



# MENA Talent Competitiveness Index 2017



Technology and the Future of Work

## Table of Contents

INTRODUCTION .....	5
1. ECONOMY, TALENT AND THE STATE OF WORK.....	7
MENA's employment landscape: segmentation and imbalances.....	8
Private sector landscape: insiders vs entrepreneurs ? .....	9
2. TALENT COMPETITIVENESS IN MENA .....	11
The Global Talent Competitiveness Index .....	11
MENA countries in GTCI.....	13
3. TECHNOLOGY AND THE FUTURE OF WORK: IMPLICATIONS FOR MENA.....	17
The challenges of the future of work and talent.....	17
Reaping the benefits of the digital age.....	19
Technology readiness.....	20
Towards a knowledge economy? .....	23
4. POLICY ISSUES .....	25
Building strong skills ecosystems.....	26
Improving the governance landscape.....	29
Actionable recommendations .....	31
COUNTRY BRIEFS.....	33
ANNEX 1 TECHNICAL NOTES .....	58
ANNEX II COUNTRY PAGES .....	61
ENDNOTES .....	74
REFERENCES .....	78

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*“Progress lies not in enhancing what is, but in advancing toward what will be”, Kahlil Gibran*



## INTRODUCTION

The Middle East and North Africa (MENA) region is experiencing a demographic “youth bulge”. Young people normally represent a valuable asset for the economy. Yet, with more than half of its population under 25 years old and the world’s highest regional youth unemployment rate, the MENA region stands at a critical juncture. As put by the World Economic Forum, “this youthful populace can turn into either a ‘youth dividend’ or a ‘youth liability’, contingent upon the region’s ability to create an enabling environment in which young people’s aspirations can be fulfilled”.<sup>1</sup>

The MENA region holds huge potential to become a key player in a knowledge-powered global economy. Releasing and leveraging that potential will largely rely on the region’s ability to provide its younger generations with meaningful jobs. Education, the development of the private sector, and the understanding of how technology is changing the world of work will be key ingredients for success.

### *‘Rebalancing’ MENA economies: roles of the private sector*

The Arab world has invested much in education as of late in its quest to improve competitiveness at an average of 18% of total government spending versus a global average of 14%.<sup>2</sup> Yet, both resource-rich countries (e.g. GCC) and the rest of the MENA region share the common denominator of high youth unemployment, which at 30% doubles the world average,<sup>3</sup> and lack of private sector development - government activities employ in some countries more than 30% of the workforce whereas in developed countries the figure is lower than 10%.<sup>4</sup> The events of the Arab Spring reminded us that the prevailing development models are rapidly becoming obsolete.<sup>5</sup> Even countries with natural-resource abundance appear to underperform in the long-run because they tend to allocate capital and skilled people away from potentially high-value-added other sectors.<sup>6</sup> Development can no longer be driven by centralized control, discretion, and privilege, because this does not promote the growth of the private sector that is so needed for creating employment and allowing talented people to flourish. Progressing towards a new developmental vision is what is needed across the MENA region – Kahlil Gibran’s famous quote included at the beginning of the report encapsulates the idea of changing direction.

Important as wide access to education is, it is not enough to follow the mantra of ‘educating more for getting better jobs’. The supply of certain qualifications does not always create its own demand.<sup>7</sup> Governments, enterprises and individuals now need to think about talent in the context of economic, social, political processes, in addition to organizational processes, i.e. to focus on ‘employable skills’. The Global Talent Competitiveness Index (GTCI) assesses the respective roles and interdependencies among multiple actors and policies in creating and sustaining the conditions under which appropriate skills can be developed and employed in particular regions and countries.

In all parts of the world and under all types of economic systems, the development of the private sector has proved to be a key ingredient for achieving the employability of skills and longer-term economic objectives such as competitiveness, innovation and diversification. Such development is usually facilitated by an enabling environment in which the actions of governments and institutions are aligned with the needs of enterprises and

society at large. Old economic and social structures need constant revisiting. Today, the needed restructuration of national economies is made both more urgent and more complex, largely because of how fast technology is transforming our global surroundings.

### *Understanding how technology affects competitiveness and the world of work*

Arab 'Millennials' (people younger than 25 which constitute 60% of the MENA population) are more digitally connected than ever before, creating the so-called Arab digital generation, which bears great potential for the future of work in the region. Yet, the digital economy is, at 4% of GDP, half of what the US is at (8%) and lagging behind the EU (6%).<sup>8</sup> Furthermore, seizing the 'digital' opportunity requires reacting to wider transformations that technology is creating in the world of work. New skills are clearly needed. An even more pressing issue is to acknowledge how work practices are changing globally, how new work models are emerging, how career patterns are drifting away from the prototypical single-employer career path, and how all these changes are likely to affect the efficiency and relevance of existing practices, policies and institutions in the MENA region. Equally pressing is the necessity to re-think developmental models to allow them to reflect the ongoing reconfiguration in the global geography of production, as automation and digitization are challenging the development trajectories of emerging markets. In addition to its obvious impact on productivity, facilitation and dis-intermediation, technology can play a critical role in improving governance and also policy making (e.g. through the use of data and metrics, as well as through greater citizen involvement in datagov/opengov initiatives).

### *Finding commonalities*

One acknowledgment that we have to make as a preface to our discussions throughout this report is that MENA countries are actually quite different in many dimensions. This is a region in which generalization is perilous. Some of the economic and political challenges mentioned above are present in different degrees across these countries. For example, GCC countries actually show good GTCI scores in terms of talent competitiveness performance, while many others are lagging behind. Yet, part of the power and usefulness of policy tools such as GTCI relies on identifying cross-regional commonalities, which may help inform policy design.

There are indeed several unifying threads, common denominators and similarities that cut across most MENA economies, independently from whether they are a monarchy or a republic, labor-scarce or labor abundant, resource-rich or resource-poor. The first is the aforementioned youth bulge and the lack of opportunities for many among the young, particularly with the non-existence of a buoyant private sector. Also, Arab countries are mostly centralized states with a dominant public sector, and comparatively weak private enterprises. The concentration of external revenues— whether derived from oil, aid, or remittances — profoundly shapes a large part of the region's economic landscape.

Often underlined also is the importance that the gender gap plays in the region. Gender issues are becoming mainstream questions in policy work done by major international organizations in all geographies. In the MENA region, in particular, a narrowing of such gaps could play an important role in addressing employment and productivity challenges. Yet, studying gender issues would require an exclusive effort in its own right, which would be beyond the scope and ambition of the current report.

### Commonalities among MENA economies

- 1- **The youth bulge:** the proportion of population aged 15-24 peaked at 20% in 2010, however absolute numbers are increasing. Yet, youth unemployment in MENA is twice the World average.
- 2- **Private sector shortcomings:** non-oil private sector remains relatively small and underdeveloped.
- 3- **Dominant public sector:** Hydrocarbon and/or government activities account for the majority of total GDP in several countries and employ more than 30 percent of the workforce.
- 4- **Importance of external windfalls:** The state-centered development paradigm has rested on the flow of external rents like fuel exports, foreign aid or remittances.
- 5- **Gender gap:** Men are three times more likely to participate in the workforce than women.

### *Structure of the report*

The report is structured as follows. Section 1 describes the current state of employment and private sector development in the MENA region. Section 2 evaluates empirically the talent competitiveness of countries in the region by using the Global Talent Competitiveness Index as a benchmarking tool. Section 3 discusses how technology creates challenges and opportunities in the new world of work. Based on the current talent competitiveness performance and the potential trends that result from the technological revolution, Section 4 discusses some policy implications for a new developmental trajectory in the region. In particular, it delineates a roadmap for strengthening skills ecosystems. Beyond specific policy issues in the areas of education, employment and entrepreneurship, we put emphasis on how governments can engage with citizens and other stakeholders as parts of a common ecosystem.

## 1. ECONOMY, TALENT AND THE STATE OF WORK

One of the greatest economic challenges of the MENA region is that, despite significant improvements in educational achievement (at a time when the Arab world has grown younger compared to global averages), the region has failed to capitalize on its growing human capital. Political instability in some countries has not helped; but the problem of employment is structural and has some historical antecedents.

The good news is that educational levels have increased across the region. In the 1960s, educational attainment in the Middle East was among the lowest in the world, with an average of less than one year of education per adult 15 years or older. Between 1980 and 2000, the educational attainment of the adult population increased by more than 150 percent, faster than in any other region or income group in the world.<sup>9</sup> The problem is that while the aspirations of a more educated young population have evolved on par with global trends, local economies have offered few economic opportunities for those new aspirations. The MENA region is facing a generational struggle for inclusion, as many career and economic opportunities remain dependent on connections rather than competition.<sup>10</sup>

## **MENA's employment landscape: segmentation and imbalances**

The employment landscape in the region is challenging. Even though economic growth has improved modestly after the worsened economic outlook derived from declining oil prices from a couple of years ago, the problems of employment are structural rather than temporary.<sup>11</sup> In non-GCC countries, unemployment is expected to remain above 15 per cent in the foreseeable future.<sup>12</sup>

Although discrepancies do exist across the different countries of the region in terms of employment outcomes, a common denominator is the large share of the population that remains outside the labor market – (44.3 percent in 2015 for non-GCC countries and above 64 percent in GCC). This trend in part reflects the low participation rate among women, who also face higher unemployment rates.<sup>13</sup> As underlined earlier, the challenge of the gender gap is important in its own right but there is a more generalized problem of labor market insertion in the region, particularly for young people. Only one-quarter of the youth population in GCC countries is actively engaged in the labor market, while the proportion is less than one in five in non-GCC economies.

These low levels of employment are partly driven by inadequate skills. More importantly, however, are wider challenges stemming from unequal access to opportunities and misaligned incentives to work in the private sector.

Labor markets remain segmented at multiple levels—between the public and private sector, formal and informal. The design of social insurance systems also influences the dynamics of this ‘duality’ in labor markets: very generous, costly pension systems cover a small minority of workers, while the lack of well-functioning unemployment insurance and poverty-targeted social safety nets makes job losses extremely costly, even for people who do have access to formal employment.<sup>14</sup>

In economies where the private sector has limited dynamism, the public sector offers attractive employment conditions, and relatively rigid labor regulations maintain labor market divides, incentives to acquire relevant skills can be distorted. A significant part of current unemployment results from high job expectations by young workers with some formal education, who have an ingrained preference for well-paid public sector jobs, and a low valuation of their credentials by the private sector. This low valuation is partly due to the fact that MENA education systems have often concentrated on providing an ‘entry ticket’ to public sector jobs rather than on building skills.<sup>15</sup> This creates labor market contradictions where high levels of voluntary unemployment co-exist with shortages of skills for the private sector.<sup>16</sup>

The dominance of the public sector does not mean that these jobs are available to everyone – even if they once were in some countries. A majority of young MENA citizens remain in a difficult position when moving from school to work because they need to make a successful double transition: not only do they need the credentials to become employable; they also need to position themselves in a labor market characterized by social connections and privilege – particularly for having access to public sector jobs.<sup>17</sup> Such contradictions of the labor markets lead to surprising situations, in which for instance acquiring more education can make one more likely to be unemployed.<sup>18</sup>

In the long run, the most detrimental impact of the large role of government hiring is that it traps human capital in unproductive public sector jobs. In general, underemployment

(employment that does not fully meet workers' capacity or demand for work) remains pervasive because in the public sector remuneration is de-linked from skills or productivity and also because employment in the (unproductive) informal sector is still large.<sup>19</sup> Phenomena like over-qualification are the symptom of the widespread problem of a significant misallocation of talent. All these forces limit productivity and innovation and thus the capacity to enhance economic growth and competitiveness in MENA.<sup>20</sup>

### **Private sector landscape: insiders vs entrepreneurs ?**

Problems of employment are usually a combination of supply-side factors (such as the availability of skills) and demand-side factors (such as the creation of economic activities that create jobs in the first place). The latter is one of the main challenges in MENA. Compared with other regions, formal private sector employment is concentrated in larger, older and exporting firms.<sup>21</sup> In the MENA enterprise surveys led by the World Bank, business leaders underline that innovation and growth are constrained by barriers to trade, inadequate access to finance and a scarcity of appropriately trained workers.<sup>22</sup> Firm dynamics are thus weak and high-productivity, high-paying private sector jobs remain scarce, which is likely to encourage jobseekers to continue pursuing public sector jobs.

Some institutional obstacles to business creation are common in a majority of developing countries, including red tape, corruption, inefficient judicial systems, and high cost of finance. They all limit the growth of small and medium enterprises (SMEs), which are the engine of job creation. Corruption is still a serious problem in some MENA countries. In the measurement of corruption used in GTCI,<sup>23</sup> countries like Egypt, Morocco or Lebanon rank below the position 80 out of 118 countries (according to Transparency International, 50 million people from the MENA region needed to pay bribes to have access to services in 2016).<sup>24</sup> The firms surveyed in the World Bank's enterprise surveys typically cite political instability and corruption among the main factors that are holding them back.

More importantly, the private sector in the region is generally weak and dependent on State patronage. There are historical reasons for this (see *Box - Historical roots of the lack of private sector development*). Although countries in the MENA region are in different stages of economic development, they show some common denominators. The World Bank report "Jobs or Privileges" suggests that the slow creation of firms and employment in some MENA countries is caused by policies that privilege a few dominant firms by insulating them from competition.<sup>25</sup> For instance, treatment by tax administrations can be unequal and unpredictable depending on political connections.<sup>26</sup> Also, restrictions on foreign firms to enter service sectors are among the highest in the world: some countries favor domestic firms by offering generous subsidies and discretionary non-tariff technical barriers to trade are imposed in some countries.

While it is true that the private sector has grown significantly in the Gulf, public investment remains the central driver of private economic activity (especially in times of high oil prices) and business people and rulers are connected through overlapping 'networks of privilege', which usually imply informal engagements. Boards of listed companies are dominated by a few influential families.<sup>27</sup>

The hurdles faced by the private sector in general also apply to entrepreneurs in high-growth industries, where access to relevant skills remains a critical issue. As nascent



companies enter the scale-up and growth phases, they need to acquire the talent necessary to move forward (from startups to scale-ups): this includes skilled professionals who have years of experience working in functions such as product development in organizations, and also experience in various roles: from administration and sales to marketing and engineering. Furthermore, the skills that allow the emergence of the entrepreneurs that can create those firms in the first place are limited. Innovators need specific “behavioral” skills or attitudes that are lacking in the region,<sup>28</sup> for overcoming fears of failure, developing entrepreneurial intentions and developing the perception of entrepreneurship as a good career choice.<sup>29</sup> Even the UAE (the talent leader in the region) exhibits one of the highest rates of ‘fear of failure’ and one of the lowest rates of entrepreneurial intention – tech startups are mainly driven by foreign talent.<sup>30</sup> There are some multi-stakeholder efforts to promote such behavioral skills but the region still lags behind.<sup>31</sup>

**Box. Historical roots of the lack of private sector development**

The roots of a weak private sector run deep in history. Merchants were politically weak under the Ottomans, whose centralized bureaucratic rule worked hard to prevent the emergence of autonomous social groups. A robust private sector was more feared than favored, and only few foreign merchants flourished (they could not challenge authority). The break-up of the Ottoman Empire into a multitude of independent states created new political boundaries, but, over time, these became permanent economic boundaries. When independent Arab states emerged from the ashes of the Second World War, many of them lacked a solid constituency for private sector development. Even a weak indigenous bourgeoisie enjoyed little continuity after independence. Nationalist governments were often hostile to business and nationalizations were widespread. Morocco was a rare exception, where the Monarchy sided with merchants to stave off the threat of nationalization. In Lebanon, where a critical mass of merchants did exist at the time of independence, sectarian divisions and the ensuing civil war limited private enterprise development. As the fiscal reliance on oil and aid revenues of some States increased, dependency on merchants declined. In Gulf monarchies, oil revenues shifted the balance of power from merchants to rulers, making the private sector more dependent on state patronage. The bureaucratic hand has long stifled entrepreneurship, and has kept Arab markets localized, segmented, and cut off from each other. By distorting competition these barriers act as road blockers, privileging insiders by assigning them control over access points to the economy.

*Source: based on extracts from Malik and Awadallah (2013, pp. 302-303)*

Entrepreneurship also has to face additional challenges in MENA. It is true that the region has witnessed a dramatic increase in the number of resources available for entrepreneurs: incubators, accelerators, co-work spaces, boot camps, and venture capital entities.<sup>32</sup> There are also information networks and trade fairs. Cities such as Amman, Beirut or Dubai are often praised for leading a startup “Arab spring”. Yet, policy makers have simply not streamlined legislative and regulatory frameworks to enable the development of tech startups and other high-growth industries. A major challenge is that of scalability. Interviews with INSEAD alumni running startups in the Middle East and also with the founder of Magnitt, a platform that connects startups to investors, all pointed to the conclusion that markets remain excessively fragmented, and that enterprises cannot easily expand from one country to another. A pan-regional payments system does not exist. Also, the considerable regulation of cross-border trade means that tariffs and duties tend to be relatively steep. It

can be cheaper to buy an item from the U.S. and ship it to Dubai, for example, than buying from Dubai and shipping to Riyadh.

The current regulatory environment just adds more complexity to the process of moving from start-up to scale-up, which is already challenging enough. The reality is that most start-ups fail – globally, only ten out of a hundred startups will employ more people and generate higher revenues compared to when they started.<sup>33</sup> Without growing the number of firms in the scale-up phase, tech entrepreneurship will not be the main generator of employment in the MENA region.

## **2. TALENT COMPETITIVENESS IN MENA**

It is clear that the region needs to create many more jobs in order to address its most urgent social and economic needs – the World Bank once put the objective number in 100 million jobs by year 2020.<sup>34</sup> Achieving this, and further improving economic growth and national competitiveness, will depend on the ways in which talents are developed, attracted and employed. Yet, many governments and relevant stakeholders are still lacking the metrics and benchmarking tools to guide and monitor efforts in strengthening their talent competitiveness.

GTCI is a benchmarking tool to inform policy using a multi-dimensional approach. An efficient and inclusive education sector is surely a crucial element. A robust economic system must certainly encourage investments in people as one of its fundamental pillars. There is a strong relationship between investments in human capital and economic growth,<sup>35</sup> explained by the direct use value of human skills and also by indirect effects such as the attraction of trade and foreign direct investments that a high-quality workforce generates.<sup>36</sup> Nonetheless, the context in which the pool of skills operates is also relevant to make those people productive.

Talent competitiveness is not only about people and the skills they have acquired but also about the systems in which they operate – organizations, industries and nations. It is the well-functioning of those systems that “make ordinary people do extraordinary things”, as put it by Peter Drucker, the founder of modern management. To track, guide and encourage such efforts, appropriate metrics are required.

### **The Global Talent Competitiveness Index**

The Global Talent Competitiveness Index (GTCI) defines ‘talent competitiveness’ as the set of policies and practices, and enabling context, that allow a country to attract, develop and employ the human capital that contributes to its ability to grow, compete and innovate, i.e. to the overall prosperity and quality of life of its people.

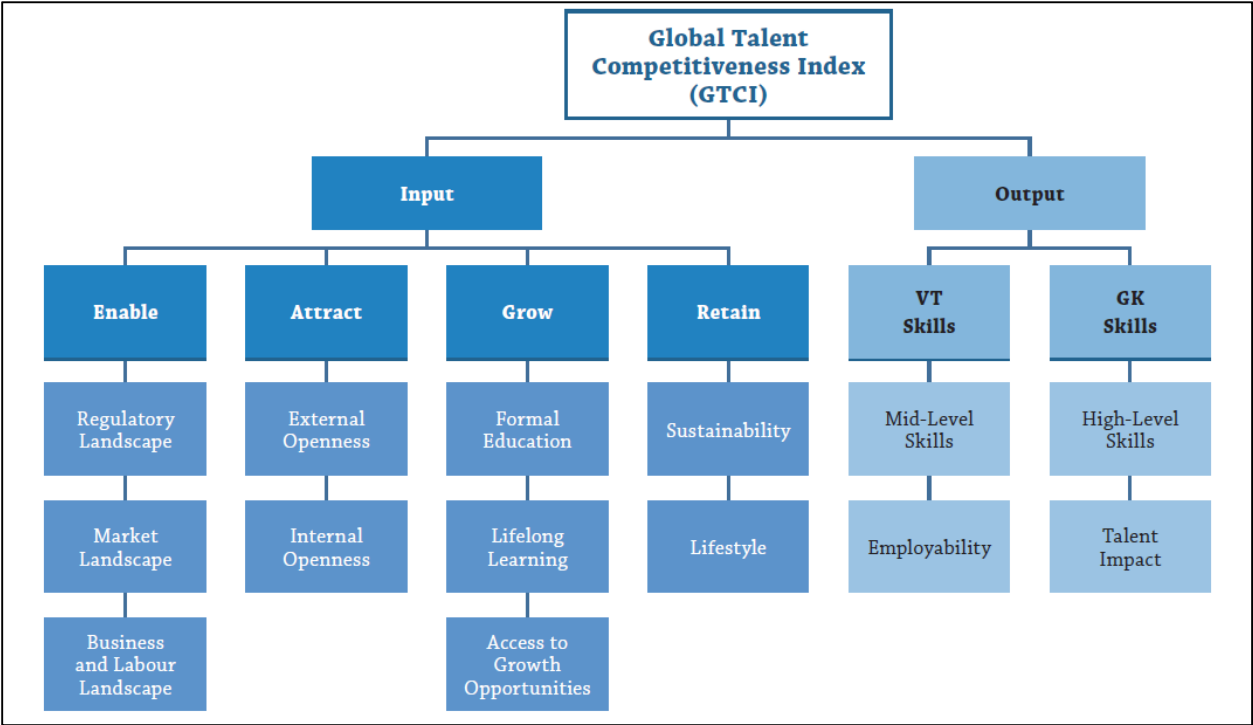
Being multi-dimensional in nature, GTCI assesses talent performance in the context of economic, social, political and organizational forces. GTCI thus emphasizes the interdependency of multiple actors and policies in creating and sustaining the conditions

under which appropriate skills can be developed and employed in particular regions and countries, and thus create wealth.

To do so, GTCI has been designed as an ‘Input-Output model’ (see Figure 1), in the sense that it combines an assessment of, on the one hand, what countries do to develop, attract and support talent (Input) and, on the other hand, the economic outcomes derived from the available pool of talent (Output).

The Input side includes four pillars that measure different dimensions related to talent development. Three of them scale up the Attract-Grow-Retain framework used by corporations to steer talent management to the level of nations in order to measure macroeconomic and country-level phenomena. Attracting talent, in the context of national competitiveness, should be viewed in terms of luring valuable resources from abroad, including both productive businesses (through foreign direct investment for example) and people with needed competences (through high-skilled migration). Internal attraction is focused on removing barriers to entering the talent pool for groups such as those from underprivileged backgrounds, women, and older people. Growing talent has traditionally meant formal education, but its definition should be broadened to include apprenticeships, training, and continuous education, as well as experience of what the GTCI calls ‘access to growth opportunities’. The more talented the person, the wider the opportunities he or she can find elsewhere in the world. Retaining talent is thus necessary to ensure sustainability, and one of the main components of retention is quality of life. In addition, the regulatory, market, and business landscapes within a country facilitate or impede talent attraction and growth; the GTCI classifies these elements as part of its ‘Enable’ pillar.

Figure 1: GTCI model





On the Output side, the GTCI differentiates between two levels of talent. Those with vocational and technical skills (or VT skills) and those with what we call global knowledge skills (GK skills).

The former refers to people that have a technical or professional base acquired through vocational or professional training and experience. The performance of VT skills is measured by their degree of employability and by the labor productivity of those employed. Employability is measured by indicators of skills gaps and labor market mismatches and by the adequacy of educational systems. Measuring employability is important because without effective utilization mechanisms to match supply and demand, additional skill development might prove ineffective and largely irrelevant to national economic performance.

GK skills refer to people that combine skills like leadership and creativity with global networks to achieve technological, scientific or other innovations. This distinction of talent seems to become even more relevant in today's world, in which people with employable skills are needed to make local economic systems work while those with a 'global' profile are expected to push the economic frontier. Their economic impact is evaluated by indicators of innovation, entrepreneurship, and the development of high-value industries. Having GK skills implies developing the domestic pool of skills, attracting foreign talent and combining the two into a self-sustainable and innovative talent ecosystem.

The top positions in the ranking of GTCI scores continue to be dominated by developed, high-income countries, particularly European countries (with 16 of them in the top 25). Over the last four years, Switzerland maintained its position at the top, followed by Singapore. This year, the GTCI has seen three non-European countries in the top 10, namely Singapore, the United States, and Australia. If we consider the top 25, five additional non-European countries made the grade: Canada, New Zealand, the United Arab Emirates, Qatar and Japan.<sup>37</sup>

## **MENA countries in GTCI**

Differences across MENA countries in GTCI scores are significant. Figure 2 shows the ranking of MENA countries within the region and compared to the overall GTCI sample. GTCI scores are explained by differences in performance in specific pillars. Countries differ substantially in the Attract pillar whereas they are more similar in the Grow pillar (see Figure 3). In other words, the performance of countries in attracting (and also retaining) talents differs much more than their capacity in growing them.

The United Arab Emirates (UAE, 19th) and Qatar (21st) are all part of the high-performing 25th percentile of countries (i.e., the top quartile, which comprises 29 countries). These two GCC nations perform relatively better in the Input pillars. They are good at attracting foreign workers (Qatar comes in at 3rd and the UAE at 4th in the Attract pillar) and at creating the proper context for the operation of businesses by having a solid Enable pillar (Qatar is 18th; the UAE is 12th).

Kuwait (57th) and Oman (59th) are among the only high-income countries that are not part of the top 50. The latter two are particularly affected by a weak Grow pillar, which mainly translates into a poor pool of Global Knowledge skills.

**Figure 2: Performance of MENA countries by pillar**

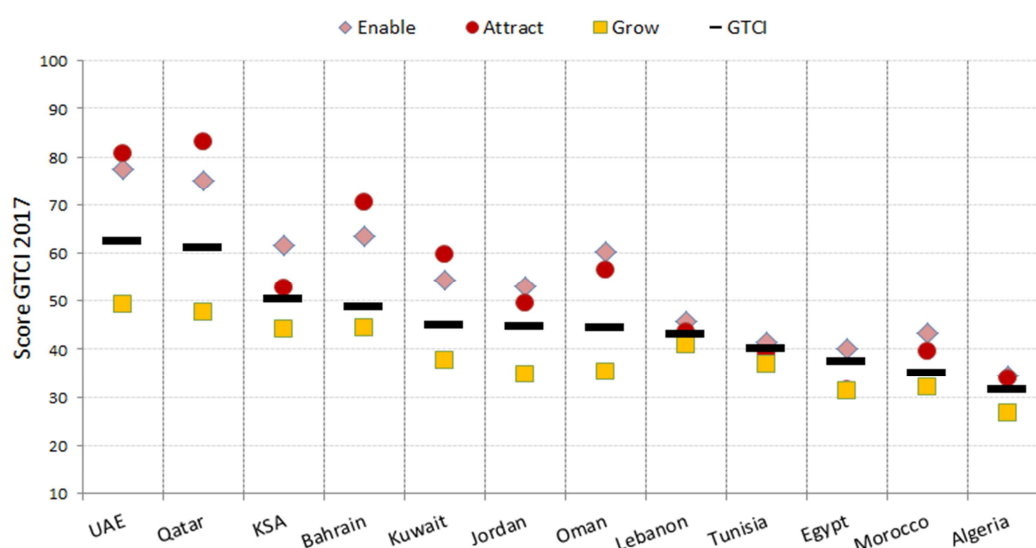
MENA rank (GTCI overall rank)		Ranking in GTCI pillars					
		Enable	Attract	Grow	Retain	VT skills	GK skills
1	United Arab Emirates (19)	United Arab Emirates (12)	Qatar (3)	United Arab Emirates (40)	United Arab Emirates (10)	Qatar (13)	Lebanon (46)
2	Qatar (21)	Qatar (18)	United Arab Emirates (4)	Qatar (47)	Qatar (17)	United Arab Emirates (14)	Jordan (52)
3	Saudi Arabia (42)	Bahrain (31)	Bahrain (10)	Bahrain (54)	Saudi Arabia (35)	Saudi Arabia (41)	United Arab Emirates (54)
4	Bahrain (47)	Saudi Arabia (37)	Kuwait (24)	Saudi Arabia (59)	Oman (40)	Lebanon (53)	Tunisia (55)
5	Kuwait (57)	Oman (39)	Oman (29)	Lebanon (68)	Kuwait (47)	Jordan (63)	Saudi Arabia (57)
6	Jordan (58)	Kuwait (54)	Saudi Arabia (38)	Kuwait (80)	Bahrain (50)	Tunisia (67)	Egypt (58)
7	Oman (59)	Jordan (61)	Jordan (46)	Tunisia (84)	Jordan (58)	Egypt (69)	Qatar (70)
8	Lebanon (62)	Lebanon (91)	Lebanon (75)	Oman (92)	Tunisia (64)	Kuwait (72)	Morocco (83)
9	Tunisia (77)	Morocco (97)	Morocco (101)	Jordan (95)	Egypt (65)	Oman (80)	Bahrain (90)
10	Egypt (88)	Tunisia (102)	Tunisia (104)	Morocco (99)	Lebanon (72)	Bahrain (82)	Kuwait (93)
11	Morocco (96)	Egypt (104)	Algeria (112)	Egypt (102)	Morocco (73)	Algeria (96)	Oman (100)
12	Algeria (107)	Algeria (113)	Egypt (116)	Algeria (113)	Algeria (75)	Morocco (107)	Algeria (102)

Note: GTCI 2017 covers 118 countries. Additional details can be found in individual country profiles included in the annexes to the present report.

