13%)—and the share of research talent in businesses is just 7.59%, indicating minimal private-sector R&D absorption (WIPO, 2020). This gap reflects the disconnect between education output and market demand.

Figure 7- Comparison between the selected cases in GII Pillars



Source: Global Innovation Index, 2020

Despite these challenges, Egypt's venture capital landscape is showing signs of maturity. It exceeds Vietnam and the Philippines in venture capital deals per unit of GDP, although it remains behind India in both deal count and startup ecosystem density (WIPO, 2020; UNCTAD, 2022). This suggests a growing appetite for tech entrepreneurship, provided institutional reforms and capital access are further improved.

Figure 8- Sectoral Innovation Indicators (Egypt vs. Peers)

Category	Egypt	India	Vietnam	Philippines
High-tech exports (% of trade)	2.06	16.78	100.00	100.00
ICT services exports (% of trade)	10.58	100.00	2.09	45.82
Mobile app creation (per bn PPP GDP)	0.16	13.32	47.91	2.77
Research talent in business (%)	7.59	41.29	29.17	62.94
Science & Engineering Graduates (%)	5.30	64.89	37.86	55.13
Venture Capital Recipients (deals/bn PPP GDP)	6.20	23.42	7.99	2.95

Source: WIPO, 2020

To transition from an investment-driven to an innovation-driven economy, Egypt must address foundational weaknesses in business sophistication, creative production, and applied research. Improving university-industry linkages, protecting intellectual property, and incentivizing knowledge-based sectors are essential next steps. Without these reforms, Egypt risks stagnating in a mid-level development trap where infrastructure exists but innovation does not scale (WIPO, 2021; OECD, 2020).

In summary, Egypt's placement within the investment-driven stage reflects moderate progress in infrastructure and access to capital but continuing deficiencies in innovation outputs, talent pipelines, and ecosystem sophistication. The path forward requires Egypt to pivot from infrastructure-led growth toward policy-driven innovation development by strengthening institutions, investing in applied research, and enhancing private sector capabilities (WIPO, 2021; OECD, 2020).

4.3 National Competitiveness Using Porter's Diamond Model:

Porter's Diamond Model provides a systematic framework for assessing Egypt's ICT industry competitiveness by examining four key dimensions: factor conditions, demand conditions, related and supporting industries, and firm strategy, structure, and rivalry (Porter, 1990; Porter, Ketels, & Delgado, 2007). This framework helps diagnose the country's current development stage and highlights the structural strengths and weaknesses that influence its trajectory from a factor-driven to an efficiency-driven economy.

Factor conditions represent Egypt's baseline inputs for production and innovation. The country benefits from a large and youthful workforce, with 46% of the population aged between 15 and 44 and a total labor force of 29.1 million (ITIDA, 2022). However, there remains a critical mismatch between academic output and industry needs. Egypt's Human Capital and Research score in the Global Innovation Index remains low at 20.3, reflecting gaps in advanced technical training, digital skills, and R&D capabilities (WIPO, 2020; WIPO, 2022). While government initiatives like ITIDA's capacity-building programs aim to bridge these gaps, broader and deeper engagement between academia and industry is required.

In terms of capital availability, Egypt has succeeded in attracting substantial ICT-related investment through incentives such as tax breaks, startup support programs, and initiatives like Export IT (Oxford Business Group, 2017). Nonetheless, the venture capital ecosystem remains limited, and regulatory restrictions on foreign direct investment present ongoing obstacles to scale and international participation (OECD, 2020). Although the country has made progress in infrastructure development, with investments in fiber optics, smart cities like the New Administrative Capital, and national data centers (ITU, 2022), connectivity is still uneven. Rural areas and underserved communities continue to face inadequate digital access, which constrains Egypt's ability to fully capitalize on ICT growth opportunities (MCIT, 2022).

Egypt's technological capabilities are expanding, with increasing policy attention to artificial intelligence, cloud computing, and digital skills training. However, R&D investment remains well below international benchmarks, and local innovation ecosystems—such as incubators and research centers—are underdeveloped. Strengthening these systems will be critical to enhancing Egypt's long-term global competitiveness (Oxford Business Group, 2022).

Demand conditions in Egypt are generally favorable. With a population exceeding 100 million, the country has a substantial and growing domestic market for ICT services, e-commerce, fintech, and digital platforms (WIPO, 2020). Government-led digital transformation initiatives, including cashless payment policies, e-government services, and smart infrastructure projects, are stimulating demand across public and private sectors (MCIT, 2022). The growing use of platforms such as Fawry, Instapay, and Paymob reflects early success in expanding fintech adoption. Yet despite these trends, Egypt's market sophistication remains constrained. Between 2019 and 2022, its Market Sophistication Index score declined, indicating continued barriers to investment, entrepreneurial growth, and regulatory clarity (WIPO, 2020; WIPO, 2022). Reforms to intellectual property laws, startup incentives, and business registration processes would improve the investment climate and encourage private sector innovation.

