



مجلس الوحدة الاقتصادية العربية
Council of Arab Economic Unity



جامعة الدول العربية
League of Arab States

ARAB DIGITAL ECONOMY STRATEGY

POLICY NEEDS FOR DIGITAL TRANSFORMATION

PROFESSOR DR. ALI M. AL-KHOURI

Arab Digital Economy Strategy

Policy Needs for Digital Transformation

Professor Dr. Ali M. Al-Khouri

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Printed in Cairo, Egypt.

Title: Arab Digital Economy Strategy: Policy Needs for Digital Transformation

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ISBN: 978-9948-34-007-2

First Edition

Note: Major part of this research was published in an article in Dubai Policy Review in 2020.



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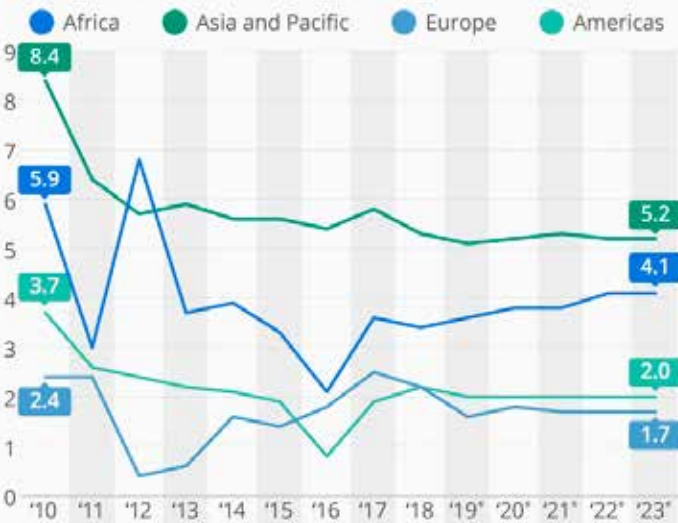
GLOBAL ECONOMY



The global economic growth rates have been falling continuously in the last decade. Clearly, the degree and extent of change, forced by developments in digital technologies, is greater than current capacities of comprehension. As such current national actions in many countries are assumed to be largely ineffective in responding to the new and emerging global landscape of social, economic and political scenery. Contemporary shifts in global economic trends and social demographics are obvious examples of this.

Economic Slowdown Felt Around the World

Global GDP growth 2010-2023 by region (in percent)



GDP growth in selected countries (2018)

- China +6.6%
- Kenya +6.0%
- Poland +5.1%
- Thailand +4.1%
- United States +2.9%
- Germany +1.5%
- United Kingdom +1.4%
- Italy +0.9%
- Japan +0.8%
- Argentina -2.5%

© StatistaCharts * projected Source: International Monetary Fund





TECHNOLOGICAL ADVANCEMENT

Technological Developments as Drivers of Change

Digital transformation is seen to have a great positive impact on GDP, including GDP per inhabitant. In fact, existing literature shows that global prosperity is being redistributed based on the degree and success of transformation.

It is therefore seen fundamental for policy and decision makers to see through the complex specifics of this transformative change and understand the role of modern technology in altering the rules of current practices and to at least cope with the paradigm shift brought by digitalization. Besides, it is also imperative to extrapolate technological evolutions to the dynamics of building resilient economies and social systems.



Figure 1: Global Wealth Redistribution due to Digitalization

Source: (Petersen, 2019)

In this context, Arab countries are lagging far behind. This is evident from the universal economy indicators which depict a worrying picture of vulnerabilities in Arab countries, ranging from indigent competitiveness and inclining unemployment rates.

These vulnerabilities have the potential to threaten the stability of the region, and thus calling for an urgent action plan designed with a different thinking mind-set that adapts and addresses the challenges of the 21st century as positive forces. Weighing the amount of work needed, the only feasible and practical approach, however, is largely argued to be possible through a joint Arab action plan where Arab countries should work together with a unified vision and collaborative implementations models to see tangible and impactful results.

Before we look at how best this requirement is addressed in light of current global challenges and those Arab regional specifics, let us first look how technology is promising to change our societal and economic structures, pushing competitiveness and productivity bars higher than ever before.

INDUSTRIAL REVOLUTIONS

A large industrial facility, likely a refinery or chemical plant, is shown at night. The scene is filled with complex piping, scaffolding, and tall distillation columns. The facility is illuminated by a mix of warm yellow lights and cooler green lights, creating a dramatic atmosphere. In the foreground, a large, white, cylindrical vessel is prominent. The background shows more industrial structures and a dark sky. A yellow banner at the top of the image contains the text "INDUSTRIAL REVOLUTIONS".

The Rising Role of Technology

Some historical stages constitute crucial junctures and may impose greater responsibilities on societies and generations experiencing these changes. This is clearly evident, based on the outcomes of the first three industrial revolutions that changed the industrial, economic and social demographics, and marked a turning point that led to the emergence of an interconnected global economy.

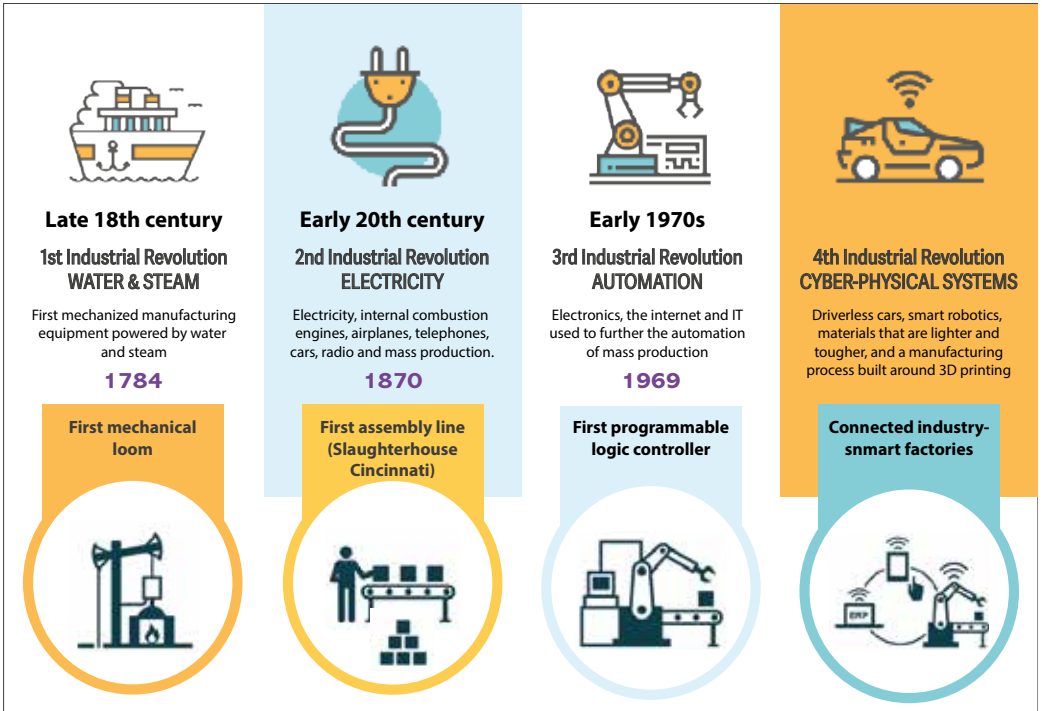


Figure 2: The Four Stages of Industrial Revolutions

The world today is on the threshold of the Fourth Industrial Revolution, which promises new radical changes in the global community as a whole. Technologies such as artificial intelligence, robotics, 3D printing, Internet of Things, genetic engineering and nanotechnology are at the forefront of the driving forces of these change variables.

These variables present for the first time in human history, a machine that is capable of distinguishing, working and performing tasks that were limited to humans. This will have enormous effects on economies and societies and may be difficult to even imagine their impact as of today.

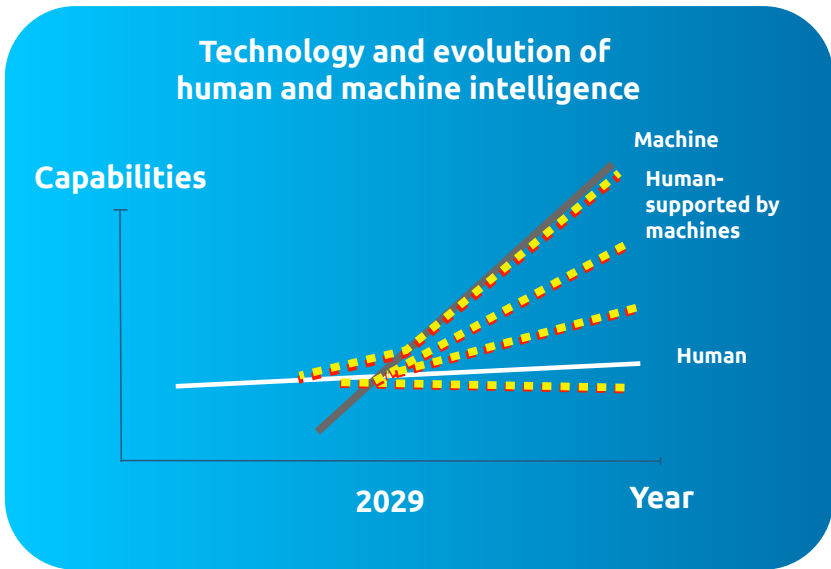


Figure 3: Technology and Evolution of Human and Machine Intelligence

According to global estimates, AI technology alone will add tens of trillions of dollars to the global economy over the next decade. Overall, digital economy practices over the next 10 years will increase global GDP by 30% to 50% depending on countries' maturity and digital transformation. Statistics that cannot just be ignored.

DIGITAL ECONOMY



The Slippery Status Quos

Digital economy is a term refers to the application of information and communication technologies to digitize processes, transactions, interactions and activities facilitating the creation of new business models and products and transforming the economy and social interactions. The current global research supports the view that the expansion of digital economy practices has the potential to create many new economic opportunities in terms of value creation and capture.