Also in the Middle East, Jordan (58th) can be highlighted as a place to which corporations may gravitate, with a relatively high score for Global Knowledge skills (52nd). Jordan increasingly attracts foreign talent (it has become a regional technology and start-up hub). Yet, it still faces challenges: although it currently has a large migrant population, with skilled workers among the many refugees present on its territory, and it does well in attracting

international students, the perception of business leaders is mixed regarding its capacity to experience a brain gain. Saudi Arabia (42nd) performs better than some European countries—such as Greece (43rd) and Bulgaria (49th)—but it still lags behind the regional leaders. The Northern African countries of the GTCI sample have the lowest performance in the region in the overall GTCI (Tunisia is 77th; Egypt is 88th; Morocco, 96th; Algeria, 107th).

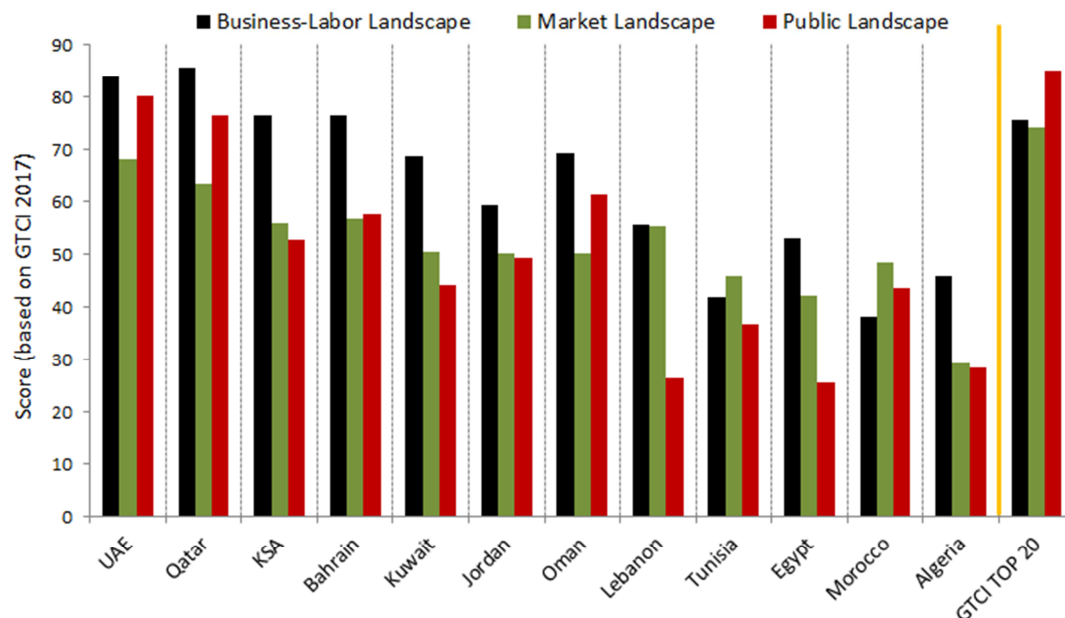
**Figure 3: Performance of MENA countries by input pillars**



If we look at the four pillars in the ‘input’ side of GTCI, we observe that countries in the Gulf perform much better in the Attract pillar, which means that they are better able to incorporate foreign high-skilled workers into the local talent pool. Again, the UAE and Qatar lead the way in this domain (see Figure 3). Countries are more uniform when it comes to the performance of the Grow pillar: although countries throughout the region have been able to improve access to formal education, they still lag behind the top countries in GTCI in terms of the quality of their educational systems. UAE, for instance, has good access to lifelong learning (position 14<sup>th</sup> in GTCI), particularly via good employee development, but it still has much room for improvement regarding formal education (position 75<sup>th</sup>).

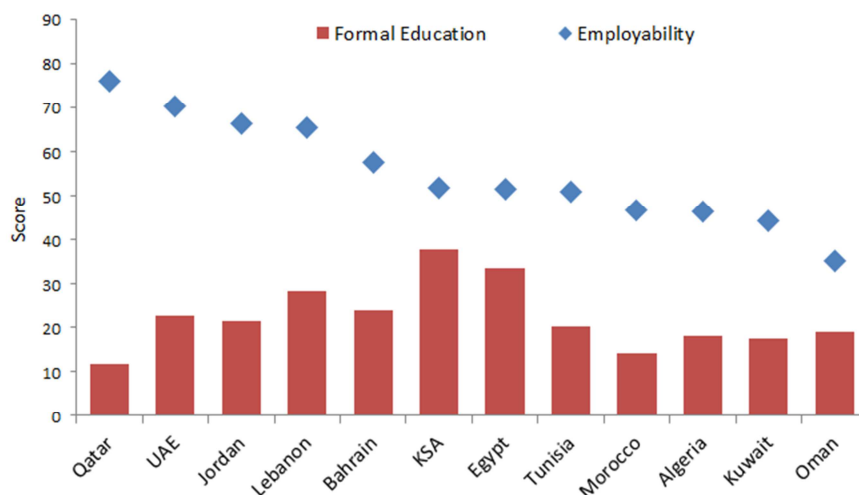
As already mentioned, the region has been able to improve dramatically the levels of education in society. What the region is still missing is a stronger environment that supports the acquired skills. The Enable pillar of GTCI evaluates this environment by combining measures of the Government landscape (e.g. government and regulatory effectiveness, government-business relations, political stability, etc.), the Market landscape (e.g. level of market competition, ease of doing business, adoption of new technologies, etc.) and the Business-labor landscape (e.g. labor market flexibility, good management practices, etc.).<sup>38</sup> The market landscape, in particular, is lagging behind (see Figure 4). While the performance of public sector practices is lower than in other regions (including governance effectiveness and regulations), it is elements in the market landscape such as the development of clusters and an environment of competition and ease of doing business that show the biggest gap.

**Figure 4: Performance of MENA countries in Enable sub-pillars**



GTCI data also shows a striking lack of correlation between formal education performance and the prospects of employability of people in MENA countries (see Figure 5). Again, performance in terms of formal education is very similar across the region; yet, the measure of employability, which basically measures the extent to which people acquire the skills that are relevant for enterprises and employers, diverge substantially: with Qatar and the UAE, on one side of the spectrum, and Morocco and Algeria on the other. The countries in the Gulf have been better able to create educational and training systems that are more relevant for the economy. In those countries, private firms find it relatively easier to recruit skilled employees - and thus complain less frequently of facing skills gap as a major constraint.

**Figure 5: Education vs employability in MENA countries**



### **3. TECHNOLOGY AND THE FUTURE OF WORK: IMPLICATIONS FOR MENA**

The challenges of MENA countries when it comes to employing their talent are well documented. Some of them have been flagged earlier and reflected in the GTCI performance. The segmentation of labor markets and the lack of development of the private sector have been discussed for decades in policy circles, including by large international organizations like the World Bank. The fact that such problems have not been solved yet, after years of discussions, implies that they still need our attention; but they have to be now reframed in a context that is starting to change rapidly. All around the world, technology is transforming the way we work, the way we produce and do business, and the way we live. In MENA countries, this evolving context presents some additional challenges, but also opportunities.

The fourth industrial revolution that we are currently going through (Industry 4.0) is characterized by automation, digitalization, and connectedness. It has shown its ability to disrupt whole industries, and to guide the ways in which activities and value are distributed globally. While there is the risk for MENA countries lagging further behind if some of their fundamental problems are not solved, this context also presents a great opportunity for the countries of the region to overcome some of their long-standing handicaps. This results largely from the potential that ICTs represent as a possible “game changer” for employment.

#### **The challenges of the future of work and talent**

Technology can serve as a tool for improving employment and labor market outcomes. But it also has wider implications in the world of work that present good opportunities if a series of challenges are overcome.

The production of employable skills for the information age is the most important part of the equation.<sup>39</sup> In addition to technical knowledge that is often in short supply (e.g. for managing digitized, data-intensive processes),<sup>40</sup> as machines continue to improve through ‘deep learning’, humans will keep an edge by developing their four ‘C-skills’: creativity, communications, co-operation, and ability to deal with complex situations (Figure 6).<sup>41</sup> In a world of complexity, managers are also expected to become “dual-thinkers”: with the skills to recognize and develop new business opportunities, and also the technical skills to identify which technologies to use to do so. Moreover, in a world where the types of jobs available will be changing fast in the fourth industrial revolution, two extra Cs could be added to the list: (i) critical thinking and (ii) changeableness. Robots and algorithms are replacing people in an increasingly broad array of tasks. New jobs will be created but with revised skill sets,<sup>42</sup> making lifelong learning and upskilling ever more important. In such context, people need an inquiry-centric mindset and also the capability to apply their problem solving skills in changing scenarios - many of the jobs that will emerge in the next decades do not exist yet. It is thus important to prepare students to deal with uncertainty and constant change by developing adaptability<sup>43</sup> - the concept of changeableness is emphasized in a study on the skills agenda by the Economist Intelligence Unit (2015).<sup>44</sup> As Alvin Toffler, author and futurist, once said: “the illiterate of the 21st Century is not the one that cannot read or write, it is the one that cannot learn, unlearn and re-learn.”

**Figure 6: The 4Cs of future skills**



Beyond skills, technology has implications on work practices and employment models that result from new ways of organizing economic activity, including the structures and processes within organizations. The new jobs of the future will reflect quite a different organizational context than that of the last century. Business models used to change slowly, and changes affecting them were seen as revolutions. Nowadays, developing a new business model has become the name of the start-up game.

With technology-fueled forces such as connectedness, modularity (i.e. the ability to slice processes and tasks) and an accelerating shift from input control to output orientation (with less reliance on authority), the 20th century norm of salaried employment is giving way to a patchwork of alternative work models that challenge traditional social conventions. People engaging in crowdwork globally would receive more than a third of their income using online platforms.<sup>45</sup>

We now have to work differently. New skills are needed, either to confront increasing automation or to make sense of an increasingly complex business world. More importantly, emerging work models such as contingent work or open collaboration are becoming dominant in many sectors. Similarly, typical career patterns now look different from the prototypical linear, single-employer career path of the 20th century (now Millennials can expect to have up to five employers in a lifetime). All these changes are massive and global: they require that countries should urgently rethink their institutions. Again, the educational sector is perhaps the most important to be adapted but there are also questions about employment and social protection policies (including re-activation policies) that also matter in such a rapidly changing environment. We shall discuss possible policy implications in Section 4.

More fundamentally, MENA economies need a significant overhaul of their institutions so that they pave the way for the long-overdue development of the private sector. This is a key, and urgent, requirement to be able to create new jobs in the context of the fourth industrial revolution. For that, Arab economies will not only have to re-consider their long-standing internal barriers, but also to respond to rapidly-changing external forces driven by technology and data-driven globalization.



## Reaping the benefits of the digital age

Digitalization and connectivity have the potential to empower new forms of business models. New businesses can have access to cheaper digital platforms via cloud-based services, to wider sources of finance like crowdfunding and to larger markets. There are business areas with big potential such as apps and portals for Arabic content – Saudi Arabia and the UAE are among the world's largest consumers of digital content per capita. And some of the enablers for entrepreneurship are already in place, including online pitching platforms to connect budding entrepreneurs with strategic investors and venture capitalists.<sup>46</sup>

Yet, the development of high-tech startups will not by itself be sufficient to generate the number of jobs required by young people and society at large in MENA. Even though in the past decade the cross-border data flow connecting the Middle East to the world has increased by more than 150-fold, the digital economy is still small (4% of GDP in MENA) compared to the US (8%) and the EU (6%).<sup>47</sup>

Better employment outcomes may occur in many other ways, as already identified two years ago in INSEAD's report *'Re-dynamizing the Job Machine'*.<sup>48</sup> On the demand side, technology reshapes the types of skills needed by companies and the economy and it is often expected to create additional jobs: a report by Strategy& stated that "if the pace of digitization in the MENA region were to accelerate, it could create over 4 million new jobs by 2020".

### **Box. Nabbesh: a successful online platform for work**

Online platforms allow workers to connect with enterprises looking for talent or specific services, and their power is increasing as the pool of digital natives in MENA grows. One notable example is Nabbesh.com, founded in 2012 in Dubai, which connects businesses with freelance talent online. The marketplace of Nabbesh extends beyond Dubai to Middle East and North Africa, and people can market their skills (e.g., translation, development, graphic design), showcase their work and get hired. In the year it was launched, the site had close to 1000 users, 65 percent of which were women, and 60 percent of which were located in Lebanon and the UAE. Two years later, the community counted already with 40,000 people across 130 countries. Now featured on Forbes, Nabbesh has amassed and vetted more than 100,000 registered users, and helped match designers, writers and software developers with jobs at ad agency TBWA\ RAAD, General Electric, and IBM, among other places. Nabbesh's founder, Loulou Khazen, a young Lebanese female entrepreneur (now mainly based in the Gulf) emphasized some of the benefits of online platforms: "a marketplace where the 140 million Arabs who are online today could use their skills to find online project work and are able to transact in a transparent and safe environment, and get paid for on time, securely and via a method of their own choosing". This is especially important for unleashing the power of women who may choose to enter the workforce if they can work from home and meet at the same time family responsibilities.

On the supply side, ICTs can help respond to the needs of the new jobs being created by facilitating upskilling via digital means. Online courses via platforms such as Edraak<sup>49</sup> are already enhancing the talent pool. And the opportunities that technology can bring to education keep growing. AI technology and machine learning might finally make "adaptive learning" possible via software that tailors courses for each student individually - by presenting concepts in the order the student will find easiest to understand and enabling him to work at his own pace. Such a revolution in learning would be a cornerstone of an

educational system where lifelong learning is becoming more and more salient. Moreover, virtual reality (VR) can support the lifelong learning revolution via gamification and simulations. Some of the ‘soft’ skills needed for the era of automation may also be developed through these means – some technologies have been shown to be effective in teaching empathy. Although research on how young children behaviorally and socially respond to immersive VR is still in early stages, this can also become a tool for expanding ‘inquiry-centric’ education since early stages of life – while workers can use VR simulations to have a ‘taste’ of the workplace of the future and thus be better prepared for new challenges.<sup>50</sup>

A third aspect where technology plays an important role is in facilitating the intermediation between supply and demand for skills. Online platforms in the MENA region (Uber, Careem, YouTube, Delivery services) are creating new employment opportunities by matching full-time jobs and also microwork tasks such as data entry and verification or graphic design (see *Box – Nabbesh: a successful online platform for work*). Alternative forms of employment that emerge from connectedness, such as contingent work in online platforms, have the added advantage of providing flexibility to workers with family commitments and enabling women to work from home where cultural sensitivities might otherwise prevent them from participating in the labor force. Virtual reality can also help in the process of matching skills: in some global companies prospective employees are given the chance to experience the job before they apply.<sup>51</sup> These trends require further research in MENA as their impact is growing but not yet quantified.

## Technology readiness

The data collected for the GTCI model allows exploring specific talent dimensions in more depth. One of them is the preparedness to benefit from technological change. The ‘talent readiness’ of countries to benefit from technology largely depends on how well societies and their institutions are adapting to emerging needs and realities. Educational and employment policies are the big two policy challenges in the talent arena, reflecting the emerging changes in organisation, work models, and skills of the 21<sup>st</sup> century economy. And without stakeholder connectedness, such major policy reforms are likely to stumble.

Figure 7 shows the readiness of a sample of countries to maximise talent capabilities in the context of the technology revolution. This heatmap measures four main attributes at the country level.

1. The readiness of the **educational system** is measured by four indicators: the quality of basic literacy and maths skills (PISA scores), the use of technology for educational purposes, access to lifelong learning opportunities, and the relevance of the education system for the needs of the economy.
2. The readiness of **the employment** system, including its social protection component, is measured by three indicators: labour market flexibility (Ease of hiring and Ease of redundancy), access to a solid safety net, and by the strength of labour-employer cooperation.
3. The **connectedness of stakeholders** is measured by a single indicator, Business-government relations. For example, the need for adaptive continuous education



using blended learning, employing online learning platforms, and classroom training requires close collaboration around design and certification between businesses, trainers and educational institutions, and public institutions.

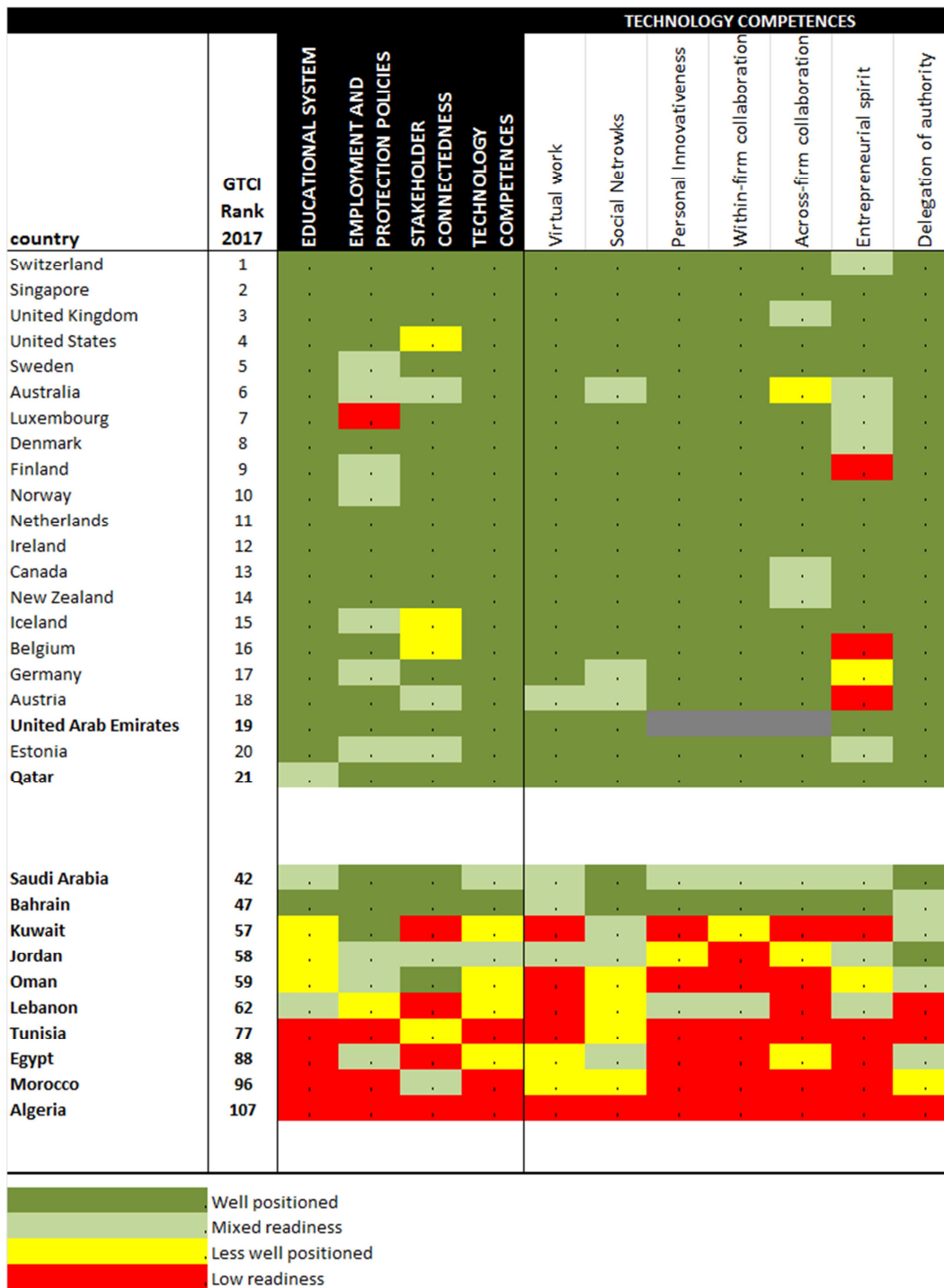
4. The fourth attribute measures the level of *Technological competences* in these 40 nations, and it consists of seven indicators of the pervasiveness of practices relating to current technology: the use of virtual work (e.g., remote working, telecommuting); the use of online social networks; personal innovativeness (or idea generation by people); the extent of within-firm collaboration; the extent of across-firm collaboration; entrepreneurial spirit; and delegation of authority.

These variables are reported in Figure 7 both in aggregate (the sum total of the normalised seven scores) and for each variable.<sup>52</sup> Using these four attributes, the heatmap shows the technological readiness of the top 20 countries of the GTCI index and also for the MENA countries in our sample. The four levels of readiness (well positioned, mixed readiness, less well positioned, low readiness) are defined by using the quartiles of the scores of each attribute.

The heatmap shows some clear trends in terms of the technology readiness for talent. Qatar and the UAE are well positioned to face the future of work. These are the countries that are better adapting to the fourth industrial revolution and cities like Dubai are making a name as a tech startup hub. By contrast, countries like Algeria, Morocco or Tunisia do not have neither the technology competences nor the right educational or employment policies in place. The heatmap gives us an idea of areas where countries are lagging behind and thus where they can improve, though we have to be aware that this gives an overview and does not go into details that are also worth mentioning. For Saudi Arabia, for instance, we observe a 'mixed readiness' in terms of the educational sector, but this big picture does not clarify that the country does not report PISA scores and it is, therefore, missing an important variable to measure performance of the educational system – and there are other variable with missing data such as the extent of access to training in firms. The performance in areas like lifelong learning and employee development within firms is not high in terms of ranking (e.g. for the latter it ranks 50 out of 118 countries). In general, Saudi Arabia shows high productivity in the dominant public sector (related to oil activities) but productivity is low in the private sector. All this means that Saudi Arabia still has much room for improvement in areas that are not visible in the aggregate figures, including in offering training in the private sector and giving individuals more access to growth opportunities.

In general, the future of work will demand more entrepreneurial drive (not only to create enterprises but also to adapt to new jobs) and this becomes one of the main challenges in the countries of the region. Innovators are typically driven by a desire to change the status quo and a healthy appetite for taking calculated risks. High-performers both in corporations and in entrepreneurial endeavours thrive in a more open environment with delegation of authority and access to collaboration opportunities. An environment where these desires are encouraged and developed will produce more would-be innovators than an environment where they are suppressed or limited. MENA countries may wish to revisit existing cultural habits that oppose change and hinder risk-taking.

**Figure 7: Talent Readiness Heat Map: MENA countries and GTCI Top 20**



## **Towards a knowledge economy?**

If countries in the region become ready to use technology in their favor, they can start thinking about a new developmental model driven by the private sector and that fits the changing geography of production taking place globally in the context of global value chains and networks of collaboration.

The antecedents of the development trajectories of the region are well known. From the 1940s to the 1970s, most economies of the Middle East region were guided by a development model with a strong interventionist-redistributive orientation, relying on centralized, hierarchical State planning apparatus, and driven by policies such as nationalizations of private assets or import-substitution industrialization measures. This model prevailed for a series of reasons, including a complex process of nation building in the newly independent states and, more importantly, the pivotal role of oil revenues. Indeed, until the 1970s, economic growth was high but there were already signs of concern: antagonistic relations between states and the private sector grew and the high growth of capital accumulation was not being translated into productivity. The oil crisis of the 1980s prompted initial efforts for structural adjustments (e.g. privatization, trade liberalization, etc.) but, despite continued growth in human capital across the whole region, productivity growth remained non-existent during the 1990s.<sup>53</sup>

While it is clear that only the development of the private sector can absorb the pool of young talent, it is not exactly clear what the developmental trajectory should be for the region. Indeed, a transition to high-skill ecosystems seems indispensable; but what would be the industries that should lead the way? Emerging countries need to think beyond their labor advantages in doing routine tasks. Many specialists concur that ‘labor advantage is giving way to digital advantage’. Each country in the MENA region will have to question their role in the global economy, including thoughts about whether transitioning towards a knowledge economy is the right route. For the moment, the region simply does not have the legacy industrial infrastructure and building one would be uncompetitive in any case.

While many emerging countries have based their developmental strategies on the growth of manufacturing and labor-intensive industries, the question is whether the region should leapfrog the stage of industrialization and transition directly from a resource-rich economy towards a knowledge economy – one with a greater reliance on intellectual capabilities than on physical inputs or natural resources.<sup>54</sup> Technology can become the key for MENA countries to diversify their economies, particularly via new business models in the services sector (see *Box – AI and the economy*).

This question is particularly relevant now in the context of how Industry 4.0 is transforming the geography of production and employment. Within global value chains, jobs may move overnight from one country or region to another. As developed Western countries become more self-sufficient with robots and automation, many emerging countries are losing their main source of competitive advantage—namely cheap labor for manufacturing operations and call centers. Moreover, Western countries are also capturing the benefits of the transition of global trade from traditional physical goods to trade in services, ideas and intellectual property—by being better equipped with regulatory frameworks that promote and protect intangible assets.<sup>55</sup>

Emerging countries have a window of opportunity for the knowledge economy. With the internet and connectivity, moving knowledge and ideas across borders has never been

easier. The cross-fertilization of ideas between MENA and other regions used to take decades; they can now happen in minutes.<sup>56</sup> This opens up opportunities because even countries like the United States face shortages of knowledge talent, notably in science, technology, engineering, and maths (STEM), where many emerging countries have strengths in some of these areas.<sup>57</sup> The need to access qualified personnel can lead to offshoring skill-intensive processes to emerging markets.<sup>58</sup>

### **Box. AI and the economy**

Artificial Intelligence (AI), although still in its early days in business, is becoming the main driver of a new industrial revolution and can create new forms of economic activity.

Applications of machine intelligence in sectors as diverse as manufacturing, transportation or retail, can help improve operating efficiency and boost revenues. Tasks like prediction will be used to solve old problems (e.g. inventory management) and also to tackle new problems. Also, AI's potential for improving the user experience is readily visible in several sectors, including in the healthcare sector (where users are both patients and practitioners). The key word is personalization. The educational sector will also change paradigm as learning becomes more personalized and adaptable.

While AI will surely improve production, services and the customer experience, the question that remains is how it will impact employment. Although AI will certainly replace humans in certain jobs (and it will even automate some work of knowledge professions such as journalists and lawyers), many other jobs will emerge from new technology-fueled business models.

Given the lack of industrial legacy in the MENA region, the greatest potential for the use of technology is in the service sector. One such sector that is evolving rapidly is the financial industry. From personal finance and wealth management to customer service, AI has a large transformational potential. In equity trading, firms now deploy powerful machine learning algorithms that make frequent and sizeable portfolio decisions. AI-driven algorithms also aim at achieving better decisions in investment management. In retail investing, “robo-advisers” have been giving automated advice (e.g. portfolio decisions) to clients using pre-programmed algorithms. Now, delivery will be done using AI techniques: when fully integrated, the machine-generated recommendations will be based on a wider-scale and more in-depth analysis of each individual's past investment behavior and preferences and also of market and environmental data (including social media sentiment) – and recommendations will evolve and adapt themselves as situations and data change.

Employment would increase by the creation of new firms, usually high-tech, offering new services. Fintech, in particular, has already started to thrive in MENA (more than a hundred firms across the region offering services in payments, crowdfunding or wealth management), although some scale is still needed to make business more competitive globally. The jobs to be created perhaps will not go to people with a background in finance but to people with ICT skills. The insurance industry can also be transformed with the participation of high-tech startups (InsurTech) to exploit the power of big data. The emergence of these business opportunities have the potential to trigger a new developmental model based on the growth of the private sector, particularly in services.

It seems that the question of the knowledge economy has started to be taken seriously in the policy agenda of various countries in MENA. A review of the national economic development plans across the region shows that seventeen of the twenty-two countries in the Arab World have identified the development of a knowledge-based economy as a medium to long-term economic policy objective.<sup>59</sup> Among the justifications for this choice, job creation, economic diversification, and social development are typically mentioned. To name just one example, Saudi Arabia currently has an economic transformation program as part of the Vision 2030 strategy to reduce oil dependency.

Clearly, the knowledge economy needs to be high on MENA's development agenda, but the region is still a long way behind for being able to compete with the leading economies in this field. Some pressing challenges need immediate attention. Although digital technologies sometimes lead to the 'death of distance' for trade across nations,<sup>60</sup> geography still matters greatly for many economic interactions; these interactions – be they trade, investment, or knowledge transfers – are overwhelmingly local, falling off sharply with distance.<sup>61</sup> The greatest opportunity for the region still seems to be to increase trade among each other – particularly by taking advantage of digital technologies. Online services have a huge potential in the region, but development in this area is still hindered by the lack of entrepreneurial drive and, above all, the fragmentation of markets.<sup>62</sup> This is regrettable since digital adoption has made the ICT industry one of the most promising fields for job creation in the near-term.<sup>63</sup> Moreover, the ICT industry is one of the top sectors employing women in MENA. In 2013, the share of entrepreneurs that were women was above 35 percent in many cities of the region according to the Economist article "The Middle East beats the West in female tech founders".

