Emerging Markets Talent Index 2019

DEVELOPING HIGH-VALUE ECOSYSTEMS
# Table of Contents

ABOUT THE REPORT 5
EXECUTIVE SUMMARY / KEY MESSAGES 7
INTRODUCTION 9
SECTION 1 - MEASURING TALENT COMPETITIVENESS ACROSS COUNTRIES 13
The GTCI Framework 13
The State of Talent around the World: GTCI overview 14
Developed vs Emerging Markets 17
The Employability question: looking beyond formal education 20
The Mega Trends: Technological change, Ecosystems and Inclusion 21
SECTION 2 - TALENT AND EMPLOYMENT IN SELECTED EMERGING AREAS 23
GTCI performance in selected emerging markets: an overview 23
MENA region 25
Sub-Saharan Africa 27
Russian Federation 32
Emerging Europe 33
SECTION 3 - DEVELOPING HIGH-VALUE TALENT ECOSYSTEMS IN EMs 36
SECTION 4 – POLICY IMPLICATIONS AND RECOMMENDATIONS 41
REFERENCES 43
ANNEX 1 - COUNTRY BRIEFS 47
Egypt - Country Brief 48
Israel - Country Brief 51
Jordan - Country Brief 54
Kenya - Country Brief 57
Lebanon - Country Brief 60
Morocco - Country Brief 63
Nigeria - Country Brief 66
Russia - Country Brief 69
Saudi Arabia - Country Brief 73
ABOUT THE REPORT

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The contents of this report reflect the views of the authors, who are responsible for the facts and accuracy of the information presented herein. They do not necessarily represent the views of INSEAD or Google.
"Does anybody really think that they didn't get what they had because they didn't have the talent or the strength or the endurance or the commitment?" (Nelson Mandela)
EXECUTIVE SUMMARY / KEY MESSAGES

● The report analyzes talent performance around the world, mainly contrasting developed vs. emerging countries. The report focuses on countries from three emerging regions: MENA, Sub-Saharan Africa (SSA) and Emerging Europe (including Russia).

● In order to use talent to its full potential, modern economies need to reconcile some paradoxes emerging globally: higher technology-led productivity vs. stagnating wages; lower number of jobs in highly automated sectors vs. shortages of skills in others; with jobless economic growth in some regions.

● Whether such paradoxes are transitory or structural by nature, they need to be addressed to avoid a social backlash, and a smooth transition to the ‘future of work’. Possible responses are multi-faceted. They include the adaptation of policies around education & skills, employment, social protection and also around the creation of clusters and strategies for regional development.

● The gap between top talent performers (mainly rich nations in the West) and the rest of the world has been widening since GTCI’s first edition in 2013. This worrying trend has remained steady, despite promising economic and demographic changes in emerging markets.

● Rich countries that rely on innovation and creative ideas perform much better in talent performance as measured by GTCI than those relying on natural resources.

● Emerging countries have great potential to become the main drivers of global economic growth. They are often younger (in MENA and particularly SSA), educating rapidly and are less constrained by legacy industries from the industrial age. Yet, a significant portion of society is not being employed in the most productive jobs, and social exclusions continue to be the norm.

● Fulfilling the potential of emerging countries will depend on their ability to provide their younger generations with meaningful jobs and entrepreneurial opportunities. Youth unemployment in MENA remains at 30%, i.e. twice the world average. There, and in SSA, unemployment among the youth is twice or thrice as big as what it is for the rest of the workforce.

● Employment challenges result from a combination of supply-side factors (such as the availability of skills) and demand-side factors such as the (lack of) creation of economic activities that generate jobs in the first place.

● Developing the right skills is important. Yet, formal education is not the only vehicle to achieve employability. Of the three regions, Emerging Europe has the best performance in sub-pillar ‘Formal Education’ and yet the lowest score for employability. Countries that rank higher in the sub-pillar of ‘Lifelong Learning’ have better employability.
• Although formal education is catching up fast in emerging countries in terms of enrolment, the institutional and market landscapes (GTCI’s Enable Pillar) to support talent and innovation still lag behind rich countries. Moreover, despite more enrolment, the quality of educational systems has declined in many emerging countries.

• Lack of demand by a strong private sector is a clear common denominator of all three regions and seems a larger driver of unemployment. In this context, the educated have an ingrained aspiration for public sector jobs and are often voluntarily unemployed. Emerging Europe, in particular, needs a pro-employment attitude.

• In addition to improving the ‘doing business’ environment, wider economic diversification is needed to boost the private sector. A common denominator in MENA and the whole of Africa is the heavy reliance of the economy on external windfalls: state-centered policies that have rested on the flow of external rents like fuel exports for the richer countries, or minerals, foreign aid and remittances for the poorer ones, have created fertile grounds for ‘jobless’ growth.

• There is a need to re-think dominant policies around youth unemployment. Focus should be brought to funding skills-building programs, especially around new technologies. The largest problem is the availability of too few jobs. Furthermore, underemployment and low productivity are often more pressing challenges than unemployment itself. In poorer SSA countries unemployment is low; in Russia, wages, not employment, has been the mechanism of adjustment to economic downturns.

• Policy must also target the strengths of the different regions and countries. Formal wage-based jobs have to increase but will not employ the vast young labor force available in SSA or MENA. Labor-intensive manufactured exports are not significant in most parts of Africa – neither in resource-rich GCC. Agriculture can be leveraged in SSA by improving technology and productivity (particularly in family enterprises).

• Talent ecosystems leverage the inter-dependencies among players in the economy (people, workers, firms, governments) to create more economic value (e.g. via innovation) and social progress. Inclusive prosperity can be achieved by leveraging local resources.

• Cities (rather than countries) are today’s main magnets for talent. They will increasingly target specialized talent linked to particular local issues or typical urban challenges (waste management, transport, and inclusion, among others). New strategies of local development are expected to emerge rapidly, in particular around smart cities’ strategies.
INTRODUCTION

The unprecedented evolution of technology, demographics and globalization continue reshaping the physiognomy of economies and societies worldwide. Such transformations affect what we consume, how we produce and, consequently, how we work. Since the publication of the Global Talent Competitiveness Index 2017, analyses and discussions about the ‘future of work’ have occupied a prominent place in the agenda of corporations and governments alike.

How such future of work unfolds will certainly have wide implications on the prosperity of societies. We need a future that empowers talent: there is a consensus that highly-skilled people will play an ever-increasing role in the success of organizations and whole economies – considering that knowledge and creativity are fast becoming the key factors of competitive advantage in the information age. Yet, moving towards that future is challenging since a large portion of workers is struggling to adapt to ongoing technological transformations. Societies thus need to ensure that they do not squander the potential of their greatest asset for economic prosperity: their human capital.

In order to empower talent at full potential, modern economies need to reconcile some emerging paradoxes. Automation and artificial intelligence, despite their benefits in terms of enhancing productivity, threaten to make many types of workers redundant. Meanwhile, ageing populations and outdated educational systems are creating large skills gaps and enterprises are often unable to source the talent they require. While many workers find it difficult to find jobs, the few benefactors of the technological dividend (often skilled workers and business leaders of large corporations) take an increasing share of the pie leading to rising inequality. The social fractures thus created can hurt the competitiveness, and thus the speed of development, of nations.

It is clear that our educational systems need deep reforms to meet new competence/skill requirements. The educational system is also the main vehicle to promote inclusion, equality of opportunity and social mobility. Yet, the potential policy approaches are multifaceted. 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 proper functioning of those systems that “make ordinary people do extraordinary things”, as put by Peter Drucker, the founder of modern management. The functioning of labor markets, social protection systems, the development of clusters and the regulatory environment also matter for empowering talent.

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1 Human capital as a productive factor of the economy becomes more important as we move further into a post-industrial knowledge society where it is information, knowledge and intellectual skills that drive economic growth (Powell & Snellman, 2004) rather than physical inputs such as machinery.
2 See Lucas (1988), Barro (2001) or, more recently, Hanushek (2013) for further analysis about the link between human capital, growth and prosperity.
3 See Brynjolfsson & McAfee (2014).
4 While inequality has declined across countries, it has increased within countries (see Milanovic, 2016).
GTCl as a tool for action

In the context of these challenges, businesses and governments have often expressed readiness to act. Yet, they often lack the frameworks, assessment tools and points of reference to do so efficiently.

Published yearly since 2013, the Global Talent Competitiveness Index (GTCl) assesses the set of policies and practices, as well as the enabling context, that allow a country or a city to attract, develop and retain the human capital that contributes to its prosperity.

As an action tool, assessment models such as GTCl facilitate the systematic identification of policy priorities as well as comparative lessons, particularly in the context of technological, demographic and economic transformations facing societies.

Emerging Markets: untapping the talent potential

In its five years of history, the top positions on the GTCl have been dominated by developed countries. High talent performers are mainly based in North America and Western Europe. Singapore has also been a story of success often featured in the research and case studies of the report.