Table 1: Potential impacts on value creation and capture from an expanding digital economy, by its components and actors

Potential impact digital economy on value creation and capture					
ACTORS					
DIGITAL ECONOMY COMPONENT	Individuals (as users / consumers and workers)	MSMEs	Multinational enterprises / digital platforms	Governments	ECONOMY-WIDE IMPLICATIONS
Core, digital sector	New jobs for building and installing ICT infrastructure. New jobs in telecom and ICT sector, especially ICT services.	Greater inclusion under suitable circumstances or spillovers/domestic linkages. Increased competition from cloud-service providers.	Investment opportunities for companies that meet high capital, technological and skills requirements.	Attracting investment. Tax revenues from the economic activity created.	Increased growth, productivity and value added. Employment creation. Investment and diffusion of technologies; R&D likely located in high-income countries. Mixed trade impacts.
Digital economy	New jobs in digital services, especially for highly skilled people. New forms of digital work, including for the less skilled.	New opportunities in digital ecosystems. Increased competition from foreign digital firms.	Enhanced productivity from data-driven business models. Greater control of value chains using platformbased business models. New opportunities in the sharing economy	More tax revenue resulting from increased economic activity and formalization of enterprises. Lost customs revenue from digitalization of products.	Higher growth, productivity and value added. Employment creation/ losses. Higher investment. Aggregation of digital firms in some locations. Mixed trade impacts. Market concentration.
Digitalized economy	New jobs in ICT occupations across industries. Need for new skills as higher-value roles are redesigned using digital tools. Greater efficiency of services received. Job losses or transformation due to digitalization. Risk of worsened working conditions. Improved connectivity. More choice, convenience, customization of products for users and consumers. Lower consumer prices.	Platform-enabled market access. Reduced transaction costs. Risk of "race to the bottom" in markets vs. ability to find a niche. Lost opportunities due to automation (e.g. logistics, business processes). New roles in service provision. New business opportunities for digitalized enterprises.	Emergence of platform firms with data-driven models. Gains from efficiency, productivity and quality. Opportunities for the monetization of data. Increased competitive advantage of digital platforms. Increased market power and control of data value chain. Leading digitalization in different sectors.	Increased efficiency of services through e-government. Increased revenue from customs automation. Unclear impact on tax revenue: increases from higher economic activity; losses from tax optimization practices by digital platforms and MNEs. Data-driven opportunities to meet various SDGs.	Growth through improved efficiency in sectors and value chains. Productivity improvements. Innovation impacts. Potential crowding out of local firms in digitally disrupted sectors. Potential automation in low and medium-skill jobs. Wider inequality. Mixed trade impacts. Impacts on structural change.

Source: UNCTAD, 2019

Almost all governments worldwide have embarked on digital transformation journeys with goals primarily focused on improving service delivery and enhancing citizen experiences. However, there is an apparent gap in the rate at which technology is evolving and the rate at which governments are coping with the pace in terms of adoption. Apparently, governments and decision makers are constantly in a catch up play with a moving target of technological innovations and applications.

The facts on the grounds show that, while citizens have turned digital, governments, in relation, seem to be still in an analogous mode. As modern technologies are changing the rules of the game, governments are still striving for relevance.

It is realized that the level of change required to cope with developments, necessitates diligent management of digital transformation. Unmitigated adoption of technology has the potential of resulting in a chaotic ecosystem. Policy and decision makers need to moderate the extrapolation of the predicted change and evolution of the digital economy.

For instance, social media platforms have clearly taken the media control out of the government hands and are challenging the oligopoly of the media majors. In addition, the evolution of key technologies that are pushing the bar higher is a case in point. For instance, while most countries are still operating on 4G technology in telecommunications and confounded with migration to 5G networks, China recently announced research and development of 6G mobile networks.¹

¹ China has set up two working groups to carry out the rollout of the 6G project. The first will consist of relevant government departments tasked to promote and carryout th research and development. The other will consist of 37 universities, research institutes and enterprises, to lay out the technical specification of 6G and offer recommendations.

Technologies such as cryptocurrencies are fast replacing the government control over value exchange questioning the governments' authority over the monetary system. Legal jurisdictions are blurring and no longer defined by geographical boundaries, once again posing a challenge to the government's traditional authority.

All these are just a few examples of forces challenging existing status quos of economic and social systems to either change or be changed!

A group of men, some in suits and some in traditional Arab attire, are gathered around a glowing, illuminated globe on a stage. The globe is the central focus, emitting a bright light. In the background, a large, illuminated globe is projected onto a wall, showing the map of the Arab world. The scene is set in a dark environment, possibly a conference or a formal event, with a blue light source at the top. The overall atmosphere is one of global connectivity and digital transformation.

ARAB DIGITAL ECONOMY

Arab Digital Transformation and Competitiveness

In addition to what has been stated so far, there has been a perceptible global realization of the significance of digital transformation opportunities and its impact on overall competitiveness and productivity. Nations are racing towards making rapid strides in their digital transformation efforts with a belief that it is the only possible means to compete on the global playground.

According to IMD World Digital Competitiveness Index², governments around the world are still investing heavily in digital economy related initiatives with the goal of enhancing value creation and national prosperity (IMD, 2019). See also Figure 4.

Not very much surprisingly, only three Arab countries appeared in the IMD index of digital competitiveness, namely UAE, Qatar and Saudi Arabia, and excluded the rest of the Arab world completely. This was attributed by the report largely to the existing regulatory frameworks and legislations and access to capital.

2. IMD World Digital Competitiveness Ranking measures the capacity and readiness of 63 economies to adopt and explore digital technologies as a key driver for economic transformation in business, government and wider society.

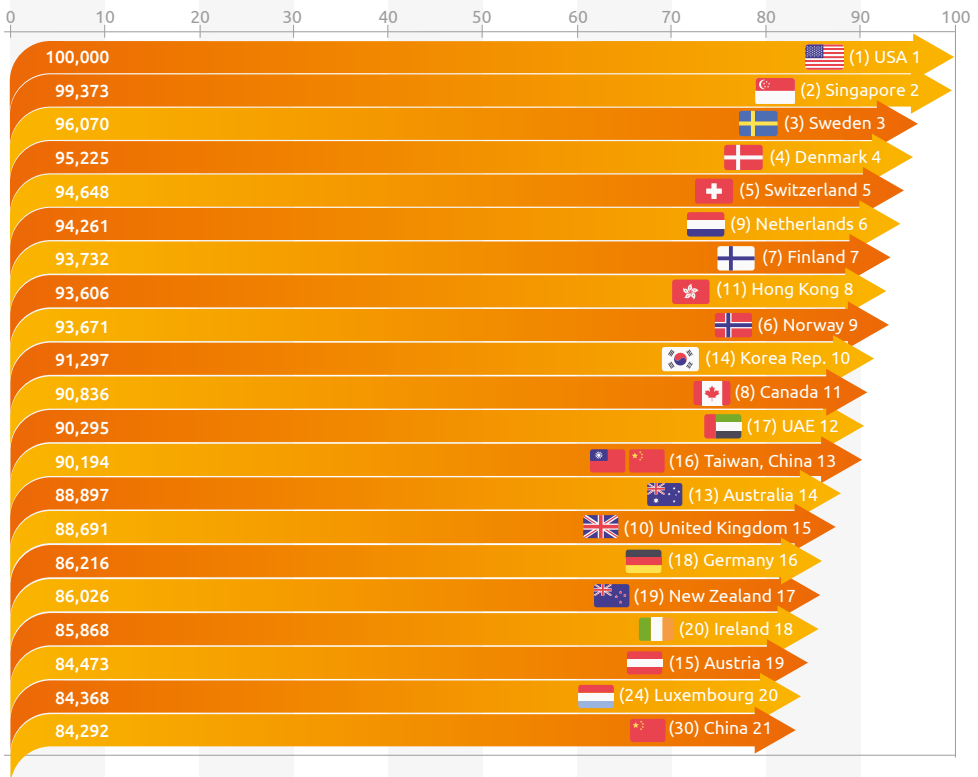


Figure 4: Digital Competitiveness Ranking
Source: IMD Report

It is also striking to note that the correlation between GDP per capita and digital ecosystem development. According to the IMD index, the top 20 countries in digital competitiveness are actually the top 20 countries that have a per capita GDP greater than US\$ 20,000. See Figure 5.

The report indicates that expansion in the use of digital technologies in countries, will push them to become even more competitive and achieve further increase in GDP per capita. This clearly implies that countries failing in their digital transformation are losing competitiveness.

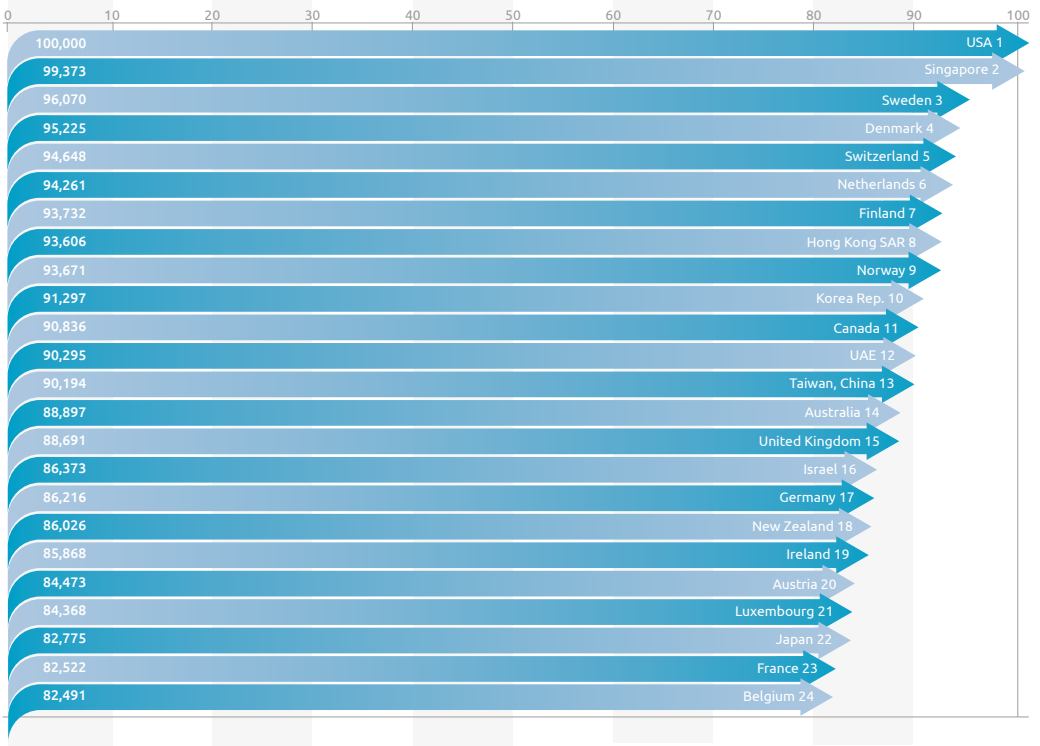


Figure 5: GDP per capita great than \$20,000

Source: IMD Report

The Global Competitiveness 2019 Report gives another confirmation of the Arab world competitiveness status (WEF, 2019). The United Arab Emirates appears in 25th rank and Yemen in 140th among 141 countries. All other Arab countries are seen to have scattered positions in the list.

