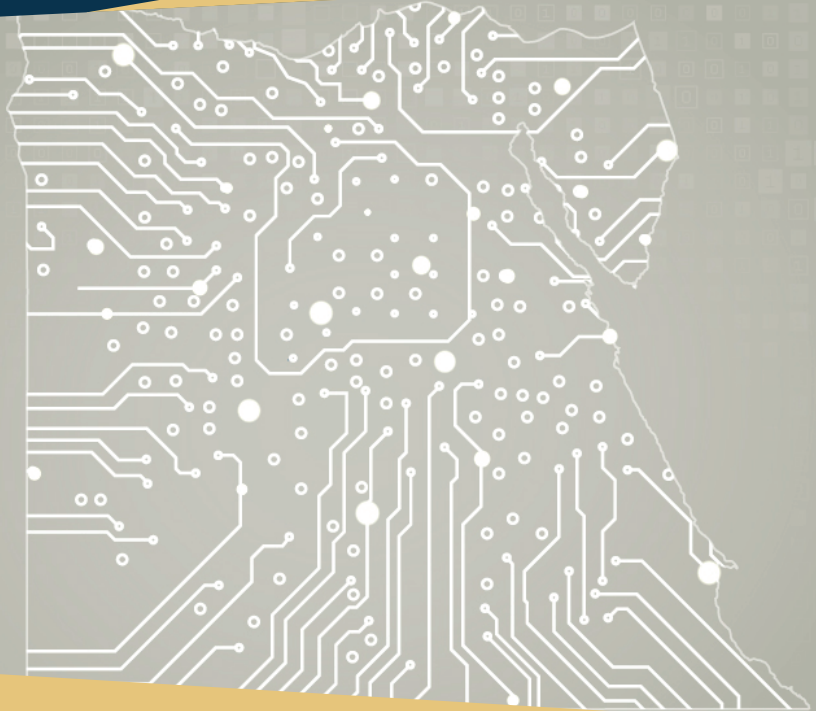




The Egyptian Cabinet
Information and Decision Support Center

IDSC

Policy perspective



Egypt Digitalization

In Alignment with Egypt vision 2030 for SDGS

Dr. Abdel Wahab Ghoneim



MAY 2021



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IDSC Policy Perspective

An online non-periodic publication issued by Cabinet's Information and Decision Support Center (IDSC). It covers the most prominent topics in the scene from all aspects to present a comprehensive vision regarding such topics relying on experts' perspectives.

The opinions expressed in this publication are those of the authors and do not necessarily reflect the official policy or perspective of IDSC

IDSC's Commentary

Stemming from Egypt Vision: 2030 in line with Egypt's commitment towards Sustainable Development Goals (SDGs) 2035, the Government of Egypt (GoE) has formulated a comprehensive vision that includes the fundamentals related to transforming Egypt into a digital society where all technologies in almost all fields of life can be integrated.

Within context, the Government has worked on promoting and developing the infrastructure of communications and information technology. It has also covered improving digital services at all ministries and government agencies and raising the efficiency of governmental services by providing a better work environment and necessary support to government agencies.

In addition, the Government has taken significant steps towards transformation into a digital economy. This came in line with its valiant attempts to accelerate the development pattern and improve the quality of life for citizens via developing infrastructure and investing in human capital.

The strategic objectives of digital transformation in Egypt mainly rely on improving services presented to citizens via digitizing them. They also depend on linking governmental digital systems to improve work at the State's administrative apparatus and ensuring efficiency and effectiveness. Promoting electronic governance and principles of transparency, accountability, and monitoring at all government agencies is another strategic objective.

Since it is an important topic, this issue of "Policy Perspective" published by the Information and Decision Support Center (IDSC) aims at tackling Egypt's efforts in digital transformation within the framework of Egypt Vision: 2030 and SDGs 2035. It focuses on the efforts that have been exerted taking into consideration Egypt's position in the international indicators and the major challenges.

Egypt Digitalization

In Alignment with Egypt vision 2030 for SDGS



Dr. Abdel Wahab Ghoneim

Executive Summary

We stand on the brink of a technological revolution that will fundamentally alter the way we live, work, and relate to one another. In its scale, scope, and complexity, the transformation will be unlike anything humankind has experienced before. We do not yet know just how it will unfold, but one thing is clear: the response to it must be integrating and comprehensive. It should involve all stakeholders of the global polity, from the public and private sectors to academia and civil society. Now, a fourth industrial revolution can be characterized by a fusion of technologies that blur the lines between the physical, digital, and biological spheres, and the breadth and depth of these changes herald the transformation of entire systems of production, management, and Govt..ernance.