Nevertheless, emerging markets (EMs) hold huge potential to become key players in a knowledge-powered global economy. Populations are still younger and educating rapidly, as exemplified by the ‘youth bulge’ experienced by the Middle East and the whole African continent. Some of these economies, less constrained by the legacy of old industries that were never developed, have the opportunity to leapfrog the industrial era and go straight into the information era. This can allow them to implement more flexible development strategies if the reconfiguration of global production systems is well comprehended.

The purpose of this report is to help emerging countries capitalize on this opportunity. It is entitled “Emerging Markets Talent Index” because it makes use of GTCl data for selected emerging countries to explore in more detail their state of talent and employment, and how to become more competitive in the global scene.

Fulfilling their potential will largely depend on the ability of emerging markets to provide their younger generations with meaningful jobs and entrepreneurial opportunities. For instance, the Middle East and North Africa (MENA) region, deeply studied by GTCl-related research,6 is not yet succeeding: with the world’s highest regional youth unemployment rate, the MENA region stands at a critical juncture at which the ‘youth dividend’ can turn into a ‘youth liability’. Even rich countries such as the UAE or Qatar have not been able to sufficiently diversify their economies away from natural resources via a strong private sector.

Emerging markets thus face a double challenge: modernize their institutions and markets on par with developed countries and, at the same time, adapt to widespread technological change just like all countries worldwide. Emerging countries also face serious talent

bottlenecks aggravated by the large informal sector of the economy and the misallocation of
talent that this causes.\footnote{See Cooke (2017)}

This report explores once again the challenges faced by the MENA region when it comes to
talent, given its untapped pool. The situation in Sub-Saharan Africa, the largest source of
young people for the foreseeable future, is also explored by covering key large economies.
To offer a contrast to these young economies, the report also explores the case of some
emerging (eastern) European nations.

**Talent Ecosystems**

On the fifth birthday of GTCI, some key messages emerged. After exploring the adequacy of
educational systems and the global nature of talent in the first two years, the 2017 edition was
one of the first systematic global studies to focus on the future of work.

The ‘direct’ challenges presented by the future of work are already well known. New skills
are clearly needed to redeploy those whose jobs are being automated. Both formal education
and lifelong learning systems thus need to be flexible and adaptable – tailored specifically
towards career paths that will change more frequently. Labor market and social protection
policies must adapt to ‘unconventional’ employment models where people move often and
manage portfolios of multiple projects.

The future of work is also concerned by indirect challenges, one of which is inequality. While
the majority of workers must navigate disruptive transformations, the most talented people
and firms are already enjoying the fruits of technology, sometimes in winner-takes-all
situations. This state of affairs has made inclusive prosperity the priority of many policy
makers. GTCI 2018 explored the importance of diversity and inclusion for the prosperity of
firms, cities and nations. The big question for nations is how best to develop an inclusive
development strategy where all types of people benefit from economic growth no matter their
socioeconomic status.

This takes us to ecosystems. Despite having been used recently in many contexts, the term
‘ecosystem’ is much more than a buzz word; it is an important one as it mainly refers to the
interdependencies among different actors (people, workers, firms, governments) in creating
value and prosperity, and to the co-evolution that binds them together over time.\footnote{See Oh et al. (2016).}

In the future of work, these interdependencies will increasingly characterize how talented people
organize to produce goods and services and to innovate.\footnote{Innovation is emerging more and more from customer-centric ecosystems}
GTCI 2017 already explored new
organizational models to work in more agile and collaborative ways – in a world where co-
creation of value is becoming ever more important.

In a narrow sense, an innovation ecosystem can refer to a profit-driven system of innovation
around focal companies or digital platforms.\footnote{An ecosystem at this level covers the community of organizations, institutions, and individuals (including consumers) that impact the fate of the focal firm and its customers and supplies, including complementors, suppliers, regulatory authorities, standard-setting bodies, the judiciary, and educational and research institutions} In a broader sense, an ecosystem is the

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\footnote{See Cooke (2017)}
\footnote{See Oh et al. (2016).}
\footnote{Innovation is emerging more and more from customer-centric ecosystems}
\footnote{An ecosystem at this level covers the community of organizations, institutions, and individuals (including consumers) that impact the fate of the focal firm and its customers and supplies, including complementors, suppliers, regulatory authorities, standard-setting bodies, the judiciary, and educational and research institutions}
interaction of different actors in an industry (e.g. in clusters)\textsuperscript{11} or even a city or country (in triple-helix collaborations between firms, governments and academia) to create wide economic value or social progress.\textsuperscript{12} Therefore, although the term ‘innovation ecosystem’ is the one most widely used (an important one since innovation implies new ways of creating value), we use the broader term ‘talent ecosystem’ because it involves also the advancement of people and social wellbeing. Ecosystems leading to inclusive prosperity are particularly urgent in emerging markets where wide social exclusions continue to be the norm.

\textit{Structure of the Report}

The main part of the report consists of four sections. Section 1 presents the results of the GTCI 2019, mainly by comparing EMs against developed countries, and gives an overview of the main talent and employment trends identified in the first six years of history of the Index (Annexes 2 and 3 then explain in detail the definition of all the talent variables used, how their scores are calculated and how the overall index is computed).

Section 2 provides a qualitative assessment of the current state of talent and employment in selected emerging markets: mainly MENA and Sub-Saharan Africa, followed by a brief discussion of ‘Emerging Europe’.

Section 3, building upon the findings of Sections 1 and 2, provides a brief policy discussion on the role of ecosystems for future economic development and how they can be developed in EMs.

Finally, Section 4 concludes the main part of the report with a summary of policy implications and recommendations for various stakeholders on how to advance talent competitiveness in the emerging markets and address some of their employment challenges.

The report also contains three appendices. Annex 1 offers a more detailed picture of talent and employment for selected countries from the areas covered in Section 2. The statistics in the selected ‘country briefs’ are based on data from GTCI 2019. Annex 2 provides a technical summary of the methodology behind the computation of the GTCI. Annex 3 details the definitions and sources of all variables used in GTCI 2019.

\textsuperscript{11} Clusters are geographically concentrated and interlinked agglomerations of specialized firms in a particular domain. Such geographic concentrations of industries involve knowledge, skills, inputs, demand, and/or other linkages. A growing body of empirical literature has shown the positive impact of clusters on regional and industry performance, including job creation, patenting, and new business formation (see Delgado et al. 2014).

\textsuperscript{12} Early studies of innovation ecosystems (e.g., Adner and Kapoor, 2010), treated the concept very much as a market-driven phenomenon and did not consider policy issues in the same way as the (mature) innovation systems literature.
SECTION 1 - MEASURING TALENT COMPETITIVENESS ACROSS COUNTRIES

Governments have ready access to different socio-economic and business data, but their challenge is to interpret the figures through analytically sound comparisons, with access to the interpretations and lessons of other countries in matters related to skills and employment.

Compiled and released annually with updated data, now covering 125 countries in its sixth edition (published in January 2019), the aim of the Global Talent Competitiveness Index (GTCI) is to facilitate such comparisons and benchmarking of countries. GTCI draws on the best, most recent, and most authoritative data collected by international organizations such as the World Economic Forum, the OECD, ILO, the World Bank and the United Nations.

The GTCI Framework

GTCI assesses the set of policies and practices, as well as the enabling context, that allow a country or a city to attract, develop and retain the human capital that contributes to its prosperity.

GTCI is based on input-output reasoning (Figure 1). The four pillars of the input side look at the 'levers' that facilitate developing, attracting and empowering talent in a country. The pillar Grow, for instance, is mainly about people with formal education and lifelong learning as the most important dimensions (called sub-pillars in the framework). The pillar Enable measures the context in which these people can thrive: the institutional/regulatory landscape (e.g. low corruption and strong collaboration between government and business); the market landscape (e.g. with strong competition and the creation of clusters); the labor landscape (e.g. with strong alignment between employers and workers); and the business landscape (mainly with management practices that lead to productivity).

The two pillars of the output side look at the stock of human capital of nations and the economic value that it produces. The stock of human capital in a country is assessed in terms of two different skill-knowledge sets: expertise-based (vocational-technical, VT) and adaptive-generalist skills - labelled as Global Knowledge (GK) skills in GTCI, which are associated with leadership, entrepreneurship and innovation.
Figure 1 The GTCI Framework

A score is computed for each pillar and sub-pillar of the GTCI framework in Figure 1. Each sub-pillar is composed of several relevant variables - in its latest version (2019), there is a total of 68 variables across all the sub-pillars. The data and sources used by GTCI, as well as the technical details of the computation,\textsuperscript{13} are listed in Annex 2 and Annex 3.

The virtue of such composite models is that they capture the multifaceted nature of complex phenomena, showing interdependencies and conveying data in a potent way.

The State of Talent around the World: GTCI overview

In its six years of history, GTCI has been dominated by high-income, developed economies. Switzerland and Singapore have held the top spots every year, with other top-10 countries usually comprised of the USA and smaller rich economies such as the Nordics and other Northern European economies. In general, there seems to be a divide between developed countries in the 'West' and the rest of the world (see Figure 2).