Related and supporting industries play a critical role in reinforcing the ICT ecosystem. Egypt has emerged as a leading regional outsourcing hub due to its cost-effective labor, multilingual talent pool, and favorable time zone (Oxford Business Group, 2017). Multinational firms such as IBM, Microsoft, and Oracle maintain a presence, while domestic firms like Raya and SEE serve regional clients (Gartner, 2017). The country's telecommunications sector is also relatively well-developed, with mobile penetration exceeding 100% and continued investment in 5G infrastructure and broadband services (ITU, 2022). However, service reliability and average internet speed remain below international standards, limiting efficiency and competitiveness (MCIT, 2022).

In financial services, Egypt's fintech sector has seen strong growth. Companies like Fawry and Paymob are improving financial inclusion and digital payment access. Yet, regulatory obstacles to technologies such as blockchain and cryptocurrencies continue to inhibit innovation in financial technology (World Economic Forum, 2019). More adaptive regulatory frameworks and stronger protections for digital assets will be essential to unlocking this sector's full potential.

The dimension of firm strategy, structure, and rivalry highlights both the promise and limits of Egypt's private sector in ICT. Egyptian firms are expanding into emerging fields such as AI, digital platforms, and cloud computing. The sector includes a mix of dynamic domestic players and global multinationals, creating healthy competitive pressure (MCIT, 2022). However, many local firms remain focused on service delivery rather than product innovation, and the innovation intensity of domestic firms is limited (Brun & Jolley, 2011; De Langen, 2006). Regulatory bottlenecks—such as complex taxation, inconsistent contract enforcement, and weak intellectual property protections—further suppress market entry and scale-up potential (WIPO, 2020).

Overall, Egypt remains in a transitional phase between the factor-driven and efficiency-driven stages of development. While progress in digital infrastructure, investment climate, and workforce expansion has laid the foundation for growth, the country risks stagnating in a middle-income trap unless structural reforms are accelerated. Egypt's innovation ecosystem lacks the critical mass of R&D institutions, scalable startups, and policy coordination necessary to move into a fully innovation-driven economy. Without significant policy shifts, Egypt will struggle to keep pace with countries like India and Vietnam that have successfully built knowledge-based, export-oriented technology sectors.

To avoid this outcome and strengthen its ICT competitiveness, Egypt must implement several strategic reforms. These include expanding broadband and cloud infrastructure, incentivizing public-private R&D partnerships, reforming regulatory frameworks, and aligning university curricula with emerging fields such as artificial intelligence, cybersecurity, and blockchain technologies. Empowering a new generation of digital entrepreneurs and strengthening institutional governance will also be essential for ensuring sustained ICT-led growth.

Egypt's future competitiveness will depend not only on infrastructure or market size, but on its ability to create value through knowledge, innovation, and resilient digital systems. Without urgent and coordinated reform, the country risks remaining a cost-based outsourcing hub while others transition to higher-value, innovation-led digital economies.

Figure 9- Egypt's National Competitiveness Porter's Diamond Analysis

	Factor Conditions	Measurement		Demand Conditions	Measurement
+	Young population	Age 15-44 (46% of population)	+	GCI 10th pillar: Market size	GCI 73.57
+	Strong Labor force	29.1 million	+	Global and Regional demand for Egypt's products and services	Raw materials, labor, agricultural
+	Strong Higher Education	41 Universities (23 Public, and 18 Private)			
+	Strong growing GDP	31st global, 3rd Middle east, 2nd Africa			
+	Geographic Advantages	Heart of EMEA, GMT +2, 1.1 M sqm land, 2seas and Nile River, moderate weather			
+	Ease of Access	26 airports, 15 ports, 65k roads			
+	GCI 2nd pillar: Infrastructure	GCI 73.05			
+	GCI 5th pillar: Health	GCI 65.02			
-	GCI 3rd pillar: ICT adoption	GCI 40.57	-	GCI 4th pillar: Macroeconomic stability	GCI 44.72
-	GCI 8th pillar: Labor market	GCI 49.50	-	GII Market sophistication	GII 40.9
-	GII Human capital & research	GII 21.8	-	GII Business sophistication	GII 18
-	GII Infrastructure	33.5*			
	Firm Structure & Rivalry			Related & Supporting Industries	
+	Government Support	Investment law and FDI support regulations	+	Strong Banking and Financial Institutes	Egyptian Central Bank control
			+	Diversity of industries and services	
-	GCI 1st pillar: Institutions	GCI 51.33	-	Spread of the Informal economy across different sectors	
-	GII Institutions	GII 49.33	-	GCI 12th pillar: Innovation capability	GCI 39.62

			-	GII Knowledge &technology outputs	GII 19.4
			-	GII Creative outputs	GII 15.5

Source: Author data extracted from Global Competitiveness Index 2019, Global Innovation Index 2021, Ease of doing business 2020 Reports (Note: + positive, - negative)

Figure 10- Egypt's National Competitiveness Development Stage as per Porter's four stages