According to Egypt Vision 2030 in alignment with UN SDGs, which is aimed at diversifying Egypt's economy, the Egyptian GDP rate reached 5.6% in the Q1 FY 2019/2020. The country's GDP became the second largest GDP in the Arab region and Africa, with GDP equal to USD 361.875 billion, and expected to reach USD 394.28 billion in 2021; it is ranked globally the 34th in 2020.

The Egyptian GOVT.. has implemented many structural reforms, including economic, financial and monetary policies in addition to taxes, privatization, and new trade legislation. This helped Egypt move towards a more market-oriented economy and boost increased foreign investment, strengthen the results of annual macroeconomic growth. Thus, job opportunities were created (unemployment rate 7.2% by Q2 FY 2020/2021). The inflation rate was reduced to 5.7% , and a decent life was provided to the Egyptian citizen. Several national projects were implemented in partnership with the private sector (PPP) in all different economic sectors,

manufacture, health, education, ICT, infrastructure, culture, agriculture, social sectors, SMEs, and entrepreneurship. In addition, new smart cities were built, including the New Administrative Capital (NAC). Egypt also enjoys political stability, proximity to Europe, and increased exports; it has a strong currency from an investor perspective. Egypt is stable and well-supported by the stakeholders.

The speed of change of technology is accelerating in exponential way, since Prof. Klaus Schwab, Founder and Executive Chairman of the World Economic Forum, announced Industry 4.0, and he convinced that it is fundamentally changing the way we live, work and relate to one another using the AI, Big Data Analytics, Quantum computing, 5G, IoT, Robotics, VR, AVR, Drones, Nano Tech, Bio Tech, 3D-Printing, and Machine Learning.



Figure 1. Egypt Vision 2030

Despite the decline of the global economy during COVID-19 pandemic and most global growth rates were negative, the growth rate in Egypt decreased to around 3.6% during FY 2019/2020, which is the highest in MENA thanks to the Egyptian GOVT.. good performance.

The international rating institutions Moody's, Standard & Poor's, and Fitch have kept the level of Egypt's rating (B+) with a stable outlook, expected that the Egyptian growth rate will be 5.66% in 2022. The Foreign reserve reached in Mar 2021 USD 40.201B.

H.E. President Abdel Fattah El-Sisi launched the digital transformation initiative for the Egyptian GOVT.. 3 years ago. It is to reengineer the processes, move GOVT.. institutions to new business models, provide E-services to the citizen 24x7 by Omni channels in a smart, efficient and effective digital way, as the citizen is the core business of the comprehensive sustainable development, implement Govt.. ernance, elimination of corruption, increase citizen satisfaction and saves time and money.

The Digital technologies represent an unprecedented opportunity for the G to reinvent itself. The Egyptian GOVT.. is working as a participatory digital Govt.. to implement financial inclusion and FinTech Apps towards secured cashless, paperless digital knowledge society.

The Govt.. is transforming to Digitalization and to the Digital Economy, the Egyptian Govt.. investments USD 1.9B , to develop informational digital infrastructure, create technological innovation pools in the Govt..ernorates, and established Hi Tech industries in the economic zone of the Suez Canal, where most of the submarine cables that carry communications and internet between Asia and Europe pass through the Suez Canal. The Egyptian ICT sector growth is 17% in Q2 of FY 2020/2021 and its contribution to the GDP 4.4% in 2020. and expected to reach 8% in 2024.





Figure 2. ICT Contribution to the SDGs

The digital transformation for the Egyptian GOVT..

The digital transformation and the digital economy are the two wings of comprehensive development and have become an urgent inevitable necessity for all countries of the world. Worldwide ICT spending is projected to total USD 4.1T in 2021; this level of big investment need significant digital strategy and leadership for the digital transformation.

The wise Egyptian political leadership has an insightful future vision and consideration in strategic planning for the future of Egypt digitalization in light of Egypt Vision 2030 for SDGs.