\textsuperscript{13} Computation involves normalizing each individual variable to a common scale (0-100) and then aggregating the data into a single score by assigning weights to each pillar. Each sub-pillar score is derived as the simple arithmetic average of the individual variables that it comprises. The GTCI Index score is the arithmetic average of the scores obtained by a particular country on each of these six pillars.
Countries often show similar trends to those experienced by their peers within the same income group (e.g. large informal markets in lower-income countries) or by their regional peers (such as widespread youth unemployment in MENA). Yet, talent performance can vary substantially within such groups, as is the case in high-income countries (Figure 3 left). Rich countries that rely on innovation and creative ideas fare much better in terms of talent performance than those relying on natural resources.

In general, richer countries outperform poorer countries. The GTCI top performers are all high-income countries. Moreover, although scores are widely dispersed among high-income countries (Figure 3 left), even the group’s poor performers are generally above countries in the other income groups (the worst performer of the high-income group is above the median of countries in the upper-middle-income group).
Some upper-middle-income emerging countries can indeed outperform some of their richer peers. Malaysia leads the group of upper-middle-income countries and holds the 27th position overall in GTGI 2019 – above high-income countries such as Portugal, Spain or South Korea. China (45th in GTGI 2019) is above high-income countries like Hungary or Argentina. One group below, Philippines leads the lower-middle-income group, followed by Ukraine. Both rank above several upper-middle-income countries and even high-income countries like Kuwait – a small economy relying mainly on oil exports.

Looking across regions, the performance of countries in Eastern, Southeastern Asia and Oceania is very heterogeneous (Figure 3 right). Europe also shows a large heterogeneity, including large performance differences between the top (Switzerland) and the bottom (Albania). By contrast, Central and Southern Asia is more homogeneous in the relatively weak performances of its countries.

Outside Europe and Northern America, some regions have ‘superstars’ like East Asia (notably Singapore) and UAE and Qatar in MENA. The regions that have no countries within the highest quartile in the overall GTGI index (i.e., the top 31 countries) are Central and Southern Asia; Latin America and the Caribbean; and Sub-Saharan Africa.

There is a pack of countries (approximately the top-15) that stands above the rest. Looking at the distribution of talent scores of the whole sample of GTGI 2019, there is a skew in the distribution after a score of 60 (Figure 4 left) with few countries distinguished from the others. These are often considered the top performers and they are usually the same high-income, developed countries across the six editions of the GTGI.

The group of emerging markets, comprised of upper-middle-income and lower-middle-income countries, tend to concentrate around a score of 40 (Figure 4 left), well below the average score of the GTGI leaders. Nevertheless, talent performance of developed nations is
quite diverse, and the weaker ones are outperformed by some emerging markets (in Figure 4 right, the upper-tail of emerging nations overlaps with the lower-tail of developed nations).

Poor (i.e. low-income) countries, by contrast, are normally a story apart. They are quite homogeneous (very low dispersion in the distribution) regarding their talent performance, and that means that they all equally lag behind (Figure 4 right). Many of these countries are located in Sub-Saharan Africa.

**Figure 4 Distribution (Frequency) of GTCI Scores**

![Figure 4 Distribution (Frequency) of GTCI Scores](image)

**Developed vs Emerging Markets**

Emerging markets have great potential to become the drivers of the global economy. Populations are still younger and educating rapidly, as exemplified by the 'youth bulge' experienced by the Middle East and the whole African continent (more details about demographics and employment are described in Section 2). Yet, fulfilling that potential will largely depend on the ability of emerging markets to provide their younger generations with meaningful jobs and entrepreneurial opportunities.

Fulfilling that potential will prove challenging as emerging markets are lagging behind in many important areas. In fact, despite the promising growth of many emerging markets in the post-2008-crisis years, the gap between developed and emerging markets in terms of talent might be widening – GTCI time series data shows that the distribution of average scores for the period 2017-2019 has shifted upwards for high-income countries (with respect to the average for 2014-2016), whereas the trend is the opposite for the upper-middle-income and lower-middle-income groups (Figure 5).
Despite important economic, social and institutional differences across emerging countries, there are some common denominators. 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 a strong private sector, which is the engine of job creation. Large informal sectors are widely prevalent.

The gap in talent performance with respect to the leading countries is driven by (sometimes large) differences in performance in particular pillars and sub-pillars of GTCI (Figure 6).

**Figure 6 GTCI Scores by Pillars and selected Sub-pillars (Emerging Markets’ gap with respect to the Top-15)**

Note: ‘Emerging’ includes all lower-middle-income and upper-middle-income countries

In terms of pillars, the largest gap in average scores between the Top-15 countries and emerging countries is in ‘Retain’ (Figure 6 left): this contains mainly indicators of lifestyle,
which indeed show profound differences between rich nations and the rest (i.e. in terms of personal safety, sanitation and the environment). These indicators are important to retain and attract foreign talent. Nevertheless, the two fundamental pillars that develop and support domestic talent are ‘Grow’ and ‘Enable’, so it is worth looking at their specific sub-pillars (Figure 6 right).

Formal education is normally considered the basis for becoming a talented country. Yet, 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. In fact, formal education is already catching up fast in many emerging countries – leaving poor countries aside, Figure 7 (left) shows that the distribution of scores of emerging countries for the GTCI sub-pillar ‘Formal Education’ almost overlaps with that of developed countries (for which performance is very heterogeneous).

The institutional and regulatory landscape as well as the market landscape are dimensions (GTCI sub-pillars) that show large divergencies across countries. In contrast to formal education, there is a more marked separation in the sub-pillar ‘Regulatory landscape’ (Figure 7 right). Developed countries are clearly offering more favorable conditions when it comes to this aspect. Talent must be thought of in the context of economic, social and political processes, since they are often correlated with the outcomes measured in the output side of GTCI such as innovation and entrepreneurship – supported by an adequate pool of skills.

The market landscape is also important for things like innovation and private sector development and there is a separation in the distribution of scores among developed,

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14 Exclusive reliance on human capital theory is insufficient to understand productivity of cities and nations. Understanding of employment relations and other drivers of the actual use of skills also help design the right policies for productivity (see Keep et al. 2006)
15 The sub-pillar ‘Regulatory Landscape’ is composed of the following indicators: Government effectiveness, Business-government relations, Political stability, Regulatory quality, Corruption
emerging and poor countries (Figure 8 left). Innovation is, of course, driven by several factors and there is certainly a positive correlation with formal education, the institutional landscape and other dimensions measured by GTCI. Yet, the sub-pillar of innovation in the GTCI (called ‘Talent impact’ under the pillar of Global Knowledge skills) is more correlated with the sub-pillar of Market landscape (in the scatterplot of Figure 8 right the coefficient of determination is 0.68, which corresponds to a correlation of 0.82).

The institutional landscape can of course affect the market landscape, including the development of the private sector. In MENA, a region known for its lack of private sector development, 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. According to Transparency International, 50 million people from the MENA region needed to pay bribes to maintain access to services in 2016. North Africa is particularly hindered by corruption: countries like Egypt, Morocco or Lebanon rank below the position 60 out of 120 countries. The slow creation of firms and employment is in part caused by policies that privilege a few dominant firms by insulating them from competition.

The Employability question: looking beyond formal education
Employing people in productive jobs is an important challenge in most emerging markets. Problems of employment are usually a combination of supply-side factors (such as the

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17 The World Bank (2015) argues that the problem affects the whole region while presenting the examples of specific countries such as Egypt and Tunisia (GCC countries are not well covered by the report). For instance, treatment by tax administrations can be unequal and unpredictable depending on political connections. 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.
availability of skills) and demand-side factors such as the (lack of) creation of economic activities that generate jobs in the first place.

Lack of demand by a strong private sector is a clear common denominator (the following sections discuss this in more depth). Although educational levels are increasing significantly in most emerging markets, the supply of skill does not always create its own demand. Moreover, the supply side is also failing since all those diplomas being developed by the educational systems of many emerging markets are not necessarily those needed by their economies. This ailment also affects rich countries: across the 27 EU countries in 2012, the NEET\textsuperscript{18} percentage of the youth was 15.4%. Yet, in emerging market it is more pronounced: the NEET rate reached a peak of 31.3% in MENA,\textsuperscript{19} and a high percentage of university graduates in countries like Botswana, South Korea and South Africa cannot find jobs (to take some countries with above-average expenditure on education) because that education has not equipped them with skills that have any value in the labor market.

The main message from GTCI data is that formal education is not always the most important vehicle to achieve employability. Formal education is a necessary but not a sufficient condition. Among emerging markets, those that rank higher in the sub-pillar of ‘Lifelong Learning’ are those with higher scores in indicators of employability (Figure 9).\textsuperscript{20}

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\textsuperscript{18} NEET referring to ‘Not in Education, Employment or Training’ (see complete definition in ILO 2005a)

\textsuperscript{19} See statistics in ILO (2015b).

\textsuperscript{20} The Sub-pillar of ‘Employability’ includes measurements of the ease of finding skilled employees, the relevance of education system to the economy, and also indicators on skills mismatches in both secondary and tertiary education.
the Sub-pillar of ‘Formal Education’ has a low correlation with the score of employability – in fact, Emerging Europe has the best performance in formal education (among emerging markets) and yet the lowest employability.