Rank	Economy	GCI		Diff. from 2018 ²	
		Score ¹	Rank	Score	Rank
1	Ireland	75.1	-1	-0.6	
2	United Arab Emirates	75.0	+2	+1.6	
3	Iceland	74.7	-2	+0.2	
4	Malaysia	74.6	-2	+0.2	
5	China	73.9	--	+1.3	
6	Qatar	72.9	+1	+1.9	
7	Italy	71.5	+1	+0.8	
8	Estonia	70.9	+1	+0.2	
9	Czech Republic	70.9	-3	-0.3	
10	Chile	70.5	--	+0.3	
11	Portugal	70.4	--	+0.2	
12	Slovenia	70.2	--	+0.6	
13	Saudi Arabia	70.0	+3	+2.5	
14	Poland	68.9	--	+0.7	
15	Malta	68.5	-2	-0.2	
16	Lithuania	68.4	+1	+1.2	
17	Thailand	68.1	-2	+0.6	
18	Latvia	67.0	+1	+0.7	
19	Slovak Republic	66.8	-1	-0.1	
20	Russian Federation	66.7	--	+1.1	
21	Cyprus	66.4	--	+0.6	
22	Bahrain	65.4	+5	+1.7	
23	Kuwait	65.1	+8	+3.0	
24	Hungary	65.1	+1	+0.8	
25	Brazil	60.9	+1	+1.4	
26	Serbia	60.9	-7	--	
27	Montenegro	60.8	-2	+1.2	
28	Georgia	60.6	-6	-0.3	
29	Morocco	60.0	--	+1.5	
30	Seychelles	59.6	-2	+1.1	
31	Barbados	58.9	n/a	n/a	
32	Dominican Republic	58.3	+4	+0.9	
33	Trinidad and Tobago	58.3	-1	+0.4	
34	Jamaica	58.3	-1	+0.4	
35	Albania	57.6	-5	-0.5	
36	North Macedonia	57.3	+2	+0.7	
37	Argentina	57.2	-2	-0.3	
38	Sri Lanka	57.1	+1	+1.1	
39	Ukraine	57.0	-2	--	
40	Moldova	56.7	+2	+1.2	
41	Tunisia	56.4	--	+0.8	
42	Lebanon	56.3	-8	-1.4	
43	Algeria	56.3	+3	+2.5	
44	Ecuador	55.7	-4	-0.1	
45	Botswana	55.5	-1	+1.0	
46	Bosnia and Herzegovina	54.7	-1	+0.6	
47	Egypt	54.5	+1	+1.0	
48	Namibia	54.5	+6	+1.8	
49	Côte d'Ivoire	48.1	-4	+0.6	
50	Gabon	47.5	n/a	n/a	
51	Zambia	46.5	-2	+0.5	
52	Eswatini	46.4	-1	+1.1	
53	Guinea	46.1	+4	+2.9	
54	Cameroon	46.0	-2	+0.9	
55	Gambia, The	45.9	-5	+0.5	
56	Benin	45.8	-2	+1.4	
57	Ethiopia	44.4	-4	-0.1	
58	Zimbabwe	44.2	+1	+1.6	
59	Malawi	43.7	+1	+1.3	
60	Mali	43.6	-4	--	
61	Burkina Faso	43.4	-6	-0.5	
62	Lesotho	42.9	-1	+0.6	
63	Madagascar	42.9	n/a	n/a	
64	Venezuela	41.8	-6	-1.3	
65	Mauritania	40.9	-3	+0.1	
66	Burundi	40.3	+1	+2.7	
67	Angola	38.1	+1	+1.1	
68	Mozambique	38.1	-4	-1.7	
69	Haiti	36.3	--	-0.1	
70	Congo, Dem. Rep.	36.1	-4	-2.1	
71	Yemen	35.5	-1	-0.9	
72	Chad	35.1	-1	-0.4	

Figure 6: 2019 Global Competitiveness of 141 Countries
Source: World Economic Forum (2019)

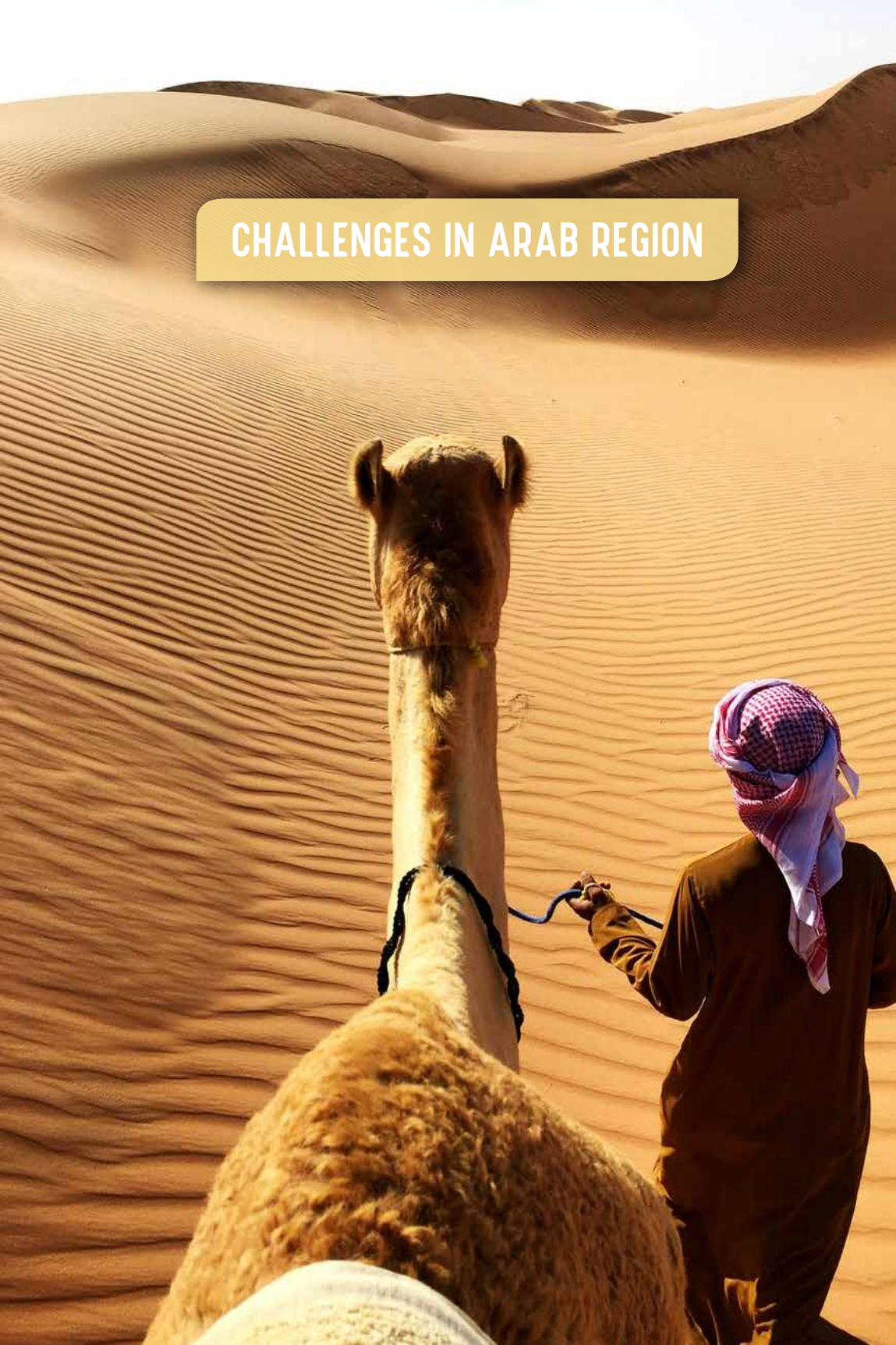
Compared to Arab League, that has been established on the same basis of the European Union, it is to be noted that EU member countries are concentrated in the top third of the list of global competitiveness - Netherlands ranked 4th and Greece 59th - unlike the Arab countries who are spread all over the index.

This illustrates the disparity between the bloc of Arab countries versus European countries, and show the impact of cooperation and joint planning

in enhancing knowledge and economic capabilities. This may also be read as a lack of clear and unified focus in the Arab economy and the low appetite and willingness to cooperate and benefit from current experiences and resources.

To address this from a strategic standpoint, Arab countries are required to first develop a clear understanding of the prime challenges before jumping to address the opportunities in their policies and action plans. Let us look at some of the challenges in the Arab region that have the potential to increase the level of uncertainty about the future.

CHALLENGES IN ARAB REGION



CHALLENGES IN THE ARAB REGION

Although challenges are numerous to count, we list here two main concerning facts, that policy solutions and remedies need to be addressed head-on, and be considered as strategic key performance indicators of all initiatives at national and regional levels.

Recessive Knowledge

There is no doubt that knowledge, scientific research, education, and the acquisition of skills in cognitive disciplines are vital and strategic elements, without which development ecosystems cannot be considered as complete in this digital age. To support this statement, the IMD index - referred to earlier - noted that the world's top five countries in digital competitiveness (namely USA, Singapore, Sweden, Denmark and Switzerland) share a common thread in terms of their focus on knowledge generation, although they differ in their approaches.

Even though many Arab countries have launched national strategies and plans for developing knowledge and innovation economic models, these strategies are expected to face challenges and achieve limited success. To truly succeed in such initiatives, a long list of pre-requisites need to be addressed among which is human capital needs. It is noted though that Arab countries suffer from severe bleeding in knowledge fields; ranging from the brain drain and the weakness of the educational systems and outputs, and the lack of seriousness of Arab institutions in developing and strengthening knowledge, to the none or unfocused investments in knowledge localization.

As per what has been pointed out so far, it is evident that the competitiveness of today's economies is highly dependent and driven by knowledge creation and application. From this perspective, the question that might

raise itself is about how much or at what percentage knowledge contributes to Arab economies? From do-ability standpoint, this question may be difficult to answer even from the official and statistical agencies in Arab countries.

To make this point clearer, let us the below diagram. It is a simplified graph that divides the stages of Technology Knowledge Maturity into four levels.