H.E. President Abdel Fattah El-Sisi launched the digital transformation initiative for the Egyptian Govt.. and its institutions 3 years ago to reach a sustainable competitive digital secured knowledge society and strong digital economy. It is to improve the quality of life for the citizens, as the Govt.. procedures. Services have been reengineered according to the standards and specifications of comprehensive TQM, converting and developing all businesses for the Govt.. institutions to work according to innovative, ICT business models to provide Govt.. E-services efficiently and effectively 24x7 via the internet, so that the citizen receives the E-services through Omni channels including mobile Apps, Govt.. E-Portals, digital Egypt E-platform, post offices, service centers and kiosks, the citizen can access these platforms through the citizen’s Digital Identity and can pay the expenses of the E-services through E-Payments Gateways, credit cards and POS, within 2 years will reach 550 E-services to all ministers and localities.

The vision of the Egyptian Digital Transformation Strategy is a digital Govt. connected, participatory and sustainable , centered on serving the citizen and increasing competitiveness through building an integrated secured digital society, and the message is empowering the Govt., citizens, and industry transact in a sustainable manner, through Strategic goals and initiatives.

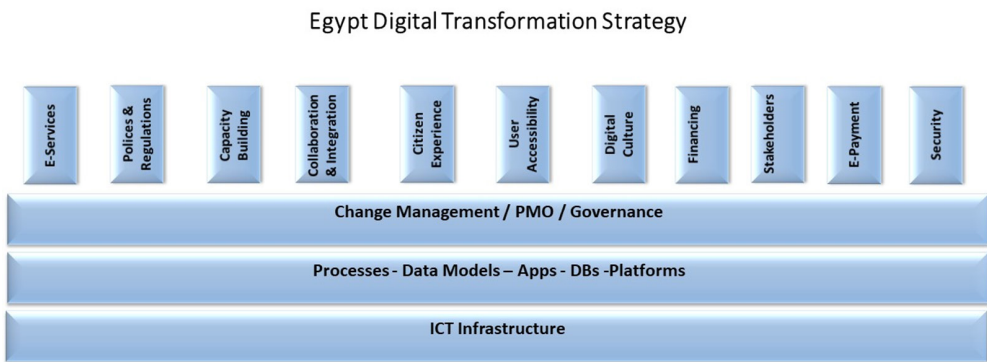


Figure 3. Egypt digital transformation strategy

The Cabinet formed a supreme committee of ministers for the digital transformation to follow up. The Egyptian Govt. spent around EGP 6B to develop the technological infrastructure to establish a new network of fiber optic cables to connect around 32,000 Govt. buildings over Egypt, for providing a more resilience service, the average of the internet speed is 40 Mbps in 2021 and in the new smart cities the internet speed ranges from 100 Mbps to 200Mbps, and launched the Egyptian satellite “TIBA-1” for the broadband high-speed internet and telecommunications to improve the E-services in Sinai, New Valley and south Egypt, and to be backup and alternative network.

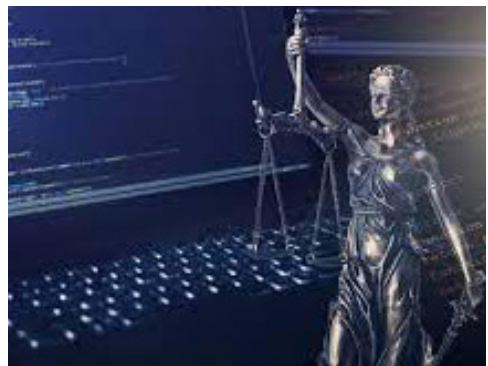
The digital transformation pilot project port said Governorate

Port Said Governorate was chosen as a pilot project in 2019, now a number of 155 E-services were deployed and being provided including the traffic, notarization, supply, electricity, personal status, family courts, agriculture, real state registration, mortgage finance fund, investment, law enforcement and medical insurance services, the project has been successfully completed and transfer Port Said into the first digital Governorate, and the services are being deployed nationwide, the project expanded to other 5 Governorate.

Laws & Legislations

The Egyptian State has issued the following laws and legislations to provide a good environment to safe protection and privacy for data, institutions and individuals from piracy acts and to encourage investment in the field of ICT for the digital, knowledge-based society

1. The Data privacy Protection Law No. 151 of 2020
2. The National Council for the Artificial Intelligence of 2019
3. Law of Combating Information Technology Crimes No. 175 of 2018
4. The National Payment Council Law



No 89 of 2017, chaired by the President.