## **4. POLICY ISSUES**

The relevant policy areas to improve the competitiveness of nations are well established: to improve the business environment, to improve access to finance, to achieve better education, employment and skills, and to promote trade, competition and innovation.<sup>64</sup>

In the area of employment more specifically, policies seek several interrelated objectives, including boosting aggregate demand (and thus create more jobs); training people better to have the adequate skills for those jobs (the supply side) and; reaching wider segments of society in an inclusive approach.<sup>65</sup> The challenges of employment in the MENA region cannot be resolved by supply-side policies alone given the deep-rooted structural obstacles that need to be addressed. Creating skills matters, but facilitating the development of the private sector that will absorb those skills is equally important.

Hence, a key objective of MENA countries must be to look beyond the process of skills formation, particularly beyond formal education, and to build a mature skills ecosystem with a strong private sector. To do that, improving governance systems is a key step and technology can help.

## Building strong skills ecosystems

Developing talent in the region goes far beyond the educational sector and it is clear that a new developmental model is needed in MENA. The state-centered development paradigm has rested on the uninterrupted flow of external windfalls and many of the region's pathologies—whether it is a weak private sector, segmented labor markets, or limited regional trade—are ultimately rooted in an economic structure that relies overwhelmingly on rents derived from fuel exports, foreign aid (e.g. Egypt), or remittances (e.g. Jordan or Lebanon).<sup>66</sup> The developmental trajectory of MENA countries must now rely on their abundant and young human capital and their capacity to innovate – and move away from rents like oil. Some countries have started delineating plans for the development of high-skill industries and even for transitioning into a knowledge economy. Yet, how to achieve such a massive change in paradigm is not clear yet. Nobel Prize winner Douglass North once suggested that “*we know a lot about what makes countries rich and poor, but we do not understand the process of change*” (North 2001; p. 3). Roadmaps for building the self-sustaining skills ecosystems that the region needs have to occupy center stage in policy discussions.

A high-skill ecosystem resembles a ‘biological’ ecosystem. To ensure its development and sustainability, four factors are needed:

- Catalyst,
- Nourishment,
- Supportive host environment,
- High degree of interdependence.

Such process has been observed in various environments such as Silicon Valley, Cambridge, UK, the Boston Corridor or Singapore.<sup>67</sup>

### *Catalyst*

There are many factors that can serve as catalyst of a new developmental era for the region, but the one that offers the greatest opportunity is precisely the richness of a youthful population that is ever more educated and more connected technologically. It is how the countries of the region manage the other three forces of the ecosystem that will determine whether this will become a real ‘youth dividend’.

### *Nourishment*

The nourishment of the ecosystem is mainly driven by the formation of skills. Policies in the area of formal education have, of course, a central role in developing the skills needed in the economy. In this domain we still observe the ‘old’ challenges of the region: the gender gap, inequality of opportunity for students from different backgrounds, among others.<sup>68</sup> Some ‘new’ trends are becoming clear in an economic context that changes rapidly with technology. Educational systems will have to be completely re-thought, not only in the MENA region but on a global scale, since the hierarchic model of education, with the teacher up front and pupils behind learning by rote, socializes children poorly for the organizational world into which they will move - where collaborative skills, creativity and a



problem-solving mindset matter.<sup>69</sup> Education systems that narrowly focus on test-based academic performance and numbers of students enrolled (e.g. in science and technology subjects) are not necessarily those that will succeed in an innovative society.<sup>70</sup> Equally important is the skill of adaptability and learning ‘how to learn’ to be equipped for a fast-paced world in which jobs will change quickly. Adaptability has to be developed early in life since it will be the basis for continuing training in the future. Educational systems need to produce talent with technical skills AND the ability to collaborate with others from different disciplines. They need to foster a sense of personal vocation AND flexibility or learning agility.<sup>71</sup> Adaptability is also important (and more important than any specific domain knowledge) because for the specific case of MENA it is difficult to think about the right skill mix or domain knowledge needed into the future. The reason is that the developmental trajectories of the countries of the region are still unfolding and may take very diverse routes.<sup>72</sup>

How to reform educational systems is a complex topic and details about reforms in each country would deserve a complete new report.<sup>73</sup> Our objective here is to locate the process of skill formation (fueled by educational and training systems) within the wider ecosystems in which such skills operate. Countries must have certain essential institutional prerequisites to enable them to move to high-skill ecosystems. It requires the institutional and market conditions able to create a supportive environment that favors action on the part of different actors in the system. Individuals, for example, must be willing to invest more in education and training, firms must be constantly motivated to increase employee skills, and governments must have motivation to ensure that there are no skills shortages.<sup>74</sup>

### *Supportive environment*

A supportive environment matters as much as the nourishment for enabling the creation of employment. As expressed by the International Labor Organization “*the particularities of the Middle East and North African labour markets have been frequently analysed, yet policy prescriptions rarely go beyond skills development and apprenticeship programmes.*”<sup>75</sup> It is in the development of the private sector where the region has a large room for improving their ecosystems. Nevertheless, the supportive environment also involves the right regulatory landscape and right policies so that the private sector can flourish. For instance, more flexible labor laws may help different sectors thrive. While fast-growing tech-enabled industries must be responsive to changing market demands, existing labor laws – including convoluted visa procedures and national quotas – make the rapid scaling of operations and the swift movement of labor across markets nearly impossible. Some regulations hurt the attraction of talent. Whereas tech companies often confer equity options to their senior employees as part of a salary package to help retain key staff members, in countries like Jordan and Egypt corporate laws do not allow publicly listed companies to offer share options to employees. This has a negative effect on loyalty, productivity and long-term commitment. Finally, some basic regulatory improvements, such as introducing insolvency and bankruptcy laws, can enormously help the development of entrepreneurs.<sup>76</sup>

In general, the existence of good governance practices is a key element in such ecosystems, for supporting the evolution of educational systems (the supply side) and also for improving the business sector (the demand side). Public institutions with outdated practices hinder the development of talent.<sup>77</sup> Take the example of online training, which affects both the supply and the demand sides. People increasingly engage in ‘self-education’ given that the formal

education sector in some countries of the Arab world have not adapted to the new economic realities.<sup>78</sup> Yet, governments often fail to provide a supportive environment. The emerging 'Arabic' MOOCs in the region are making their way without the support of governments, which show skepticism at best; "entrepreneurs have launched these initiative through 'learning-by-doing' since there is no direct support from governments", said Fouad Alfarhan founder of Rwaq in Saudi Arabia. Yet, government support is essential in order to make sure that certificates are harmonized and recognized across different countries. The entrepreneur emphasized the need for the government 'to believe in startups', instead of regarding them as 'intruders'.

### *Inter-dependencies*

The supportive environment and inter-dependencies are clear when discussing the barriers for high-growth entrepreneurship in the region. Access to talent is indeed a challenge.<sup>79</sup> But as Fadi Ghandour recently told us, *in addition to access to talent, you need to think about: access to markets; access to Capital (equity) at all levels, from angel, to seed to growth equity funding; ease, speed, and cost of registering a business and ease of exiting in case of failure (bankruptcy laws); depth and regulation of public equities markets; ease of movement of people and companies across countries (and foreign ownership restrictions). If you cover those topics you are in good shape in understanding entrepreneurship in MENA.*

The identification of inter-dependencies is important in order to avoid fragmentation in policy efforts. So far, the multitude of country-level initiatives involving many actors and institutions from the public and private sectors has, in some cases, led to excessive fragmentation and limited impact of interventions in the area of youth employment, with little coordination among implementing partners.<sup>80</sup> A good practice revolves around having a coordinating government institution with appropriate technical capacity and authority to muster political support. Then the private sector and employers are important partners for policy and program development given their hands-on knowledge about the constraints to and opportunities for job creation. One example is cooperation for designing relevant training programs and thus reducing skills gaps. Workforce development boards can place around a single table businesses, labor unions, governments and training service providers (e.g. schools and private sector firms) to link jobs to skills, tailor training curricula to meet actual job requirements and generate apprenticeship possibilities for first-time jobs. It is important to encourage the development of regional and industry specific networks that bring together public and private training providers (colleges, universities, other training providers), employers, industry representatives, unions, labor market and training intermediaries.

Future policy work in the region must delineate the key actors and processes to drive change:

- Specify the complementarities between the overall national economic strategy and the strategy for skills development in specific.
- Delineate the respective roles and responsibilities of various stakeholders such as governments, private sector, NGOS, donors and others, as part of the skills ecosystem.
- Identify mechanisms of collaboration and channels of communications between stakeholders (including within the public sector such as inter-ministry cooperation).



## Improving the governance landscape

In the context of segmented labor markets, it is clear that encouraging the development of the private sector is an important step to youth inclusion via better employment prospects. But given the history of the developmental trajectories of the countries of the region, it is the public sector that has to facilitate things in a supportive environment. The modernization of the economy often precedes that of society; in the case of the region, the improvement of social institutions seems a precondition. Improving governance arrangements (institutions, rules, etc.) is one of the key enablers not only for facilitating firm creation but also for ensuring inclusive economic growth.<sup>81</sup>

Although public governance should be aligned towards inclusive growth outcomes across the policy-making cycle, governance arrangements in MENA are characterized by exclusion in their current state. The situation to date shows little progress in confronting the challenge of youth unemployment in a structural manner. Possible explanations of the limited progress involve a lack of common understanding of the problem and the perception that risks associated with comprehensive solutions are too high. Policies often tackle the issue in a selective manner, without fundamentally challenging the status quo.<sup>82</sup>

Some governmental actions seem indispensable to tackle youth employment in an effective way:<sup>83</sup>

- (i) mainstreaming of youth employment in broader national development plans and strategies, yet with explicit objectives and targets;
- (ii) clear indication of roles and responsibilities of different implementation partners in employment policies and action plans on youth employment;
- (iii) establishment of links between youth employment policy and other policies that affect youth employment outcomes;
- (iv) reflection of government commitments to youth employment in national budgets; and
- (v) setting up of monitoring and evaluation mechanisms, not just for the programs but also for the budget allocations toward youth employment.

Yet, the aforementioned policy paralysis is occurring at the same time as the youth are still underrepresented in the policy cycle. Previous efforts have been characterized by significant challenges to move from formulation to effective implementation due to unclear responsibilities, limited capacities for co-ordination and the absence of effective accountability mechanisms. For this reason, policy interventions tend to be “symbolic” as has been expressed by the OECD.<sup>84</sup> As policy actions in favor of youth suffer from weak co-ordination and impact-orientation,<sup>85</sup> MENA youth express significantly less trust in government than the age groups above 50.<sup>86</sup>

Technology is a game changer here. Not only is technology a means for improving jobs procurement, as the increasing role of online platforms in creating employment testifies, it also can help overcome both the lack of citizen engagement in public affairs and the policy paralysis. As we discussed with specialists from the MENA- OECD Governance Initiative, the key message was that a ‘young lens’ can be added to public governance by integrating the youth to governance processes via open government tools –mainly facilitated by digital technologies. The young are already eager for participation in the public debate. They have

been strong advocates for constitutional change in some countries, achieving that the most recently drafted constitutions in Egypt (2014), Tunisia (2014) and Morocco (2011) are progressive in terms of assigning rights and freedoms to youth.<sup>87</sup> Participation of youth has become institutionalized in some countries (e.g. Morocco) and technology can become the mechanism to make participation more effective.<sup>88</sup>

### *Citizen engagement in the information society*

The new digital environment offers opportunities for more collaborative and participatory relationships to shape political priorities and design and deliver public services through a partnership approach (e.g. citizen-driven approach). With digital natives, social media, online tools and open data may become a source for more regular youth-government interactions.

The use of social media is one of the main sources of information and the scope and scale of usage have changed dramatically from the early days. Socialization and entertainment are no longer the sole usages. Today, social media applications are seen as important tools of governing, development, diplomacy and business.<sup>89</sup> Political communication via social media can influence public opinions and behaviors. Informing the process of policy making with social media data may allow identify policy priorities. The majority of social media users in the Arab region (58 per cent according to some studies) would express their views or sentiments regarding their government's policies using social media.<sup>90</sup> This includes for example, expressing their satisfaction, happiness, anger and disapproval textually or visually. Social media might even be creating a 'third sector' as they are increasingly used by civic organizations to deliver some services that the government is not providing. Yet, the power of social media still needs to be treated with caution. Even when social media penetration reaches 90 per cent of the population in some countries, social media data may still provide a flawed picture of the 'representative voice' and of some societal breakdowns (people express different sentiments in different platforms). This might be partly driven by political or cultural restrictions – up to a quarter of social media users would self-censor their comments, expressions or opinions. Internet freedom thus constitutes a necessary condition for having access to accurate data and opinions from citizens (the security of data is also important for other sources of information such as from the Internet of Things). Also, the use of algorithms and bots should be used for aligning policy development with public needs (citizens of the region are in favor of improving educational or health care systems with this) and not for influencing public perceptions and beliefs.

Technology can also directly engage citizens. MENA countries have stepped up efforts to increase their digital presence through government websites, online portals and experiments to consult with citizens on line. Morocco ranks above the OECD average in the e-participation index while Tunisia follows closely behind.<sup>91</sup> Information sharing via digital means is maturing fast while e-consultations for allowing citizens to contribute to the deliberation on public policies and services still has a big potential – there are already palpable applications such as in Jordan and Morocco where citizens were invited to comment on the draft access to information law.

Perhaps one of the greatest benefits of technology is that it may enhance trust in institutions. Bringing the youth on board for policy design is a first step. The question that follows is which direction developmental efforts should be heading to, particularly in a global economic context that is constantly changing - and at a fast pace in recent years. Decisions

regarding public budgeting, public human resource management, regulatory policy, or local governance depend on a clear overall developmental direction. This remains the fundamental question that has to be further explored in future policy research.

## **Actionable recommendations**

The two fundamental policy issues are building a high-skill ecosystem (which involves questions about how to change the developmental trajectory of the countries of the region) and improving governance. To develop such high-skill ecosystems in the information age, MENA countries need specific actions that we list below – and that emerge from our discussion on technology and talent in the previous sections.

Regarding education and training:

- *Educate for employment.* In the current context ‘absolute skills’ might be developed, while ‘employable skills’ should be the goal. This involves, among other things, adding technical skills like coding to the curriculum and also the inclusion of soft skills (teamwork, communication; etc.), the latter ideally since early stages of education. So far, K-12 education reform has been too slow. Employable skills also involve teaching students the value of failure, and what can be gained from unsuccessful experimentation. So much of entrepreneurship and jobs related to computing is tied up with a trial and error process.
- *Establish private-public-people partnerships.* Having a “consortium” approach to training facilitates developing the skills demanded by the economy. The involvement of private firms is important for blended learning (a blend of online training, instructor-led training and on-the-job learning). Partnerships also matter for an easier access to training. In some countries, not everyone has access to internet connection with enough bandwidth to download and stream lectures in MOOCS. Players like Edraak are responding by partnering community-based tech centers and internet (telecom) providers so that participants access internet with the required bandwidth for free.
- *Integrate and adapt new technologies into the classroom.* This brings benefits in two ways: (i) by creating interest of students in technology and; (ii) by enhancing students’ learning via new teaching practices. Technology can also help improve blended learning by facilitating the communication between the classroom and on-the-job training.
- *Encourage self-directed education and adaptive learning.* In a world where lifelong learning becomes more and more important, technology can help personalize training depending on the needs and aspirations of each individual. Self-directed education is empowered by digital technologies and e-learning.

#### Regarding the regulatory and business landscape:

- *Make doing business easier.* Policymakers and regulators can encourage and support entrepreneurs and investors by removing the obstacles facing them, including restrictive legal frameworks. Bankruptcy laws remain almost absent in the region and the cost of legally establishing a startup is still expensive. Transparent national or regional stock exchange(s) are also needed. Government oversight to review the qualifications of investors or start-up entrepreneurs beyond their liquidity would also give more certainty for doing business.
- *Create an SME ecosystem.* In addition to an enhanced regulatory landscape and access to venture capital markets and other sources of finance for SMEs, innovative firms need access to networks of collaboration, communities of practice and a talent ecosystem with diverse knowledge. Such an ecosystem would create the right mindset for entrepreneurship, where people are allowed to fail without stigma.
- *Make labor markets more flexible.* In some countries, labor and wage rigidities contribute to unemployment, queuing, and informality. Making the creation of jobs more flexible requires the introduction of Active Labor Market Policies, which are largely absent in the region and can become the tool to both make skills 'employable' and facilitate the re-allocation of talent in changing markets. Reforming labor markets must also eliminate segmentation, partly by making employment in the public sector less attractive.

#### Regarding technology and digitalization

- *Build universal and affordable Internet access.* Widespread Internet usage is crucial to support SMEs growth through access to collaborative platforms as these have proven to be relevant for innovation in a variety of markets globally (from the US to Europe to East Asia). MENA needs to catch up. Governments must collaborate with the telecom sector to set long-term strategies (including for the revenue models of providers) and make an effective transition from "voice" to "rich data".
- *Collaborate for the uptake of technology and digitalization.* By collaborating closely, government agencies, industry and consumers can encourage the uptake of new technologies by creating clear objectives and accountability for their digitization targets. This includes digital strategies for governments (Digital First policies) in which citizens are encouraged to convert to digital. Citizen engagement in governance, as facilitated by digital means, is crucial in an information society.
- *Build a foundational platform.* Firms need policies that help access regional markets and establish a common market for technology (e.g. shared services via the Cloud). A foundational platform is required to accelerate the adoption of broader digitization initiatives and enact governance reforms. It involves pan-regional online payment systems, regional cross-border trade facilitation, public-private partnership frameworks, and stakeholder collaboration forums. Regulatory harmonization is also crucial for benefiting from the large Arab market. This includes harmonization of trade policies, customs regulations, payment systems, data protection laws (including cybersecurity standards) and consumer protection laws. This is important to allow SMEs to scale up at the regional level and survive.

## **COUNTRY BRIEFS**

Selection of 6 countries:

Egypt

Jordan

Lebanon

Morocco

Saudi Arabia

United Arab Emirates

## Egypt - Country Brief

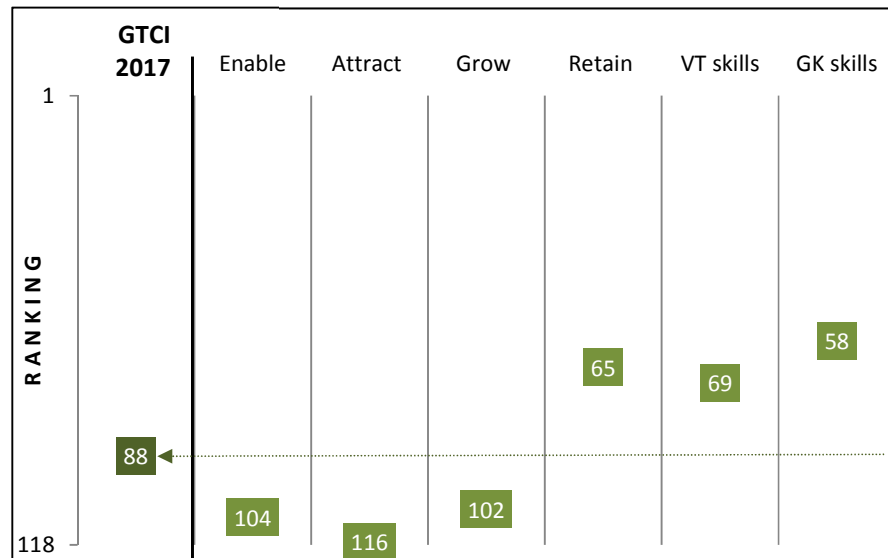


TOTAL POPULATION:	91.51 MILLIONS
GDP :	US \$330.78 BILLIONS
GDP PER CAPITA (PPP):	US \$ 10,891.26 (80 OUT OF 118 COUNTRIES)
COUNTRY INCOME LEVEL:	LOWER-MIDDLE INCOME
GTCI 2017 RANKING:	88 <sup>TH</sup> (OUT OF 118)

### Global GTCI Position

Egypt's ranking in the GTCI sample of 118 countries is the position 88 (Figure 1). Egypt is among the low performers in the pillars Enable, Attract and Grow. The country has a large pool of workers, some with adequate skills, but employment opportunities are still lacking.

Figure 1: Egypt global ranking (GTCI sample of 118 countries)



## Comparison with different groups of countries

Egypt belongs to North Africa and Western Asia (region) and is classified as a lower-middle income country. Its relative ranking position is significantly better in its income group (62 percent of countries in this group rank lower, as shown in Figure 2), than within its regional group (where only 12 percent of countries rank lower).

Outside of Northern Africa and Western Asia, Egypt compares favourably to Sub-Saharan Africa (79 percent of the countries from this region rank below) and also to Central and Southern Asia (where 63 percent of countries rank lower). Countries in other regions perform better.

Figure 2: Egypt GTCI performance vs. groups of countries

Comparison Group	Top 3 scores of the group	Score GAP: Egypt score minus group highest score	% of countries in the group ranked below Egypt
<b>(by Region)</b>			
Central and Southern Asia	Kazakhstan , Sri Lanka, Kyrgyzstan	-8.1	63%
East, Southeastern Asia and Oceania	Singapore, Australia, New Zealand	-36.8	15%
Europe	Switzerland, United Kingdom, Sweden	-37.2	0%
Latin, Central America and Caribbean	Chile, Barbados, Costa Rica	-16.8	30%
Northern America	United States, Canada	-32.0	0%
North Africa and Western Asia	United Arab Emirates, Qatar	-25.2	12%
Sub-Saharan Africa	Mauritius, Botswana, South Africa	-11.8	79%
<b>(by Income Group)</b>			
High-income countries	Switzerland, Singapore, United Kingdom	-37.2	0%
Upper-middle-income countries	Malaysia, Costa Rica, Montenegro	-18.9	11%
Lower-middle-income countries	Philippines, Armenia, Ukraine	-9.1	62%

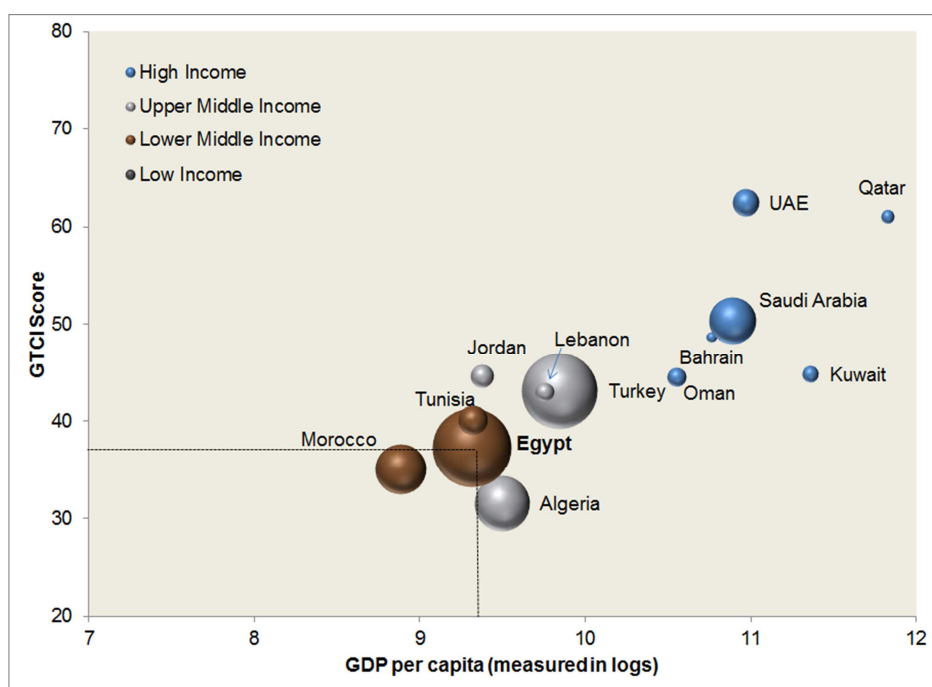
Note: The category 'low income countries' was not included. Few countries in the GTCI sample belong to it.

## The Group of competitors

Egypt's group of competitors is defined as Arab countries from North Africa and Western Asia in addition to Turkey. The group includes 13 countries. Figure 3 compares their GTCI score together with their GDP per capita and population size.

Based on their GDP per capita and population size, Egypt's closest competitors are perhaps Algeria and Morocco. Egypt ranks above both of them but it ranks below Tunisia and all the other countries in the Middle East.

Figure 3: Egypt GTCI score vs. the group of “competitors”

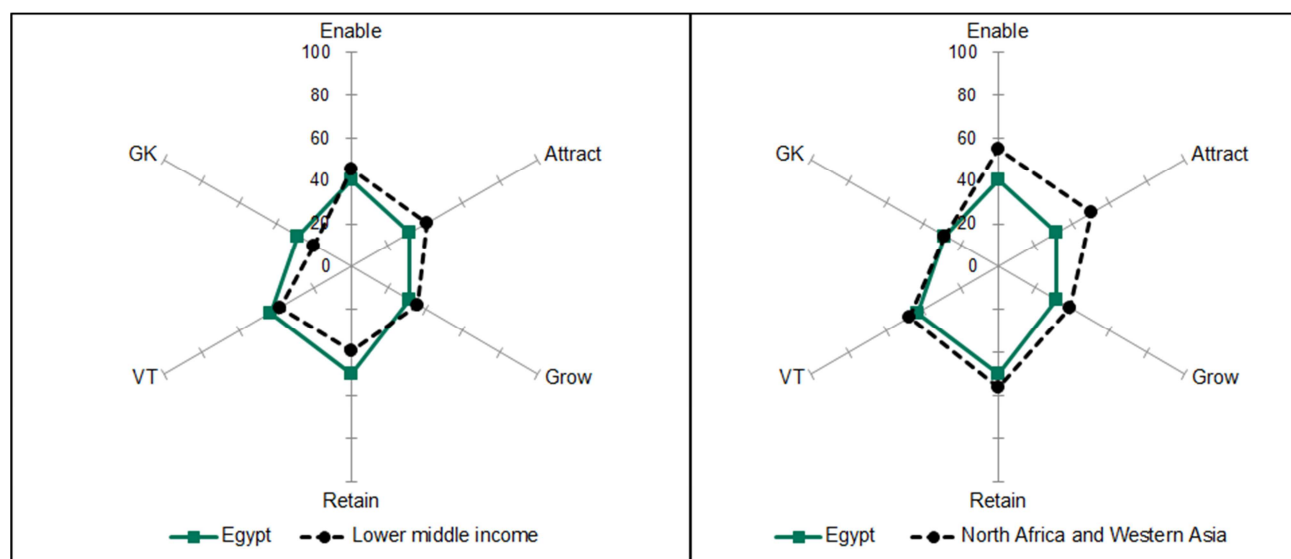


Note: the size of the bubble indicates the size of the country population

## Performance across Pillars

When compared to other countries in its region, Egypt performs below average in every single pillar – although the distance is not large for VT and GK skills. When compared to other lower-middle income countries, Egypt performs slightly above average in the pillar Retain and also in VT and GK skills (Figure 4).

Figure 4: Egypt pillar scores vs. relevant comparison groups





The largest ‘gap’ of Egypt with respect to the top countries and to its best competitors is in the pillar Attract (Figure 5). The country does not compare well either in any other pillar at the global level, although the score gap for the pillars Grow and Global Knowledge skills is somewhat smaller when compared to the regional leaders. Nevertheless, the difference in GDP per capita is such with both top countries and best competitors that Egypt should rather look at middle performers, such as Turkey for the pillars Enable and Grow, and Lebanon for pillars Attract and Vocational and Technical skills.