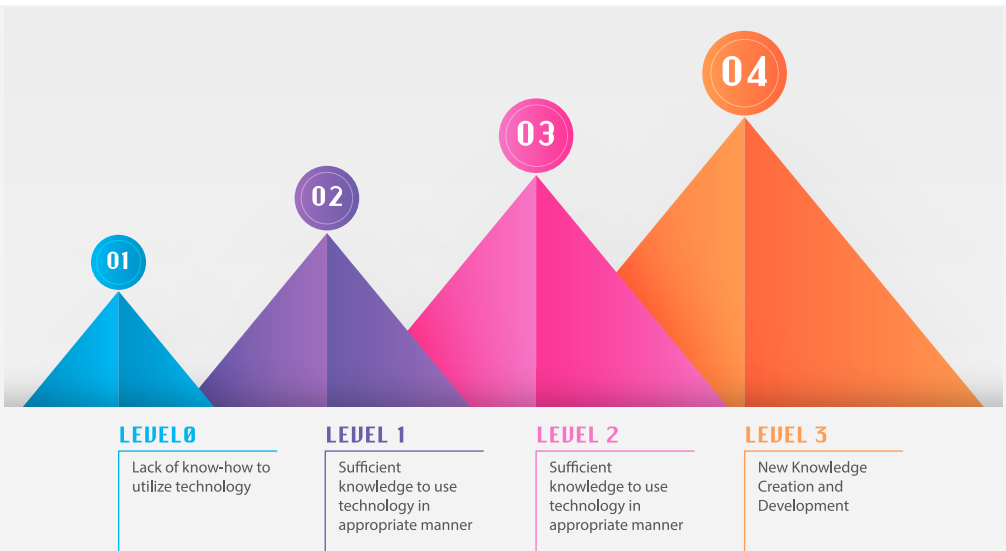


Figure 7: Stage of Technology Knowledge Maturity

Level 0 is where knowledge, at this stage, is nil. In level 1, knowledge is partial and insufficient. In Level 2, there is adequate knowledge to use technology. Then Level 3 represents the stage at which knowledge is produced and developed.

From our existing research studies, the Arab countries revolve in the orbit of the first three levels of knowledge stages and far from the new knowledge production and application in creating a value-add to their economies.

Our reading through the scientific lenses, indicate that insufficient or declining knowledge levels in Arab countries is considered not only to be a serious challenge but also an explicit threat to their national security.

Growing Unemployment Rates and Poor Economy Performance

High unemployment and slow-moving economic growth pose two of the most important challenges in the Arab world. Unemployment figures today reaches at least 20 million people, which represents 10% of the labour force against a global rate of 5% (Statista, 2019). This rising figure of unemployment in Arab countries has serious implications and copious negative multiplier effects. In fact, this was stated in literature as a time-bomb that will blow up the Arab world and all its current efforts and investments (Al-Khoury, 2013).

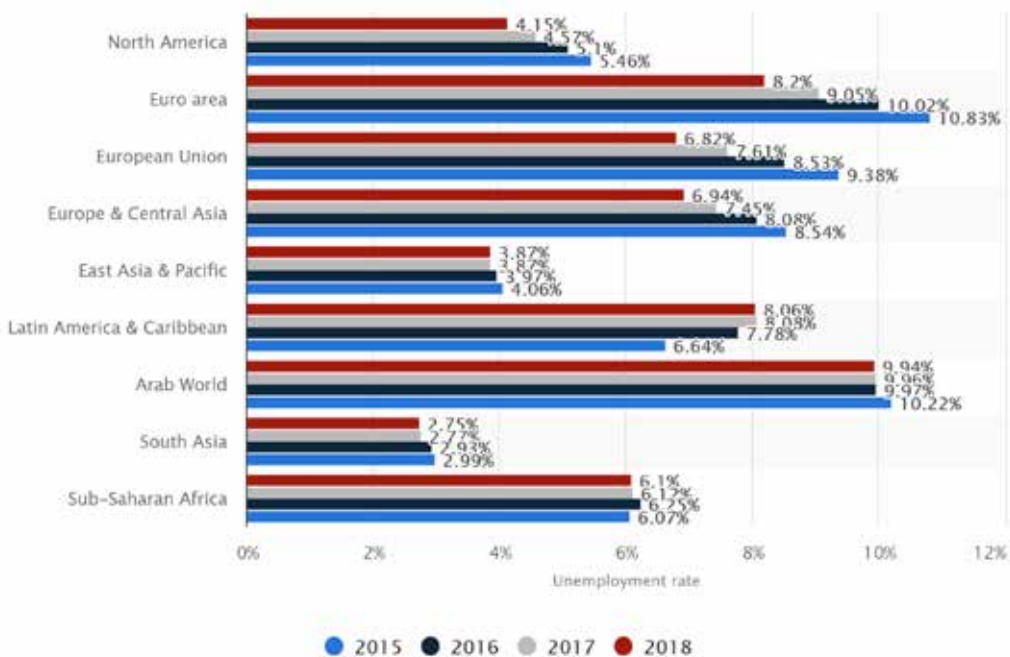


Figure 8: Unemployment rate in selected world regions between 2015 and 2018

According to World Bank, the annual cost of creating a new job ranges between \$20,000 and \$30,000. In other words, Arab countries need at least about half a trillion dollars to create jobs for the current proportions and an additional cost to absorb the new labour force.

From a logical analysis view point, these disturbing unemployment rates clearly reflects the faint economic performance in Arab countries, and that it is operating inefficiently and below their full capacities.

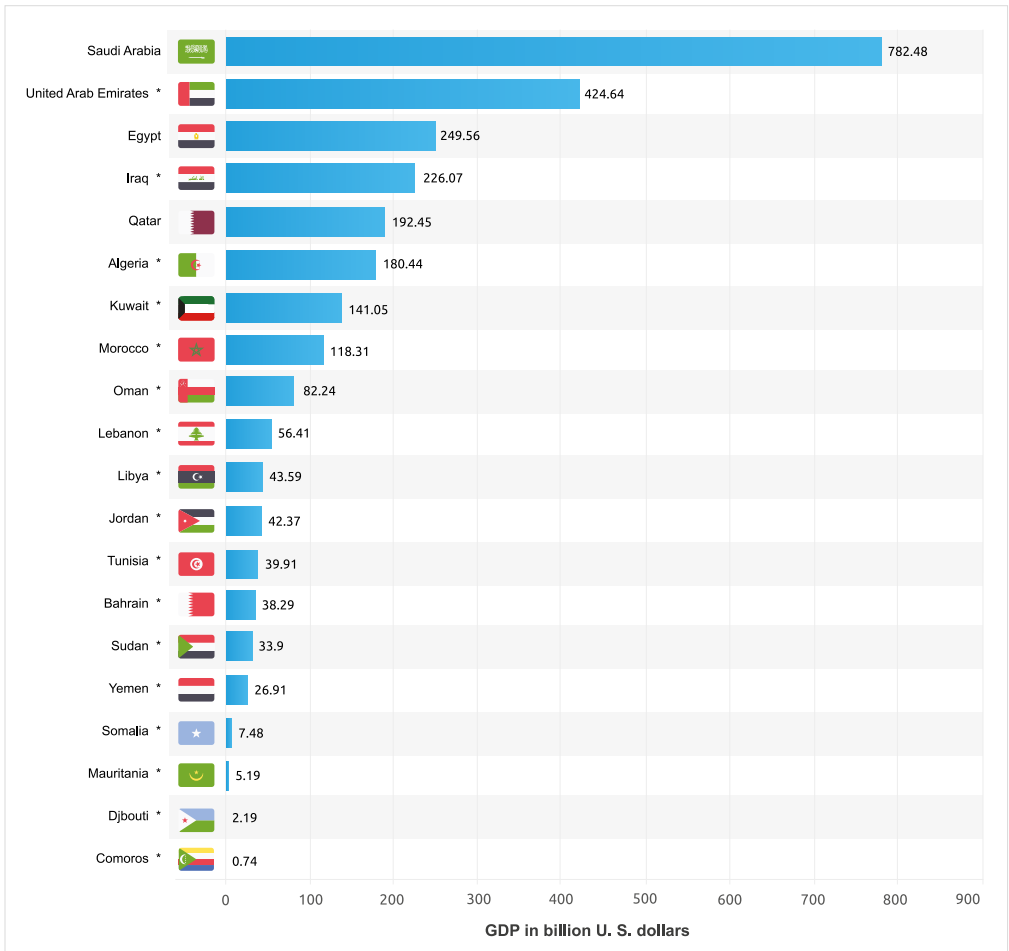


Figure 9: Arab World GDP in 2018 by country (in billion US dollars)
Source: IMF (2019)

According to IMF estimates for 2018, the total GDP of Arab countries totalled \$2.7 trillion. Interestingly, if we separate the six Gulf states from the group, we find that the Gulf countries alone account for 61.5% of the Arab GDP, equivalent to \$1.66 trillion. This shows that other Arab countries GDP collectively represent less than 40% of a trillion dollars.

International statistics evidently support the fact that Arab countries are lagging behind economic metrics, as macroeconomics speak for themselves. Arab GDP has been a roller coaster ride in the last decade. See Figure 9.

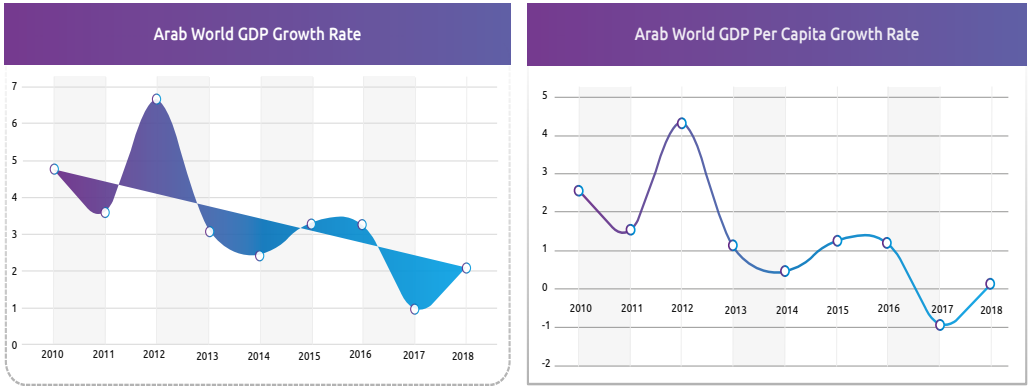


Figure 9: Arab Countries GDP/Per Capita Growth Rate
Source: World Bank, 2018

The slow and weak growth of GDPs in Arab countries, including slow reforms in public spending and fiscal behaviour, weaknesses in economic diversification and declining per capita, and the ability to meet obligations without resorting to debt markets is all adding up to the broad (and painful) economic effects.

According to the World Economic Forum report published in 2018, Arab world is undergoing an uncertain transition, as both local and global trends are contributing to significant economic and social stresses (WEF, 2018). Apart from current conflicts in the region, existing Arab economic structures - mainly national budgets reliance on natural resources, and foreign assistance and government control over large part of the economy - are considered to intimidate future development plans.