5. The Supreme Council for the Digital Society Law No 501 of 2017.

6. The Supreme Council for Cyber security 2017.

7. Investment Law No. 72 of 2017.

8. Electronic Signature Law No. 15 of 2004.

Statistics about ICT in Egypt (Jan 2021)

No	Number (M)	Description
1	101.375894	Number of Population
2	96.2	Number of Mobiles
3	94.89%	Penetration Rate of Mobiles
4	59.19	Number of Internet Users
5	58.34%	Penetration Rate of Internet Users
6	49	Number of Active Social Media
7	48.33%	Penetration Rate of Active Social Media

The Establishment of the New Largest Secured Egyptian GOVT.. Data Center (TIER-4)

The Egyptian Govt. established the state of the art the new largest secured Govt. Data center in MENA and Africa in NAC called “The mind of Egypt”. The Data Center (Tier-4), high availability, resiliency and fully redundant, it contains many super servers with very large capacity of storage, high speed processing, non-stop system where it stores all Govt.. data and information after data cleansing, updating and the integration of more than 70 data bases connected to the Egyptian National warehouse (Data Bank), cloud computing, smart Apps, API, GIS systems, big data analytics, AI and E-archiving system of billions of forms and official documents, there is a big investment in the Govt.. Data center and there is a backup Data center located in another secured remote place.

The Egyptian Satellite Series

1. TIBA Satellite series for Internet & Telecommunication:

The Egyptian Govt. planned to launch a series of “TIBA Sat” for the high-speed broadband internet and telecommunications with the cooperation with Airbus Defense and Space and Euro Star for operation by Egyptian Govt., it will be a cornerstone in fulfilling Egypt Vision 2030 for SDG’s, and the transformation towards a secured digital economy.

The satellite aims at promoting development by providing telecommunications infrastructure and high-speed broadband internet to remote Governorates and isolated areas, support development projects in these areas, as well as bridging the digital gap between urban and rural places.

Egypt launched its first satellite “TIBA-1” into orbit on 26/11/2019, the satellite, planned to remain in orbit for about 15 years, it help in the Digital Transformation



plans to offer telecommunication and high speed broadband internet services to Govt.. entities, commercial purposes and individuals, as well also contributes to advancing the sectors of petroleum, energy, mineral resources, education, health and all other Govt. sectors. It will support the Govt. agencies in the fight against smuggling, crime and terrorism.

TIBA-1 satellite will also provide high speed broadband internet and telecommunications services to the Nile Basin countries and North Africa based on Egypt's efforts to cooperate with the African continent, especially Egypt hosting the African Space Agency.



Egypt launches first telecoms satellite Tiba I

2. “CubeSat” Satellite Series for Remote Sensing & Development:

The Egyptian Govt. launched of the Egyptian satellite “CubeSat” in Sep 2019, into the orbit assigned to it from the Japanese platform of the International Space Station in space, the satellite will be used in the fields of remote sensing, agriculture, geology and other fields related to comprehensive sustainable development projects.

The Complex for Secured and Smart Documents in NAC

As part of Egypt Digitalization and Digital Transformation plans, the Egyptian Govt. established an integrated complex for secured and smart documents in NAC, which will be issuing all Government documents and certificates at a high level of security via a unified central system, and the complex will house 398 patents and intellectual property.

The complex costs about USD 1B. It consists of different production lines tasked with issuing the papers, which include educational certificates, E-passports, and documents of civil status transactions, all notary documents, Government contracts, smart cards and others, it will help confront corruption and violations related to document forgery.

This complex established an accurate, secured and integrated biometric database and developed a unified system that ensures the Governance of issuing state documents, resolve multiple disputes and litigation reports and improving legislation that criminalize the violations committed in this respect, also contribute to facilitating product traceability concerning taxes and customs, which helps lessen importing costs and attempting to slash losses in state treasury revenues by reducing forgery and smuggling, as well as via preserving the State’s rights and those of the citizens.

The New Fourth-Generation Smart Cities in Egypt

The Egyptian State has adopted a strategic plan for urban development in Egypt since 2014, which aims at increasing the area of built-up areas, and establish smart cities that depend on a network of smart facilities and a unified digital infrastructure with high speed broadband internet of up to 200 Mbps, and green areas with the aim



of relieving congestion in old cities, and confronting the steady population increase, to reach to build 30 new smart cities that accommodate about 30 million people at a cost of about LE 700B, around USD 45B, (1 USD= EGP15.6)

The first stage is the implementation of 14 new fourth-generation smart cities throughout the state, including the new administrative capital, New Alamein, New Mansoura, Galala City and Resort, and the total areas of these new communities are about 380,000 acres, and it provides about 6M permanent job opportunities.