Figure 5: Egypt assessment by pillar vs. countries with best practices

	Top 3 with highest score (whole GTCI country sample)	Overall pillar Gap: Egypt pillar score minus highest pillar score	Best 3 of competitors	Competitors Gap: Egypt pillar score minus best competitor pillar score
Enable	Singapore, Switzerland, Denmark	-47.28	United Arab Emirates, Qatar, Bahrain	-37.22
Attract	Singapore, Luxembourg, Qatar	-53.95	Qatar, United Arab Emirates, Bahrain	-51.69
Grow	Netherlands, United States, Denmark	-45.28	United Arab Emirates, Qatar, Bahrain	-17.98
Retain	Switzerland, Norway, Luxembourg	-34.34	United Arab Emirates, Qatar, Saudi Arabia	-24.48
Vocational and Technical (VT) skills	Germany, Finland, Switzerland	-30.40	Qatar, United Arab Emirates, Saudi Arabia	-20.45
Global Knowledge (GK) skills	Singapore, United Kingdom, United States	-35.53	Lebanon, Turkey, Jordan	-5.31

# Jordan - Country Brief

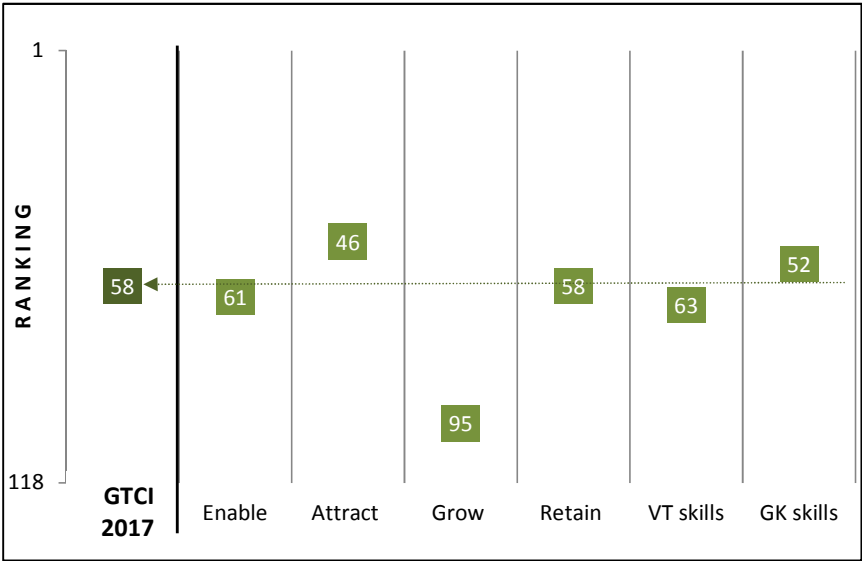


TOTAL POPULATION:	9.53 MILLIONS
GDP :	US \$37.52 BILLIONS
GDP PER CAPITA (PPP):	US \$ 10,880.32 (81 OUT OF 118 COUNTRIES)
COUNTRY INCOME LEVEL:	UPPER-MIDDLE INCOME
GTCI 2017 RANKING:	58 <sup>TH</sup> (OUT OF 118)

## Global GTCI Position

Jordan’s ranking in the GTCI sample of 118 countries is the position 58 (Figure 1). Jordan ranks relatively higher in the pillars Attract and Global Knowledge skills. The country ranks quite low in Grow. The country is just above the median of GTCI countries in Enable.

Figure 1: Jordan global ranking (GTCI sample of 118 countries)



## Comparison with different groups of countries

Jordan belongs to North Africa and Western Asia (region) and is classified as an upper-middle income country. Its relative ranking position is slightly better in its income group (68 percent of countries in this group rank lower, as shown in Figure 2), than within its regional group (where 59 percent rank lower).

Outside of North Africa and Western Asia, Jordan compares favourably to Sub-Saharan Africa (95 percent of the countries from this region rank below), to Central and Southern Asia and to Latin American – although 5 Latin American countries rank above.

Figure 2: Jordan GTCI performance vs. groups of countries

Comparison Group	Top 3 scores of the group	Score GAP: Jordan score minus group highest score	% of countries in the group ranked below Jordan
<b>(by Region)</b>			
Central and Southern Asia	Kazakhstan , Sri Lanka, Kyrgyzstan	-0.8	88%
East, Southeastern Asia and Oceania	Singapore, Australia, New Zealand	-29.5	38%
Europe	Switzerland, United Kingdom, Sweden	-29.9	13%
Latin, Central America and Caribbean	Chile, Barbados, Costa Rica	-9.5	75%
Northern America	United States, Canada	-24.7	0%
North Africa and Western Asia	United Arab Emirates, Qatar	-17.9	59%
Sub-Saharan Africa	Mauritius, Botswana, South Africa	-4.5	95%
<b>(by Income Group)</b>			
High-income countries	Switzerland, Singapore, United Kingdom	-29.9	2%
Upper-middle-income countries	Malaysia, Costa Rica, Montenegro	-11.6	68%
Lower-middle-income countries	Philippines, Armenia, Ukraine	-1.8	96%

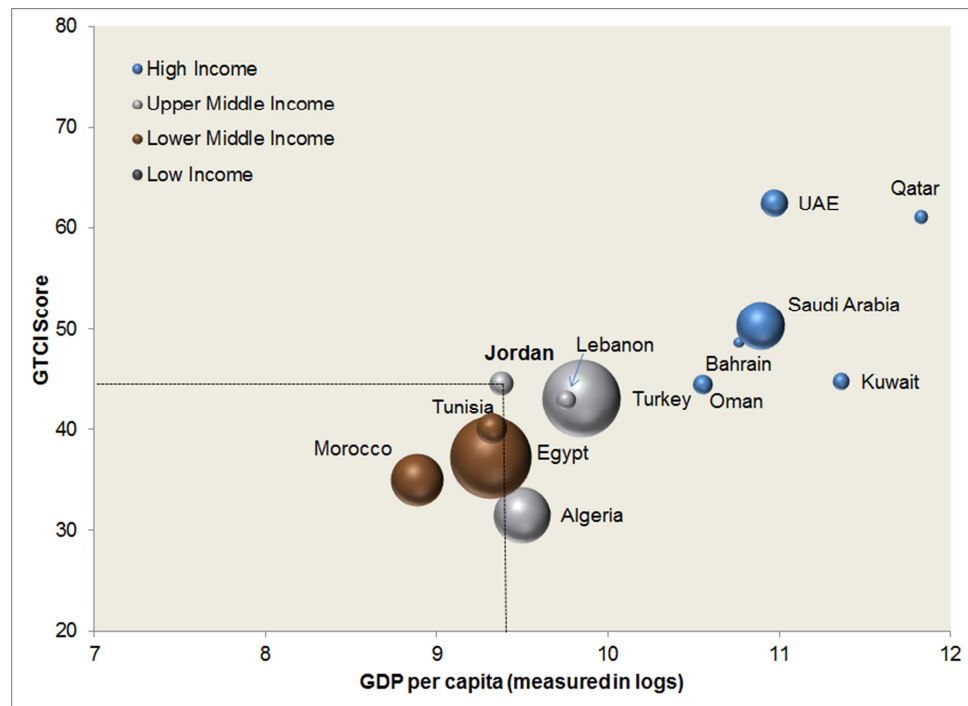
Note: The category 'low income countries' was not included. Few countries in the GTCI sample belong to it.

## The Group of competitors

Jordan's group of competitors is defined as Arab countries from North Africa and Western Asia in addition to Turkey. The group includes 13 countries. Figure 3 compares their GTCI score together with their GDP per capita and population size.

Based on their GDP per capita and population size, Jordan's closest competitor is Lebanon, which shows a slightly lower performance in GTCI.

Figure 3: Jordan GTCI score vs. the group of “competitors”

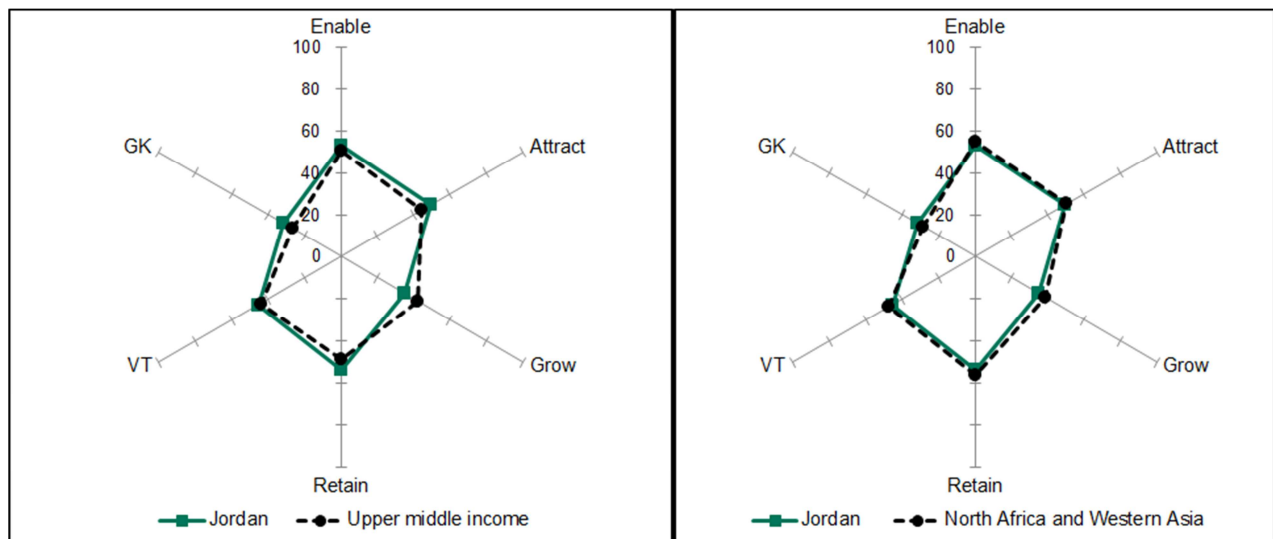


Note: the size of the bubble indicates the size of the country population

## Performance across Pillars

When compared to other countries in its region, Jordan performs very close to the average in each pillar. When compared to other upper-middle income countries, Jordan is above the average in the pillars Attract, Retain and GK skills. It is, by contrast, below the average in Grow (Figure 4).

Figure 4: Jordan pillar scores vs. relevant comparison groups



The largest 'gap' of Jordan with respect to the top countries is in the pillar Grow (Figure 5), although performance in this domain is not far worse than the other countries in its region. Even leading countries in the region like Qatar and UAE need to improve their formal education systems.

Figure 5: Jordan assessment by pillar vs. countries with best practices

	Top 3 with highest score (whole GTCI country sample)	Overall pillar Gap: Jordan pillar score <u>minus</u> highest pillar score	Best 3 of competitors	Competitors Gap: Jordan pillar score <u>minus</u> best competitor pillar score
Enable	Singapore, Switzerland, Denmark	-34.49	United Arab Emirates, Qatar, Bahrain	-24.43
Attract	Singapore, Luxembourg, Qatar	-35.78	Qatar, United Arab Emirates, Bahrain	-33.52
Grow	Netherlands, United States, Denmark	-41.65	United Arab Emirates, Qatar, Bahrain	-14.35
Retain	Switzerland, Norway, Luxembourg	-30.33	United Arab Emirates, Qatar, Saudi Arabia	-20.47
Vocational and Technical (VT) skills	Germany, Finland, Switzerland	-27.88	Qatar, United Arab Emirates, Saudi Arabia	-17.93
Global Knowledge (GK) skills	Singapore, United Kingdom, United States	-32.72	Lebanon, Turkey, Jordan	-2.50

## Lebanon - Country Brief

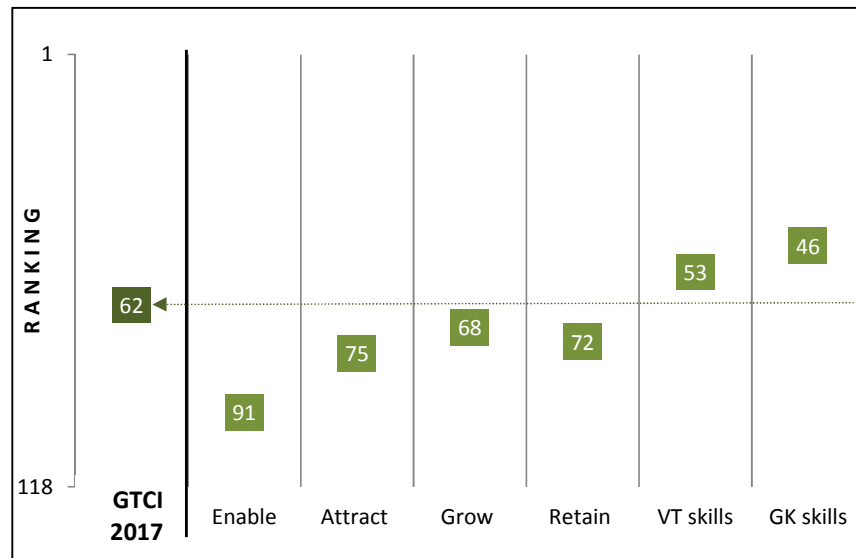


TOTAL POPULATION:	6.18 MILLIONS
GDP :	US \$47.10 BILLIONS
GDP PER CAPITA (PPP):	US \$ 13,937.95 (68 OUT OF 118 COUNTRIES)
COUNTRY INCOME LEVEL:	UPPER-MIDDLE INCOME
GTCI 2017 RANKING:	62 <sup>ND</sup> (OUT OF 118)

### Global GTCI Position

Lebanon's ranking in the GTCI sample of 118 countries is the position 62 (Figure 1). Lebanon ranks relatively higher in the pillar of Global Knowledge skills. The country ranks quite low in the pillar Enable.

Figure 1: Lebanon global ranking (GTCI sample of 118 countries)





## Comparison with different groups of countries

Lebanon belongs to North Africa and Western Asia (region) and is classified as an upper-middle income country. Its relative ranking position is slightly better in its income group (59 percent of countries in this group rank lower, as shown in Figure 2), than within its regional group – where 41 percent of countries rank lower.

Outside of North Africa and Western Asia, Lebanon compares favourably to Sub-Saharan Africa (95 percent of the countries from this region rank below), to Central and Southern Asia (88 percent of countries have a lower rank) and also compared to many countries in Latin America.

Figure 2: Lebanon GTCI performance vs. groups of countries

Comparison Group	Top 3 scores of the group	Score GAP: Lebanon score minus group highest score	% of countries in the group ranked below Lebanon
<b>(by Region)</b>			
Central and Southern Asia	Kazakhstan , Sri Lanka, Kyrgyzstan	-2.4	88%
East, Southeastern Asia and Oceania	Singapore, Australia, New Zealand	-31.1	38%
Europe	Switzerland, United Kingdom, Sweden	-31.5	11%
Latin, Central America and Caribbean	Chile, Barbados, Costa Rica	-11.1	75%
Northern America	United States, Canada	-26.3	0%
North Africa and Western Asia	United Arab Emirates, Qatar	-19.5	41%
Sub-Saharan Africa	Mauritius, Botswana, South Africa	-6.1	95%
<b>(by Income Group)</b>			
High-income countries	Switzerland, Singapore, United Kingdom	-31.5	0%
Upper-middle-income countries	Malaysia, Costa Rica, Montenegro	-13.2	59%
Lower-middle-income countries	Philippines, Armenia, Ukraine	-3.4	96%

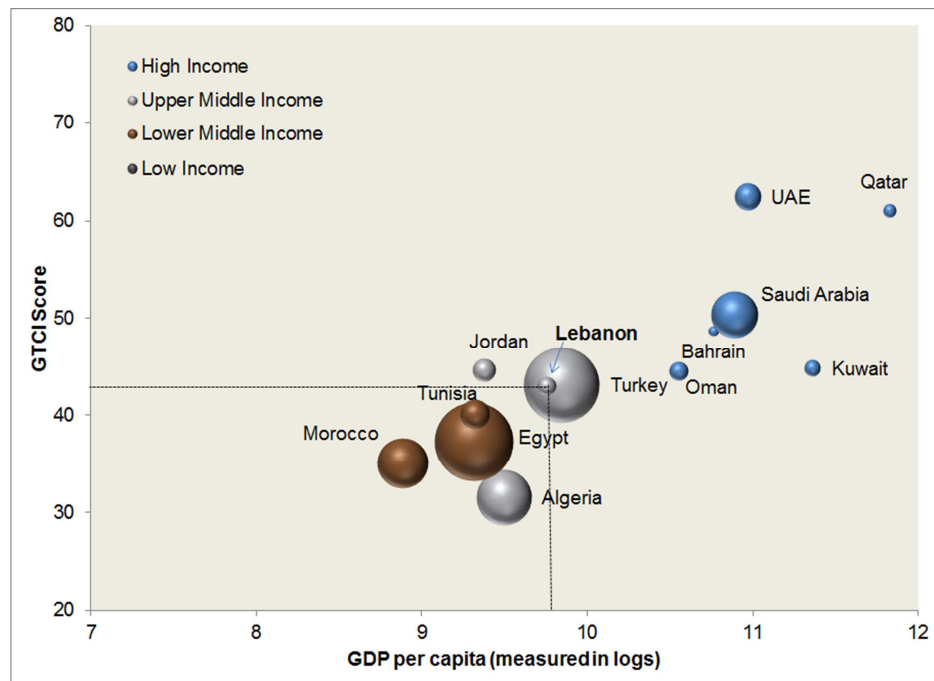
Note: The category 'low income countries' was not included. Few countries in the GTCI sample belong to it.

## The Group of competitors

Lebanon's group of competitors is defined as Arab countries from North Africa and Western Asia in addition to Turkey. The group includes 13 countries. Figure 3 compares their GTCI score together with their GDP per capita and population size.

Based on their GDP per capita and population size, Lebanon's closest competitor is Jordan, which performs slightly better in the GTCI. Lebanon, as Jordan, has a better talent competitiveness performance than countries in North Africa, but it lags behind GCC countries.

Figure 3: Lebanon GTCI score vs. the group of “competitors”

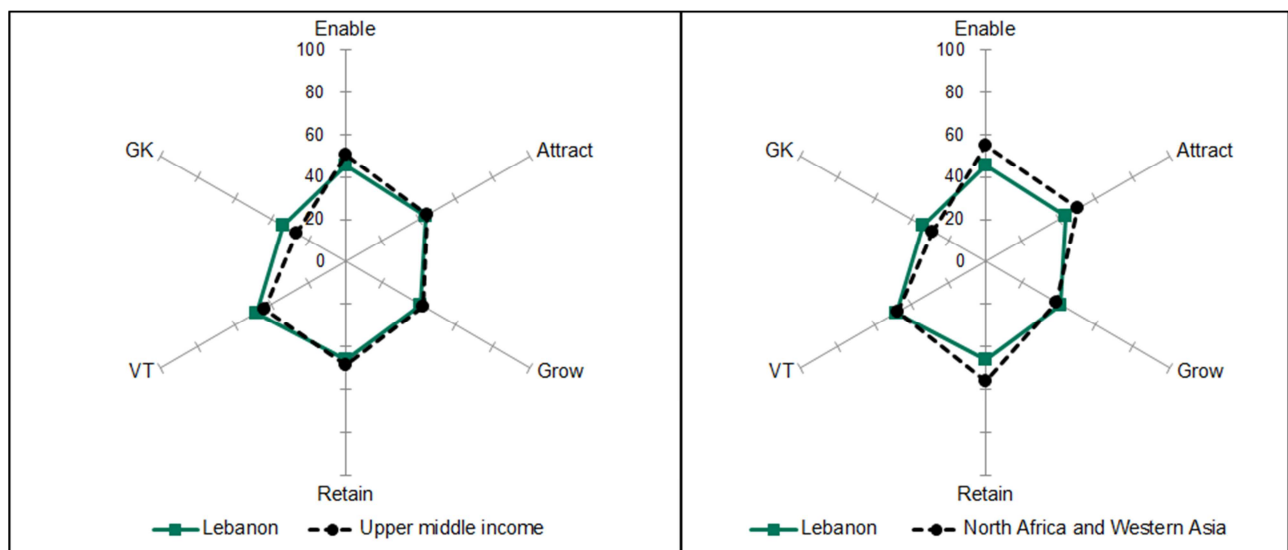


Note: the size of the bubble indicates the size of the country population

## Performance across Pillars

When compared to other countries in its region, Lebanon performs above average in terms of Global Knowledge skills and it is slightly above in the pillar Grow. When compared to other upper-middle income countries, Lebanon performs close to the average in every pillar, except in Global Knowledge skills where it performs above the average (Figure 4).

Figure 4: Lebanon pillar scores vs. relevant comparison groups



The largest ‘gap’ of Lebanon with respect to the top countries and to its best competitors is in the pillar Enable (Figure 5). The country does not compare well either in the pillar Attract. Qatar and UAE are the clear leaders in the region and other countries can look for best practices there.

Figure 5: Lebanon assessment by pillar vs. countries with best practices

	Top 3 with highest score (whole GTCI country sample)	Overall pillar Gap: Lebanon pillar score minus highest pillar score	Best 3 of competitors	Competitors Gap: Lebanon pillar score minus best competitor pillar score
Enable	Singapore, Switzerland, Denmark	-41.77	United Arab Emirates, Qatar, Bahrain	-31.71
Attract	Singapore, Luxembourg, Qatar	-41.66	Qatar, United Arab Emirates, Bahrain	-39.40
Grow	Netherlands, United States, Denmark	-35.62	United Arab Emirates, Qatar, Bahrain	-8.32
Retain	Switzerland, Norway, Luxembourg	-38.13	United Arab Emirates, Qatar, Saudi Arabia	-28.27
Vocational and Technical (VT) skills	Germany, Finland, Switzerland	-25.18	Qatar, United Arab Emirates, Saudi Arabia	-15.23
Global Knowledge (GK) skills	Singapore, United Kingdom, United States	-30.22	Lebanon, Turkey, Jordan	0.00

## Morocco - Country Brief

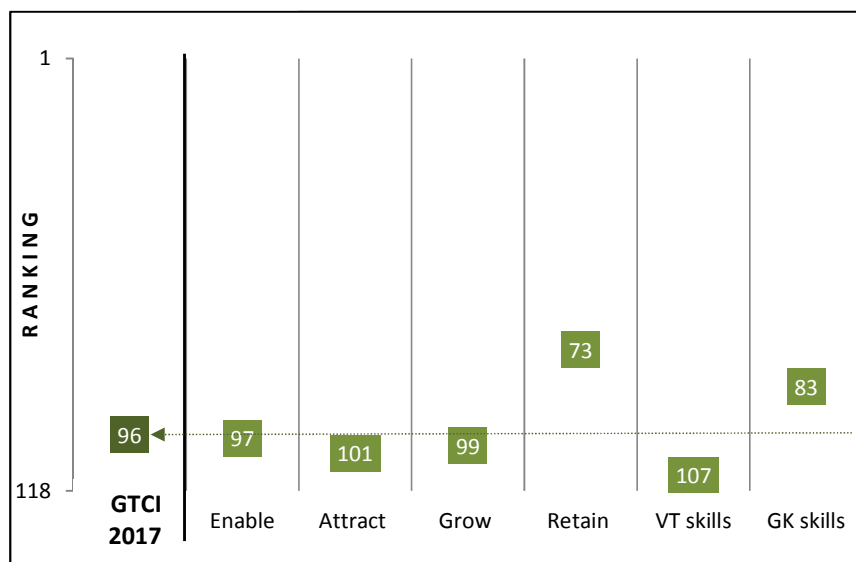


TOTAL POPULATION:	34.38 MILLIONS
GDP :	US \$100.36 BILLIONS
GDP PER CAPITA (PPP):	US \$ 7,821 .40 (91 OUT OF 118 COUNTRIES)
COUNTRY INCOME LEVEL:	LOWER-MIDDLE INCOME
GTCI 2017 RANKING:	96 <sup>TH</sup> (OUT OF 118)

### Global GTCI Position

Morocco's ranking in the GTCI sample of 118 countries is the position 96 (Figure 1). Morocco ranks relatively higher in the pillars Retain and Global Knowledge skills. The country ranks quite low in all other pillars, especially in Vocational and Technical skills.

Figure 1: Morocco global ranking (GTCI sample of 118 countries)



## Comparison with different groups of countries

Morocco belongs to North Africa and Western Asia (region) and is classified as a lower-middle income country. Its relative ranking position is significantly better in its income group (38 percent of countries in this group rank lower, as shown in Figure 2), than within its regional group in which it ranks second to last before Algeria.

Outside of Africa and Western Asia, Morocco only compares favourably to Sub-Saharan Africa (68 percent of the countries from this region rank below) and to half of the countries from Central and Southern Asia. It outperforms only three countries in Latin, Central America and the Caribbean (Nicaragua, Bolivia, Venezuela) and one in East, South-eastern Asia and Oceania (Cambodia).

Figure 2: Morocco GTCI performance vs. groups of countries

Comparison Group	Top 3 scores of the group	Score GAP: Morocco score <u>minus</u> group highest score	% of countries in the group ranked <u>below</u> Morocco
<b>(by Region)</b>			
Central and Southern Asia	Kazakhstan, Sri Lanka, Kyrgyzstan	-10,3	50%
East, South-eastern Asia and Oceania	Singapore, Australia, New Zealand	-39,0	8%
Europe	Switzerland, United Kingdom, Sweden	-39,5	0%
Latin, Central America and Caribbean	Chile, Barbados, Costa Rica	-19,0	15%
Northern America	United States, Canada	-34,3	0%
North Africa and Western Asia	United Arab Emirates, Qatar	-27,4	6%
Sub-Saharan Africa	Mauritius, Botswana, South Africa	-14,1	68%
<b>(by Income Group)</b>			
High-income countries	Switzerland, Singapore, United Kingdom	-39,5	0%
Upper-middle income countries	Malaysia, Costa Rica, Montenegro	-21,1	9%
Lower-middle income countries	Philippines, Armenia, Ukraine	-11,3	38%

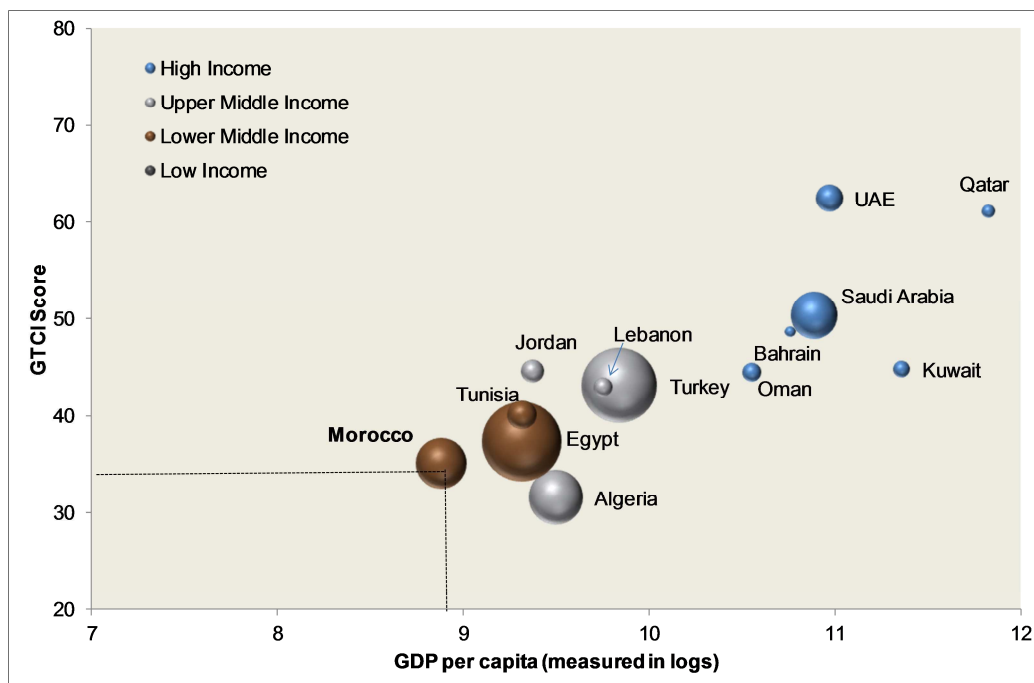
Note: The category 'low income countries' was not included. Few countries in the GTCI sample belong to it.

## The Group of competitors

Morocco's group of competitors is defined as Arab countries from North Africa and Western Asia in addition to Turkey. The group includes 13 countries. Figure 3 compares their GTCI score together with their GDP per capita and population size.

Based on their GDP per capita and population size, Morocco's closest competitors are perhaps Algeria and Egypt. Morocco ranks below Egypt, but above Algeria, despite a lower GDP per capita.

Figure 3: Morocco GTCI score vs. the group of “competitors”

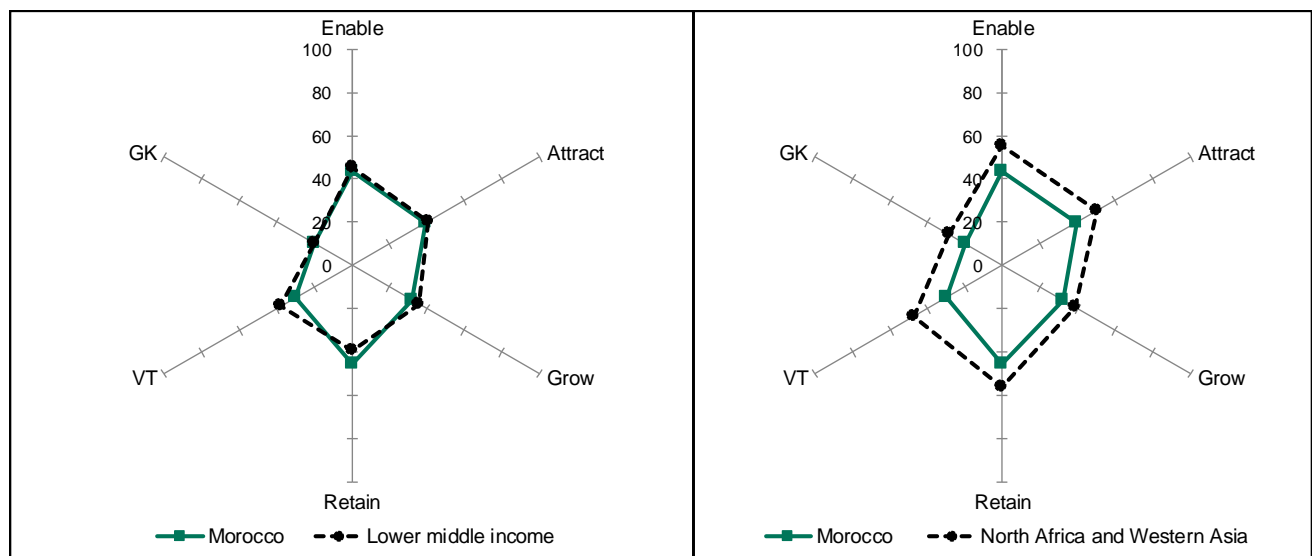


Note: the size of the bubble indicates the size of the country population

## Performance across Pillars

When compared to other countries in its region, Morocco performs below average in every single pillar, particularly Vocational and Technical skills. When compared to other lower-middle income countries, Morocco performs slightly above average in the pillar Retain, and slightly below in the pillars Grow and Vocational and Technical skills (Figure 4).