To reiterate, what needs to be emphasized here is that the slow-moving Arab economies are not only progressing at a stagnant pace, but this will not be enough to bring about the desired change and take advantage of the potential of the digital age. Taking advantage of opportunities, requires a shift in mind-set and approach. Besides, close cooperation between Arab countries in scientific research and knowledge creation is seen as a crucial element to address and solve local social, production and environmental challenges. Success here is determined by the degree of which a strategic vision is existent and holistic, and the seriousness and pragmatic approach followed in implementation of such vision.

ARAB DIGITAL ECONOMY



ARAB DIGITAL ECONOMY

Based on the above principles, the League of Arab States, through the Arab Economic Unity Council, has prepared the “Arab Strategic Vision for Digital Economy” as a guiding tool for economic development based on the potential applications of digital technologies.³

This vision that was announced in the United Arab Emirates at the end of 2018 with the presence of all Arab countries representatives, emerges as a regional vision to create a sustainable, inclusive and secure digital future for the Arab world, and stands on the same level of strategic plans comparable to major international blocs.

Digital Economy Strategy Key Components

This joint Arab vision is based on a five dimensional framework of digital transformation. These are: (1) digital foundation/infrastructure, (2) digital government (3) digital citizen, (4) key business sectors such as education, health, industry, agriculture and e-commerce, and (5) innovation and creativity ecosystem in the Arab region. The plan includes 50 initiatives and projects, and takes into account current maturity levels and competitiveness of Arab countries.

3. Among the top contributors to this work are Harvard University, United Nations and the World Bank.

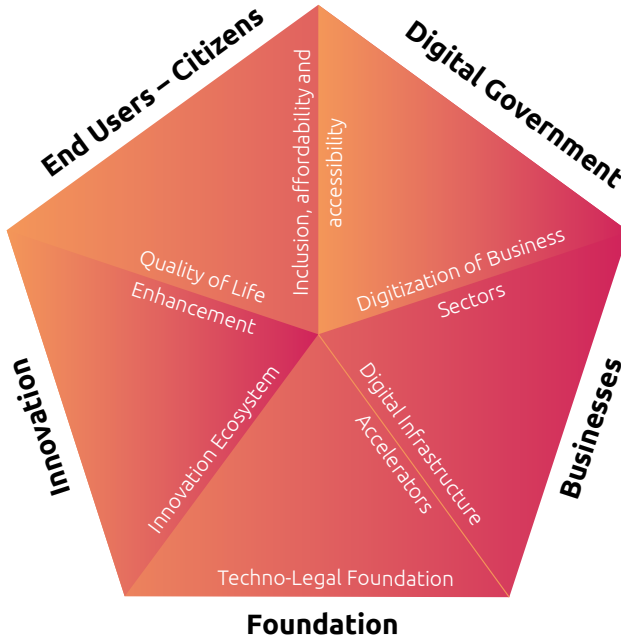


Figure 10: The Five dimensions of Arab Digital Transformation Framework

In principle, the strategic objectives were built around these five dimensions with the ultimate planned outcome of creating a digitally mature Arab society. See also Annex-1 for key themes, strategic objectives, initiatives and projects of the Arab Digital Economy Vision.

The first dimension of digital foundations seeks to build the digital infrastructure with the aim to accelerate the transformation and is largely based on sound techno-legal foundations. The legal system prompts to take cognisance of the blurring jurisdictions of physical boundaries and update the archaic laws with digitally relevant laws.

The framework recognises the need to develop an innovation ecosystem that fosters creativity and accelerates the digital transformation. The innovation dimension is driven by citizens' centrality in planning, implementation and measurement of outcomes. The aim here is to develop a mutual understanding and acceptance on the activities that need to be implemented to enhance standard of living in Arab societies and quality of life in general terms.

This in turn, defines the role of the digital government, that should be designed to be innovative, accessible and inclusive in its outlook.

The concept of digital government implies fundamental transformation of the way the public sector operates and delivers services.

The digital governments need to accelerate the implementation of a range of reforms to encourage the development of a more dynamic and sophisticated digital business environments, modernized education systems, global standard healthcare, utilization of agriculture abilities to accomplish food security targets, industry driven economies, and reliance more e-commerce platforms.

Overall, digital technologies are assumed to add significant dimensions to the foundations of economic and social development objectives in the strategy. See also Figure 11.



Figure 11 : Proposed Framework of the Arab Digital Economy Strategy

Strategy Implementation

All 50 programs went through a filtration process to define the prioritization of implementation. The matrix was divided into two dimensions:

- (1) **Implementation Complexity:** The technical and physical complexity factors originating from the environment in which the programs are taking place, the types of technology incorporated into a project and the interdependencies and interrelationships between project factors.

This dimension was composed of mainly three evaluation criteria to identify the feasibility of implementation and the degree at which it can be sustainable. These are: ease of implementation, funding availability, and sustainability risk.

- (2) **Outcome/Impact:** Outcomes are to be examined in terms of their link to program goals. Whereas, impact is another level of project results, and is more about long term consequence of a given program.

This dimension is composed of four evaluation criteria to measure the impact of each of the programs, namely, economic growth, social impact, employment and enhancement of quality of life. See also Figure 12.

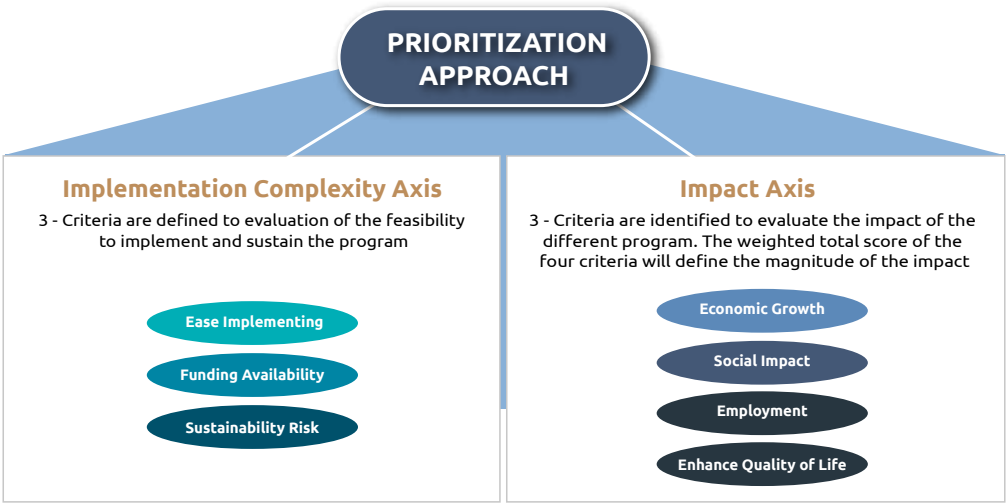


Figure 12: Prioritization Approach

The scoring outcome pointed the importance of each of the criteria, e.g., funding availability was considered the most vital criterion under implementation complexity dimension. See also Figure 13.



Figure 13: Implementation and Impact Attributes

The overall strategic plan and programs portfolio set the priority of implementation based on complexity levels and the potential impact and ability to provide value for strategic goals. This is to say, the program ready-to-kick-off will be those low in complexity and high in impact. See also Figure 14.

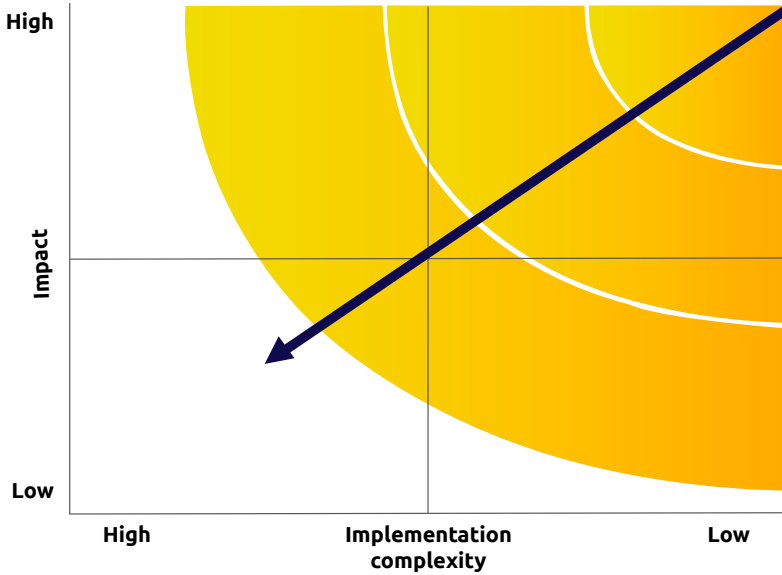


Figure 14: Impact vs. Implementation Complexity

Consequently, the programs were then divided based on their nature to three categories easy to fund, challenging and need drivers. See Figure 15.

Category 1: Easy to fund

Program 3: Internet Exchange Points (IXPs) development program.
Program 7: Intellectual Property Protection
Program 8: Data Protection Framework
Program 9: Cybercrime Legislation
Program 11: ICT Vocational Training / ICT Skill Accelerator
Program 12: e-Learning program / Skills Citizen
Program 15: Crowdfunding Platform
Program 17: Develop a new organization for MIAS Commission of Digital Economy
Program 18: Partnership with specialized independent existing Arab bodies and build new ones to implement the
Program 19: Arab Digital Innovation Agency
Program 20: Develop a Registry of Experts and Innovators
Program 23: Recognize and Reward ICT Innovators
Program 24: Arab Innovation Forum
Program 43: Arab Open Solution Platform
Program 44: Digital Content program
Program 47: Basic level of ICT competence
Program 48: Promote Daily Lifestyle Apps Program
Program 50: Develop a legal framework to promote healthy ICT competition

Projects 18

Category 2: Challenging

Program 1: National Broadband Plan
Program 4: Internet of Things and Machine to Machine communications Program.
Program 5: Arab Cybersecurity Development
Program 6: Digital Transformation Framework
Program 10: Partnering with universities to develop relevant ICT curricula
Program 16: Network of Digital Angles
Program 26: E-ID
Program 27: e- Procurement Program
Program 28: Develop Regional Single Window (Customs & Trade)
Program 29: Open Data Program
Program 31: Platform Peer to Peer learning
Program 32: Create Arab ICT Scholarship Program
Program 33: Innovative Technologies for High-tech Classrooms (ITHC)
Program 37: Smart Manufacturing Testbeds
Program 39: Smart Agri- Food Accelerator
Program 40: Arab Telework Platform
Program 42: The 100,000 SMEs Online Program
Program 45: New Generation of Telespace for Isolated Communities

Projects 18

Category 3: Need drivers

Program 2: Arab Datacenters and Cloud services program.
Program 13: ICT Training Programs for SMEs
Program 14: Attracting FDI in ICT:EU, World Bank..
Program 21: Arab Tech Universities Alliances
Program 22: Create World Class Innovation Hubs
Program 25: Promote e-Gov Initiatives (Guidance, Policy, recommendations ...)
Program 30: Arab-wide platform for digital higher education *university)
Program 34: Platform For Telemedicine Program
Program 35: Develop e-Trade Platform Management
Program 36: Create a Pan-Arab Cross-border Fintech Regulatory Sandbox
Program 38: Smart Factory
Program 41: SMEs Go Digital Program
Program 49: Social Coverage Incentives
Program 46: Provide Free access to wireless Internet

Projects 14

Figure 15: Program Prioritization and Where to Start

Operating Model

The 22 Arab countries were divided into three clusters based on their current competitiveness and readiness levels.⁴

The generic operational plan depicted in Figure 16, provides an overview of the different players in the strategy implementation in the first five years of the launch. The model shows the linkage and influence of specific bodies during the course of implementation.