The Egyptian fourth-generation new smart cities are distinguished by the combination of the city, industry and citizens together to improve life in urban areas, through integrated solutions more sustainable, and this includes applied innovations, better planning, a more participatory methodology, greater energy efficiency, better transportation solutions, and smart use of ICT to meet the needs of citizens in all aspects including providing online services depending on the IoT to measure a lot of information and transfer all data at the same time to the citizens or the concerned authorities, save time and effort and seek to provide an environmentally friendly digital environment that stimulates learning and creativity that contributes to providing a sustainable environment that promotes a sense of happiness, well-being and health.

The Smart new Administrative Capital and the skyscraper (NAC)

The NAC is smart city 60 km from Cairo, with area 170,000 acres, aims at attracting about 5M people in the first phase. NAC was chosen to be the “Arab digital capital” for the year 2021, and the Govt. entities will move to the NAC from June 2021.

It includes the Government district (includes several buildings for the presidency, the cabinet, the parliament and 18 ministerial buildings), Embassies area, conference center, exhibition city, medical city, sports city, central park, residential areas, entertainment and arts city, and knowledge city that hosts digital universities, research, innovation and creativity centers and entrepreneurship incubators, the establishment of the National Academy of Information Technology for Persons with Disabilities and regional offices of global technology companies .

Financial and business district and the skyscrapers includes the iconic tower, the largest skyscraper in Africa with a height of 385 meters in order to mediate the financial and business district, commercial complexes, residential buildings and hotels and real estate projects with multiple services and levels.

An international airport is implemented on an area of 16 KM , power station with a production capacity of 4,800 megawatts and different types of transportation high speed Trains, electric trains, monorail and buses.

The Digital Economy

The digital economy is fostering economic growth five times higher compared to other traditional methods, changing the world view on value creation, it will not only transform the way we convert our resources into economic value-added outcomes, but it will also redefine our views on the available resources and how to utilize them to address existing economic and social challenges, the main resource that drives the digital economy is the people, and this is where Egypt can have a real chance to join the new age economic



revolution and a future focus on innovation and digital augmentation of the way we live and work.

The Egyptian economy is diverse, the Govt. is working on implementing the mechanisms of the transition to the digital economy, according to Egypt Vision 2030, seeks to become the first destination for digital investments in MENA to promote economic growth, by creating a competitive smart digital environment, legislative environment, improving the investment climate and ensuring market competitiveness, allowing international institutions and companies to compete to localize technology in Egypt, while supporting business platforms, E-Commerce platforms, E-Payment Gateways and supply chains to enable the growth of Egyptian digital markets, the volume of E-Commerce in Egypt about USD 25.6B.

The Egypt Govt. developing national payment systems and supervising frameworks to reduce the risks to create safe, efficient and effective systems to achieve financial inclusion using FinTech Apps, by integrating the largest number of citizens into the banking system, joining the informal sector into the formal sector, also banks issued about 7M prepaid cards for free called Meeza, and network operators in Egypt are now using “e-wallets”, and encourage merchants and consumers to use QR codes for payment, also set up an electronic system to trace cargo and handle cargo tariff issues.

Huawei has partner with leading global advisory firm Oxford Economics in a research project on the digital economy, the global digital economy was worth USD 11.5T, around 15.5% of global GDP in 2016; reached to USD 88T in 2020.





The digital economy has grown 2.5 times faster than global GDP. It ranges in size from 10% to 35% of GDP in advanced economies and 2% to 19% of GDP in developing economies, the digital economy estimated to reach USD 23T by 2025 rate 24.3% of global GDP.

The total volume of the Arab economy is about USD 3.841T around of 3.55% of the global economy, and the volume of the Egyptian economy is about USD 361. 875B, which has second-largest economy in Africa and the Arab region during 2020.

Innovation & Capacity Building

The Egyptian Govt. is interested in building innovation and creativity centers and entrepreneurship incubators, as well as interested in training, development and capacity building for Egyptian people and employees through academies, universities and Govt. or private institutes.