Figure 4: Morocco pillar scores vs. relevant comparison groups





The largest ‘gap’ of Morocco with respect to the top countries and to its best competitors is in the pillar Attract (Figure 5). The country does not compare well either in any other pillar except Grow and Global Knowledge for which its score gap is somewhat smaller. Nevertheless, the difference in GDP per capita is such with both top countries and best competitors that Morocco should rather look at middle performers, such as Turkey for the pillars Enable and Grow, and Lebanon for pillars Attract and Vocational and Technical skills.

Figure 5: Morocco assessment by pillar vs. countries with best practices

	Top 3 with highest score (whole GTCI country sample)	Overall pillar Gap: Morocco pillar score <u>minus</u> highest pillar score	Best 3 of competitors	Competitors Gap: Morocco pillar score <u>minus</u> best competitor pillar score
Enable	Singapore, Switzerland, Denmark	-44,11	United Arab Emirates, Qatar, Bahrain	-34,05
Attract	Singapore, Luxembourg, Qatar	-45,87	Qatar, United Arab Emirates, Bahrain	-43,60
Grow	Netherlands, United States, Denmark	-44,39	United Arab Emirates, Qatar, Bahrain	-17,09
Retain	Switzerland, Norway, Luxembourg	-38,20	United Arab Emirates, Qatar, Saudi Arabia	-28,34
Vocational and Technical (VT) skills	Germany, Finland, Switzerland	-43,16	Qatar, United Arab Emirates, Saudi Arabia	-33,21
Global Knowledge (GK) skills	Singapore, United Kingdom, United States	-44,46	Lebanon, Turkey, Jordan	-14,24

## Saudi Arabia - Country Brief

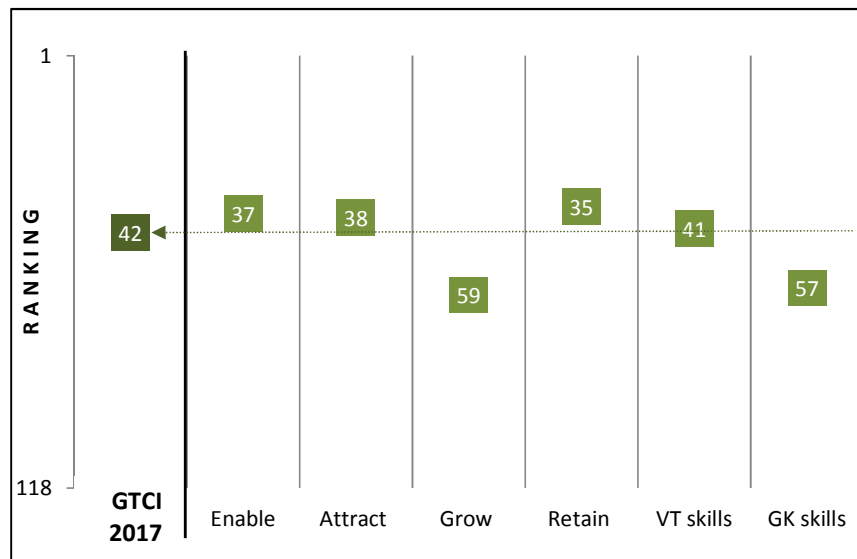


TOTAL POPULATION:	33.01 MILLIONS
GDP :	US \$646 BILLIONS
GDP PER CAPITA (PPP):	US \$ 53,430.05 (10 OUT OF 118 COUNTRIES)
COUNTRY INCOME LEVEL:	HIGH INCOME
GTCI 2017 RANKING:	42 <sup>ND</sup> (OUT OF 118)

### Global GTCI Position

The ranking of Saudi Arabia in the GTCI sample of 118 countries is the position 42 (Figure 1). The country performs relatively better in the pillars Enable, Attract and Retain. There is more room for improvement in the pillar Grow, particularly for strengthening the pool of Global Knowledge skills.

Figure 1: Saudi Arabia global ranking (GTCI sample of 118 countries)



## Comparison with different groups of countries

Saudi Arabia belongs to the North Africa and Western Asia region and is classified as a high income country. Its relative ranking position is significantly better within its regional group, where 76 percent of countries have a lower ranking, than within its income group (only 13 percent of high-income countries rank below the Kingdom).

The Kingdom of Saudi Arabia compares favourably against countries in Central and Southern Asia, Latin, Central America and the Caribbean, or Sub-Saharan Africa. There is, however, still a wide gap with respect to rich Western countries and also with respect to some of the Asian leading countries.

Figure 2: Saudi Arabia GTCI performance vs. groups of countries

Comparison Group	Top 3 scores of the group	Score GAP: KSA score minus group highest score	% of countries in the group ranked below KSA
<b>(by Region)</b>			
Central and Southern Asia	Kazakhstan , Sri Lanka, Kyrgyzstan	4.9	100%
East, Southeastern Asia and Oceania	Singapore, Australia, New Zealand	-23.7	54%
Europe	Switzerland, United Kingdom, Sweden	-24.2	32%
Latin, Central America and Caribbean	Chile, Barbados, Costa Rica	-3.8	85%
Northern America	United States, Canada	-19.0	0%
North Africa and Western Asia	United Arab Emirates, Qatar	-12.1	76%
Sub-Saharan Africa	Mauritius, Botswana, South Africa	1.2	100%
<b>(by Income Group)</b>			
High-income countries	Switzerland, Singapore, United Kingdom	-24.2	13%
Upper-middle-income countries	Malaysia, Costa Rica, Montenegro	-5.9	94%
Lower-middle-income countries	Philippines, Armenia, Ukraine	3.9	100%

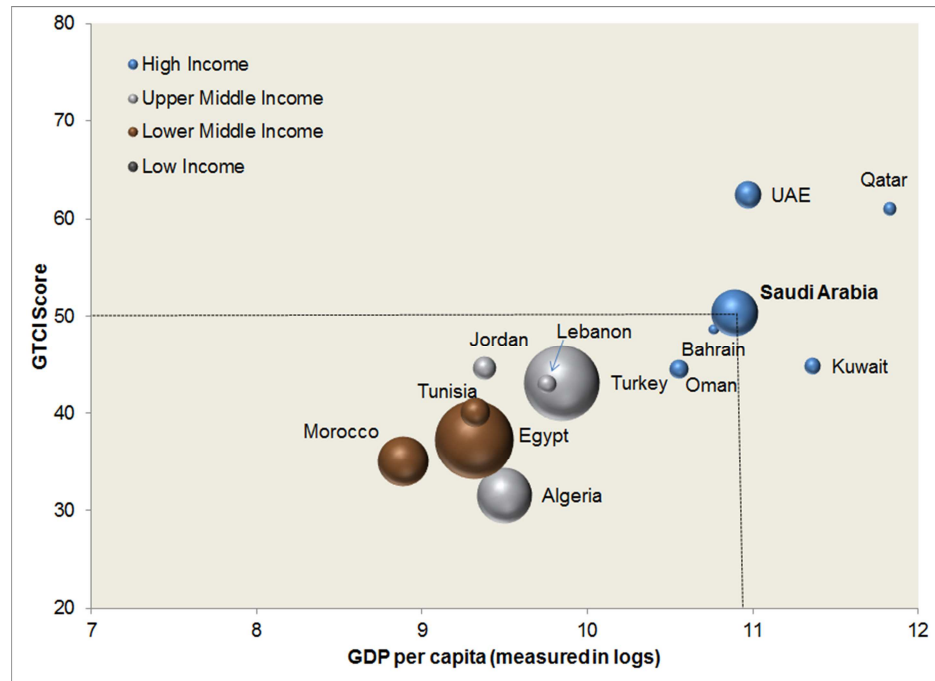
Note: The category 'low income countries' was not included. Few countries in the GTCI sample belong to it.

## The Group of competitors

Saudi Arabia's group of competitors is defined as Arab countries from North Africa and Western Asia, in addition to Turkey. The group includes 13 countries. Figure 3 compares their GTCI score together with their GDP per capita and population size.

Saudi Arabia is lagging behind the leading countries of the region such as Qatar and the UAE. However, it shows a better talent competitiveness performance than the other countries in GCC (Bahrain, Kuwait, Oman) and also above the rest of the Middle East and North Africa.

Figure 3: Saudi Arabia GTCI score vs. the group of “competitors”

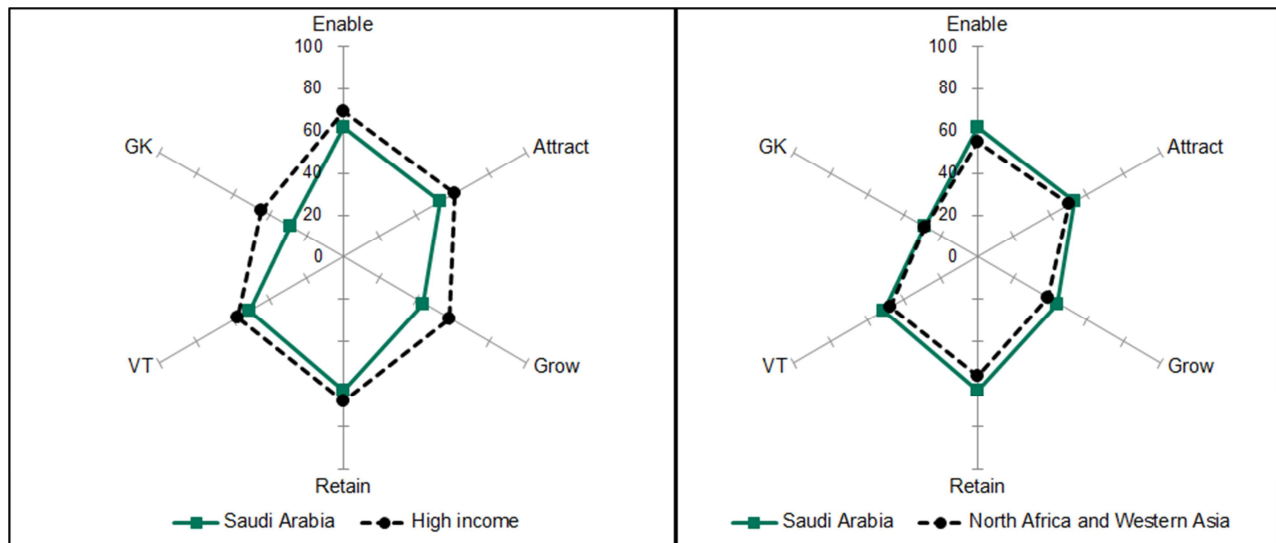


Note: the size of the bubble indicates the size of the country population

## Performance across Pillars

With the exception of Global Knowledge skills, Saudi Arabia is above the average of its region in the other pillars. When compared to countries within its income group (i.e. high-income countries), then Saudi Arabia is below the average in every pillar – very close the average in Enable and also in terms of Vocational and Technical skills.

Figure 4: Saudi Arabia pillar scores vs. relevant comparison groups



The largest ‘gap’ of Saudi Arabia with respect to the top countries is in the pillar of Global Knowledge skills – although performance is not much worse than its regional peers. It is in the pillar Attract where the country shows the greatest gap with respect to the regional leaders (Figure 5).

Figure 5: Saudi Arabia assessment by pillar vs. countries with best practices

	Top 3 with highest score (whole GTCI country sample)	Overall pillar Gap: KSA pillar score <u>minus</u> highest pillar score	Best 3 of competitors	Competitors Gap: KSA pillar score <u>minus</u> best competitor pillar score
Enable	Singapore, Switzerland, Denmark	-25.77	Qatar, Bahrain, Saudi Arabia	-13.34
Attract	Singapore, Luxembourg, Qatar	-32.48	Qatar, Bahrain, Kuwait	-30.22
Grow	Netherlands, United States, Denmark	-32.38	Qatar, Bahrain, Turkey	-3.71
Retain	Switzerland, Norway, Luxembourg	-20.71	Qatar, Saudi Arabia, Oman	-8.54
Vocational and Technical (VT) skills	Germany, Finland, Switzerland	-21.82	Qatar, Saudi Arabia, Lebanon	-11.87
Global Knowledge (GK) skills	Singapore, United Kingdom, United States	-35.41	Lebanon, Turkey, Jordan	-5.19

## United Arab Emirates - Country Brief

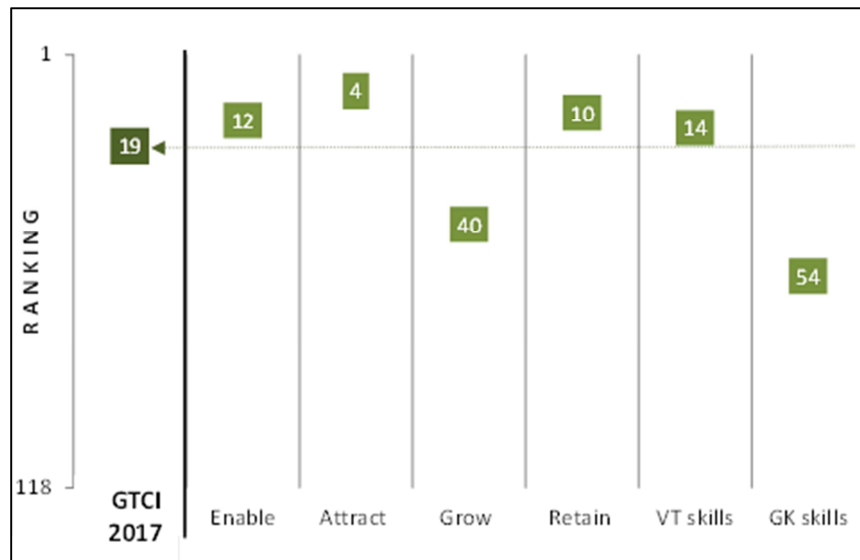


TOTAL POPULATION:	9.16 MILLIONS
GDP :	US \$370.29 BILLIONS
GDP PER CAPITA (PPP):	US \$ 70,237.95 (5 OUT OF 118 COUNTRIES)
COUNTRY INCOME LEVEL:	HIGH INCOME
GTCI 2017 RANKING:	19 <sup>TH</sup> (OUT OF 118)

### Global GTCI Position

The United Arab Emirates' ranking in the GTCI sample of 118 countries is the position 19 (Figure 1). The United Arab Emirates ranks in the top 5 countries in the pillar Attract, and in the top 15 in the pillars Enable, Retain and Vocational and Technical Skills. By contrast, the country ranks low in the pillars Grow and Global Knowledge skills (respectively in 40<sup>th</sup> and 54<sup>th</sup> position).

Figure 1: United Arab Emirates global ranking (GTCI sample of 118 countries)



## Comparison with different groups of countries

The United Arab Emirates belongs to North Africa and Western Asia (region) and is classified as a high income country. Its relative ranking position is significantly better within its regional group, where it ranks in 1<sup>st</sup> position (100 percent of countries in this group rank lower, as shown in Figure 2), than within the group of high income countries (89 percent of countries rank lower).

The United Arab Emirates compares favourably against most other regions, ranking above any country from Central and Southern Asia, Latin, Central America and the Caribbean, or Sub-Saharan Africa. It is also well positioned when compared to East, South-eastern Asia and Oceania and even to Europe (92 percent of the countries from both regions rank lower). It ranks below the United States, but above Canada.

Figure 2: United Arab Emirates GTCI performance vs. groups of countries

Comparison Group	Top 3 scores of the group	Score GAP: Australia score minus group highest score	% of countries in the group ranked <u>below</u> Australia
<b>(by Region)</b>			
Central and Southern Asia	Kazakhstan , Sri Lanka, Kyrgyzstan	23,6	100%
East, South-eastern Asia and Oceania	Singapore, Australia, New Zealand	-5,0	92%
Europe	Switzerland, United Kingdom, Sweden	-5,5	92%
Latin, Central America and Caribbean	Chile, Barbados, Costa Rica	15,0	100%
Northern America	United States, Canada	-0,3	50%
North Africa and Western Asia	United Arab Emirates, Qatal	6,6	100%
Sub-Saharan Africa	Mauritius, Botswana, South Africa	19,9	100%
<b>(by Income Group)</b>			
High-income countries	Switzerland, Singapore, United Kingdom	-5,5	89%
Upper-middle income countries	Malaysia, Costa Rica, Montenegro	12,8	100%
Lower-middle income countries	Philippines, Armenia, Ukraine	22,6	100%

Note: The category 'low income countries' was not included. Few countries in the GTCI sample belong to it.

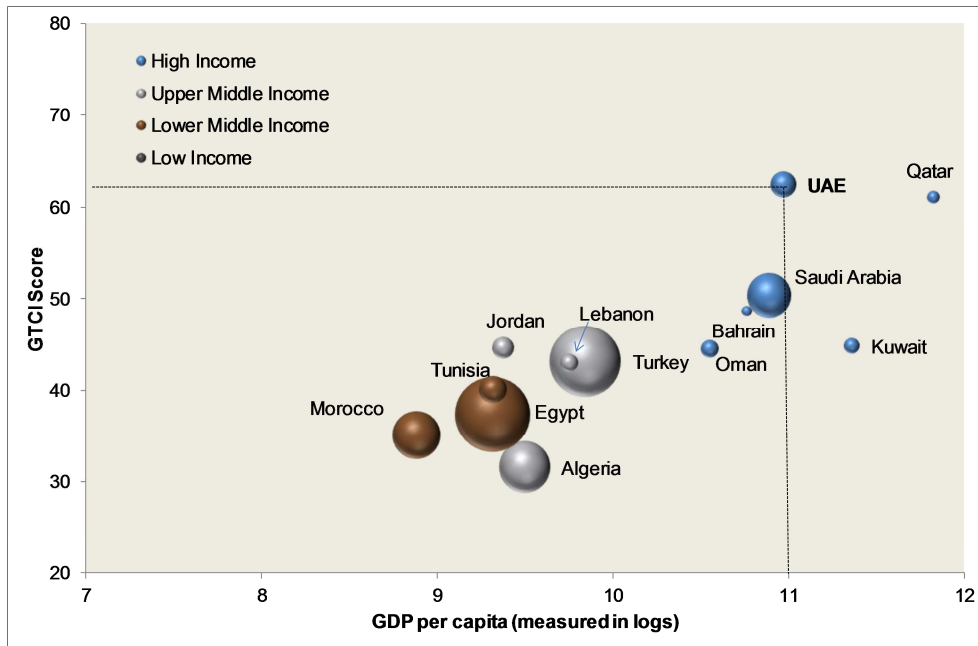
## The Group of competitors

The United Arab Emirates' group of competitors is defined as Arab countries from North Africa and Western Asia, in addition to Turkey. The group includes 13 countries. Figure 3 compares their GTCI score together with their GDP per capita and population size.

Based on their GDP per capita and population size, Qatar is perhaps the closest competitor of the United Arab Emirates. The United Arab Emirates outranks Qatar and any other member of its group of competitors.



Figure 3: United Arab Emirates GTCI score vs. the group of “competitors”

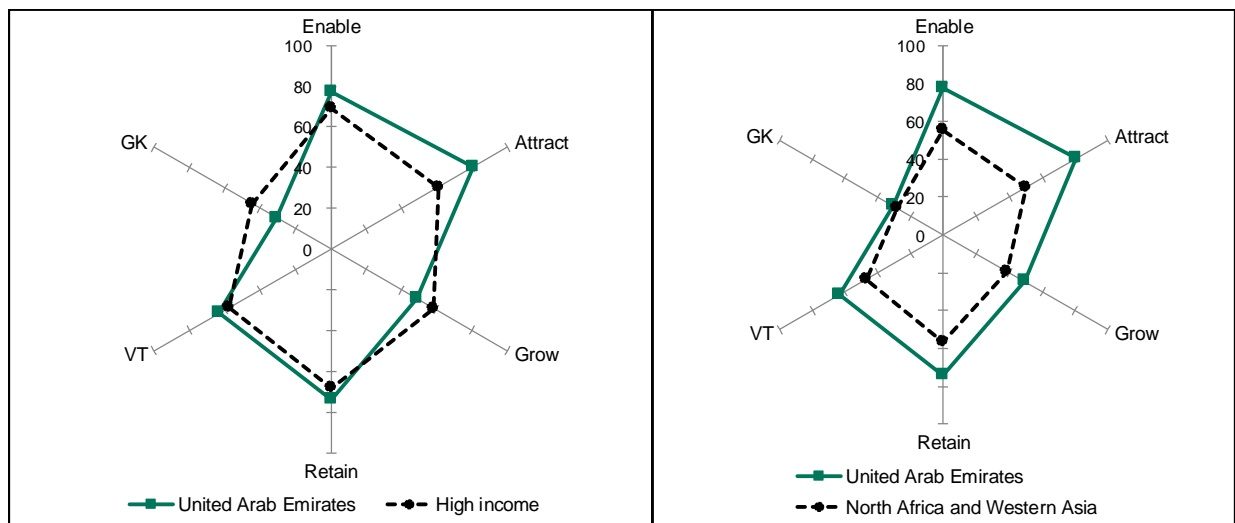


Note: the size of the bubble indicates the size of the country population

## Performance across Pillars

When compared to other countries in its region, the United Arab Emirates performs above average in every single pillar but Global Knowledge skills. Its advantage is particularly marked in the pillars Attract and Enable. When compared to high income countries, The United Arab Emirates performs way above average in the pillar Attract, and more marginally in the pillars Enable, Retain and Vocational and Technical skills. By contrast, it performs below average in the pillars Global Knowledge skills and Grow.

Figure 4: United Arab Emirates pillar scores vs. relevant comparison groups



The largest ‘gap’ of the United Arab Emirates with respect to the top countries is in the pillars Vocational and Technical skills, and Grow (Figure 5). For growing its own pool of talent, the Emirates could look at the experience of the Netherlands. The United States, along with Singapore and the United Kingdom, could also offer best practices in terms of developing high-level skills.

Figure 5: United Arab Emirates assessment by pillar vs. countries with best practices

	Top 3 with highest score (whole GTCI country sample)	Overall pillar Gap: UAE pillar score minus highest pillar score	Best 3 of competitors	Competitors Gap: UAE pillar score minus best competitor pillar score
Enable	Singapore, Switzerland, Denmark	-10,06	Qatar, Bahrain, Saudi Arabia	2,37
Attract	Singapore, Luxembourg, Qatar	-4,66	Qatar, Bahrain, Kuwait	-2,40
Grow	Netherlands, United States, Denmark	-27,30	Qatar, Bahrain, Turkey	1,37
Retain	Switzerland, Norway, Luxembourg	-9,86	Qatar, Saudi Arabia, Oman	2,31
Vocational and Technical (VT) skills	Germany, Finland, Switzerland	-10,17	Qatar, Saudi Arabia, Lebanon	-0,22
Global Knowledge (GK) skills	Singapore, United Kingdom, United States	-33,75	Lebanon, Turkey, Jordan	-3,53

## **ANNEX 1 TECHNICAL NOTES**

### **Composite Indicators**

The GTCI framework builds on six pillars: (1) Enable, (2) Attract, (3) Grow, (4) Retain, (5) Vocational and Technical Skills, and (6) Global Knowledge Skills. Each pillar consists of two to three sub-pillars. Each sub-pillar is composed of several variables (normally, between three and seven variables). Each sub-pillar score is derived as the simple arithmetic average of its individual variables. The successive arithmetic aggregation continues at the pillar level.

Overall, the GTCI includes three indices:

- The Talent Competitiveness Input sub-index is the simple average of the first four pillars.
- The Talent Competitiveness Output sub-index is the simple average of the last two pillars.
- The Global Talent Competitiveness Index is the simple average of the six pillars.

In addition to the overall index scores, country rankings are provided for each variable, sub-pillar, pillar, and sub-index in the Country Profiles.

### **Individual Variables**

The GTCI 2017 model includes 65 variables, which fall within the following categories:

1. Hard/quantitative data (25 variables)
2. Index/composite indicator data (15 variables)
3. Survey/qualitative data (25 variables)

### **Hard Data**

The 25 variables based on hard data were drawn from a variety of public sources, such as the United Nations Educational, Scientific and Cultural Organization (UNESCO), the United Nations Conference on Trade and Development (UNCTAD), the International Labor Organization (ILO), the World Bank, the OECD, and The Conference Board. Most variables were already scaled at their source and therefore did not need to be re-scaled.

### **Indices**

The 15 variables measured as indices come from sources such as the World Bank (the World Governance Indicators and the Doing Business Report), the International Telecommunication Union, and Transparency International. They also come from other composite indicators such as the Social Progress Index, the Global Innovation Index

(Cornell, INSEAD, and the World Intellectual Property Organization), and the Environmental Performance Index (Yale University and Columbia University). There were two main concerns about using ‘indices within an index’: (1) doubts over its methodology to derive a single score; and (2) the risk of duplicating variables. Despite these concerns, the GTCI team determined that the gains outweighed the downsides, as there are certain phenomena that are best captured by a multi-dimensional index. To address these concerns, only indices that transparently indicate their methodology and are widely well received were included in the GTCI. Additionally, to avoid double-counting, only indices with a narrow focus were selected.

## Survey Data

The 25 variables based on survey data were mainly extracted from the World Economic Forum’s Executive Opinion Survey. Qualitative information tends to provide the most current assessment of certain areas related to talent competitiveness for which hard data either do not exist or have low country coverage.

## Country Coverage and Missing Data

The 118 economies covered in the GTCI 2017 were selected based on an aggregate data availability threshold of at least 80% (52 out of 65 variables) and a sub-pillar level data availability threshold of at least 40%. The most recent data points for each country were considered in the calculation, with 2005 as the cut-off year. Meanwhile, each variable had to pass a country-based availability threshold of 50% (59 out of 118 economies). In order to provide transparency and replicability, there was no imputation effort to fill in missing values in the data set. Missing values were noted with ‘n/a’ and were not considered in the calculation of sub-pillar scores.

## Treatment of Series with Outliers

Inclusion of series with outliers can be problematic and potentially bias the rankings. Outliers were detected based on an absolute value of skewness greater than 2 and kurtosis greater than 3.5. In our data set, there were six variables with outliers. As a general rule, for variables with one to five outliers, the Winsorisation method should be applied. The values distorting the variable distribution were assigned the next highest value until the reported skewness and/or kurtosis fell within the ranges specified above. For variables with five outliers and above, transformation by natural logarithms, with the following formula, was used:

$$\ln \left[ (\max \times \text{factor} - 1) \times \frac{(\text{value} - \min)}{(\max - \min)} + 1 \right]$$

## Normalization

To adjust for differences in units of measurement and ranges of variation, all 65 variables were normalized into the [0, 100] range, with higher scores representing better outcomes. A min-max normalization method was adopted, given the minimum and maximum values of each variable respectively, except for the World Economic Forum's Executive Opinion Survey questions, where the original range of [1, 7] was kept as the minimum and maximum values.

For variables where higher values indicate higher outcomes, the following normalization formula was applied:

$$100 \times \frac{(\text{value} - \text{min})}{(\text{max} - \text{min})}$$

For variables where higher values indicate worse outcomes, the following reverse normalisation formula was applied:

$$-100 \times \frac{(\text{value} - \text{min})}{(\text{max} - \text{min})}$$

## For more details

For more details about the technical background for the computation of composite indicators see the 4<sup>th</sup> Edition of the Global Talent Competitiveness Index (pages 323-324).

<http://global-indices.insead.edu/gtci/documents/GTCI2017.pdf>

For more details about the sources and definitions of each variable used for the computation of the Global Talent Competitiveness Index see pages 327-335.