4. **Cluster 1:** Iraq, Libya, Syria and Yemen, as well as Algeria, Comoros, Djibouti, Mauritania, Palestine, Somalia and Sudan. **Cluster 2:** Egypt, Jordan, Lebanon, Morocco and Tunisia. **Cluster 3:** Saudi Arabia, UAE, Bahrain, Kuwait, Oman and Qatar.

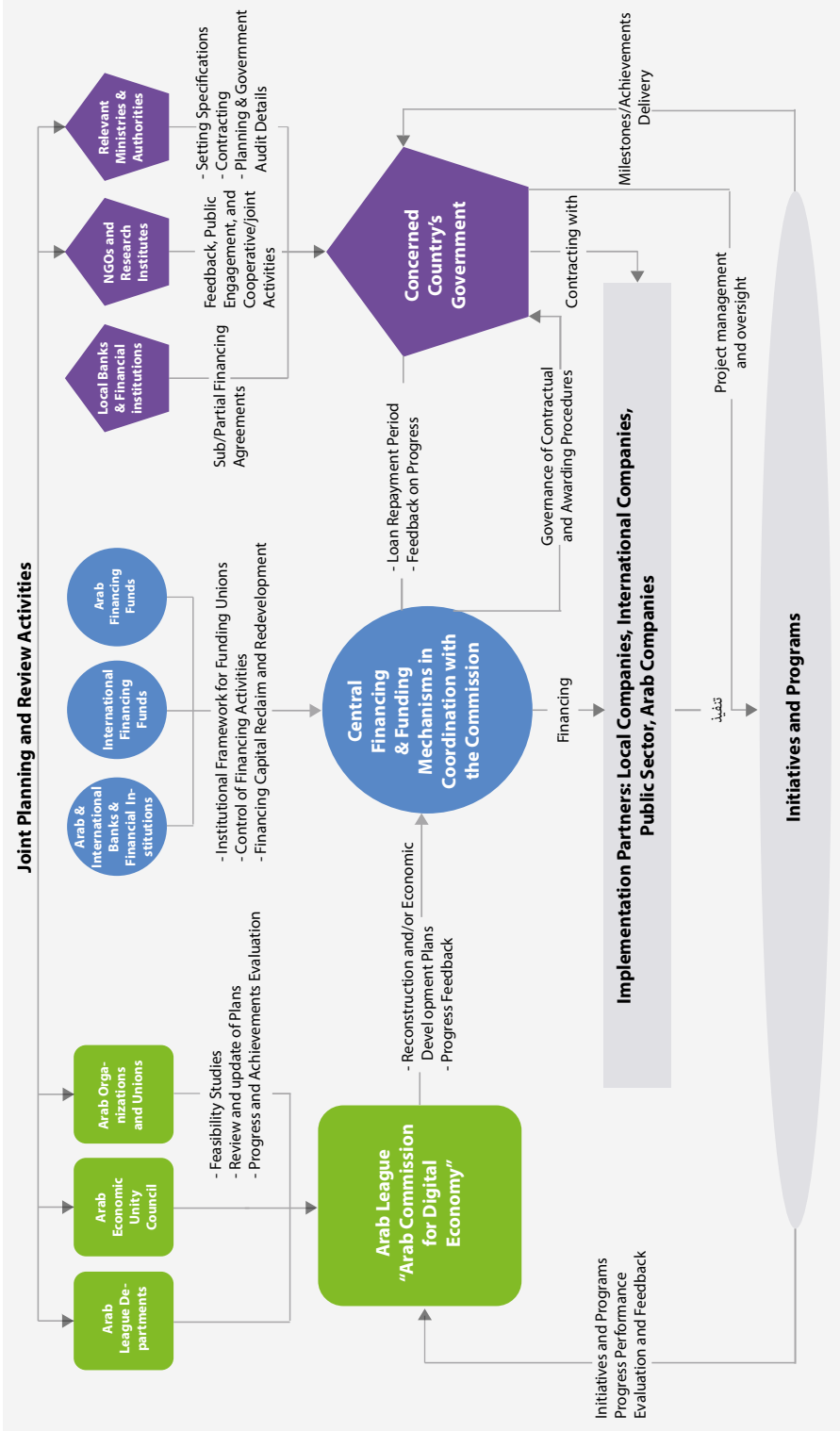


Figure 16: Overview of Parties Involved in Strategy Implementation

As an implementation apparatus, the strategy presumes the need to establish joint cooperation agreements with each country, to facilitate organization and approvals and smooth implementation of programs.

The strategy emphasizes linkage between investment returns of the proposed programs and the need for their financial self-sustainability in the medium and long term.

In the initial stages, countries in the first and second clusters are assumed to require financial support through either grants or long-term reimbursable loans. However, as programs implementation progress, there will be less dependency on external sources and lending agencies as revenues get generated. This should help each program sustain itself during later stages.

The third category countries that consists of the six Gulf counties – who are fairly mature in the digital economy - will have more consultative and cooperative roles to play in the strategy, particularly in knowledge and experience gained from implementing successful projects of the same nature.

Overall, Arab countries can provide their capital resources for implementation either through their own budgets, or locally organised international financing and/or public fund support. Progress and success is measured through agreed mechanisms based on the nature of each program.

It is also noted that strategic programs such as ‘national digital identity programs’ or ‘telecommunication infrastructure – 4G/5G broadband’, are of a sovereign nature and therefore left for each country to implement. The strategy, in general, assumes a critical role played by the Arab League to provide advisory and technical support when needed, and ensure interoperability of such systems between countries.

However, some Arab countries specially in the first category, in addition to financial, may need technical or operational support to implement these complex programs. In such cases, the Arab league may extend its scope of involvement in certain countries to provide project management and control services together with its primary role of facilitation and coordination between member countries.

Critical Success Factors

For the Arab digital economy strategy to shift from its current theoretical arrangements to solid and practical set of structured implementation programs, a number of critical success factors were identified. The major ones are highlighted here.

The first being the approval of the strategy in the Arab Summit. This represents the highest authority in the Arab countries and their endorsement would provide the trigger to move the strategy into implementation mode. Sequentially, the Arab Summit and through the General Secretariat of the Arab League will develop joint mechanisms of action, mainly guided by the proposed framework and approaches in the strategy.

The second most important factor is related to the need of establishing an Arab fund with sovereignty and regional status, supervised and administered by the Arab League. The presence of such fund should aim to kick-start some of the strategically viable programs, specifically in the first two clusters.

The third factor is related to the establishment of an independent and authorized governing body, that handles responsibilities of the overall coordination between governments and relevant organizations and institutions and ensure standardization of monitoring and control of resources during the course of implementation.

This governing body is referred to in the strategic plan as the 'Arab Commission for Digital Economy'. The Commission is not envisaged to play an alternative role to the authorities in the Arab countries, but it will grip guiding and supporting roles.

The Commission and its affiliated organizations, will have a closer involvement in programs that encourages creativity and innovation, and cooperation between member countries, e.g., Arab Electronic University and Open Consultation and Advisory Solutions Platform.

POLICY RECOMMENDATIONS



Policy Guiding Principles

Implementing such an ambitious future oriented strategy as Arab Digital Economy, certainly is not an easy task specifically that it targets implementations across 22 Arab countries and spans nearly half billion populations. Besides, the diverse economic and social structures are major challengers.

The following guiding principles should set some of the primary foundations for drafting regional and local planning policies, and ensure the strategic link between the goals and objectives from one side, and the preparation of the environment for enabling execution and realization of expected outcomes from the other side.

Policy Framework

It is vital that the strategic vision and its initiatives to be supported by a strong policy framework and a set of laws and regulations that can contribute to the adoption of the digital transformation across sovereign nations in the Arab world. The framework need to be designed to clearly depict the mission and the high level strategic directives which should in turn guide decisions, detailed policies, implementations, and measurement of outcomes.

Human Capital

Building a digital infrastructure necessarily entails building competencies. This needs a strong education and learning ecosystem to be in place. Current education systems that are memory based need to transform to include cognitive learning processes. Investing in building human capital is as important as building for economic growth.

In fact, human capital and economic growth are two faces of the same coin, as the former play a key role in nation's production capacities proliferations

and in creating employment opportunities and lifting income levels and living standards. More focused investments are needed in planning and supporting this field to enhance current policies, programs and strategies to ensure population knowledge and skill-sets matching the changing and aggressive market needs.

Knowledge Society

Knowledge in today's digital world is considered a commodity to be traded for economic prosperity. Information and knowledge are replacing capital and energy as primary wealth-creating assets. As such, building knowledge societies is seen critical for national progress and global development, which explains the enormous attention it received across the globe in last two decades. Most of the Arab countries have been very active in setting conferences and workshops during this time.

However, knowledge societies in Arab countries seems to remain theoretical. There is no clear-cut evidence of production and utilization of knowledge in Arab countries.

Arab countries have a long ride to take to truly transform into knowledge societies, where they need not only to leverage technology, but more of policy formulation and capacity building. Such knowledge driven societies will lay the foundations for building production societies with export capabilities and capacities as against the current consumption economies that relies heavily on imports (Al-Khouri, 2017).

A systemic policy-driven transformation is required to sharpen Arab countries national knowledge ecosystems that focuses on innovation and entrepreneurship. This might also be followed by exploring possibilities of setting up common set of infrastructure like national standards organizations,

testing laboratories and other systems that could be commonly deployed for Arab countries to utilize.