1. The Ministry of Communications and Information Technology (MCIT) has an initiative called “Our Future is Digital”. It aims at training 110,000 young

Egyptians and developing their ICT skills in areas of high market demand, including website design, big data analysis, AI, and digital marketing.

2. **The National Academy for Training:** The National Academy of Training was established by a presidential decree in 2017, for human development for youth cadres in all sectors of the state and upgrading their capabilities and skills. The academic education system was designed on the model of the French National School of Administration in cooperation with a number of international organizations, and institutes.
3. **The Knowledge City in NAC:** The Knowledge City contains digital universities, research, innovation and creativity centers and entrepreneurship incubators, and regional offices of global technology companies, the estimated cost of the first phase is about EGP 2.5B.
4. **The Egyptian Knowledge Bank (EKB):** The President Abdel-Fattah El-Sisi launched the EKB as an initiative during the National Science Day of 2014, it the world's largest digital library granting unlimited resources exclusively for Egyptians from all ages access to the largest amount of knowledge, cultural and scientific content whether they are basic, applied, technology, human or management sciences. It also includes public cultural books that target children and to be used through computers, smart phones, and tablets around the country.
5. **The National Academy of Information Technology for Persons with Disabilities (NAID):** The President Abdel Fattah el-Sisi launched the NAID in July 2018, as an initiative to enable persons with disabilities to develop their skills and use their exceptional abilities towards bolstering the economic and social development in Egypt. NAID's vision is to become the regional hub to support and stimulate assistive technologies, provides training and capacity-building opportunities for Egyptian, Arab and African persons with disabilities, via advanced training programs using Assistive Technologies (AT). The Academy supports innovators and developers, to develop ICT technologies for the empowerment of the persons with disabilities.



The new & Renewable Energy in Egypt for Sustainable Environment

Egypt has developed a strategy for new and renewable energy to reach about 20%, through many projects and initiatives, in line with Egypt's Vision 2030, as the following:

1. Establishing the wind farms to generate electricity.
2. Project to replace and convert cars to work with natural gas.
3. Establish Benban Solar Power Park:

Benban Solar Power Park is the largest plant in the world generating about 2000 Megawatts at a cost of about USD 4B, and it won 3 global Awards:

- The Global Award for the best project in the world 2017
- The World Bank award as the best project in 2018
- The Arab Government Excellence Award in (2019-2020) for infrastructure development



Benchmark - Comparing some of Egypt's Indicators with International Indicators

Egypt's performance in the past few years was better on the global index, but its ranking was not better. Some reference comparisons of Egypt's indicators according to the international classification are attached in the following table.

Benchmark- Comparing some of Egypt's indicators with international indicators

Year	Global Index Name	Global Index Description	No of Countries	Egypt Rank	Highest Score	Country of Highest
2019	Global Services Location Index	GSLI introduces a digital resonance metric that scores countries based on the digital skills of the labor force, digital outputs, the amount of corporate activity, legal protections of intellectual property, and other elements of business activity. https://www.kearney.com/digital-transformation/gsli/2019-full-report	55	14	7.08	India
2021	PPP GDP Ranking	IMF Ranking2021, A nation's GDP at purchasing power parity (PPP) exchange rates is the sum value of all goods and services produced in the country valued at prices prevailing in the United States in the year noted	195	21	26.656T	China
2020	Overall Best Countries Rank	The Best Overall Countries Ranking is based on how global perceptions on a variety of attributes could potentially increase trade, travel, and investment as well as directly affect the national economy of a country. Source: U.S. News and World Report open_in_new (2020)	73	33	1	Canada