The Mega Trends: Technological change, Ecosystems and Inclusion

An underlying trend that was clear from the outset of GTCI is the way in which technology is changing the global talent scene, particularly in terms of new skills needed. This was the theme of the Report in 2017, but the effect of technology on the world of work was present in GTCI since inception. The first edition of GTCI in 2013 already made it clear that actions to deal with national challenges such as the impact of technology on society, the reform of educational systems, and the development of new skills for different work and employment opportunities require close exchange and collaboration between and within government, municipalities, business and labor representatives, and educational institutions.

Such cooperation among stakeholders, in what can be considered a ‘talent ecosystem’, facilitates the development of skills actually needed by the economy, as shown in the examples of India and Singapore featured in GTCI 2013. Part of a successful skills development system comes from vocational and technical education (as emphasized in GTCI 2014). Strong ecosystems also become magnets for global talent, a key asset in a world where ‘brain circulation’ is crucial for innovation (as discussed in GTCI 2015-16).

Among the many examples of the importance of partnership for national governance is the vocational educational system of Switzerland that contributes to its performance as the world’s leading country on talent competitiveness (No. 1 in GTCI) and on innovation (as reported in the Global Innovation Index). Philippe Gnaegi, former Swiss minister of education and chairman of the Swiss Federal Institute for Vocational Education and Training, told us that the foundation of a system that also facilitates high employment in that country (only 3.6% youth unemployment contrasting with a Euro area average of 20% in 2016) is the close partnerships between Swiss cantons (regional governments), the Federal government, business firms, and technical training institutions. The system is constantly evolving and changing, rooted in nearly a hundred years of collaboration dating back to 1921.

In short, collaboration and inter-dependencies are becoming more important than ever in the modern economy and thus strong ecosystems, particularly in cities, will be the drivers of innovation and thus of development. Indeed, ‘talent ecosystems’ facilitate entrepreneurship and innovation – as new business and (open) innovation models fueled by technology and digital platforms need complex networks of collaboration. Moreover, in the broader sense, such talent ecosystems also have the capability to pursue the advancement of people and social wellbeing via multi-stakeholder collaborations. Inclusion in economic activity (in organizations and in the wider economy) can no longer be ignored given its importance for competitiveness (as pointed out in GTCI 2018). Emerging markets, in particular, need urgent action to make sure that everyone has a stake in a productive economy.

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21 See Kwan & Siow (2013); Williamson & De Meyer (2012); Etzkowitz & Leydesdorff (2000); Mahoney & Kor (2015). Other references can be found in GTCI (2013).
SECTION 2 - TALENT AND EMPLOYMENT IN SELECTED EMERGING AREAS

In a world where virtually all developed economies are aging rapidly (and also emerging economies such as China), the MENA region and the whole African continent emerge as the largest wells of young people. Meanwhile, emerging markets will continue to fuel global economic growth.\(^{22}\)

Young people represent a valuable asset for any economy. Yet, such talent potential needs the right conditions to thrive, including not only access to education and training but also a productive business and market environment.

Previous GTCI-related research has looked into youth employment in the MENA region because it stands at a critical juncture. With more than half of its population under 25 years old and the world’s highest regional youth unemployment rate,\(^{23}\) the challenge for such economies is to avoid a ‘youth dividend’ turning into a ‘youth liability’\(^ {24}\).

Sub-Saharan Africa has an even more vast pool of young people, which is not being adequately nurtured. Depending on the level of development of individual countries, underemployment and low productivity emerge as a challenge even more pressing than unemployment itself – in poorer regions people do not have the luxury of not working if they want to survive and thus engage in any activity that helps put some food on the table. In any case, talent is not being used at its full potential.

A dominant policy approach to youth unemployment and underemployment has been the funding of skills-building programs that seek to enhance the employability of young jobseekers.\(^ {25}\) This approach implies that the youth employment challenge in emerging markets is primarily a problem stemming from the unemployability of young people, rather than a scarcity of jobs.

Skills, no matter how important, do not exclusively drive the productivity or, ultimately, the wealth of nations.\(^ {26}\) Albeit crucial for talent competitiveness, the pool of skills in a country is but one element driving productivity and prosperity.\(^ {27}\)

MENA and Sub-Saharan Africa show three common denominators: a youthful population with employability challenges; the underdevelopment of the private sector; and the realization that diversification is increasingly crucial to job creation.\(^ {28}\)


\(^ {23}\) The proportion of population aged 15-24 peaked at 20% in 2010, however absolute numbers are increasing (see MENA Talent Competitiveness Index 2017 in Lanvin & Rodriguez-Montemayor 2017).

\(^ {24}\) See World Economic Forum (2014).

\(^ {25}\) Cheema (2017) explains how specific interventions for skills development are failing to look at the big picture of the enabling environment that support job creation.

\(^ {26}\) See Keep & Mayhew (1999); Buchanan, Anderson, & Power (2017).

\(^ {27}\) Evidence on the productivity differences between the UK, France, Germany and the USA in the 1980s-90s suggests that skills accounted for between one-fifth and one-eighth of the relative productivity gaps between them (O’Mahoney & de Boer, 2002).

Countries in Eastern Europe, including Russia, show a different picture. The main difference is demographic: populations are much older (emerging European countries being older than EU members). There are also large differences in the structure of the economy, less reliant on natural resources than African and MENA countries. Yet, the main common denominator is still the same: the need to create an enabling context for the development of the private sector.

**GTCI performance in selected emerging markets: an overview**

So far this report has primarily been concerned with talent in emerging markets more generally. The following sub-sections take a closer look at four particular regions: MENA, Sub-Saharan Africa, Russia and emerging Europe. An even more detailed summary of talent competitiveness at the country-level is provided in Annex 1, which contains country briefs on 13 specific countries: Egypt, Israel, Jordan, Kenya, Lebanon, Morocco, Nigeria, Russia, Saudi Arabia, South Africa, Turkey, Ukraine and the United Arab Emirates.

As can be seen in Figure 10, talent competitiveness in the 13 selected markets is very diverse: ranging from GTCI ranks of 19 and 20 for UAE and Israel, respectively, to positions 96, 99 and 100 for Egypt, Nigeria and Morocco.

**Figure 10 GTCI rankings of selected emerging markets (overall and by pillar)**

Note 1: ISO codes with global rankings in parenthesis.
Note 2: ARE = United Arab Emirates, EGY = Egypt, ISR = Israel, JOR = Jordan, KEN = Kenya, LBN = Lebanon, MAR = Morocco, NGA = Nigeria, RUS = Russia, SAU = Saudi Arabia, TUR = Turkey, UKR = Ukraine, ZAF = South Africa.
Note 3: VT Skills = Vocational and Technical Skills; GK Skills = Global Knowledge Skills.
Broadly speaking, three features can be discerned from the figure. First, the sample countries from the Middle East and Eastern Europe tend to outperform their counterparts from Northern Africa and Sub-Saharan Africa. This is in line with the regional performances displayed in GTCI 2019.

Second, notwithstanding regional variations, countries that are close to each other geographically are often also close to each other in terms of GTCI performance – both with respect to the overall ranking and at the pillar-level. For instance, Russia and Ukraine are positioned in the third quartile in the overall GTCI rankings and in the Grow, Retain, and Vocational and Technical Skills pillars, while they are both in the bottom quartile when it comes to the Enable and Attract pillars.

Third, performances across pillars seem to be complementary and mutually reinforcing. Thus, Israel and the UAE are in the top quarter in five of the six pillars. Similarly, at the other end of the rankings, Egypt, Morocco and Nigeria are positioned in the bottom quarter in four of the six pillars.

**MENA region**

The Arab world has recently invested heavily in education in its quest to improve competitiveness; spending on education is at an average of 18% of total government spending compared to a global average of 14%. GCC countries actually show good performance in talent competitiveness; the business environment is becoming more sophisticated and countries like the UAE attract a large amount of foreign talent. Innovation activities are also picking up. The GTCI leaders in the region, which also include Qatar, are also those that innovate more (Figure 11 also shows the ranking in the Global Innovation Index, GII).

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![Figure 11 Talent and Innovation in MENA](image)

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29 See World Bank (2013). 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 (Yousef 2004).
Despite the relative success of resource-rich countries in the Gulf, they face similar challenges as other less wealthy countries of the region. In particular, youth unemployment in MENA, which stands at 30%, is twice the global average.\textsuperscript{30} The problems of employment are structural rather than temporary.\textsuperscript{31} In non-GCC countries, unemployment is expected to remain above 15% for the foreseeable future.\textsuperscript{32}

Despite their many differences, both resource-rich countries (e.g. GCC) and the rest of the MENA region share some common denominators when it comes to their economies, which explain the unfulfilled potential of talent and lack of productivity.

The first common denominator is the heavy reliance of the economy on external windfalls: A state-centered development paradigm that has rested on the flow of external rents like fuel exports for the richer countries or foreign aid and remittances for the poorer ones.