This may well prove to be very cost effective, instead of current expenditure of tons of money to recreate same systems individually for each country.

Business and Private Sector

On the business front, supporting micro businesses and small and medium-sized enterprises (SMEs), including start-ups, has received scant attention in the Arab world, as it is also the case globally. Leading nations in digital transformation like the European countries have given particular focus to this sector.

According to European Commission, micro and SMEs considered as the backbone of Europe’s economy, providing two-thirds of the total private sector employment in the EU.

Table 2: Employed Workforce by MSMEs’ in EU

Sector	Enterprises %	Employed Workforce %	Value Add %
Micro	93.1%	29.4%	20.7%
Small	5.8%	20.0%	17.8%
Medium-sized	0.9%	17.0%	18.3%
SMEs	99.8%	66.4%	58.8%
Large	0.2%	33.6%	43.2%
Total	100.0%	100.0%	100.0%

Source: European Commission (2019)

Current efforts in Arab region though are obviously not yielding the expected results, as current unemployment rates –highlighted earlier- talk for themselves. Arab countries need to address this issue strategically and ensure that the micro and SME sector, including start-ups, are promoted, supported and that their contribution is monitored towards their impact on GDPs.

This calls for a serious rethinking of this sector to ensure its relevance with economic growth targets, innovation, employment, and social integration.

Also, it is worth to highlight that the disparity between the Arab states is largely due to uneven development, existing (unmodernised) policies, resource availability and stability, and political set up.

Policymakers, and instead of overwhelmingly get engrossed in to these, they should look at parallel development plans of the digital economic foot print that would enable the countries improve the situation.

Research and Innovation

Indeed, a renewed focus on innovation and investments in research can enable growth and develop sustainable economies. Yet, fostering and encouraging a research environment needs a conducive platform to attract talent that enables building a knowledge society, and contributing towards sustainable growth and economic development.

Leaders in digital transformation view research and innovation as instruments for value creation and employment opportunities. In fact, developed nations, have attributed their sustained growth to their intensive research and development investments.

According to international statistics, global spending on research and development has reached a record high of almost US\$ 1.7 trillion (UNESCO, 2019). About 10 countries account for 80% of spending.⁵

Research and development in Arab countries is recognised to follow a do-per-wish or as-you-like style, with no clear regulations or budgets or even focus. Arab spending in research and development is less than 0.5 as percentage of GDP. Apparently there is no clear linkage between policy-making and research institutions.

Arab countries clearly need to stimulate greater investment in research and development in both private and public sectors and linking them to national targets, and recognize this as an indispensable component of economic growth.

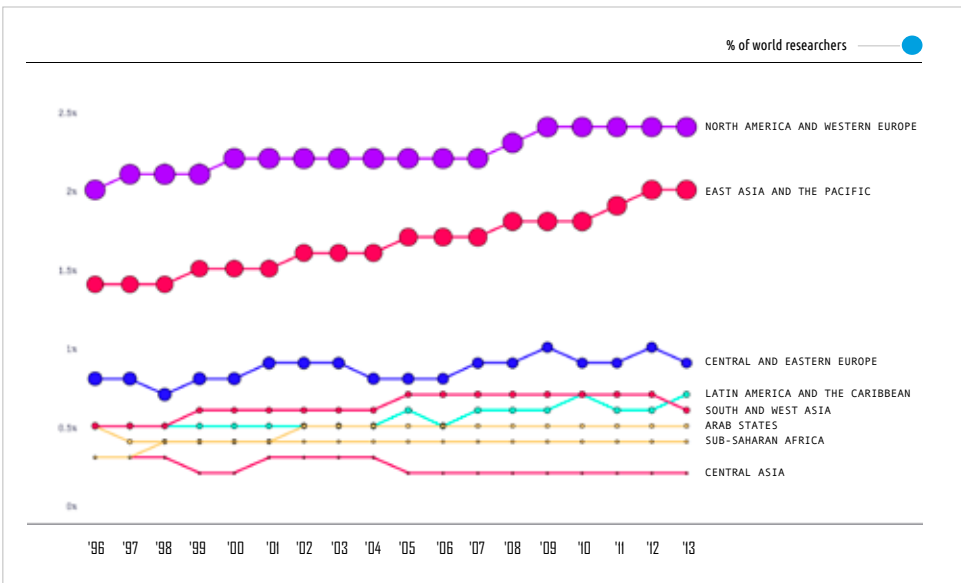


Figure 17: Research and Development – Regional Trends and Ranking
 Source: UNESCO (2019)

5. These countries are: United States, China, Japan, Germany, Korea, Rep., France, India, United Kingdom, Brazil, and Russian Federation.

Join Action

Unquestionably, an Arab joint action to building a collaborative Arab environment needs to be enabled. Capacities can be built in some countries catering to the needs of others. A classic example is China and India success story, where China built manufacturing capacities while India built service capacities for the world. The result is that both of these economies - metaphorically described as dragon and elephant in modern economy - are emerging as the fastest growing economies in the world.

A collaborative framework would prepare a combined workforce to cater for the current and future needs of the Arab world. Further, the nearly half a billion Arab population constitutes a huge captive consumer base. There are massive opportunities that can be achieved in the Arab world through closer cooperation on political, economic, cultural and social systems reforms.



FURTHER IMPLICATIONS

FURTHER POLICY IMPLICATIONS

The above highlighted substances necessitate a strong and operative policy framework that should enable and accelerate the implementation of the digital economy agenda in the Arab region.

Needless to say, the overall digital economy policy objectives need to be guided by strong promotion of digital transformation and supported by the development of ICT infrastructure and broadband capacities to create inclusive digital society.

The detailed industry-specific policies would need to focus on strengthening digital government, and abetting digitalization of primary sectors such as education, healthcare, transport, agriculture and commerce.



Industry specific policies

Health-related policies need to clearly express healthcare goals and outcomes, that should in turn guide the development of subsequent national laws and policies and thereafter the programs and services. Health-related policies also need to promote use of digital technologies in health and social care delivery, and provide general guidelines of technology use in improving access to care, quality of care and health equity.⁶

6. Technology driven developments in healthcare are supporting the shift from 'hands on' treatment in primary care clinics and hospitals to home care via the use of digital communication such as e-visits, e-prescriptions and remote monitoring. In Europe, there is a growing use of health apps and 'bio-sensing' wearables such as digital blood pressure monitors and glucose sensors, where patients and providers have access to real-time healthcare data and information. (Deloitte, 2015).



Similarly, education-related policies need to promote the use of digital technologies to innovate education and training practices with focus on skills and competences needed for employment, personal development and social inclusion.



The transport sector offers a unique opportunity to change the urban landscape in Arab countries and related policies need to be strengthened, promoting sustainable mass transport systems that can cater to national, and inter and intra-Arab needs. Besides, mobility-as-a-service⁷ is a cornerstone for digital economies. Urban planning would go hand in hand in designing mobility as a part of the solution to reduce traffic congestion and increase efficiency.

Mobility as a Service, also known as Transportation as a Service, is a consumer-centric model of people transportation. The concept describes a shift from personally-owned modes of transportation, towards on-demand, real-time mobility options. This includes a combination of transportation services from public and private transportation providers (be it a car or bike sharing, taxis and car rentals/leases, etc) made available through a unified platform that creates and manages consumers' trips, and all the way to payments. It is anticipated that by 2030, less than one-quarter of US citizens will own a car, as the rollout of self-driving cars will facilitate the acceptance of a sharing concept. The same proliferation is expected all around the world.



Food security is another major area where the digital economy is seen to have a high impact. Use of technology such as IoT, Artificial Intelligence to enable remote farming would go a long way in enhancing agro production yields. This would set the tone for the agriculture-policy framework governing the use of technology for the bigger good.



E-commerce and the ability to transact - primarily through mobile devices - lays the foundation for a digital economy. Facilitation of such digital commerce entails the use of communications technologies and managing the broadband networks and the spectrum of airwaves for wireless communications.

Overall, ecommerce related policies need to address the key building blocks in holistic terms, from regulatory environments, financial inclusion and digital payment infrastructure, consumer protection, logistics, to cross-border data flow, and all the way to closing the loop. The policy should also foster the participation of vastly remaining micro and SMEs that are still not on-boarded on digital platforms.

With increasing connectivity and the prevalence of data in the cyberspace, governments also need to attend to cybersecurity challenges and threats, and ensure security of the citizens in the cyberspace.

Addressing security and trust in digital environments, necessitates an efficient and effective digital identity management systems that should enable innovative models of public service delivery, planning and informed decisioning (Al-Khouri, 2014).

Absence of such platforms increases administrative burdens for businesses and individuals to authenticate identities in the virtual space. Related policies therefore need to mandate the provisioning of verified digital identity platforms that balance privacy and security requisites. Arab governments should never underestimate the economic potential of digital identity in the digital ecosystem.⁸

8. McKinsey estimates that digital identity systems can help achieve in 3% of economic value equivalent of GDP in developed and up to 6% in developing economies (McKinsey, 2019). For instance, in Germany, with a current GDP of approximately \$3.6 trillion this would be an equivalent of more than \$108 billion per year. The Digital ID and Authentication Council of Canada (DIACC) estimates the potential value of trusted digital identity to the Canadian economy being at least 1% of GDP, and \$4.5 billion of annual added value to small and medium-sized enterprises. In India, 309 million new bank accounts were opened owing to the reduced KYC costs made possible through digital identities (Kumar 2018).

In addition, in light of the growing global interest in financial inclusion as a drive forces toward economic growth, related policies need not only to be designed to facilitate constituent access to secure financial services and products, but to target to establish apt financial institutions to cater to the various needs of societal development and sustainable growth goals.

Policies need to ensure that its high-level stated digital economy objectives accelerate the build-up of a strong and well-organized structure of financial systems and that contribute to the growth rate of the economy. Directives should include updating and creating new policy frameworks to promote investment, competition and innovation in this fast evolving sector.

More to the point, it is to be noted that the digital industrial revolution is a function of data management and data sharing. Policies thus need to be framed for enabling a data sharing ecosystem. Such ecosystems need to be planned at national and regional levels to succeed with digital transformation targets.

Regulators and concerned departments in the Arab countries must be involved to agree on the guiding principles for the development of digital cloud-based data-lakes, consisting of public data-set development and resource-based services, as a foundation to promote digitization in select business sectors.

Relevant policies also need to address the application of open data, big data analytics and Artificial Intelligence as a backbone for decision making and innovation.