Year	Global Index Name	Global Index Description	No of Countries	Egypt Rank	Highest Score	Country of Highest
2021	Nominal GDP Ranking	IMF Ranking 2021, Nominal gross domestic product (GDP) is the total value of all goods and services produced in a given time period, usually quarterly or annually, it measures a country's GDP using current prices, without adjusting for inflation	192	34	22.675T	USA
2020	Soft Power Strenght Index	the Global Soft Power Index (GSPI) 2021 is used to describe the capability of states to influence or be influenced by other states, without resorting to traditional power tools, which are the military and the economic ones, it is used to describe the capability of states to influence or be influenced by other states, without resorting to traditional power tools, which are the military and the economic ones	105	34	62.2	Germany
2020	Govt.. AI - Readiness Index	The Govt..ernment Artificial Intellegence(AI) Readiness Index, issued by Global Consulting firm OXFORD insight and the International Development Research Center (IDRC), measures the extend of the Govt..'s willings to use AI Technologies	172	56	85.48	USA
2018	KOF Index of Globaliza-tion	The KOF Index of Globalization measures the economic, social, and political dimensions of globaliza-tion in each country. Source: Swiss Federal Institute of Technology Zurich open_in_new (2017)	191	67	90.79	Switzer-land
2018	International Logistics Performance Index (LPI)	The Logistics Performance Index (LPI) evaluates the capacity of a country to efficiently move goods and connect manufacturers and consumers with international markets. Source: World Bank open_in_new (2018)	160	67	4.2	Germa-ny

Year	Global Index Name	Global Index Description	No of Countries	Egypt Rank	Highest Score	Country of Highest
2019	Global Connectivity Index	The GCI was created to analyze a broad spectrum of indicators for ICT Infrastructure and digital transformation to provide a comprehensive map of the global digital economy	79	69	78	USA
2020	Global Knowledge Index	UNDP produced the GKI annually, it is a summary measure for tracking the knowledge performance of countries at the level of seven areas, namely pre-university education, technical and vocational education and training, higher education, research, development and innovation, ICT, knowledge economy or knowledge society, which allows a more meaningful and insightful exploration of knowledge policies in relation to different sectors.	138	72	73.6	Switzerland
2019	Global Entrepreneurship Index	The GEDI methodology collects data on the entrepreneurial attitudes, abilities and aspirations of the local population and then weights these against the prevailing social and economic 'infrastructure' – this includes aspects such as broadband connectivity and the transport links to external markets. This process creates 14 'pillars' which GEDI uses to measure the health of the regional ecosystem. Source: The Global Entrepreneurship and Development Institute	137	81	86.8	USA

Year	Global Index Name	Global Index Description	No of Countries	Egypt Rank	Highest Score	Country of Highest
2020	Network Readiness Index	World Economic Forum produces NRI to measures how well an economy is using ICT to boost competitiveness and well-being, data is gathered from international agencies such as the ITU, UNESCO, other UN agencies and the World Bank, The world is at the dawn of the Fourth Industrial Revolution, which represents a transition to a new set of systems, bringing together, AI, digital, biological and physical technologies in new and powerful combinations. https://networkreadinessindex.org/nri-2020-countries/#complete-ranking	134	84	82.75	Sweden
2019	Global Competitiveness Index	The Global Competitiveness Report provides a description of the economic competitiveness of a country based on enabling high productivity levels	141	93	84.8	Singapore
2020	Global Innovation Index	The Global Innovation Index provides detailed metrics about the innovation performance of 127 countries and economies around the world. Its 81 indicators explore a broad vision of innovation, including political environment, education, infrastructure and business sophistication. Source: The Global Innovation Index	126	96	68.08	Switzerland
2020	Status Index (Political and Economic Transformation)	The Status Index evaluates the political and economic transformation dimensions of a country based on how well the ground rules for democracy are anchored in society. Source: Bertelsmann Stiftung open_in_new (2018)	137	104	9.52	Czech Republic

Year	Global Index Name	Global Index Description	No of Countries	Egypt Rank	Highest Score	Country of Highest
2021	Global Opportunity Index	The GOI assesses countries' attractiveness to international investors using a combination of economic, financial, institutional, and regulatory factors. ... Financial Services measures the depth and breadth of a country's access to financial services, https://milkeninstitute.org/sites/default/files/reports-pdf/goi-white%20paper.pdf	147	102	1	Sweden
2017	ICT Development Index (IDI)	The ICT Development Index (IDI), which has been published annually since 2009, is a composite index that combines 11 indicators into one benchmark measure. It is used to monitor and compare developments in information and communication technology (ICT) between countries and over time. Source: ICT Development Index (IDI) open_in_new (2017)	176	103	8.98	Iceland
2019	DHL Global Connectedness Index	Score based on a nation's integration into the world economy. (Higher score corresponds to more globally integrated.)	169	103	91	Netherlands
2020	Ease of Doing Business Rank	The Ease of Doing Business Rankings measures the vibrancy of a country's business environment based on business regulations in place	190	114	86.8	New Zealand
2020	Index of Economic Freedom link	Grades each country on a scale of 0 to 100, based on ten freedoms, with 100 representing the greatest amount of economic autonomy from Govt. ernment intervention. Source: Heritage Foundation open_in_new (2019)	186	130	89.7	Singapore