This feature of the economy leads to the second common denominator, which is the presence of a dominant public sector. Hydrocarbon and/or government activities account for the majority of total GDP in several countries and employ more than 30% of the workforce - whereas in developed countries the figure is lower than 10%.\textsuperscript{33}

The third common denominator is the counterpart to the one above, which is the underdeveloped (non-Hydrocarbon) private sector. Formal private sector employment is concentrated in larger, older firms, often in those in the export sector.\textsuperscript{34} Given barriers to trade and access to finance, firm dynamics are weak and high-productivity, high-paying private sector jobs remain scarce, which is likely to encourage jobseekers to continue pursuing public sector employment – where opportunities remain dependent on connections rather than competition.\textsuperscript{35}

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 government are connected through overlapping ‘networks of privilege’, which usually imply informal engagements. Boards of listed companies are dominated by a few influential families.\textsuperscript{36}

In addition to the structural economic weaknesses above, there are social hurdles that further limit the flourishing of talent such as the gender gap: men are three times more likely to

\begin{itemize}
  \item \textsuperscript{30} Source: \url{http://www.ilo.org/beirut/media-centre/news/WCMS_412797/lang--en/index.htm}
  \item \textsuperscript{31} 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.
  \item \textsuperscript{32} 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).
  \item \textsuperscript{33} Source: \url{https://www.imf.org/external/np/pp/eng/2016/042916.pdf}
  \item \textsuperscript{34} Source: \url{http://www.enterprisesurveys.org/reports/mena-report}
  \item \textsuperscript{35} See Malik and Awadallah (2013).
  \item \textsuperscript{36} See Malik and Awadallah (2013).
\end{itemize}
participate in the workforce than women. In general, though, labor market participation is weak in the region.

**The Talent question: Private sector and Employability**

Low levels of employment are partly driven by inadequate skills, a problem that is exacerbated by the unbalanced share of economic activity between a dominant public sector and an underdeveloped private sector.

Incentives to acquire relevant skills can be distorted 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 — between the public and private sectors, formal and informal. Young workers with some formal education 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. This creates labor market contradictions where high levels of voluntary unemployment co-exist with shortages of skills for the private sector.

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. 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.

**The Development question: diversifying the economy**

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.

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37 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).

38 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).


40 These contradictions are discussed in more detail in Malik and Awadallah (2013).

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

42 Weak formal employment hinders economic development because informality is a barrier for boosting labor productivity. See, for instance, World Bank (2014)
Such economic models are rapidly becoming obsolete. Even rich GCC countries with natural-resource abundance can underperform in the long-run on things like innovation because capital and skilled people are heavily used in sectors that are not the most innovative or subject to high long-term growth. Diversification of the economy has thus become the priority in many parts of the region in order to expand the private sector, particularly in industries of high value-added. Such expansion is the key to boost the demand for labor and thus employment.

**Sub-Saharan Africa**

Six Sub-Saharan African (SSA) countries are among the top ten fastest growing countries in the world. About one-quarter of countries in the region have grown at 7% or more lately. The region is becoming an important economic engine, fueled by young populations. In 30 years, African youth are expected to represent up to one-third of the world’s youth population (Figure 12 compares demographic projections against other emerging regions). SSA today is about 7 years younger than the next youngest region, South Asia, with this gap expected to widen. Meanwhile, its labor force is growing to become the largest in the world by 2035 – as aging accelerates in most developed countries.

**Figure 12 Population Dynamics in Selected Emerging Markets**

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43 See the discussion about the developmental history of the region by (Yousef, 2004).
44 Performance on the ‘Output’ sub-index of the Global Innovation Index (GII) has remained over the years relatively weak for rich countries like UAE and Qatar, despite their fast-improving business environment (measured on the ‘Input’ sub-index of GII).
45 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.
46 See Fox et al. (2016).
47 At which point almost 30 percent of the population will be between the ages of 15 and 29. See McKinsey Global Institute (2012); source: [https://www.mckinsey.com/~/media/McKinsey/Featured%20Insights/Middle%20East%20and%20Africa/Africa%20at%20work/MGI_Africa_at_work_August_2012_Full_Report.pdf](https://www.mckinsey.com/~/m edia/McKinsey/Featured%20Insights/Middle%20East%20and%20Africa/Africa%20at%20work/MGI_Africa_at_work_August_2012_Full_Report.pdf). Much of the bulge will be accounted for by countries in West, Central and East Africa (African Development Report 2015, Chapter 5).
48 Fox et al. (2016).
49 Different African countries are at different stages of the demographic transition: South Africa’s birth rate has already declined to 2.4 and is much further along its transition compared to Mozambique’s 5.9 births per woman, a rate that is observed to be rising with time (Bhorat and Tarp, 2016).
The challenge is that as 12 million young people enter the labor force each year, only 3 million new formal jobs are created. As in MENA, a big concern for governments in Sub-Saharan Africa is also about youth employment— which is understandable when half of the population is under 25 years of age.

Despite recent economic growth, Sub-Saharan Africa continues to see high levels of unemployment or underemployment. The region gathers most of the low talent performers in GTCI and productivity is very low. Even the better GTCI performers such as South Africa (see scores represented in Figure 13) face high unemployment of educated people and many university graduates are not even participating in the labor force (see Box 1 that summarizes the talent challenge for South Africa).

Figure 13 GTCI performance in Africa (based on GTCI 2019)

Source: see WB AFD Report 2014

Source: AfDB (2017)
Although lower-income countries tend to be characterized by low official unemployment and high labor market participation, this is mainly subsistence work in agriculture and informal employment. In Ethiopia small-holder agriculture employs more than 76% of the labor force, which explains the low incidence of open unemployment in rural areas. Yet, such people in rural areas are under-employed and vulnerability is thus high.

Comparing only unemployment rates hides vast differences in social wellbeing. The official youth unemployment rate in Rwanda is close to zero, while more than a half of South Africa's young labor force cannot find a job. However, a young person in Rwanda is more likely to suffer from 'working poverty'. These differences are likely to be driven by differences in informal sector activity and social safety nets.

Middle-income countries tend to report more access to formal sector jobs but also higher unemployment rates, often among the educated as well. Although unemployment, at 8 percent, is not as high as in MENA, the rate for the youth is twice or thrice as big as the rate

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51 Hidden in the low overall youth unemployment rate in low-income countries is a high unemployment rate among urban graduates. In Mozambique, for instance, youth unemployment in rural areas is almost non-existent (1.7%). But in urban areas, 20% of youth are unemployed – with people with secondary education and above over-represented. See the discussion in Fox et al. (2016).


53 South Africa is well known for its high unemployment: up to 25 percent of the population would be without work at a given period of time, with the figure exceeding 40 percent for the youth. See Bhorat et al. (2016), who use South African Quarterly Labour Force Surveys for 2014.


55 This is the official average unemployment rate for 2010-2014 according to ILO statistics. This figure contrasts sharply against 3.9% in South Asia and 4.4% East Asia and Pacific.
for the rest of the workforce.\textsuperscript{56} Youth unemployment reaches 45 percent in Nigeria, more than 40 percent in South Africa and in Ghana the rate is twice as high as the national rate.\textsuperscript{57} The 2008 financial crisis made things worse as jobs in the formal sector declined;\textsuperscript{58} only a few countries like Botswana and Namibia defied the trend and witnessed growth in employment.\textsuperscript{59} Still, youth unemployment is 34 percent in Namibia.

\begin{flushright}
\textsuperscript{57} Unemployment rates in sub-Saharan Africa are relatively lower than in other regions of the world, averaging 11.6 per cent across the region. Youth unemployment rates are highest in North Africa and the Middle East (30.5 per cent and 28.2 per cent respectively), and lowest in East and South Asia (10.6 per cent and 9.9 per cent respectively). See IDS (2018).
\textsuperscript{58} Gallup World Poll data shows that in the wake of the financial crisis, jobs in the formal sectors of African economies declined. While employment fell in services (which is the second largest employer of youth in Africa after agriculture), it rose in agriculture and in the informal sector (AfDB, OECD Development Centre, UNDP and UNECA, African Economic Outlook 2012).
\textsuperscript{59} Given Africa’s diversity, substantial differences exist across various sub-regions and groups. For example, in MICs the formal sector (public and private) accounts for the larger share of employment, while the informal sector dominates in LICs (African Development Report 2015, Chapter 5).
\end{flushright}
What explains such jobless economic growth?

Although African economies are heterogeneous, with varying demographic paths, economic structures and youth development policies, a common denominator is the lack of labor demand by a strong private sector – a feature also shared by MENA, as seen above. Unemployment seems largely a demand-side problem across the board. The continent has not produced enough investment and growth in its domestic economy and foreign direct
Investment has largely been channeled into the sectors where the big returns are – oil, gas and minerals. The latter leads to jobless growth that does not reach wide segments of the population, thus concerns about inclusive growth are as high in the continent as in any other region.

Given this dominance of natural resources, African countries do not fit the standard model of urbanization - normally driven by the industrialization of cities. Instead, they are urbanizing at much lower income levels relative to both East Asia and Latin America, while also experiencing declining levels of manufacturing. Modern manufacturing firms account for only 3 percent of employment and export very little. The “pull” factor in cities resides in the hope to find employment in low-level service sectors concentrated around the few industries for resource extraction. Urban employment continuous to be precarious and informal, with low productivity.