Last but not least, in light of the growing importance of the rapidly evolving roles of citizens and social sentiment, policies need to merit with active citizen engagement and citizen driven planning in laying down the road-maps of the digital economy.

CONCLUSION



CONCLUSION

Needless to say, traditional economic growth is giving way to digital economy. While the traditional economic growth rates are stagnant or falling, digital economy growth rates are increasing at double the speed. However, the digital future runs the risk of unfettered chaotic growth, challenging the traditional brick-and-mortar operating economies.

Governments are pressured to transition out of their status quo zones and adopt a more creative and innovative models and structures. They are envisaged to build complex and large scale capacities to address these global challenges and uncertainties.

The general thinking in the Arab region, as highlighted in this research, continues to address challenges with reactive approach and temporary solutions with short-term outlooks. This is quite evident from the current indicators of competitiveness.

There has been a wide consensus among think-tanks and existing literature that there is a need for an integrated vision in the Arab region as a whole with which a positive and sustainable change can be achieved.

The Arab Digital Economy Strategic Vision presents a real opportunity towards such objectives, as it encourages digital transformation in the Arab region. The holistic approach it follows has the potential to enhance and uplift social, economic, security, stability and sustainable development in the region to new heights.

The strategic initiatives are envisaged to practically address hot topics in the Arab region such as development of critical sectors, among which is the government, education, business, digital skills, jobs creation, promotion of innovation and competition and supporting social welfare. The vision calls Arab governments to get their act together in building the future of their nations and constituents.

Looking at the basic structural model of the five pillars in the digital economy strategy, most of Arab countries have own national plans and strategies in place, and budgets are already getting poured into these sectors (5 pillars). However, lack of coordinated efforts within governments and measurement of capabilities and lack in implementation of policies makes huge dent in the outcomes.

This requires a basic cultural and mind-set change instead of cosmetic changes, and addressed with delicate attention. Else the dream of creating the Arab digital economy will still be a pipe dream.

Presented policy guidelines and implications are far reaching and are seen as a major driver of the digital economy in the Arab world. The Policy framework requirements postulated here seek to set the agenda for the much needed digital transformation in the Arab nations and would guide the accelerated growth in the region.

Last of all, let us remember this. We all need to heed that technological developments, in their least form, can be represented as hurricanes, that will ravage social and economic systems and structures, and develop new conceptual and practical maps, that societies will only have to accept and adapt to.

Passive and reactive national policies, or reliance on individual action plans, will not only be unfeasible, but similar to walking with a knife in a forest in complete darkness!

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Annex: Key Themes, Strategic Objectives, Initiatives and Projects of the Arab Digital Economy Vision

Dimensions	Themes	Desired impact	Strategic Objectives	Programs	Cluster 1	Cluster 2	Cluster 3	
1- Digital Foundations	Infra-structure	Promoting fast and advanced Internet services, and in The Arab Countries, and developing Internet of Things and cloud services to enhance Arab ownership of digital services infrastructure and ensure its access to Arab citizens	Developing the Telecommunication Infrastructure	1. National Broadband Plan	X	X	X	
				2. Arab Datacentres and Cloud services program.	X	X	X	
				3. Internet Exchange Points (IXPs) development program.	X	X	X	
	Policies & Regulations	Providing an attractive legislative environment for digital investment in the Arab region, enabling the smooth provision of digital services, enhancing trust between citizens, companies and government, and ensuring the rights of all parties.	Enhancing the Internet Ecosystem	4. Internet of Things and Machine to Machine communications Program.		X	X	X
				5. Arab Cybersecurity Development	X	X	X	
				6. Digital Transformation Framework	X	X	X	
				7. Intellectual Property Protection	X	X	X	
				8. Data Protection Framework	X	X	X	
				9. Cybercrime Legislation	X	X	X	
				10. Partnering with universities to develop relevant ICT curricula		X	X	
	Human Capital Skills	Supporting skilled and experienced workers in the field of development and technical support to make the Arab countries a source of advanced knowledge and technology, especially related to the Fourth Industrial Revolution	Enhance ICT Skills & Competences at different levels	11. ICT Vocational Training / ICT skill accelerator	X			
				12. e-learning Program / Skills Citizen	X	X	X	
				13. ICT Training Programs for SMEs	X	X	X	

Dimensions	Themes	Desired impact	Strategic Objectives	Programs	Cluster 1	Cluster 2	Cluster 3
1- Digital Foundations	Funding	Providing mechanisms to inject Arab and foreign investments into advanced digital economy applications	Ensuring fund Availability	14. Attracting FDI in ICT: EU, World Bank	X	X	X
				15. Crowdfunding Platform	X	X	X
	Governance	Establishing an implementation body that is subject to strict and fair standards that accept all Arab countries	Establishing Digital Governance Bodies	16. Network of Digital Angles	X	X	X
17. Develop a new organization for ARAB DIGITAL UNION				X	X	X	
18. Partnership with specialized independent existing Arab bodies and build new ones to implement the strategy				X	X	X	
19. Arab Digital Innovation Agency				X	X	X	
2- Digital Innovation	Ecosystem of Innovation	Creating an environment conducive to innovation in all respects to enhance the economic value generated by the knowledge developed in the Arab region	Creating Environment which fosters innovation within a community	20. Develop a Registry of Experts and Innovators	X	X	X
				21. Arab Tech Universities Alliances	X	X	X
				22. Create World Class Innovation Hubs	X	X	X
				23. Recognise and Reward ICT Innovators	X	X	X
				24. Arab Innovation Forum	X	X	X

Dimensions	Themes	Desired impact	Strategic Objectives	Programs	Cluster 1	Cluster 2	Cluster 3		
3- Digital Government	Service Delivery	Completing basic and important groups of digital government services to be equivalent to the global best practices and promoting joint Arab digital cooperation	Government On-line Services	25. Promote governments' performance by founding excellence performance competitions and adopting eGov Initiatives (Guidance, Policy, recommendations)	X	X	X		
			Increase inter-Government interaction	26. E-ID			X	X	
				27. e- Procurement Program			X	X	
	Open Data	Providing the data necessary for the success and recovery of business markets and raising the level of satisfaction of citizens and companies	Build Public Data Content as Economic Growth driver	28. Develop Regional Single Window (customs & Trade)		X		X	
				29. Open Data Program		X		X	
	Citizen Welfare	Provide a range of carefully selected services to fulfill basic nations' needs such as health and education for citizens, especially those deprived of advanced services	Enhance citizen Education by ICT usage		30. Arab-wide platform for digital higher education (e-university)	X	X	X	
					31. Platform Peer to Peer learning	X	X	X	
					32. Create Arab ICT Scholarship Program	X	X		
			Foster cross-border healthcare, health security, solidarity & equity		33. Innovative Technologies for Hightech Classrooms (ITHTC)	X	X		
					34. Platform For Telemedicine Program	X	X		

Dimensions	Themes	Desired impact	Strategic Objectives	Programs	Cluster 1	Cluster 2	Cluster 3	
4- Digital Business	Contribution of digital in GDP	Promoting business outcomes by supporting their development after the introduction of modern digital technology to enhance GDP and value added from digital economy applications	Open Market for more additional economic growth	35. Develop e-Trade Platform Management	X	X	X	
				36. Create a Pan-Arab Cross-border Fintech Regulatory Sandbox		X	X	
				37. Smart Manufacturing Testbeds		X	X	
				Increase the Digital employment	38. Smart Factory	X	X	
					39. Smart Agri- Food Accelerator	X	X	
					40. Arab Telework Platform	X	X	X
5- Digital Citizen	SMEs	Providing support to the pioneers to investing in digital technology, whether financially or technical, in order to develop it, double its numbers, increase its chances of success and reduce the risk associated with its establishment from an investment point of view.	Increase the Adoption of ICT by SMEs	41. SMEs Go Digital Program	X	X	X	
				42. The 100,000 SMEs Online Program	X	X	X	
	Adoption / Inclusion / Accessibility	Integrating and including citizens, particularly disadvantaged and poor groups, into the digital inclusion system, in order to achieve financial inclusion status, by reaching them and enhancing their confidence	Ensure inclusive and equal access to digital technology.	43. Arab Open Solution Platform	X	X	X	
				44. Digital Content program		X	X	
				45. New Generation of Telespace for Isolated Communities	X	X		
				46. Provide Free access to wireless Internet	X	X		

Dimensions	Themes	Desired impact	Strategic Objectives	Programs	Cluster 1	Cluster 2	Cluster 3
			Enhancing Digital Literacy and Social Inclusion	47. Basic level of ICT competence 48. Promote Daily lifestyle Apps Program	X X	X X	
	Affordability	Reducing the cost of using broadband internet to encourage use and the recovery of the digital economy	Enhance the Fixed broadband internet tariffs	49. Social Coverage Incentives 50. Develop a legal framework to promote healthy ICT competition	X X	X X	

Notes:

Cluster 1	Cluster 2	Cluster 3
<p>Countries that need to be digitally activated (countries with low to medium scores in the international ICT readiness indices) :</p> <p>This group has 11 countries (Iraq, Libya, Syria and Yemen, as well as Algeria, Comoros, Djibouti, Mauritania, Palestine, Somalia and Sudan).</p>	<p>Digitally promising countries (countries that have intermediate digital maturity scores on the digital readiness scale):</p> <p>This group consists of 5 countries (Egypt, Jordan, Lebanon, Morocco and Tunisia).</p>	<p>Digitally developed countries (high stage of digital readiness):</p> <p>The six GCC countries (Saudi Arabia, UAE, Bahrain, Kuwait, Oman and Qatar) are the best performers in all eight ICT and digital economy related indicators.</p>

About the Author



Dr. Ali M. Al-Khouri is the Advisor to the Arab Economic Unity council, and Chairman of the Arab Federation for Digital Economy in the Arab League. He is also a senior government official in the UAE.

He also serves as an advisor in digital transformation to many Arab and international organizations and several African governments. He actively participated in the development of many international reports for United Nations, World Economic Forum, and European Commission, and Arab League.

Among the most recent initiatives that he is playing a leadership role in are: Arab Digital Economy Vision to support digital transformation of economies in the Arab region and Digital Economy Vision for West African (ECOWAS) Countries.

He has more than 100 books and scientific researches in the field of digital government and public sector development, and has received multiple local and international awards. He has appeared in 2018 as world's 100 most influential people in digital government, in the list that was published by "Apolitical", funded by European Commission and World Economic Forum.

He is a Professor and Fellow of the British Institute for Technology in London, UK. He attained his higher education from top UK universities, where he received his B.Sc. (Hons.) from Manchester University, M.Sc. from Lancaster University, and an Engineering Doctorate (EngD) from Warwick University.

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