Challenges & Recommendations:

Challenges:

- Digital Divide
- Weakness and absence of some Laws and legislation
- Implementation of plans of digital transform
- Cost & Budget pressures
- Lack of bank accounts for more than 60% of the population
- Lack of enough HR specialized in ICT
- The need for big ICT investments
- Cyber security & Privacy
- Distrust of virtual stores
- Crypto currency

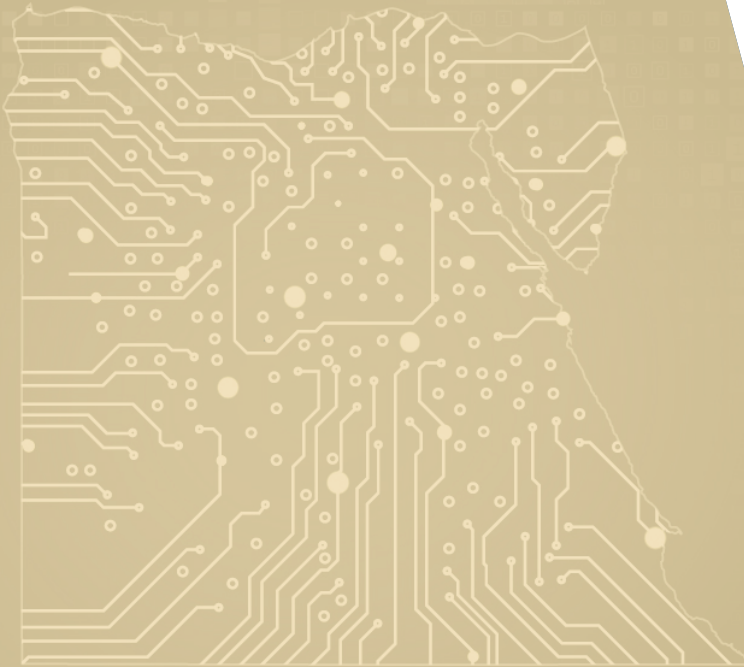
Recommendations:

- Awareness campaigns
- Accelerate the implementation , integration of digital transformation and Digital Economy plans
- Implementation of HR Capacity building plans
- Developing the online interactive education
- More support for creativity and innovation centers
- Developing Laws and legislation
- Supporting R&D
- Create Egyptian Govt... Cloud Computing (IaaS, SaaS)
- Establish industries based on Industry 4.0

Abbreviation table

No	Abbreviation	Meaning
1	5G	5th generation telecommunication
2	AI	Artificial Intelligence
3	API	Application Programming Interface
4	Apps	Applications
5	ATM	Automatic Teller Machine
6	AVR	Augmented Virtual Reality
7	B	Billion
8	EKB	The Egyptian Knowledge Bank
9	EU	European Union
10	FinTech	Financial Inclusion
11	FY	Fiscal Year From 1 July to 30 June
12	GDP	Gross Domestic Products
13	GIS	Geographic Information Systems
14	GOVT..	Govt..ernment
15	Hi Tech	High Technology
16	IaaS	Infrastructure as a Service
17	ICT	Information and Communications Technology
18	IMF	International Monetary Fund
19	Industry 4.0	The Fourth Industrial Revolution
20	IOT	Internet of Things

No	Abbreviation	Meaning
21	ITM	Interactive Teller Machine
22	ITU	International Telecommunication Union
23	KPI	Key Performance Indicators
24	M	Million
25	Mbps	Megabits per second
26	MENA	Middle East and North Africa
27	NAC	New Administrative Capital
28	POS	Point of Sale
29	PPP	Public Private Partnership
30	Q	Quarter
31	QR Code	Quick Response Code
32	R&D	Research and Development
33	RFID	Radio-Frequency Identification
34	SaaS	Software as a Service
35	SDG	Sustainable Development Goals
36	SME	Small and Medium-sized Enterprises
37	T	Trillion
38	TQM	Total Quality Management
39	UN	United Nations
40	UNDP	United Nations Development Programme
41	USD	United States Dollar
42	LE	Egyptian Pound
43	VR	Virtual Reality



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