The Talent question: adequacy of Educational Systems

Education still matters a lot. In Sub-Saharan Africa, young people without education are more likely to be unemployed than their better educated peers. Even in North African countries where people with advanced degrees face high unemployment, they are still more likely to eventually get a job than people with less education.

Nevertheless, educational systems show many deficiencies. Rapid increases in school participation and educational attainment have often come at the cost of quality, particularly weak in the development of cognitive skills, contributing to a serious shortfall in the skills for productive employment. At higher level of education there are large field-of-study mismatches that make the diplomas of many young people useless. For non-cognitive skills, government can barely act since measurement of the effectiveness of educational systems in building such skills (crucial for successful youth development) is at an infant stage in SSA.

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60 See UNCTAD (2014). Also see the comment on https://www.theguardian.com/global-development-professionals-network/2014/jul/03/unctad-report-africa-economics-employment
61 Although the resurgence of growth since the turn of the century brought transformation in structure of output from low productivity agriculture to higher productivity non-agricultural sectors, the structure of employment did not change as dramatically. In particular, the share of wage employment in total employment remains small (see Fox and Thomas 2016).
62 The failure of this growth to reduce poverty is stark in several countries, including oil-rich Angola, Gabon, and Nigeria, and noticeable in others, such as Mozambique and Zambia. Labor-intensive manufactured exports—the force behind employment and economic transformation in East Asia—are far from taking off in Africa. In fact, manufacturing's share in GDP is lower in Sub-Saharan Africa today than it was in 1980; over the same period in Asia, it rose in both lower- and middle-income countries (see WB & AFD 2014).
63 There is variation within the continent, with many of the Southern and North African countries already having an urban majority (over 50% urbanization) while other countries (especially, Eastern Africa) still have relatively low urbanization rates, below 30% (UN-Habitat, 2014).
64 See the report by the World Bank and the Agence Française de Développement, WB & AFD (2014).
65 See Freire et al. (2014).
66 See AfDB et al. (2012)
67 See the report by the World Bank and the Agence Française de Développement, WB & AFD (2014).
68 Observational and qualitative research indicates that SSA youth entering the labor force suffer from deficits in this area as well. See Filmer and Fox (2014).
Independently of the quality, many people cannot benefit at all from the educational system. According to the latest UNESCO Global Education Monitoring Report, based on current trends, sub-Saharan Africa will not achieve universal secondary school completion until after 2080. On top of the issue of schooling completion, millions of young people who do complete school still lack even basic literacy and numeracy skills. Fortunately, there are some innovations in education delivery that promise to foster inclusion and relevance of curricula (see section on Ecosystems).

In general, poor countries have seen enrolment rates rise from 50 to 80 percent over the past 20 years. However, assessments of the quality of education suggest that these figures are misleading. Poor education outcomes may, in certain circumstances, reflect high drop-out rates. In some countries, gender differences in dropout rates may reflect pressure on young women to get married, discrimination by teachers and parent preference to educate boys first. Further, the ratio of students in secondary school to the number of individuals of secondary-school age in Africa is only approximately 20 percent. For tertiary education it is only 8 percent.

The Development question: Fostering productivity in existing economic sectors

The development challenge is therefore not just to create jobs in the formal sector, important as that may be, but to increase the productivity of the almost 80 percent of the workforce who will be in the informal sector—thereby addressing the underemployment associated with work in this sector. The economies of many African countries are still largely dominated by agriculture – at least in terms of employment (Figure 14).

Figure 14 – Structure of Employment in Sub-Saharan Africa

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69 See Bhorat et al. (2017).
70 Some examples: e-Learning Sudan, now called Can’t Wait to Learn, has managed to bring math instruction to displaced children with no access to schooling by providing tablets with engaging games and lessons that were designed based on their own drawings. Another example is Learner Guides, a program run by the NGO Camfed in Zimbabwe, Tanzania, Ghana, Zambia, and Malawi, can also help leapfrog educational progress by expanding the education workforce, unburdening teachers, and helping children foster critical life skills like resilience and goal-setting. The program supplements the current schooling system by bringing young women who have completed Camfed’s secondary education program back into their rural communities to facilitate a peer-to-peer learning program.
71 Jimenez et al. (2012).
72 Bertrand and Crépon (2014).
73 World Bank (2007).
74 See WB & AFD (2014)
There is, therefore, the need for a shift in policy thinking across Africa. It is imperative that policy makers make concerted efforts to raise productivity (and thus earnings) in the informal sector, rather than continue to focus exclusively on the formal wage sector which absorbs a small fraction of new workers. In low-income African countries, less than 20% of employment is in a wage-paying job (mainly in the public sector), and about half of that wage employment is casual or temporary. Although in middle-income countries the private sector does produce more than half of the formal wage jobs, the amount of such jobs is still relatively small – a great part of wage jobs are in informal services in cities (Figure 14).

Even exceptionally high economic growth now in the salaried employment sector in urban areas will not generate enough new employment to absorb young people entering the labor force and those who seek to leave agriculture. Over the next 10 years, at best only one in four of Sub-Saharan Africa’s youth will find a wage job, and only a small fraction of those jobs will be “formal” jobs in modern enterprises.

Agriculture is in fact one key area being neglected and that has the capability to foster inclusive growth. Such sector in the region continues to be an occupation of last resort and low productivity, without taking the step towards improved technologies and high-

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75 Source: Filmer and Fox (2014).
76 See IDS (2018).
77 The industrial sector (mining, manufacturing, and construction) accounts for less than 20 percent of wage jobs (about 3 percent of total employment). The remaining jobs are either on family farms (62 percent) or in household enterprises (22 percent), which may be collectively described as the informal sector (WB & AFD 2014).
78 See Fox & Sohnesen (2012).
performing management practices. There is a large untapped reservoir of opportunities in farming – particularly in family enterprises.79

Russian Federation
Russia’s talent performance is located above the median in the sample of GTCI countries (position 49). Russia has a strong pool of Global Knowledge Skills (28th) as a result of the High-Level Skills (12th) available in the country. The country has a solid system of Formal Education (30th), which contributes to a rank of 44th in growing talent despite poor access to growth opportunities (91st).

One notorious trend is that employment has remained remarkably high over the years despite periods of volatility: a domestic crisis after the 1990s market reform transition, then strong economic growth well after the 2008 global crisis and finally an extended downturn of the economy in recent years (after the fall in oil prices and current geopolitical uncertainties such as sanctions).

Such resilience of employment over the years has been surprising and even led to a notion of the "Russian model of the labor market".80 Before the transition some 25 years ago, many policy makers and observers had expected high unemployment rates, a situation which never came to materialize.81 Instead, Russia’s labor market has been characterized by some peculiarities that diverge from usual trends in other labor markets.

The first peculiarity is that unemployment has not increased much following major economic downturns.82 Unemployment rates were less dramatic than in other transitional economies despite the considerably greater production decline. There has been turnover (often voluntary, not firings) but employment has kept relative stable due to new hirings. The flexibility of wages and of working hours, which declined during downturns, may explain the resilience of employment across the economic cycle.83

The second peculiarity is that Russia is one of the few countries in the world where the share of labor income in GDP has grown in recent years84 - much unlike many developed countries where capital income continues gaining ground.85

The strong macroeconomic performance of employment in Russia is echoed by the OECD’s most recent assessment of its labor market. Despite the recent downturn of the economy, the employment rate in Russia has remained higher than the OECD average (65.7% vs 60.0%).

79 See the report by the World Bank and the Agence Française de Développement, WB & AFD (2014).
80 See Layard & Richter (1995).
81 Employment declined but in a piecemeal fashion; unemployment was on the rise but gradually as well. Meanwhile, wages fell dramatically, making a puzzling contrast with the famous wage rigidity axiom. This – unexpected - combination of flexible wages and relatively stable (or, more accurately, highly inertial) employment became a long-term distinctive feature of the Russian labor market for years to come. See the analysis in: Vladimir & Kapeliushnikov (2011).
82 See Gurvich & Vakulenko (2017).
83 See the analysis in: Gimpelson & Kapeliushnikov (2011).
84 See Gurvich & Vakulenko (2017).
85 See, for instance: https://www.nber.org/papers/w23853
Although the unemployment rate has been increasing since 2014, it is still marginally below the OECD average of 6.2%. There are no signs yet that the prolonged recession is having an impact on long-term unemployment, which also remains below the OECD average.\textsuperscript{86} In 2015, 14% of 15-29 year-olds in the Russian Federation were NEETs, which is relatively low compared to most other G20 countries.\textsuperscript{87}

In short, wages, not employment, has been the mechanism of adjustment in recent Russia.\textsuperscript{88} There has been a sharp fall in real wages in the Russian Federation since early 2014, due to the spike in inflation associated with exchange rates developments. What explains such trends is still a matter of debate, but surely labor market institutions have played a role.\textsuperscript{89} Employment protection legislation (EPL) is largely responsible for the stability of employment – Russia is ranked 88 in GTCI’s ease of redundancy indicator. Meanwhile, minimum wage and wage-setting institutions,\textsuperscript{90} as well as regulations governing unemployment benefits (UB), were behind the rather strong reaction by wages.\textsuperscript{91}

\textit{The Talent Question: competing in the global talent race}

Although the macroeconomic performance of employment has been solid, with relatively low unemployment rates, Russia faces structural problems such as low employee mobility and a large shadow economy. Furthermore, a poor Regulatory Landscape (103\textsuperscript{rd}) can hurt Russia’s long-term ability to maximize the productivity of its educated workforce. Although innovation performance is above the median of GTCI countries, Russia is not attracting the best global talent to compete with developed nations (ranked 109\textsuperscript{th} in pillar Attract). External openness to foreign firms and talent is poor (96\textsuperscript{th}), which surely is linked to the low level of Internal openness (112\textsuperscript{th}) characterized by low tolerance of immigrants and minorities.