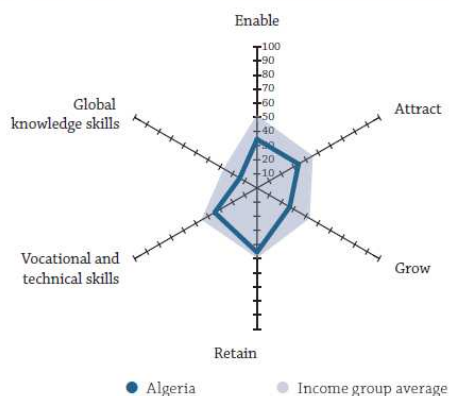
## **ANNEX II COUNTRY PAGES**

# ALGERIA

Key Indicators

Rank (out of 118)	<b>107</b>
Income group	<b>Upper-middle income</b>
Regional group	<b>Northern Africa and Western Asia</b>
Population (millions)	<b>39.67</b>

GTI 2017 Country Profile by Pillar



	Score	Rank
<b>1 ENABLE</b>	<b>34.47</b>	<b>113</b>
1.1 Regulatory Landscape	28.42	107
1.1.1 Government effectiveness	22.06	99
1.1.2 Business-government relations	45.64	89
1.1.3 Political stability	32.18	111
1.1.4 Regulatory quality	16.56	115
1.1.5 Corruption	25.68	79
1.2 Market Landscape	29.22	117
1.2.1 Competition intensity	45.70	117
1.2.2 Ease of doing business	19.70	114
1.2.3 Cluster development	36.05	96
1.2.4 R&D expenditure	1.43	99
1.2.5 ICT infrastructure	33.25	91
1.2.6 Technology utilisation	39.17	118
1.3 Business and Labour Landscape	45.76	106
1.3.1 Ease of hiring	55.67	70
1.3.2 Ease of redundancy	60	81
1.3.3 Labour-employer cooperation	42.87	109
1.3.4 Professional management	32.17	116
1.3.5 Relationship of pay to productivity	38.09	105
<b>2 ATTRACT</b>	<b>33.94</b>	<b>112</b>
2.1 External Openness	22.39	115
2.1.1 Attract Business		
2.1.1 FDI and technology transfer	46.09	104
2.1.2 Prevalence of foreign ownership	37.81	114
2.1.3 Attract People		
2.1.3 Migrant stock	11.19	99
2.1.4 International students	3.13	77
2.1.5 Brain gain	23.75	107
2.2 Internal Openness	45.49	103
2.2.1 Social Diversity		
2.2.1 Tolerance of minorities	23.33	97
2.2.2 Tolerance of immigrants	42.46	89
2.2.3 Social mobility	42.35	106
2.2.4 Gender Equality		
2.2.4 Female graduates	85.79	16
2.2.5 Gender earnings gap	16.19	116
2.2.6 Business opportunities for women	62.78	43

GDP per capita (PPP US\$)	<b>14,687.39</b>
GDP (US\$ billions)	<b>166.84</b>
GTI score	<b>31.57</b>
GTI score (income group average)	<b>42.66</b>

	Score	Rank
<b>3 GROW</b>	<b>26.76</b>	<b>113</b>
3.1 Formal Education	18.22	87
3.1.1 Enrolment		
3.1.1 Vocational enrolment	17.84	72
3.1.2 Tertiary enrolment	29.05	72
3.1.3 Quality		
3.1.3 Tertiary education expenditure	25.99	40
3.1.4 Reading, maths, science	n/a	n/a
3.1.5 University ranking	0.00	76
3.2 Lifelong Learning	31.83	115
3.2.1 Quality of management schools	39.39	106
3.2.2 Prevalence of training in firms	18.34	83
3.2.3 Employee development	37.76	110
3.3 Access to Growth Opportunities	30.22	113
3.3.1 Networks		
3.3.1 Use of virtual social networks	61.41	108
3.3.2 Use of virtual professional networks	7.01	86
3.3.3 Empowerment		
3.3.3 Delegation of authority	35.48	110
3.3.4 Personal rights	16.99	111

<b>4 RETAIN</b>	<b>45.49</b>	<b>75</b>
4.1 Sustainability	34.38	95
4.1.1 Pension system	36.36	58
4.1.2 Taxation	42.39	78
4.1.3 Brain retention	24.40	107
4.2 Lifestyle	56.59	68
4.2.1 Environmental performance	61.93	74
4.2.2 Personal safety	63.18	54
4.2.3 Physician density	15.36	75
4.2.4 Sanitation	85.91	69

<b>5 VOCATIONAL AND TECHNICAL SKILLS</b>	<b>34.66</b>	<b>96</b>
5.1 Mid-Level Skills	22.82	90
5.1.1 Workforce with secondary education	27.02	80
5.1.2 Population with secondary education	24.29	77
5.1.3 Technicians and associate professionals	15.74	81
5.1.4 Labour productivity per employee	24.22	50
5.2 Employability	46.50	93
5.2.1 Ease of finding skilled employees	47.65	70
5.2.2 Relevance of education system to the economy	38.60	79
5.2.3 Availability of scientists and engineers	48.67	71
5.2.4 Skills gap as major constraint	51.07	79

<b>6 GLOBAL KNOWLEDGE SKILLS</b>	<b>14.09</b>	<b>102</b>
6.1 High-Level Skills	18.72	88
6.1.1 Workforce with tertiary education	24.43	81
6.1.2 Population with tertiary education	12.68	80
6.1.3 Professionals	33.33	54
6.1.4 Researchers	1.96	71
6.1.5 Senior officials and managers	13.48	73
6.1.6 Quality of scientific institutions	33.10	102
6.1.7 Scientific journal articles	12.03	71
6.2 Talent Impact	9.47	108
6.2.1 Innovation output	6.82	116
6.2.2 High-value exports	0.44	115
6.2.3 Entrepreneurship		
6.2.3 New product entrepreneurial activity	27.41	67
6.2.4 New business density	3.19	79

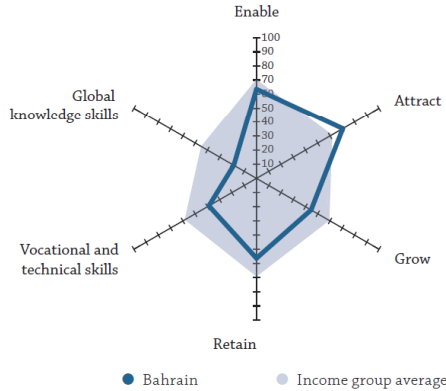


# BAHRAIN

Key Indicators

Rank (out of 118) .....	<b>47</b>
Income group .....	<b>High income</b>
Regional group .....	<b>Northern Africa and Western Asia</b>
Population (millions) .....	<b>1.38</b>

GTCI 2017 Country Profile by Pillar



	Score	Rank
<b>1 ENABLE .....</b>	<b>63.58</b>	<b>31</b>
1.1 Regulatory Landscape .....	57.59	45
1.1.1 Government effectiveness .....	53.83	41
1.1.2 Business-government relations .....	87.42	10
1.1.3 Political stability .....	38.04	105
1.1.4 Regulatory quality .....	62.73	39
1.1.5 Corruption .....	45.95	46
1.2 Market Landscape .....	56.78	39
1.2.1 Competition intensity .....	71.47	46
1.2.2 Ease of doing business .....	60.39	61
1.2.3 Cluster development .....	57.51	25
1.2.4 R&D expenditure .....	0.71	101
1.2.5 ICT Infrastructure .....	78.26	30
1.2.6 Technology utilisation .....	72.36	31
1.3 Business and Labour Landscape .....	76.37	15
Labour Market Flexibility		
1.3.1 Ease of hiring .....	100.00	1
1.3.2 Ease of redundancy .....	80	46
Management Practice		
1.3.3 Labour-employer cooperation .....	73.04	16
1.3.4 Professional management .....	64.75	28
1.3.5 Relationship of pay to productivity .....	64.05	9
<b>2 ATTRACT .....</b>	<b>70.42</b>	<b>10</b>
2.1 External Openness .....	74.67	6
Attract Business		
2.1.1 FDI and technology transfer .....	64.98	30
2.1.2 Prevalence of foreign ownership .....	73.32	18
Attract People		
2.1.3 Migrant stock .....	100.00	1
2.1.4 International students .....	68.88	12
2.1.5 Brain gain .....	66.17	11
2.2 Internal Openness .....	66.17	28
Social Diversity		
2.2.1 Tolerance of minorities .....	26.67	88
2.2.2 Tolerance of immigrants .....	71.16	38
2.2.3 Social mobility .....	72.68	24
Gender Equality		
2.2.4 Female graduates .....	78.89	28
2.2.5 Gender earnings gap .....	79.49	24
2.2.6 Business opportunities for women .....	68.12	28

GDP per capita (PPP US\$) .....	<b>46,946.34</b>
GDP (US\$ billions) .....	<b>32.22</b>
GTGI score .....	<b>48.70</b>
GTGI score (income group average) .....	<b>59.74</b>

	Score	Rank
<b>3 GROW .....</b>	<b>44.55</b>	<b>54</b>
3.1 Formal Education .....	23.77	70
Enrolment		
3.1.1 Vocational enrolment .....	16.85	76
3.1.2 Tertiary enrolment .....	31.16	69
Quality		
3.1.3 Tertiary education expenditure .....	n/a	n/a
3.1.4 Reading, maths, science .....	n/a	n/a
3.1.5 University ranking .....	23.31	54
3.2 Lifelong Learning .....	61.33	29
3.2.1 Quality of management schools .....	59.55	40
3.2.2 Prevalence of training in firms .....	n/a	n/a
3.2.3 Employee development .....	63.11	22
3.3 Access to Growth Opportunities .....	48.55	65
Networks		
3.3.1 Use of virtual social networks .....	87.83	16
3.3.2 Use of virtual professional networks .....	30.63	30
Empowerment		
3.3.3 Delegation of authority .....	49.57	43
3.3.4 Personal rights .....	26.16	102

<b>4 RETAIN .....</b>	<b>56.35</b>	<b>50</b>
4.1 Sustainability .....	54.49	33
4.1.1 Pension system .....	19.19	78
4.1.2 Taxation .....	81.50	4
4.1.3 Brain retention .....	62.77	16
4.2 Lifestyle .....	58.22	66
4.2.1 Environmental performance .....	61.53	75
4.2.2 Personal safety .....	60.66	60
4.2.3 Physician density .....	11.57	83
4.2.4 Sanitation .....	99.09	20

<b>5 VOCATIONAL AND TECHNICAL SKILLS .....</b>	<b>38.79</b>	<b>82</b>
5.1 Mid-Level Skills .....	19.81	94
5.1.1 Workforce with secondary education .....	10.45	95
5.1.2 Population with secondary education .....	2.65	103
5.1.3 Technicians and associate professionals .....	n/a	n/a
5.1.4 Labour productivity per employee .....	46.34	16
5.2 Employability .....	57.76	48
5.2.1 Ease of finding skilled employees .....	57.88	37
5.2.2 Relevance of education system to the economy .....	59.90	26
5.2.3 Availability of scientists and engineers .....	55.50	40
5.2.4 Skills gap as major constraint .....	n/a	n/a

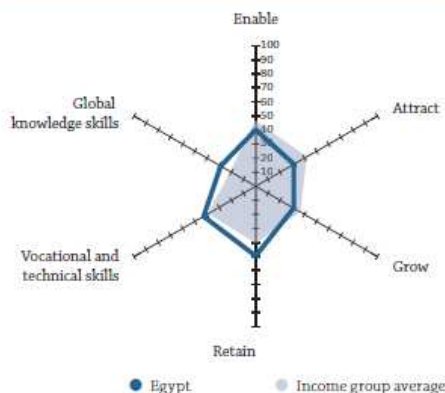
<b>6 GLOBAL KNOWLEDGE SKILLS .....</b>	<b>18.50</b>	<b>90</b>
6.1 High-Level Skills .....	18.62	89
6.1.1 Workforce with tertiary education .....	15.70	88
6.1.2 Population with tertiary education .....	30.32	40
6.1.3 Professionals .....	n/a	n/a
6.1.4 Researchers .....	0.53	86
6.1.5 Senior officials and managers .....	n/a	n/a
6.1.6 Quality of scientific institutions .....	40.97	80
6.1.7 Scientific journal articles .....	5.60	89
6.2 Talent Impact .....	18.38	82
6.2.1 Innovation output .....	29.08	62
6.2.2 High-value exports .....	7.67	94
Entrepreneurship		
6.2.3 New product entrepreneurial activity .....	n/a	n/a
6.2.4 New business density .....	n/a	n/a

# EGYPT

Key Indicators

Rank (out of 118)	<b>88</b>
Income group	<b>Lower-middle income</b>
Regional group	<b>Northern Africa and Western Asia</b>
Population (millions)	<b>91.51</b>

GTCI 2017 Country Profile by Pillar



Rank		Score	
<b>1</b>	<b>ENABLE</b>	<b>40.18</b>	<b>104</b>
1.1	Regulatory Landscape	25.61	112
1.1.1	Government effectiveness	13.20	111
1.1.2	Business-government relations	39.94	98
1.1.3	Political stability	21.72	114
1.1.4	Regulatory quality	27.54	107
1.1.5	Corruption	25.68	79
1.2	Market Landscape	42.06	96
1.2.1	Competition intensity	53.95	114
1.2.2	Ease of doing business	36.50	104
1.2.3	Cluster development	54.48	30
1.2.4	R&D expenditure	15.95	47
1.2.5	ICT infrastructure	44.12	77
1.2.6	Technology utilisation	47.37	110
1.3	Business and Labour Landscape	52.85	85
	Labour Market Flexibility		
1.3.1	Ease of hiring	100.00	1
1.3.2	Ease of redundancy	40	104
	Management Practice		
1.3.3	Labour-employer cooperation	52.15	82
1.3.4	Professional management	35.49	115
1.3.5	Relationship of pay to productivity	36.62	108
<b>2</b>	<b>ATTRACT</b>	<b>31.42</b>	<b>116</b>
2.1	External Openness	26.80	111
	Attract Business		
2.1.1	FDI and technology transfer	56.21	71
2.1.2	Prevalence of foreign ownership	39.33	109
	Attract People		
2.1.3	Migrant stock	1.03	101
2.1.4	International students	9.07	64
2.1.5	Brain gain	28.36	89
2.2	Internal Openness	36.04	116
	Social Diversity		
2.2.1	Tolerance of minorities	15.56	107
2.2.2	Tolerance of immigrants	22.37	111
2.2.3	Social mobility	34.36	117
	Gender Equality		
2.2.4	Female graduates	58.03	75
2.2.5	Gender earnings gap	30.07	108
2.2.6	Business opportunities for women	55.88	71

GDP per capita (PPP US\$)	<b>10,891.26</b>
GDP (US\$ billions)	<b>330.78</b>
GTCI score	<b>37.33</b>
GTCI score (income group average)	<b>36.50</b>

	Score	Rank
<b>3 GROW</b>	<b>31.16</b>	<b>102</b>
3.1 Formal Education	33.60	53
	Enrolment	
3.1.1 Vocational enrolment	47.00	33
3.1.2 Tertiary enrolment	25.04	76
	Quality	
3.1.3 Tertiary education expenditure	n/a	n/a
3.1.4 Reading, maths, science	n/a	n/a
3.1.5 University ranking	28.76	48
3.2 Lifelong Learning	18.96	118
3.2.1 Quality of management schools	25.51	118
3.2.2 Prevalence of training in firms	2.37	89
3.2.3 Employee development	28.99	118
3.3 Access to Growth Opportunities	40.93	91
	Networks	
3.3.1 Use of virtual social networks	79.52	50
3.3.2 Use of virtual professional networks	6.54	89
	Empowerment	
3.3.3 Delegation of authority	52.77	31
3.3.4 Personal rights	24.89	104

<b>4 RETAIN</b>	<b>49.57</b>	<b>65</b>
4.1 Sustainability	42.47	59
4.1.1 Pension system	54.55	46
4.1.2 Taxation	40.54	85
4.1.3 Brain retention	32.32	88
4.2 Lifestyle	56.68	67
4.2.1 Environmental performance	54.78	86
4.2.2 Personal safety	41.57	86
4.2.3 Physician density	36.39	39
4.2.4 Sanitation	93.98	53

<b>5 VOCATIONAL AND TECHNICAL SKILLS</b>	<b>42.84</b>	<b>69</b>
5.1 Mid-Level Skills	34.04	68
5.1.1 Workforce with secondary education	49.30	52
5.1.2 Population with secondary education	n/a	n/a
5.1.3 Technicians and associate professionals	38.07	54
5.1.4 Labour productivity per employee	14.74	67
5.2 Employability	51.63	74
5.2.1 Ease of finding skilled employees	47.88	68
5.2.2 Relevance of education system to the economy	18.92	117
5.2.3 Availability of scientists and engineers	55.01	43
5.2.4 Skills gap as major constraint	84.72	29

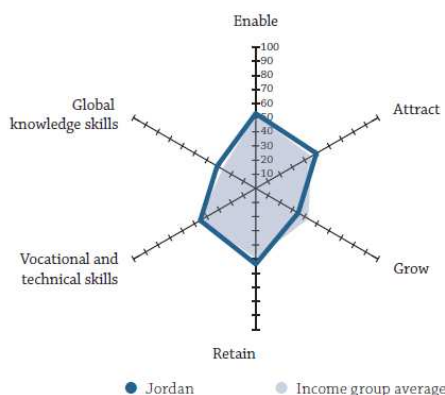
<b>6 GLOBAL KNOWLEDGE SKILLS</b>	<b>28.78</b>	<b>58</b>
6.1 High-Level Skills	33.97	52
6.1.1 Workforce with tertiary education	30.10	72
6.1.2 Population with tertiary education	n/a	n/a
6.1.3 Professionals	38.48	47
6.1.4 Researchers	6.50	58
6.1.5 Senior officials and managers	84.27	4
6.1.6 Quality of scientific institutions	26.69	115
6.1.7 Scientific journal articles	17.78	60
6.2 Talent Impact	23.59	70
6.2.1 Innovation output	18.85	87
6.2.2 High-value exports	10.57	74
	Entrepreneurship	
6.2.3 New product entrepreneurial activity	41.36	49
6.2.4 New business density	n/a	n/a

# JORDAN

Key Indicators

Rank (out of 118)	<b>58</b>
Income group	<b>Upper-middle income</b>
Regional group	<b>Northern Africa and Western Asia</b>
Population (millions)	<b>7.59</b>

GTCI 2017 Country Profile by Pillar



	Score	Rank
<b>1 ENABLE</b>	<b>52.97</b>	<b>61</b>
1.1 Regulatory Landscape	49.33	55
1.1.1 Government effectiveness	40.68	62
1.1.2 Business-government relations	61.76	51
1.1.3 Political stability	47.76	91
1.1.4 Regulatory quality	47.79	67
1.1.5 Corruption	48.65	41
1.2 Market Landscape	50.20	65
1.2.1 Competition intensity	70.22	55
1.2.2 Ease of doing business	43.08	91
1.2.3 Cluster development	54.55	29
1.2.4 R&D expenditure	10.00	62
1.2.5 ICT infrastructure	51.41	69
1.2.6 Technology utilisation	71.92	33
1.3 Business and Labour Landscape	59.38	65
Labour Market Flexibility		
1.3.1 Ease of hiring	89.00	23
1.3.2 Ease of redundancy	40	104
Management Practice		
1.3.3 Labour-employer cooperation	58.68	48
1.3.4 Professional management	53.31	63
1.3.5 Relationship of pay to productivity	55.89	36
<b>2 ATTRACT</b>	<b>49.59</b>	<b>46</b>
2.1 External Openness	60.61	12
Attract Business		
2.1.1 FDI and technology transfer	61.49	48
2.1.2 Prevalence of foreign ownership	58.32	61
Attract People		
2.1.3 Migrant stock	90.26	8
2.1.4 International students	47.42	19
2.1.5 Brain gain	45.58	43
2.2 Internal Openness	38.56	114
Social Diversity		
2.2.1 Tolerance of minorities	28.89	84
2.2.2 Tolerance of immigrants	22.83	110
2.2.3 Social mobility	57.51	51
Gender Equality		
2.2.4 Female graduates	44.90	88
2.2.5 Gender earnings gap	17.88	114
2.2.6 Business opportunities for women	59.37	58

GDP per capita (PPP US\$)	<b>10,880.32</b>
GDP (US\$ billions)	<b>37.52</b>
GTCI score	<b>44.64</b>
GTCI score (income group average)	<b>42.66</b>

	Score	Rank
<b>3 GROW</b>	<b>34.79</b>	<b>95</b>
3.1 Formal Education	21.34	77
Enrolment		
3.1.1 Vocational enrolment	744	91
3.1.2 Tertiary enrolment	41.25	53
Quality		
3.1.3 Tertiary education expenditure	n/a	n/a
3.1.4 Reading, maths, science	12.67	53
3.1.5 University ranking	24.02	53
3.2 Lifelong Learning	37.35	108
3.2.1 Quality of management schools	56.77	46
3.2.2 Prevalence of training in firms	0.00	91
3.2.3 Employee development	55.28	37
3.3 Access to Growth Opportunities	45.67	74
Networks		
3.3.1 Use of virtual social networks	78.74	55
3.3.2 Use of virtual professional networks	23.67	44
Empowerment		
3.3.3 Delegation of authority	55.90	29
3.3.4 Personal rights	24.36	106

<b>4 RETAIN</b>	<b>53.58</b>	<b>58</b>
4.1 Sustainability	43.08	57
4.1.1 Pension system	37.37	56
4.1.2 Taxation	45.73	59
4.1.3 Brain retention	46.14	41
4.2 Lifestyle	64.07	53
4.2.1 Environmental performance	65.58	66
4.2.2 Personal safety	59.43	62
4.2.3 Physician density	32.86	46
4.2.4 Sanitation	98.41	30

<b>5 VOCATIONAL AND TECHNICAL SKILLS</b>	<b>45.36</b>	<b>63</b>
5.1 Mid-Level Skills	24.23	87
5.1.1 Workforce with secondary education	28.27	78
5.1.2 Population with secondary education	20.01	85
5.1.3 Technicians and associate professionals	n/a	n/a
5.1.4 Labour productivity per employee	24.40	49
5.2 Employability	66.48	20
5.2.1 Ease of finding skilled employees	57.88	36
5.2.2 Relevance of education system to the economy	57.32	32
5.2.3 Availability of scientists and engineers	63.07	25
5.2.4 Skills gap as major constraint	87.67	23

<b>6 GLOBAL KNOWLEDGE SKILLS</b>	<b>31.59</b>	<b>52</b>
6.1 High-Level Skills	38.87	39
6.1.1 Workforce with tertiary education	45.63	38
6.1.2 Population with tertiary education	26.75	52
6.1.3 Professionals	n/a	n/a
6.1.4 Researchers	n/a	n/a
6.1.5 Senior officials and managers	n/a	n/a
6.1.6 Quality of scientific institutions	49.33	55
6.1.7 Scientific journal articles	33.77	45
6.2 Talent Impact	24.30	68
6.2.1 Innovation output	27.65	64
6.2.2 High-value exports	20.46	48
Entrepreneurship		
6.2.3 New product entrepreneurial activity	43.53	45
6.2.4 New business density	5.57	70

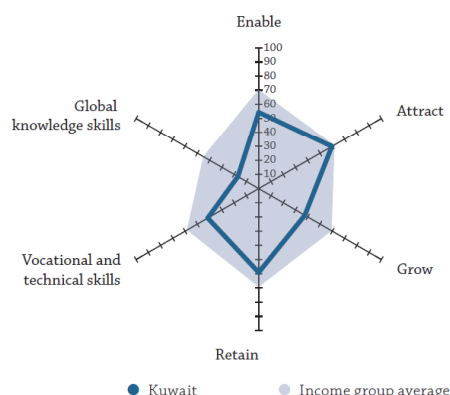


# KUWAIT

Key Indicators

Rank (out of 118) .....	<b>57</b>
Income group .....	<b>High income</b>
Regional group .....	<b>Northern Africa and Western Asia</b>
Population (millions) .....	<b>3.89</b>

GTCI 2017 Country Profile by Pillar



	Score	Rank
<b>1 ENABLE .....</b>	<b>54.35</b>	<b>54</b>
1.1 Regulatory Landscape .....	44.01	75
1.1.1 Government effectiveness .....	32.55	78
1.1.2 Business-government relations .....	36.12	104
1.1.3 Political stability .....	65.46	55
1.1.4 Regulatory quality .....	42.68	79
1.1.5 Corruption .....	43.24	51
1.2 Market Landscape .....	50.45	64
1.2.1 Competition intensity .....	67.49	65
1.2.2 Ease of doing business .....	47.58	84
1.2.3 Cluster development .....	46.26	56
1.2.4 R&D expenditure .....	6.90	74
1.2.5 ICT infrastructure .....	72.12	38
1.2.6 Technology utilisation .....	62.34	59
1.3 Business and Labour Landscape .....	68.58	32
Labour Market Flexibility		
1.3.1 Ease of hiring .....	100.00	1
1.3.2 Ease of redundancy .....	100	1
Management Practice		
1.3.3 Labour-employer cooperation .....	59.95	44
1.3.4 Professional management .....	40.06	107
1.3.5 Relationship of pay to productivity .....	42.89	88
<b>2 ATTRACT .....</b>	<b>59.70</b>	<b>24</b>
2.1 External Openness .....	52.21	24
Attract Business		
2.1.1 FDI and technology transfer .....	40.40	114
2.1.2 Prevalence of foreign ownership .....	29.46	116
Attract People		
2.1.3 Migrant stock .....	100.00	1
2.1.4 International students .....	n/a	n/a
2.1.5 Brain gain .....	38.97	62
2.2 Internal Openness .....	67.19	25
Social Diversity		
2.2.1 Tolerance of minorities .....	56.67	38
2.2.2 Tolerance of immigrants .....	72.36	37
2.2.3 Social mobility .....	47.52	89
Gender Equality		
2.2.4 Female graduates .....	73.41	48
2.2.5 Gender earnings gap .....	97.47	8
2.2.6 Business opportunities for women .....	55.70	73

GDP per capita (PPP US\$) .....	<b>71,311.99</b>
GDP (US\$ billions) .....	<b>112.81</b>
GTCI score .....	<b>44.86</b>
GTCI score (income group average) .....	<b>59.74</b>

	Score	Rank
<b>3 GROW .....</b>	<b>37.59</b>	<b>80</b>
3.1 Formal Education .....	17.50	89
Enrolment		
3.1.1 Vocational enrolment .....	4.74	96
3.1.2 Tertiary enrolment .....	21.95	83
Quality		
3.1.3 Tertiary education expenditure .....	27.45	37
3.1.4 Reading, maths, science .....	n/a	n/a
3.1.5 University ranking .....	15.84	70
3.2 Lifelong Learning .....	47.94	70
3.2.1 Quality of management schools .....	48.75	78
3.2.2 Prevalence of training in firms .....	n/a	n/a
3.2.3 Employee development .....	47.14	72
3.3 Access to Growth Opportunities .....	47.34	69
Networks		
3.3.1 Use of virtual social networks .....	81.44	40
3.3.2 Use of virtual professional networks .....	22.76	45
Empowerment		
3.3.3 Delegation of authority .....	52.26	35
3.3.4 Personal rights .....	32.90	96

<b>4 RETAIN .....</b>	<b>59.05</b>	<b>47</b>
4.1 Sustainability .....	51.84	41
4.1.1 Pension system .....	n/a	n/a
4.1.2 Taxation .....	63.92	14
4.1.3 Brain retention .....	39.76	70
4.2 Lifestyle .....	66.25	50
4.2.1 Environmental performance .....	50.97	94
4.2.2 Personal safety .....	79.35	29
4.2.3 Physician density .....	34.70	42
4.2.4 Sanitation .....	100.00	1

<b>5 VOCATIONAL AND TECHNICAL SKILLS .....</b>	<b>41.53</b>	<b>72</b>
5.1 Mid-Level Skills .....	38.83	60
5.1.1 Workforce with secondary education .....	25.91	81
5.1.2 Population with secondary education .....	20.47	84
5.1.3 Technicians and associate professionals .....	36.04	56
5.1.4 Labour productivity per employee .....	72.89	4
5.2 Employability .....	44.24	101
5.2.1 Ease of finding skilled employees .....	47.14	72
5.2.2 Relevance of education system to the economy .....	39.19	76
5.2.3 Availability of scientists and engineers .....	46.37	81
5.2.4 Skills gap as major constraint .....	n/a	n/a

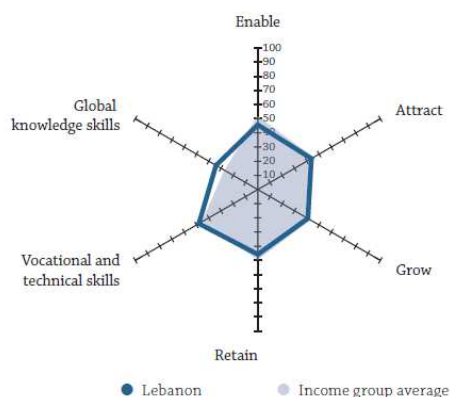
<b>6 GLOBAL KNOWLEDGE SKILLS .....</b>	<b>16.95</b>	<b>93</b>
6.1 High-Level Skills .....	19.18	84
6.1.1 Workforce with tertiary education .....	30.74	70
6.1.2 Population with tertiary education .....	21.95	61
6.1.3 Professionals .....	25.76	65
6.1.4 Researchers .....	1.47	78
6.1.5 Senior officials and managers .....	11.24	79
6.1.6 Quality of scientific institutions .....	38.15	89
6.1.7 Scientific journal articles .....	4.96	95
6.2 Talent Impact .....	14.72	91
6.2.1 Innovation output .....	27.11	66
6.2.2 High-value exports .....	2.32	107
Entrepreneurship		
6.2.3 New product entrepreneurial activity .....	n/a	n/a
6.2.4 New business density .....	n/a	n/a