First Stage Factor Driven Nation depends on the basic factors of production, such as natural resources, and inexpensive semi-skilled labor pool		Second Stage Investment Driven Nation attracts foreign investments, which requires heavy investment in efficient infrastructure, business friendly government administrations, strong investment incentives, and better access to capital		Third Stage Innovation Driven Nation reaches the ability to produce innovative products and services, through advanced methods and improved technologies	
Monetary and fiscal, political, and legal stability	Egypt face challenges in currency devaluation, high inflation rate, barrier in foreign funds, lack of finance and funding source Demand Conditions GCI 4th pillar: Macroeconomic stability Related & Supporting Industries +Strong Banking and Financial Institutes +Diversity of industries and services	Increasing local rivalry	Still not achieving a suitable rivalry Demand Conditions GII Business sophistication Firm Structure &Rivalry +Government Support GCI 1st pillar: Institutions GII Institutions Related & Supporting Industries Spread of the Informal economy across different sectors	Building advanced skills	Egypt suffers high skilled resource depletion Factor Conditions GCI 8th pillar: Labor market GII Human capital & research
Market opening	Private sector faces many challenges in different sectors, due to the monopoly of companies owned by the government Factor Conditions +Geographic Advantages + Ease of Access + Strong growing GDP Demand Conditions + GCI 10th pillar: Market size	Creating advanced infrastructure	Still working on basic infrastructure Factor Conditions GCI 3rd pillar: ICT adoption	Creating world class scientific and technological institutions	There is not enough investment in R&D Related & Supporting Industries GCI 12th pillar: Innovation capability GII Knowledge &technology outputs GII Creative outputs
Improving basic human capital	High skilled capital are immigrating for other countries in the region, due currencies difference Factor Conditions + Young population + Strong Labor force + GCI 5th pillar: Health	Setting incentives and rules encouraging productivity	Not started Demand Conditions EDB Trading across borders	Setting incentives and rules encouraging innovation	Not enough incentives for innovation
Efficient basic infrastructure	Relatively good Factor Conditions + GCI 2nd pillar: Infrastructure	Cluster formation and activation	Still organic clusters are the dominate in egypt Demand Conditions GII Market sophistication	Cluster upgrading	Not started yet
Lowering the regulatory	Still challenges appearing, due to increasing more taxes				

costs of doing business	and increasing complexity of work Firm Structure &Rivalry +Ease of Starting a business +Ease of dealing with construction permits +Ease of getting electricity				
Observation	Egypt almost finished the 1st stage factor driven with need to focus on Macroeconomic stability	Observation	Egypt had started the 2nd stage investment driven, but a lot of effort is required	Observation	Egypt have not started the 3rd stage innovation driven, and not applicable to go for 4th stage wealth driven

Source: Author data extracted from Global Competitiveness Index 2019, Global Innovation Index 2021, Ease of doing business 2020 Report

5. Conclusion

Egypt's ICT sector stands at a strategic inflection point, navigating the transition from a factor-driven to an efficiency-driven stage of economic development. The country possesses several foundational strengths—most notably a large and youthful population, strategic geographic location, expanding digital infrastructure, and rising demand for technology-enabled services. These factors have positioned Egypt as a competitive outsourcing hub and a potential regional player in the digital economy.

However, benchmarking against peer countries such as India, Vietnam, and the Philippines reveals that Egypt continues to lag in key enablers of innovation-led growth. Its low scores in ICT adoption, knowledge and technology outputs, and creative capacity highlight structural challenges in digital readiness and innovation capability. Weak research and development ecosystems, skill mismatches, limited venture capital penetration, and regulatory unpredictability remain critical obstacles to progress. Unlike its peers, Egypt has not yet translated infrastructure gains into scalable innovation or globally competitive digital products.

Porter's Diamond Model analysis reinforces these findings. Egypt's factor conditions—including labor force size and recent infrastructure investments—are moderately strong, yet advanced capabilities such as R&D intensity, institutional quality, and business sophistication remain underdeveloped. While demand conditions are improving due to digital transformation initiatives and fintech growth, inefficiencies in market sophistication and startup regulation constrain private-sector dynamism. The ICT sector's competitive potential is further weakened by fragmented support industries and regulatory bottlenecks that discourage innovation and investment.

To avoid stagnation in a middle-income trap, Egypt must act decisively to shift from cost-driven service exports to value-driven innovation. This requires a multi-pronged strategy focused on scaling R&D investment, fostering deeper industry-academia collaboration, incentivizing product-based tech entrepreneurship, and modernizing regulatory frameworks. Egypt should also expand broadband access, strengthen IP protection, and cultivate a venture capital ecosystem aligned with national innovation goals.

By drawing strategic lessons from Vietnam's FDI-driven tech growth, India's startup-led innovation engine, and the Philippines' services-based digital economy, Egypt can shape a tailored pathway toward global ICT competitiveness. With coordinated policy

action and institutional commitment, Egypt has the potential to transform its ICT sector into a catalyst for broader economic modernization, job creation, and regional digital leadership.

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