\textbf{Emerging Europe}

\textsuperscript{86} At 27.3\% of total unemployment in 2015, remains below the OECD average of 33.8\%. (OECD 2016)
\textsuperscript{87} The share of young people who are low-skilled NEETs is also low in the Russian Federation (2.0\% compared to 5.3\% in the OECD countries on average). This is because the overall share of young people who are low-skilled is particularly low in the Russian Federation (18.5\%).
\textsuperscript{88} Very impressive GDP growth in the 2000s sped up wage increase but did not bring proportionately more jobs. The reaction of wages to growing output clearly dominated any employment response. This model was once again put to the test by the recent 2008-09 crisis. It passed the test successfully: labor market outcomes diverted once again from the predicted trajectory. Employment losses, given the GDP fall, were much more modest than those expected while downward wage adjustment was not negligible.
\textsuperscript{89} There are idiosyncrasies of Russian labor institutions that may explain the puzzling association between stringent regulations (on paper) and remarkable flexibility (in practice). The stringency of Russian laws is offset by their non-observance. Non-observance of laws and rules is a key element of the observed flexibility. Weak enforcement (which reflects weak capacity of the state) concerns all major wage and employment regulations. Wages are not paid on time and in full, the variable part of wage payments is usually not fixed by a contract, working hours may be shorter than the bottom limit permitted by law or much longer than the upper limit, the minimum wage is not binding, firings are substituted by semi-voluntary quits, just to mention a few examples.
\textsuperscript{90} During most of the transition period, the minimum wage was fixed at a low. If wages tended to decline, the low wage floor did not prevent deep falls.
\textsuperscript{91} See the analysis in: Gimpelson & Kapeliushnikov (2011).
Europe is the top region producing talented countries. Yet, as seen in Section 1, there are wide disparities in GTCI performance and many of the under-performers in the region are emerging countries, mainly located in South-eastern Europe.

We consider as ‘Emerging Europe’ all those countries classified either as upper-middle-income or lower-middle-income countries. These are mainly in South-eastern Europe - there other CIS countries like Belarus that are not yet included in GTCI (due to lack of data availability). In particular, the countries included in the GTCI are: Albania, Bulgaria, Bosnia and Herzegovina, Moldova, Montenegro, Romania, Serbia and Ukraine. Croatia is also in the region, though it is a case apart since it already classifies as a high-income country (and, therefore, shares more resemblance to other EU countries). Turkey, on the other hand, shows some unique characteristics - a mix of challenges that reflect its Mediterranean links to Eastern Europe and the Middle East (Turkey is covered in the country briefs in the Annex).

As the result of radical and deep changes in their economies, the labor markets in many countries of the region went through significant changes in its structure. Post-communist countries started with pretty similar initial conditions in terms of the performance of their labor markets, characterized by shortages of labor, no open unemployment, very high levels of unionization, and no unemployment protection. As a consequence of the transitional reforms - whereby free-market systems replaced state-run planned economies - unemployment, long-term unemployment and widespread lack of participation in labor markets became common phenomena. These were largely driven by lack of demand. The gradual approach to restructuring also resulted in hidden unemployment (underemployment or low-productivity employment). Moreover, labor mobility has been normally low (across sectors, occupation and ownership of firms) and higher education is not compatible with labor market needs. Many countries in this region are lagging behind in indicators related to strong ecosystems such as strong business-government relations and labor-employer cooperation. The development of clusters is still weak (with the exception of Turkey, which performs above the median), in part driven by weak collaboration across firms (Table 1).

### Table 1: Ecosystems and Employability in Emerging Europe (rank out of 125 countries)

<table>
<thead>
<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Russia</td>
<td>49</td>
<td>52</td>
<td>89</td>
<td>82</td>
<td>83</td>
<td>41</td>
</tr>
<tr>
<td>Montenegro</td>
<td>51</td>
<td>5</td>
<td>52</td>
<td>102</td>
<td>92</td>
<td>75</td>
</tr>
<tr>
<td>Bulgaria</td>
<td>54</td>
<td>32</td>
<td>114</td>
<td>68</td>
<td>103</td>
<td>64</td>
</tr>
<tr>
<td>Ukraine</td>
<td>63</td>
<td>59</td>
<td>108</td>
<td>101</td>
<td>84</td>
<td>53</td>
</tr>
<tr>
<td>Serbia</td>
<td>68</td>
<td>48</td>
<td>101</td>
<td>93</td>
<td>97</td>
<td>95</td>
</tr>
<tr>
<td>Romania</td>
<td>69</td>
<td>38</td>
<td>99</td>
<td>111</td>
<td>91</td>
<td>115</td>
</tr>
<tr>
<td>Turkey</td>
<td>74</td>
<td>80</td>
<td>56</td>
<td>56</td>
<td>109</td>
<td>88</td>
</tr>
<tr>
<td>Albania</td>
<td>75</td>
<td>73</td>
<td>85</td>
<td>108</td>
<td>29</td>
<td>81</td>
</tr>
</tbody>
</table>

Unlike other emerging countries, such as in Africa and MENA, demographics does not play in favor of growth. The region of SEE is going through significant and negative demographic changes characterized by an ageing population, more intensive migration of working force, low fertility and high divorce rates. Ageing populations is a challenge they share with current EU member states – in fact the predicted demographic decline in these countries for the coming decades is much more pronounced than in the EU member states.

There are many similarities in the way how reforms were conducted:\textsuperscript{94}

- All the countries experienced drastic declines in output at the start of transitions.
- Significant number of job leavers in comparison with job losers in the years of the steepest employment and decline of output.
- Private employers recruited their workers mostly from the state enterprises rather than from the large unemployment pools.
- Significant number of workers left the labor force after the start of transition and caused high inactivity rates.
- Labor market reform is not followed by reform of educational system in a corresponding way.
- Introduced active labor market policy measures are not efficient.

Institutions in many countries are not adapting to the new realities. The labor markets in the economies of the former Yugoslavia, for instance, were shaped by the particular legacy of the “self-management” system for enterprises, and the existence of the so-called social ownership, which led to a high level of job protection and overall rigidity, and to widespread labor hoarding.\textsuperscript{95} Despite major revisions in the 1990s and 2000s, the ideology of the current labor laws (labor codes) in many countries in the region still date back to the 1970s, 1980s or early 1990s when the laws were first adopted.\textsuperscript{96}

Inadequate labor laws can hurt employment – and the mobility that is important for boosting productivity by better matching jobs with people with the best skills. In Croatia and North Macedonia, for instance, a large number of long-term unemployment spells occurs because strict employment protection legislation discouraged employers from hiring new workers. It was the reason for the accumulation of the large contingent of workers who finds it extremely difficult to enter or re-enter the labor market. Similar cases can also be found in other countries of the region.

\textit{The Talent question: foster a pro-employment attitude}

\textsuperscript{94} See Savića & Zubović (2015).
\textsuperscript{95} See World Bank (2004).
\textsuperscript{96} Kuddo (2009).
To put talented people back into productive activities, active labor market policies have been high on the agenda, particularly for creating the environment for strong pro-work attitudes. A lower degree of rigidity in labor market institutions would be part of such a context, particularly if envisioned following the 'flexicurity' approach of successful Northern European countries. Nevertheless, the basic question that is also shared by the majority of emerging markets is the development of a strong private sector. This requires a strong ease of doing business context, with less red tape and improved conditions for firm entry.
SECTION 3 - DEVELOPING HIGH-VALUE TALENT ECOSYSTEMS IN EMs

Emerging markets will continue to fuel global economic growth. However, reaching their full potential in the age of Industry 4.0 and digital transformation requires a strong emphasis on talent. Improving the framework conditions (represented in the GTCI by the institutional and market landscapes), to put them on par with mature developed economies, will create a solid basis for moving to higher levels of prosperity.