# LEBANON

Key Indicators

Rank (out of 118)	<b>62</b>
Income group	<b>Upper-middle income</b>
Regional group	<b>Northern Africa and Western Asia</b>
Population (millions)	<b>5.85</b>

GTCI 2017 Country Profile by Pillar



	Score	Rank
<b>1 ENABLE</b>	<b>45.69</b>	<b>91</b>
1.1 Regulatory Landscape	26.25	110
1.1.1 Government effectiveness	26.00	87
1.1.2 Business-government relations	31.69	112
1.1.3 Political stability	18.19	115
1.1.4 Regulatory quality	40.50	81
1.1.5 Corruption	14.86	102
1.2 Market Landscape	55.37	46
1.2.1 Competition intensity	74.08	33
1.2.2 Ease of doing business	40.29	100
1.2.3 Cluster development	44.66	65
1.2.4 R&D expenditure	n/a	n/a
1.2.5 ICT infrastructure	62.66	56
1.2.6 Technology utilisation	55.15	85
1.3 Business and Labour Landscape	55.46	78
Labour Market Flexibility		
1.3.1 Ease of hiring	55.67	70
1.3.2 Ease of redundancy	70	63
Management Practice		
1.3.3 Labour-employer cooperation	54.40	70
1.3.4 Professional management	47.28	80
1.3.5 Relationship of pay to productivity	49.93	64
<b>2 ATTRACT</b>	<b>43.71</b>	<b>75</b>
2.1 External Openness	45.50	36
Attract Business		
2.1.1 FDI and technology transfer	42.11	111
2.1.2 Prevalence of foreign ownership	46.65	96
Attract People		
2.1.3 Migrant stock	75.19	9
2.1.4 International students	39.74	20
2.1.5 Brain gain	23.80	106
2.2 Internal Openness	41.92	109
Social Diversity		
2.2.1 Tolerance of minorities	12.22	111
2.2.2 Tolerance of immigrants	48.40	75
2.2.3 Social mobility	48.54	84
Gender Equality		
2.2.4 Female graduates	68.24	62
2.2.5 Gender earnings gap	25.09	111
2.2.6 Business opportunities for women	49.02	97

GDP per capita (PPP US\$)	<b>13,937.95</b>
GDP (US\$ billions)	<b>47.10</b>
GTCI score	<b>43.02</b>
GTCI score (income group average)	<b>42.66</b>

	Score	Rank
<b>3 GROW</b>	<b>40.82</b>	<b>68</b>
3.1 Formal Education	28.58	61
Enrolment		
3.1.1 Vocational enrolment	31.76	53
3.1.2 Tertiary enrolment	36.73	59
Quality		
3.1.3 Tertiary education expenditure	14.73	80
3.1.4 Reading, maths, science	n/a	n/a
3.1.5 University ranking	31.08	43
3.2 Lifelong Learning	49.39	66
3.2.1 Quality of management schools	74.56	11
3.2.2 Prevalence of training in firms	30.61	64
3.2.3 Employee development	43.00	94
3.3 Access to Growth Opportunities	44.49	78
Networks		
3.3.1 Use of virtual social networks	78.05	61
3.3.2 Use of virtual professional networks	26.39	38
Empowerment		
3.3.3 Delegation of authority	36.39	107
3.3.4 Personal rights	37.12	90
<b>4 RETAIN</b>	<b>45.78</b>	<b>72</b>
4.1 Sustainability	38.32	72
4.1.1 Pension system	34.34	59
4.1.2 Taxation	54.64	26
4.1.3 Brain retention	25.98	105
4.2 Lifestyle	53.25	74
4.2.1 Environmental performance	59.80	81
4.2.2 Personal safety	33.94	97
4.2.3 Physician density	41.18	30
4.2.4 Sanitation	78.07	79
<b>5 VOCATIONAL AND TECHNICAL SKILLS</b>	<b>48.06</b>	<b>53</b>
5.1 Mid-Level Skills	30.42	75
5.1.1 Workforce with secondary education	22.42	88
5.1.2 Population with secondary education	24.66	75
5.1.3 Technicians and associate professionals	44.16	47
5.1.4 Labour productivity per employee	n/a	n/a
5.2 Employability	65.70	26
5.2.1 Ease of finding skilled employees	55.92	43
5.2.2 Relevance of education system to the economy	64.18	20
5.2.3 Availability of scientists and engineers	62.82	27
5.2.4 Skills gap as major constraint	79.89	40

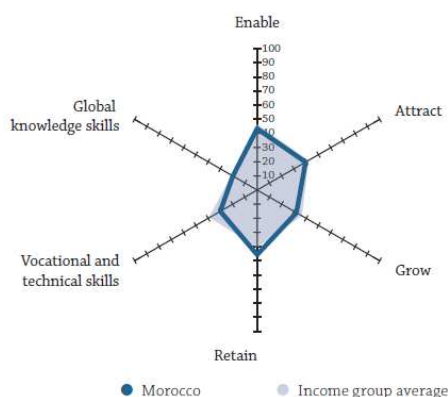
<b>6 GLOBAL KNOWLEDGE SKILLS</b>	<b>34.09</b>	<b>46</b>
6.1 High-Level Skills	37.29	42
6.1.1 Workforce with tertiary education	39.00	49
6.1.2 Population with tertiary education	25.28	54
6.1.3 Professionals	31.21	56
6.1.4 Researchers	n/a	n/a
6.1.5 Senior officials and managers	66.85	8
6.1.6 Quality of scientific institutions	38.14	90
6.1.7 Scientific journal articles	23.23	56
6.2 Talent Impact	30.90	44
6.2.1 Innovation output	25.49	73
6.2.2 High-value exports	17.59	56
Entrepreneurship		
6.2.3 New product entrepreneurial activity	49.60	30
6.2.4 New business density	n/a	n/a

# MOROCCO

Key Indicators

Rank (out of 118)	<b>96</b>
Income group	<b>Lower-middle income</b>
Regional group	<b>Northern Africa and Western Asia</b>
Population (millions)	<b>34.38</b>

GTCI 2017 Country Profile by Pillar



	Score	Rank
<b>1 ENABLE</b>	<b>43.35</b>	<b>97</b>
1.1 Regulatory Landscape	43.57	76
1.1.1 Government effectiveness	32.83	77
1.1.2 Business-government relations	61.83	50
1.1.3 Political stability	51.95	84
1.1.4 Regulatory quality	45.58	71
1.1.5 Corruption	25.68	79
1.2 Market Landscape	48.39	70
1.2.1 Competition intensity	67.10	69
1.2.2 Ease of doing business	55.95	70
1.2.3 Cluster development	40.45	86
1.2.4 R&D expenditure	17.14	44
1.2.5 ICT infrastructure	50.90	70
1.2.6 Technology utilisation	58.81	68
1.3 Business and Labour Landscape	38.09	116
1.3.1 Labour Market Flexibility		
1.3.1.1 Ease of hiring	0.00	115
1.3.2 Ease of redundancy	50	97
1.3.2.1 Management Practice		
1.3.3 Labour-employer cooperation	47.60	100
1.3.4 Professional management	51.17	70
1.3.5 Relationship of pay to productivity	41.67	91
<b>2 ATTRACT</b>	<b>39.50</b>	<b>101</b>
2.1 External Openness	35.21	65
2.1.1 Attract Business		
2.1.1.1 FDI and technology transfer	60.42	54
2.1.2 Prevalence of foreign ownership	62.87	48
2.1.2.1 Attract People		
2.1.3 Migrant stock	0.41	112
2.1.4 International students	9.85	60
2.1.5 Brain gain	42.52	50
2.2 Internal Openness	43.79	107
2.2.1 Social Diversity		
2.2.1.1 Tolerance of minorities	35.56	76
2.2.2 Tolerance of immigrants	47.56	79
2.2.3 Social mobility	55.54	57
2.2.3.1 Gender Equality		
2.2.4 Female graduates	46.19	86
2.2.5 Gender earnings gap	27.27	109
2.2.6 Business opportunities for women	50.63	93

GDP per capita (PPP US\$)	<b>7,821.40</b>
GDP (US\$ billions)	<b>100.36</b>
GTCI score	<b>35.09</b>
GTCI score (income group average)	<b>36.50</b>

	Score	Rank
<b>3 GROW</b>	<b>32.05</b>	<b>99</b>
3.1 Formal Education	14.11	97
3.1.1 Enrolment		
3.1.1.1 Vocational enrolment	13.02	79
3.1.2 Tertiary enrolment	19.64	84
3.1.2.1 Quality		
3.1.3 Tertiary education expenditure	23.77	49
3.1.4 Reading, maths, science	n/a	n/a
3.1.5 University ranking	0.00	76
3.2 Lifelong Learning	40.19	100
3.2.1 Quality of management schools	51.17	66
3.2.2 Prevalence of training in firms	30.21	65
3.2.3 Employee development	39.20	104
3.3 Access to Growth Opportunities	41.85	89
3.3.1 Networks		
3.3.1.1 Use of virtual social networks	75.06	74
3.3.2 Use of virtual professional networks	10.05	71
3.3.2.1 Empowerment		
3.3.3 Delegation of authority	43.37	75
3.3.4 Personal rights	38.91	88
<b>4 RETAIN</b>	<b>45.71</b>	<b>73</b>
4.1 Sustainability	37.76	77
4.1.1 Pension system	23.23	72
4.1.2 Taxation	49.73	40
4.1.3 Brain retention	40.34	66
4.2 Lifestyle	53.65	73
4.2.1 Environmental performance	69.20	59
4.2.2 Personal safety	64.11	52
4.2.3 Physician density	7.75	90
4.2.4 Sanitation	73.52	82
<b>5 VOCATIONAL AND TECHNICAL SKILLS</b>	<b>30.08</b>	<b>107</b>
5.1 Mid-Level Skills	13.27	100
5.1.1 Workforce with secondary education	13.23	93
5.1.2 Population with secondary education	n/a	n/a
5.1.3 Technicians and associate professionals	17.26	80
5.1.4 Labour productivity per employee	9.31	78
5.2 Employability	46.90	91
5.2.1 Ease of finding skilled employees	47.90	67
5.2.2 Relevance of education system to the economy	29.57	108
5.2.3 Availability of scientists and engineers	52.34	53
5.2.4 Skills gap as major constraint	57.77	70
<b>6 GLOBAL KNOWLEDGE SKILLS</b>	<b>19.85</b>	<b>83</b>
6.1 High-Level Skills	14.88	103
6.1.1 Workforce with tertiary education	14.72	90
6.1.2 Population with tertiary education	n/a	n/a
6.1.3 Professionals	5.45	96
6.1.4 Researchers	10.22	48
6.1.5 Senior officials and managers	3.93	90
6.1.6 Quality of scientific institutions	37.20	94
6.1.7 Scientific journal articles	17.75	61
6.2 Talent Impact	24.81	67
6.2.1 Innovation output	23.16	80
6.2.2 High-value exports	10.41	76
6.2.2.1 Entrepreneurship		
6.2.3 New product entrepreneurial activity	56.92	18
6.2.4 New business density	8.76	54

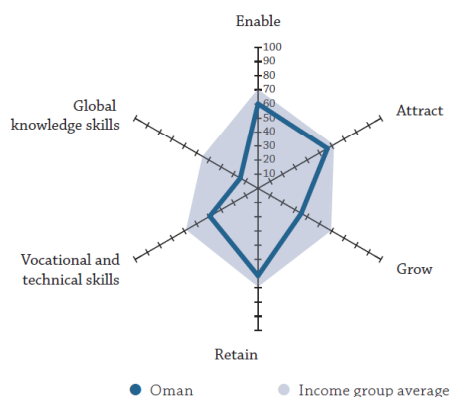


# OMAN

Key Indicators

Rank (out of 118)	<b>59</b>
Income group	<b>High income</b>
Regional group	<b>Northern Africa and Western Asia</b>
Population (millions)	<b>4.49</b>

GTCI 2017 Country Profile by Pillar



	Score	Rank
<b>1 ENABLE</b>	<b>60.20</b>	<b>39</b>
1.1 Regulatory Landscape	61.28	39
1.1.1 Government effectiveness	45.07	53
1.1.2 Business-government relations	82.11	13
1.1.3 Political stability	78.77	36
1.1.4 Regulatory quality	62.60	40
1.1.5 Corruption	37.84	55
1.2 Market Landscape	50.15	66
1.2.1 Competition intensity	61.82	87
1.2.2 Ease of doing business	57.67	65
1.2.3 Cluster development	43.14	75
1.2.4 R&D expenditure	3.81	87
1.2.5 ICT infrastructure	71.23	40
1.2.6 Technology utilisation	63.20	55
1.3 Business and Labour Landscape	69.17	30
Labour Market Flexibility		
1.3.1 Ease of hiring	89.00	23
1.3.2 Ease of redundancy	100	1
Management Practice		
1.3.3 Labour-employer cooperation	56.95	54
1.3.4 Professional management	57.26	48
1.3.5 Relationship of pay to productivity	42.67	89
<b>2 ATTRACT</b>	<b>56.49</b>	<b>29</b>
2.1 External Openness	52.69	20
Attract Business		
2.1.1 FDI and technology transfer	53.45	80
2.1.2 Prevalence of foreign ownership	50.11	92
Attract People		
2.1.3 Migrant stock	90.50	7
2.1.4 International students	15.66	48
2.1.5 Brain gain	53.72	24
2.2 Internal Openness	60.30	43
Social Diversity		
2.2.1 Tolerance of minorities	81.11	6
2.2.2 Tolerance of immigrants	n/a	n/a
2.2.3 Social mobility	59.45	44
Gender Equality		
2.2.4 Female graduates	65.75	68
2.2.5 Gender earnings gap	32.04	107
2.2.6 Business opportunities for women	63.14	41

GDP per capita (PPP US\$)	<b>38,234.05</b>
GDP (US\$ billions)	<b>70.25</b>
GTGI score	<b>44.51</b>
GTGI score (income group average)	<b>59.74</b>

	Score	Rank
<b>3 GROW</b>	<b>35.19</b>	<b>92</b>
3.1 Formal Education	18.97	85
Enrolment		
3.1.1 Vocational enrolment	0.00	110
3.1.2 Tertiary enrolment	23.40	80
Quality		
3.1.3 Tertiary education expenditure	24.84	44
3.1.4 Reading, maths, science	n/a	n/a
3.1.5 University ranking	27.65	50
3.2 Lifelong Learning	42.43	92
3.2.1 Quality of management schools	35.17	112
3.2.2 Prevalence of training in firms	n/a	n/a
3.2.3 Employee development	49.70	60
3.3 Access to Growth Opportunities	44.16	79
Networks		
3.3.1 Use of virtual social networks	73.16	83
3.3.2 Use of virtual professional networks	16.90	59
Empowerment		
3.3.3 Delegation of authority	52.57	33
3.3.4 Personal rights	34.01	94

<b>4 RETAIN</b>	<b>61.51</b>	<b>40</b>
4.1 Sustainability	63.42	15
4.1.1 Pension system	n/a	n/a
4.1.2 Taxation	77.08	5
4.1.3 Brain retention	49.75	38
4.2 Lifestyle	59.60	63
4.2.1 Environmental performance	42.98	100
4.2.2 Personal safety	67.99	44
4.2.3 Physician density	31.19	52
4.2.4 Sanitation	96.25	42

<b>5 VOCATIONAL AND TECHNICAL SKILLS</b>	<b>39.25</b>	<b>80</b>
5.1 Mid-Level Skills	43.34	54
5.1.1 Workforce with secondary education	n/a	n/a
5.1.2 Population with secondary education	31.71	64
5.1.3 Technicians and associate professionals	n/a	n/a
5.1.4 Labour productivity per employee	54.98	10
5.2 Employability	35.16	116
5.2.1 Ease of finding skilled employees	30.90	116
5.2.2 Relevance of education system to the economy	34.85	93
5.2.3 Availability of scientists and engineers	39.74	100
5.2.4 Skills gap as major constraint	n/a	n/a

<b>6 GLOBAL KNOWLEDGE SKILLS</b>	<b>14.43</b>	<b>100</b>
6.1 High-Level Skills	17.00	95
6.1.1 Workforce with tertiary education	n/a	n/a
6.1.2 Population with tertiary education	27.31	49
6.1.3 Professionals	n/a	n/a
6.1.4 Researchers	1.46	79
6.1.5 Senior officials and managers	n/a	n/a
6.1.6 Quality of scientific institutions	32.29	105
6.1.7 Scientific journal articles	6.91	86
6.2 Talent Impact	11.86	99
6.2.1 Innovation output	27.47	65
6.2.2 High-value exports	2.36	106
Entrepreneurship		
6.2.3 New product entrepreneurial activity	n/a	n/a
6.2.4 New business density	5.75	68

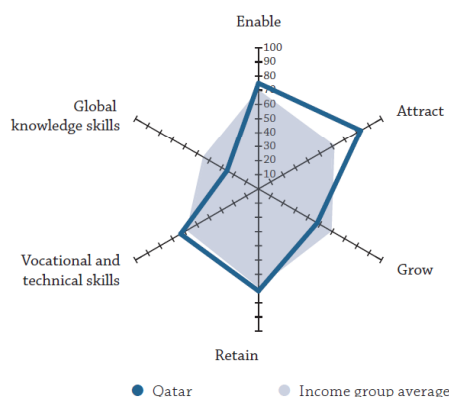


# QATAR

Key Indicators

Rank (out of 118) .....	<b>21</b>
Income group .....	<b>High income</b>
Regional group .....	<b>Northern Africa and Western Asia</b>
Population (millions) .....	<b>2.24</b>

GTCI 2017 Country Profile by Pillar



	Score	Rank
<b>1 ENABLE .....75.03 18</b>		
1.1 Regulatory Landscape.....	76.41	19
1.1.1 Government effectiveness .....	65.39	36
1.1.2 Business-government relations.....	96.63	3
1.1.3 Political stability .....	87.44	20
1.1.4 Regulatory quality.....	59.61	46
1.1.5 Corruption .....	72.97	21
1.2 Market Landscape.....	63.15	29
1.2.1 Competition intensity .....	75.82	24
1.2.2 Ease of doing business .....	58.77	63
1.2.3 Cluster development.....	71.41	8
1.2.4 R&D expenditure .....	10.95	59
1.2.5 ICT infrastructure.....	82.61	19
1.2.6 Technology utilisation.....	79.33	12
1.3 Business and Labour Landscape.....	85.52	3
Labour Market Flexibility		
1.3.1 Ease of hiring.....	100.00	1
1.3.2 Ease of redundancy .....	100	1
Management Practice		
1.3.3 Labour-employer cooperation .....	76.30	9
1.3.4 Professional management.....	75.85	19
1.3.5 Relationship of pay to productivity.....	75.45	1
<b>2 ATTRACT.....83.11 3</b>		
2.1 External Openness .....	85.41	4
Attract Business		
2.1.1 FDI and technology transfer.....	78.66	4
2.1.2 Prevalence of foreign ownership .....	66.67	39
Attract People		
2.1.3 Migrant stock.....	100.00	1
2.1.4 International students .....	100.00	1
2.1.5 Brain gain.....	81.69	5
2.2 Internal Openness.....	80.81	8
Social Diversity		
2.2.1 Tolerance of minorities .....	56.67	38
2.2.2 Tolerance of immigrants.....	87.60	16
2.2.3 Social mobility.....	80.62	12
Gender Equality		
2.2.4 Female graduates .....	84.69	20
2.2.5 Gender earnings gap.....	100.00	1
2.2.6 Business opportunities for women .....	75.27	9

GDP per capita (PPP US\$).....	<b>143,788.24</b>
GDP (US\$ billions).....	<b>166.91</b>
GTGI score .....	<b>61.09</b>
GTGI score (income group average) .....	<b>59.74</b>

	Score	Rank
<b>3 GROW.....47.77 47</b>		
3.1 Formal Education.....	11.72	104
Enrolment		
3.1.1 Vocational enrolment .....	1.39	106
3.1.2 Tertiary enrolment.....	11.44	94
Quality		
3.1.3 Tertiary education expenditure.....	n/a	n/a
3.1.4 Reading, maths, science.....	4.10	59
3.1.5 University ranking .....	29.97	44
3.2 Lifelong Learning.....	76.32	6
3.2.1 Quality of management schools.....	79.16	7
3.2.2 Prevalence of training in firms.....	n/a	n/a
3.2.3 Employee development.....	73.49	5
3.3 Access to Growth Opportunities .....	55.27	43
Networks		
3.3.1 Use of virtual social networks.....	88.92	12
3.3.2 Use of virtual professional networks.....	32.88	28
Empowerment		
3.3.3 Delegation of authority.....	72.45	7
3.3.4 Personal rights.....	26.83	101

<b>4 RETAIN.....71.74 17</b>		
4.1 Sustainability .....	55.69	31
4.1.1 Pension system.....	3.43	101
4.1.2 Taxation .....	85.47	2
4.1.3 Brain retention .....	78.18	3
4.2 Lifestyle .....	87.79	2
4.2.1 Environmental performance.....	61.29	76
4.2.2 Personal safety .....	92.13	16
4.2.3 Physician density .....	100.00	1
4.2.4 Sanitation .....	97.73	32

<b>5 VOCATIONAL AND TECHNICAL SKILLS..... 63.29 13</b>		
5.1 Mid-Level Skills .....	50.39	38
5.1.1 Workforce with secondary education .....	n/a	n/a
5.1.2 Population with secondary education.....	27.31	69
5.1.3 Technicians and associate professionals .....	23.86	73
5.1.4 Labour productivity per employee.....	100.00	1
5.2 Employability.....	76.19	2
5.2.1 Ease of finding skilled employees .....	70.35	6
5.2.2 Relevance of education system to the economy .....	81.35	2
5.2.3 Availability of scientists and engineers .....	76.88	2
5.2.4 Skills gap as major constraint.....	n/a	n/a

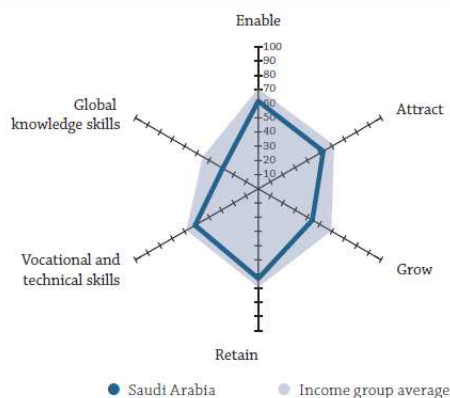
<b>6 GLOBAL KNOWLEDGE SKILLS .....25.61 70</b>		
6.1 High-Level Skills .....	29.09	64
6.1.1 Workforce with tertiary education.....	n/a	n/a
6.1.2 Population with tertiary education .....	41.13	22
6.1.3 Professionals.....	30.00	59
6.1.4 Researchers.....	7.14	56
6.1.5 Senior officials and managers .....	15.17	69
6.1.6 Quality of scientific institutions.....	76.89	14
6.1.7 Scientific journal articles.....	4.23	99
6.2 Talent Impact.....	22.12	75
6.2.1 Innovation output.....	29.98	60
6.2.2 High-value exports.....	0.78	113
Entrepreneurship		
6.2.3 New product entrepreneurial activity .....	48.05	34
6.2.4 New business density .....	9.69	50

# SAUDI ARABIA

Key Indicators

Rank (out of 118) .....	<b>42</b>
Income group .....	<b>High income</b>
Regional group .....	<b>Northern Africa and Western Asia</b>
Population (millions) .....	<b>31.54</b>

GTCI 2017 Country Profile by Pillar



	Score	Rank
<b>1 ENABLE .....</b>	<b>61.69</b>	<b>37</b>
1.1 Regulatory Landscape .....	52.76	52
1.1.1 Government effectiveness .....	43.29	57
1.1.2 Business-government relations .....	71.56	24
1.1.3 Political stability .....	55.94	78
1.1.4 Regulatory quality .....	45.69	70
1.1.5 Corruption .....	47.30	44
1.2 Market Landscape .....	55.88	43
1.2.1 Competition intensity .....	73.13	39
1.2.2 Ease of doing business .....	53.37	74
1.2.3 Cluster development .....	60.03	19
1.2.4 R&D expenditure .....	1.43	99
1.2.5 ICT infrastructure .....	73.53	35
1.2.6 Technology utilisation .....	73.82	28
1.3 Business and Labour Landscape .....	76.44	14
1.3.1 Ease of hiring .....	100.00	1
1.3.2 Ease of redundancy .....	100	1
1.3.3 Labour-employer cooperation .....	62.78	35
1.3.4 Professional management .....	60.95	37
1.3.5 Relationship of pay to productivity .....	58.44	25
<b>2 ATTRACT .....</b>	<b>52.89</b>	<b>38</b>
2.1 External Openness .....	54.91	16
2.1.1 Attract Business .....		
2.1.1 FDI and technology transfer .....	68.70	17
2.1.2 Prevalence of foreign ownership .....	47.73	94
2.1.3 Attract People .....		
2.1.3 Migrant stock .....	71.10	10
2.1.4 International students .....	24.86	31
2.1.5 Brain gain .....	62.18	17
2.2 Internal Openness .....	50.87	92
2.2.1 Social Diversity .....		
2.2.1 Tolerance of minorities .....	25.56	92
2.2.2 Tolerance of immigrants .....	70.51	39
2.2.3 Social mobility .....	69.43	29
2.2.4 Gender Equality .....		
2.2.4 Female graduates .....	51.73	80
2.2.5 Gender earnings gap .....	44.36	100
2.2.6 Business opportunities for women .....	43.61	108

GDP per capita (PPP US\$) .....	<b>53,430.05</b>
GDP (US\$ billions) .....	<b>646</b>
GTGI score .....	<b>50.36</b>
GTGI score (income group average) .....	<b>59.74</b>

	Score	Rank
<b>3 GROW .....</b>	<b>44.06</b>	<b>59</b>
3.1 Formal Education .....	37.98	42
3.1.1 Enrolment .....		
3.1.1 Vocational enrolment .....	11.54	80
3.1.2 Tertiary enrolment .....	53.95	40
3.1.3 Quality .....		
3.1.3 Tertiary education expenditure .....	n/a	n/a
3.1.4 Reading, maths, science .....	n/a	n/a
3.1.5 University ranking .....	48.47	29
3.2 Lifelong Learning .....	53.37	48
3.2.1 Quality of management schools .....	54.95	57
3.2.2 Prevalence of training in firms .....	n/a	n/a
3.2.3 Employee development .....	51.78	50
3.3 Access to Growth Opportunities .....	40.84	93
3.3.1 Networks .....		
3.3.1 Use of virtual social networks .....	84.02	30
3.3.2 Use of virtual professional networks .....	17.87	57
3.3.3 Empowerment .....		
3.3.3 Delegation of authority .....	56.54	28
3.3.4 Personal rights .....	4.93	113

<b>4 RETAIN .....</b>	<b>63.20</b>	<b>35</b>
4.1 Sustainability .....	62.61	18
4.1.1 Pension system .....	n/a	n/a
4.1.2 Taxation .....	65.46	10
4.1.3 Brain retention .....	59.76	20
4.2 Lifestyle .....	63.80	56
4.2.1 Environmental performance .....	58.85	82
4.2.2 Personal safety .....	64.36	50
4.2.3 Physician density .....	31.99	49
4.2.4 Sanitation .....	100.00	1

<b>5 VOCATIONAL AND TECHNICAL SKILLS .....</b>	<b>51.42</b>	<b>41</b>
5.1 Mid-Level Skills .....	50.98	33
5.1.1 Workforce with secondary education .....	36.63	67
5.1.2 Population with secondary education .....	32.43	62
5.1.3 Technicians and associate professionals .....	53.81	37
5.1.4 Labour productivity per employee .....	81.04	3
5.2 Employability .....	51.86	72
5.2.1 Ease of finding skilled employees .....	46.14	78
5.2.2 Relevance of education system to the economy .....	51.71	43
5.2.3 Availability of scientists and engineers .....	57.74	37
5.2.4 Skills gap as major constraint .....	n/a	n/a

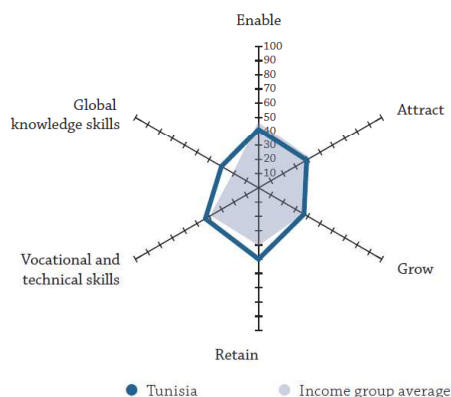
<b>6 GLOBAL KNOWLEDGE SKILLS .....</b>	<b>28.90</b>	<b>57</b>
6.1 High-Level Skills .....	30.18	61
6.1.1 Workforce with tertiary education .....	33.33	63
6.1.2 Population with tertiary education .....	34.03	32
6.1.3 Professionals .....	35.45	50
6.1.4 Researchers .....	n/a	n/a
6.1.5 Senior officials and managers .....	18.54	64
6.1.6 Quality of scientific institutions .....	51.18	47
6.1.7 Scientific journal articles .....	8.53	79
6.2 Talent Impact .....	27.63	57
6.2.1 Innovation output .....	37.88	43
6.2.2 High-value exports .....	1.66	111
6.2.3 Entrepreneurship .....		
6.2.3 New product entrepreneurial activity .....	43.34	47
6.2.4 New business density .....	n/a	n/a

# TUNISIA

Key Indicators

Rank (out of 118)	<b>77</b>
Income group	<b>Lower-middle income</b>
Regional group	<b>Northern Africa and Western Asia</b>
Population (millions)	<b>11.11</b>

GTCI 2017 Country Profile by Pillar



	Score	Rank
<b>1 ENABLE</b>	<b>41.36</b>	<b>102</b>
1.1 Regulatory Landscape	36.73	92
1.1.1 Government effectiveness	33.11	76
1.1.2 Business-government relations	46.55	86
1.1.3 Political stability	38.24	104
1.1.4 Regulatory quality	37.39	91
1.1.5 Corruption	28.38	69
1.2 Market Landscape	45.68	82
1.2.1 Competition intensity	62.50	83
1.2.2 Ease of doing business	56.67	69
1.2.3 Cluster development	38.77	90
1.2.4 R&D expenditure	15.95	47
1.2.5 ICT infrastructure	42.58	79
1.2.6 Technology utilisation	57.58	72
1.3 Business and Labour Landscape	41.66	114
Labour Market Flexibility		
1.3.1 Ease of hiring	61.00	69
1.3.2 Ease of redundancy	20	116
Management Practice		
1.3.3 Labour-employer cooperation	43.58	106
1.3.4 Professional management	45.38	86
1.3.5 Relationship of pay to productivity	38.33	104
<b>2 ATTRACT</b>	<b>39.02</b>	<b>104</b>
2.1 External Openness	28.41	104
Attract Business		
2.1.1 FDI and technology transfer	53.29	81
2.1.2 Prevalence of foreign ownership	54.12	75
Attract People		
2.1.3 Migrant stock	0.95	102
2.1.4 International students	9.45	62
2.1.5 Brain gain	24.23	102
2.2 Internal Openness	49.63	97
Social Diversity		
2.2.1 Tolerance of minorities	24.44	94
2.2.2 Tolerance of immigrants	46.91	82
2.2.3 Social mobility	50.11	78
Gender Equality		
2.2.4 Female graduates	91.34	6
2.2.5 Gender earnings gap	27.11	110
2.2.6 Business opportunities for women	57.87	66

GDP per capita (PPP US\$)	<b>11,397.24</b>
GDP (US\$ billions)	<b>43.02</b>
GTGI score	<b>40.09</b>
GTGI score (income group average)	<b>36.50</b>

	Score	Rank
<b>3 GROW</b>	<b>36.91</b>	<b>84</b>
3.1 Formal Education	20.42	80
Enrolment		
3.1.1 Vocational enrolment	19.85	68
3.1.2 Tertiary enrolment	29.04	73
Quality		
3.1.3 Tertiary education expenditure	41.27	17
3.1.4 Reading, maths, science	11.92	55
3.1.5 University ranking	0.00	76
3.2 Lifelong Learning	43.32	88
3.2.1 Quality of management schools	53.24	63
3.2.2 Prevalence of training in firms	33.64	60
3.2.3 Employee development	43.07	92
3.3 Access to Growth Opportunities	47.00	71
Networks		
3.3.1 Use of virtual social networks	76.04	70
3.3.2 Use of virtual professional networks	15.47	62
Empowerment		
3.3.3 Delegation of authority	39.87	91
3.3.4 Personal rights	56.63	64

<b>4 RETAIN</b>	<b>49.96</b>	<b>64</b>
4.1 Sustainability	39.86	70
4.1.1 Pension system	48.48	50
4.1.2 Taxation	43.46	75
4.1.3 Brain retention	27.64	102
4.2 Lifestyle	60.05	62
4.2.1 Environmental performance	74.99	51
4.2.2 Personal safety	59.22	63
4.2.3 Physician density	15.55	74
4.2.4 Sanitation	90.45	61

<b>5 VOCATIONAL AND TECHNICAL SKILLS</b>	<b>43.18</b>	<b>67</b>
5.1 Mid-Level Skills	35.37	66
5.1.1 Workforce with secondary education	49.86	51
5.1.2 Population with secondary education	38.75	52
5.1.3 Technicians and associate professionals	n/a	n/a
5.1.4 Labour productivity per employee	17.51	62
5.2 Employability	50.98	77
5.2.1 Ease of finding skilled employees	49.13	63
5.2.2 Relevance of education system to the economy	39.11	77
5.2.3 Availability of scientists and engineers	54.30	45
5.2.4 Skills gap as major constraint	61.39	64

<b>6 GLOBAL KNOWLEDGE SKILLS</b>	<b>30.13</b>	<b>55</b>
6.1 High-Level Skills	32.48	54
6.1.1 Workforce with tertiary education	31.23	68
6.1.2 Population with tertiary education	20.18	67
6.1.3 Professionals	n/a	n/a
6.1.4 Researchers	16.76	40
6.1.5 Senior officials and managers	n/a	n/a
6.1.6 Quality of scientific institutions	33.20	101
6.1.7 Scientific journal articles	61.02	21
6.2 Talent Impact	27.78	56
6.2.1 Innovation output	26.93	68
6.2.2 High-value exports	21.30	43
Entrepreneurship		
6.2.3 New product entrepreneurial activity	54.25	22
6.2.4 New business density	8.65	55



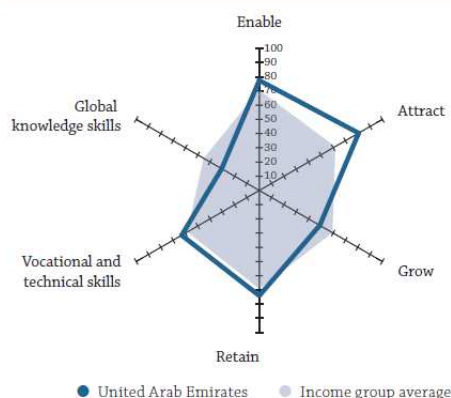
# UNITED ARAB EMIRATES

Key Indicators

Rank (out of 118) .....	<b>19</b>
Income group .....	<b>High income</b>
Regional group .....	<b>Northern Africa and Western Asia</b>
Population (millions) .....	<b>9.16</b>

GDP per capita (PPP US\$) .....	<b>70,237.95</b>
GDP (US\$ billions) .....	<b>370.29</b>
GTCI score .....	<b>62.49</b>
GTCI score (income group average) .....	<b>59.74</b>

GTCI 2017 Country Profile by Pillar



	Score	Rank
<b>1 ENABLE .....</b>	<b>77.40</b>	<b>12</b>
1.1 Regulatory Landscape .....	80.21	17
1.1.1 Government effectiveness .....	79.36	18
1.1.2 Business-government relations .....	97.74	2
1.1.3 Political stability .....	82.74	27
1.1.4 Regulatory quality .....	69.58	32
1.1.5 Corruption .....	71.62	22
1.2 Market Landscape .....	68.07	23
1.2.1 Competition intensity .....	82.60	6
1.2.2 Ease of doing business .....	76.38	29
1.2.3 Cluster development .....	74.83	1
1.2.4 R&D expenditure .....	11.43	56
1.2.5 ICT infrastructure .....	79.16	25
1.2.6 Technology utilisation .....	84.05	7
1.3 Business and Labour Landscape .....	83.92	5
1.3.1 Labour Market Flexibility .....		
1.3.1.1 Ease of hiring .....	100.00	1
1.3.2 Ease of redundancy .....	100	1
1.3.2.1 Management Practice .....		
1.3.3 Labour-employer cooperation .....	74.74	13
1.3.4 Professional management .....	74.45	20
1.3.5 Relationship of pay to productivity .....	70.39	5
<b>2 ATTRACT .....</b>	<b>80.71</b>	<b>4</b>
2.1 External Openness .....	88.15	2
2.1.1 Attract Business .....		
2.1.1.1 FDI and technology transfer .....	80.65	3
2.1.2 Prevalence of foreign ownership .....	77.63	9
2.1.2.1 Attract People .....		
2.1.3 Migrant stock .....	100.00	1
2.1.4 International students .....	100.00	1
2.1.5 Brain gain .....	82.47	3
2.2 Internal Openness .....	73.27	19
2.2.1 Social Diversity .....		
2.2.1.1 Tolerance of minorities .....	66.67	21
2.2.2 Tolerance of immigrants .....	100.00	1
2.2.3 Social mobility .....	82.89	8
2.2.3.1 Gender Equality .....		
2.2.4 Female graduates .....	56.63	76
2.2.5 Gender earnings gap .....	59.17	73
2.2.6 Business opportunities for women .....	74.23	10

	Score	Rank
<b>3 GROW .....</b>	<b>49.14</b>	<b>40</b>
3.1 Formal Education .....	22.64	75
3.1.1 Enrolment .....		
3.1.1.1 Vocational enrolment .....	3.87	98
3.1.2 Tertiary enrolment .....	17.27	87
3.1.2.1 Quality .....		
3.1.3 Tertiary education expenditure .....	n/a	n/a
3.1.4 Reading, maths, science .....	36.68	41
3.1.5 University ranking .....	32.76	39
3.2 Lifelong Learning .....	69.65	14
3.2.1 Quality of management schools .....	71.04	19
3.2.2 Prevalence of training in firms .....	n/a	n/a
3.2.3 Employee development .....	68.26	12
3.3 Access to Growth Opportunities .....	55.13	44
3.3.1 Networks .....		
3.3.1.1 Use of virtual social networks .....	91.57	6
3.3.2 Use of virtual professional networks .....	44.56	21
3.3.2.1 Empowerment .....		
3.3.3 Delegation of authority .....	66.72	13
3.3.4 Personal rights .....	17.70	110

<b>4 RETAIN .....</b>	<b>74.05</b>	<b>10</b>
4.1 Sustainability .....	80.79	2
4.1.1 Pension system .....	n/a	n/a
4.1.2 Taxation .....	87.01	1
4.1.3 Brain retention .....	74.57	5
4.2 Lifestyle .....	67.30	46
4.2.1 Environmental performance .....	60.19	80
4.2.2 Personal safety .....	79.21	30
4.2.3 Physician density .....	32.54	47
4.2.4 Sanitation .....	97.27	35

<b>5 VOCATIONAL AND TECHNICAL SKILLS .....</b>	<b>63.07</b>	<b>14</b>
5.1 Mid-Level Skills .....	55.63	25
5.1.1 Workforce with secondary education .....	37.19	66
5.1.2 Population with secondary education .....	34.58	59
5.1.3 Technicians and associate professionals .....	68.53	24
5.1.4 Labour productivity per employee .....	82.22	2
5.2 Employability .....	70.51	8
5.2.1 Ease of finding skilled employees .....	69.37	9
5.2.2 Relevance of education system to the economy .....	71.33	12
5.2.3 Availability of scientists and engineers .....	70.82	7
5.2.4 Skills gap as major constraint .....	n/a	n/a

<b>6 GLOBAL KNOWLEDGE SKILLS .....</b>	<b>30.56</b>	<b>54</b>
6.1 High-Level Skills .....	34.89	48
6.1.1 Workforce with tertiary education .....	26.70	77
6.1.2 Population with tertiary education .....	29.79	44
6.1.3 Professionals .....	42.73	38
6.1.4 Researchers .....	n/a	n/a
6.1.5 Senior officials and managers .....	42.13	26
6.1.6 Quality of scientific institutions .....	63.33	28
6.1.7 Scientific journal articles .....	4.69	97
6.2 Talent Impact .....	26.22	60
6.2.1 Innovation output .....	18.67	88
6.2.2 High-value exports .....	18.98	52
6.2.2.1 Entrepreneurship .....		
6.2.3 New product entrepreneurial activity .....	59.39	15
6.2.4 New business density .....	7.84	58

## ENDNOTES

<sup>1</sup> See World Economic Forum (2014).

<sup>2</sup> See World Bank (2013)

<sup>3</sup> Source: [http://www.ilo.org/beirut/media-centre/news/WCMS\\_412797/lang--en/index.htm](http://www.ilo.org/beirut/media-centre/news/WCMS_412797/lang--en/index.htm)

<sup>4</sup> Source: <https://www.imf.org/external/np/pp/eng/2016/042916.pdf>

<sup>5</sup> See the discussion about the developmental history of the region by (Yousef, 2004).

<sup>6</sup> Moreover, countries with high natural resources often exhibit policy distortions and weak institutional structures that handicap progress with reforms aimed at curtailing government expenditures and reorienting economic activity. National competitiveness is not helped either by the appreciation of real exchange rate derived from windfalls.

<sup>7</sup> See Keep et al. (2006)

<sup>8</sup> Source: McKinsey (2016).

<sup>9</sup> Source: Yousef (2004).

<sup>10</sup> See Malik and Awadallah (2013).

<sup>11</sup> Despite average annual growth rates in real gross domestic product (GDP) of almost 5% in MENA countries between 2000 and 2010, the economic upswing did not translate into increased job creation and economic opportunities.

<sup>12</sup> Moreover, the incidence of 'working' poverty has reached 38 per cent in 2015, which is higher than at any time between 2000 and 2013. In the case of GCC countries, while the incidence of working poverty is low (at 6.9 per cent in 2015), it has increased slightly since 2011 (ILO 2016).

<sup>13</sup> The problem is more pronounced in non-GCC countries, where participation was only 18.0 per cent in 2015 - the figure for non-GCC countries remains almost 10 percentage points below the rate observed in GCC economies (ILO 2016).

<sup>14</sup> Data from the International Labor Office shows that vulnerable employment in non-GCC countries would affect 8 million workers, which is above 33 per cent of the workforce (ILO 2016).

<sup>15</sup> See Assaad (1997).

<sup>16</sup> These contradictions are discussed in more detail in Malik and Awadallah (2013)

<sup>17</sup> See discussion in World Bank (2013)

<sup>18</sup> See the statistics in <http://blogs.worldbank.org/arabvoices/problem-unemployment-middle-east-and-north-africa-explained-three-charts>

<sup>19</sup> Only a small fraction of the working age people in MENA has formal jobs; the figure was 19 percent in 2015 (World Bank 2015).

<sup>20</sup> Weak formal employment hinders economic development because informality is a barrier for boosting labor productivity. See, for instance, World Bank (2014)

<sup>21</sup> Source: <http://www.enterprisesurveys.org/reports/mena-report>

<sup>22</sup> These results are discussed in a report produced jointly by the European Bank for Reconstruction and Development, the European Investment Bank, and the World Bank (2016). The results are based on the EBRD-EIB-WB MENA Enterprise Survey (MENA ES).

<sup>23</sup> GTCI uses the Corruption Perceptions Index produced by Transparency International.

<sup>24</sup> Source: [http://www.transparency.org/research/gcb/gcb\\_2015\\_16](http://www.transparency.org/research/gcb/gcb_2015_16)

<sup>25</sup> The World Bank (2015) argues that the problem is regional but the report presents more examples of specific countries such as Egypt and Tunisia (GCC countries are not well covered by the report).

<sup>26</sup> Information obtained from: <http://blogs.worldbank.org/futuredevelopment/jobs-or-privileges>

<sup>27</sup> See Malik and Awadallah (2013).

<sup>28</sup> Both behavioral and cognitive factors are important for entrepreneurship (Baron 2007). The importance of behavioral skills for entrepreneurship in the Middle-East has been emphasized by experts and the media, including the article "Three Necessary Factors To Establish a Qatari Silicon Valley" by Prof. Maher Hakim (Carnegie Mellon) in the Magazine Entrepreneur Middle-East: <http://www.entrepreneur.com/article/242237> (accessed 26 February 2015). The willingness to accept failure is more important than optimism (see the discussion by Hmieleski and Baron, 2009).

<sup>29</sup> These factors are also relevant for countries of the MENA region, according to the Global Entrepreneurship Report.

<sup>30</sup> For a detailed discussion see the Global Entrepreneurship Monitor (2011).

<sup>31</sup> Such multi-stakeholder approach is essential because the Middle-East does not have a culture for entrepreneurship. Failure is still seen as a shame. Countries in the region are taking this seriously. The comprehensive training boot camp offered by Oasis500 (the Jordan-based Accelerator) is regarded by many as the leading entrepreneurship and business training for ICT startups in the MENA region. In another instance,

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Tejar Dubai, an initiative by Dubai Chamber of Commerce and Industry, has signed a Memorandum of Understanding with Injaz UAE, a member of Junior Achievement Worldwide (JAW) to inspire and prepare students in Dubai for acquiring entrepreneurial skills.

<sup>32</sup> Funding for start-ups has grown steadily in the Mena region in the last three years. According to another report by Magnitt, the average investment has grown from \$0.8m in 2014 to \$2.8m in 2016 - excluding Careem and Souq (source: <https://www.ft.com/content/c7486faa-dda1-11e6-86ac-f253db7791c6> ). Dubai leads the way in this respect. Some recent initiatives are discussed in <http://www.forbesmiddleeast.com/en/is-dubai-the-next-big-tech-startup-hub/>

<sup>33</sup> Source: <http://blogs.worldbank.org/psd/start-scale-what-does-it-take>

<sup>34</sup> Source: <http://siteresources.worldbank.org/INTMENA/Publications/20262209/Empoverview.pdf>

<sup>35</sup> See Lucas (1988), Barro (2001) or, more recently, Hanushek (2013) for a specialized discussion in emerging markets.

<sup>36</sup> See Noorbakhsh et al. (2001).

<sup>37</sup> The top 20 countries in GTCI are Switzerland, Singapore, United Kingdom, United States of America, Sweden, Australia, Luxembourg, Denmark, Finland, Norway, Netherlands, Ireland, Canada, New Zealand, Iceland, Belgium, Germany, Austria, United Arab Emirates and Estonia. More details in: <https://www.insead.edu/sites/default/files/assets/dept/globalindices/docs/GTCI-2017-report.pdf>

<sup>38</sup> For a full description of all the variables used in GTCI refer to Annex II to the country pages, which contain all the data for a selection of countries.

<sup>39</sup> Google has a very strong series of initiatives in the world around building digital skills (Google Growth Engine) and it recently won the EU award as it managed to put 2 million youth in Europe into jobs.

<sup>40</sup> IT-intensive job functions will continue increasing in the region and skill gaps will not diminish overnight. One example will suffice to illustrate this point: gaps in digital network skills (i.e. people involved in network design, operations and maintenance, and deployment and support) are expected to increase significantly. In 2012, the skills gap in Saudi Arabia was 17,736, which represents a gap of 73 percent when calculated as a proportion of total demand; the gap in UAE was 5,242 (i.e. a gap of 31.8 percent). By 2016, such numbers are expected to increase to 33,792 (79.4 percent) and 15,386 (47.8 percent), respectively. These numbers were predicted by a report by IDC (2013).

<sup>41</sup> Deming (2015) emphasizes the relevance of soft skills in the future of work, including the ability to communicate and collaborate.

<sup>42</sup> See Autor (2015).

<sup>43</sup> Adaptability is not only a skill but also an attitude or mindset that is shaped by cultural context and the aspirations of people.

<sup>44</sup> The Skills Agenda study was commissioned by Google to the Economist Intelligence Unit.

<sup>45</sup> All these trends are discussed in Evans and Rodriguez-Montemayor (2017).

<sup>46</sup> We thank Philip Bahoshy, founder of MAGNiTT, and Fadi Ghandour, managing partner at Wamda Capital, for their insights regarding the entrepreneurship landscape in the MENA region.

<sup>47</sup> Source: McKinsey (2016).

<sup>48</sup> See Lanvin and Rodriguez-Montemayor (2015).

<sup>49</sup> A relevant example is the one of Edraak, a massive open online course (MOOC) platform that is an initiative of the Queen Rania Foundation (QRF). The foundation seeks to ensure that the Arab world is at the forefront of educational innovation. QRF has capitalized on regional Arab talent to leverage technology developed by the Harvard-MIT consortium, edX, to create the first non-profit Arabic MOOC platform.

<sup>50</sup> There are some initiatives that have resources regarding the use of virtual reality for education: e.g. <https://vhil.stanford.edu/projects/>

<sup>51</sup> Source: <https://venturebeat.com/2016/02/21/how-vr-and-ar-will-be-training-tomorrows-workforce/>

<sup>52</sup> The indicators for all four attributes are either country-level variables from the GTCI index or variables from the World Economic Forum's Executive Opinion Survey; many of them are used in the Cornell-INSEAD-WEF Networked Readiness Index of the Global Information Technology Report (GITR).

<sup>53</sup> These historical details were extracted from Yousef (2004).

<sup>54</sup> See Powell and Snellman (2004).

<sup>55</sup> The trends of the global geography of production are discussed in more detail in Lanvin et al. (2017).

<sup>56</sup> See Mokyr et al. (2015).

<sup>57</sup> Economic projections point to a need for approximately 1 million more STEM professionals than the United States will produce at the current rate over the next decade if that country is to retain its historical preeminence in science and technology. See <http://www.bls.gov/opub/mlr/2015/article/stem-crisis-or-stem-surplus-yes-and-yes.htm>

<sup>58</sup> See Lewin et al. (2009).

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<sup>59</sup> See Schwalje (2013). The transition to knowledge-based economies emerged as a development goal in many countries in the region in the late Nineties due to the commonality of several factors related to culture, the economic environment, and socio-political developments.

<sup>60</sup> See, for instance, the Book “The Death of Distance”, by Frances Cairncross.

<sup>61</sup> See Venable (2001), “Geography and International Inequalities: the Impact of New Technologies”, Centre for Economic Performance, London School of Economics and Political Science, 2001.

<sup>62</sup> The internet is encouraging more cross-border exchanges of goods and services, allowing consumers and firms to bypass national borders. But cross-border issues—such as barriers to data flows and uncoordinated regimes for intellectual property rights—are impairing the growth of internet firms and robbing consumers of gains from increased digital trade. This has also meant that many start-ups from smaller countries with relatively modest domestic markets, particularly in Europe, are moving their businesses to the United States as soon as they achieve a certain scale (World Bank 2016).

<sup>63</sup> In 2010, the ICT industry in the Middle East was valued at approximately \$80 billion but it more than doubled by 2015 (\$173 billion, according to projections by Booz & Company 2012). The digital market in the whole MENA region is expanding at a compound annual growth rate of 12 percent and is expected to be worth \$35 billion by 2015 (Strategy& 2012). For instance, business process outsourcing (BPO), the most profitable and cost effective subset of offshoring, combined with IT and software development is expected to generate 59,000 digital jobs in Morocco by 2020 (EFE, 2014).

<sup>64</sup> These issues are discussed in <http://www.worldbank.org/en/news/press-release/2016/07/24/private-sector-is-key-driver-for-growth-in-the-middle-east-and-north-africa>

<sup>65</sup> The ILO (2015) identifies five areas of action: (1) employment and economic policies to increase aggregate demand and improve access to finance; (2) education and training to ease the school-to-work transition and to prevent skills mismatches; (3) labor market policies to target employment of disadvantaged youth; (4) entrepreneurship and self-employment to assist potential young entrepreneurs; and (5) labor rights that are based on international labor standards to ensure that young people receive equal treatment and are afforded rights at work.

<sup>66</sup> See the discussion in Malik and Awadallah (2013). For resource-poor countries, remittances constitute another important income stream. In Jordan nearly 13% of GDP was derived from remittances in 2010. In Lebanon this ratio was 20% (source: World Bank Development indicators).

<sup>67</sup> We use Finegold’s (1999) concept of “high skill ecosystems”

<sup>68</sup> In many countries of the region, education is supposedly free, but additional spending is often required to succeed; disadvantaged children are less likely to complete basic education and children from poorer families receive less tutoring and family help. These trends are identified for the case of Egypt (see Assaad, R and C. Krafft 2015. Is free basic education in Egypt a reality or a myth? International Journal of Educational Development Volume 45, November 2015, Pages 16–30)

<sup>69</sup> Problem solving, team working and communication are the skills that are currently most in demand in the workplace, according to a large survey implemented by the Economist Intelligence Unit (2015). Workplaces are becoming more team-oriented. Education systems need to provide students with hands-on learning that mirrors real-world problems and work opportunities in an interdisciplinary way.

<sup>70</sup> This has been a regular finding of Cornell-INSEAD-WIPO Global Innovation Index.

<sup>71</sup> See Evans and Rodriguez-Montemayor (2017).

<sup>72</sup> See the discussion in the report by the Economist Intelligence Unit (2015).

<sup>73</sup> Surveys show that lack of time within a strictly regulated curriculum is the biggest barrier to teaching 21st-century skills; such skills have to be embedded in various aspects of the curriculum, not to bolt them on as additional subjects requiring more time (see Economist Intelligence Unit 2015).

<sup>74</sup> Three institutional and market pre-requisites include: (i) Factors that force actors to take a long-term outlook (mostly institutions that counter pressures from capital markets to focus on the short term). (ii) Factors that encourage inter-firm cooperation within a competitive environment. (iii) Export orientation, or exposure to international competition (see Finegold 1999).

<sup>75</sup> Source: ILO (2015, pp. 18).

<sup>76</sup> These are largely non-existent in the region. In December the federal government of UAE introduced an insolvency law to ease the orderly unwinding of bankrupt companies, including protections for debtors. The law — still untested because of its newness — stays proceedings on bounced cheques if the debtor is in a court-approved insolvency process (source: <https://www.ft.com/content/050720c0-e248-11e6-9645-c9357a75844a> ).

<sup>77</sup> In addition to formal rules such as laws, institutions also involve informal constraints (sanctions, taboos, customs, traditions, and codes of conduct) and both provide the incentive structure of an economy; as that structure evolves, it shapes the direction of economic change towards growth, stagnation, or decline (North 1991).

<sup>78</sup> Arabic MOOCs have started to emerge. Edraak, launched in Amman in 2014 as a social entrepreneurship startup, was the first pan-Arab initiative of its kind and seeks to make quality education more accessible for the



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entire population. Other Arabic language MOOCs include Rwaq in Saudi Arabia, SkillAcademy in Egypt or MenaVersity in Lebanon. Courses are diverse but people increasingly show interest in improving digital skills (e.g. the course 'Introduction to Computer Science' had near 30,000 registered students in 2014).

<sup>79</sup> See this research by Wamda: <https://cache.wamda.com/api/v1/downloads/publications/a2t-access-talent-menas-entrepreneurs>

<sup>80</sup> This was the result of the assessment made by ILO (2015).

<sup>81</sup> The OECD defines inclusive growth as “economic growth that creates opportunity for all segments of the population and distributes the dividends of increased prosperity, both in monetary and non-monetary terms, fairly across society” (OECD, 2015).

<sup>82</sup> See World Economic Forum (2014)

<sup>83</sup> These issues were discussed in an ILO study on youth employment coordination mechanisms in East Africa (Phororo, 2013)

<sup>84</sup> See OECD (2016).

<sup>85</sup> Youth programs at sector level typically suffer from weak co-ordination between departments pursuing their own mandates and operating within their own organizational structures. A whole-of-government (WoG) approach with strong leadership is vital to break up silo-based approaches and roll out youth policies and deliver youth services in a coherent manner across administrative boundaries.

<sup>86</sup> A report by the OECD (2016) presents the results of a survey on trust and the confidence gap carried out by Gallup World Poll in 2015.

<sup>87</sup> Constitution may request local authorities to take into account the concerns of young people whose active participation shall be facilitated through associations and municipal youth councils.

<sup>88</sup> This is happening via institutions such as the Advisory Council of Youth and Associations (Conseil Consultatif de la Jeunesse et de l'Action Associative).

<sup>89</sup> Much of big data-driven analyses, especially for development and policymaking, rely on location as a critical attribute. For example, geo-locating social media users is important when deciding on the weight that should be given to their views or sentiments with regards to government services in certain areas, their proximity to certain events and if they are living in the country, or one of its regions at all.

<sup>90</sup> See the 7<sup>th</sup> Edition of the Arab Social Media report (2017), produced by the Mohammed Bin Rashid School of Government (author Fadi Salem).

<sup>91</sup> Source: OECD (2016). Other relevant reports in the region include: OECD (2013), OECD e-Government Studies: Egypt 2012, OECD Publishing <http://dx.doi.org/10.1787/9789264178786-en> ; OECD (2015), Investing in Youth: Tunisia: Strengthening the Employability of Youth during the Transition to a Green Economy, OECD Publishing.

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