Patterns of development, however, will not necessarily resemble the 20th century process of industrialization of rich countries – nor the export-oriented process that took place in some Asian emerging markets (e.g. Malaysia). The aspiration of some emerging markets could well be to leapfrog industrialization, and gear up towards a high-value service economy. Services already employ more people than manufacturing, albeit in low-value sectors. Technology can facilitate a transition towards higher-value services insofar as the expansion of Internet access and digital opportunities can open new business opportunities. However, technology is not a panacea. Emerging markets need to re-think their developmental models to allow them to reflect the ongoing reconfiguration in the global geography of production resulting from automation and the proliferation of new digital technologies.

One necessary condition is at least clear in all emerging markets discussed in Section 2: developing the private sector. The ‘doing business’ environment, such as reducing red tape or promoting access to credit, is the basic condition. Moreover, as illustrated by the analysis of GTCI data in Section 1, a mature market landscape, with strong collaboration with national institutions and other stakeholders, is fundamental for innovation and private sector development – two areas where, unsurprisingly, the gap is the widest between developed and emerging countries. Therefore, the creation of productive jobs that actually benefit wide segments of society requires the emergence of tailored talent ecosystems in which local stakeholders sharing common objectives cooperate to create value and prosperity.

Strengthening talent ecosystems for entrepreneurship and innovation

In some emerging countries (like those in MENA that rely on windfalls from natural resources) there is a lack of appetite to work in the private sector since educated locals prefer to vie for the cozier, well remunerated, albeit often less productive, public sector jobs. In such cases, multi-stakeholder collaborations can strengthen talent ecosystems that help nurture the

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97 African countries have already managed to “leapfrog” progress in other sectors—skipping land line phones in favor of mobiles and jumping to mobile banking before reaching everyone through brick-and-mortar banks.

98 See https://www.nber.org/papers/w23582

99 According to the 2016 Global Systems for Mobile Association (GSMA) report, Africa is still the world’s most under-penetrated region in terms of mobile connectivity in spite of the fact that it recorded an annual subscriber growth over the same period of more than 13 percent. Improved universal infrastructure that is affordable and a flexible policy and regulatory environment would go a long way in realizing Africa’s digital potential.

100 Prosperity can be achieved in an inclusive way when businesses team up with governments, NGOs, and even rivals to capture the economic benefits of social progress (see Kramer & Pfitzer, 2016).

101 See Mason & Brown (2013) for the use of the concept of entrepreneurial ecosystems, which is close to our notion of talent ecosystems. Important aspects of an entrepreneurial ecosystem include its culture, the availability of start-up and growth capital, the presence of large firms, universities and service providers.
entrepreneurial culture and behavioral skills for the private sector that are missing. In other emerging countries, entrepreneurship is common, though often as a subsistence activity. In such cases, multi-stakeholder collaborations in ecosystems can help re-orient entrepreneurship towards activities of higher value added, including in innovative and technology-intensive sectors.

Stakeholder collaboration exists in many rapidly growing developing countries such as Malaysia, Rwanda or Kazakhstan - though in some countries this is sometimes associated with authoritarian rule or rule by elitist cliques that ‘impose’ collaboration. It does not exist in countries that have failed so far to deliver on their potential, notably some of the BRICS, except in the form of corruption at the government-business boundary. South Africa is one of the worst performing countries on virtually all indicators of ecosystem partnership.

A relevant GTCI indicator is the degree of collaboration among stakeholders in a country.Governments increasingly collaborate with businesses to encourage the dissemination of frontier technologies and management techniques to the rest of the economy. Yet, there is no one-size-fits-all strategy. The need to tailor efforts to specific local needs will create specialized talent ecosystems.

**Ecosystems typically develop around cities.** The critical role already played by cities and regions to set up incubators and accelerators will become more and more relevant. Although most cities currently tend to build talent strategies around similar criteria (quality of life, connectivity, and sustainability, e.g.), more and more will target specialized talent linked to particular local issues or typical municipal issues (waste management, transport, and inclusion, among others). Clusters grow by connecting globally while, at the same time, leveraging local resources in specific cities and regions. New strategies of local development are expected to emerge rapidly, in particular around smart cities’ strategies.

Promising initiatives are emerging even in countries and regions with weak talent ecosystems. Silicon Savannah is a tech innovation ecosystem in sub-Saharan Africa, and it is one of the fastest-growing in the emerging markets. Companies including Intel, IBM and

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102 Innovators need specific “behavioral” skills or attitudes that are lacking in the region, for overcoming fears of failure, developing entrepreneurial intentions and developing the perception of entrepreneurship as a good career choice. 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 (see Lanvin and Rodríguez-Montemayor, 2017). For instance, 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.

103 In industries where knowledge is complex, growing, and widely diffused, the locus of innovation extends beyond the individual firm. To leverage such knowledge, many firms have reorganized their value-creation processes through the use of various types of multiparty collaboration (see Grandori 2018).


105 When considering non-local sources of cluster development such as knowledge and technology, the literature has indeed focused on how these have been absorbed and repackaged at the local level. Yet, the evolution of clusters depends on complex relationships between actors, firms, related institutions and different forms of macro-structures (see Giacomin 2017). Clusters need to be understood as “open” systems in the global economy and organizational structures that facilitate international business activity.

106 This is one of the findings emerging from the special section of GTCI focused on cities - the Global Cities Talent Competitiveness Index (see Lanvin 2017 for the first edition of the cities section as part of the GTCI publication).
Microsoft have invested more than $1 billion to support the growth of more than 200 start-ups. One interesting difference to other ecosystems is that Silicon Savannah companies are focusing not on imitating the business models of developed countries but on solving real ‘local’ problems where market solutions have failed. Its continued success will not rely on replicating Silicon Valley, but on leveraging its specific competitive advantages and focusing on its differentiating strengths.

A crucial component in any effort to strengthen a country’s talent ecosystem is to build its pool of digital skills. The importance of digital skills and literacy in an age where most jobs require at least some level of them has been duly recognized by all stakeholders: NGOs, companies, governments, and international agencies. One example of many is the Global Initiative on Decent Jobs for Youth, which is led by the ILO and the ITU, and where one stated objective is to “equip 5 million young people with digital skills – both basic and advanced – by 2030”. An interesting private sector initiative is “Maharat min Google”, which provides free training on digital skills in the MENA region (see Box 2).

**Box 2: Boosting digital skills in MENA**

“Maharat min Google” is a free digital skills-building program in Arabic to help people in the Middle East and North Africa advance their careers or grow their businesses. The online platform — [g.co/Maharat](https://g.co/Maharat) — has 100 lessons across 26 core topics in digital marketing, and offers a certificate upon completion of the training. Technology is a toolkit filled with opportunities—and Maharat min Google helps Arabic speakers around the world put those tools to work. Google partners with governments, universities, private-sector businesses and nonprofits to help more people take advantage of what the web has to offer. Since its launch in April 2018, the program trained over 250,000 individuals and helped over 65,000 individuals find jobs and grow their career or business.

The GTCI does not cover digital skills as such, but the sub-pillar High-Level Skills (part of the Global Knowledge Skills pillar) gives an indication of the readiness of countries to adapt to and benefit from the digital transformations occurring in workplaces around the world. Table 2 and Table 3 therefore present the scores and ranks for High-Level Skills at the regional level and at the country level for this report’s 13 selected emerging markets. For comparison purposes, the two tables also display the values and ranks of the variable “Digital Skills among Population”, which was included in the World Economic Forum’s Global Competitiveness Index (GCI) 2018.

At the regional level, the relative positions of High-Level Skills in the three regions highlighted in this report – MENA, Sub-Saharan Africa and emerging Europe – are similar to their overall positions in the GTCI. That is, the MENA region ranks behind Northern America, Europe, and Eastern, Southeastern Asia and Oceania, while Sub-Saharan Africa is placed at the bottom. Emerging Europe (i.e. European countries that are not high-income countries)

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107 Tech company BRCK is connecting off-the-grid schools to the internet using solar-powered routers and tablets. AB3D is turning electronic waste into affordable 3D printers that build artificial limbs. The runaway success of mobile money firm Mpesa, as well as regional governments’ significant investment in a new undersea fibre optic cable, have provided cheap reliable broadband. Average speeds in eastern Africa are faster than in the US.

108 See [https://www.decentjobsforyouth.org/theme/digital-skills-for-youth](https://www.decentjobsforyouth.org/theme/digital-skills-for-youth)

109 Although the variables focus on different types of skill, they are nonetheless highly correlated ($\rho = 0.81$).
have an average score that is just below that of the MENA countries. Average regional performances with respect to the GCI’s Digital Skills variable are similar in relative terms.

Table 2: High-Level Skills and Digital Skills by region (average scores and ranks)

<table>
<thead>
<tr>
<th>Region</th>
<th>High-Level Skills (GTCI)</th>
<th>Digital Skills (GCI)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Score</td>
<td>Rank</td>
</tr>
<tr>
<td>Central and Southern Asia</td>
<td>21.62</td>
<td>6</td>
</tr>
<tr>
<td>Eastern, Southeastern Asia and Oceania</td>
<td>37.35</td>
<td>3</td>
</tr>
<tr>
<td>Europe</td>
<td>45.75</td>
<td>2</td>
</tr>
<tr>
<td>Europe (non high-income)</td>
<td>34.04</td>
<td></td>
</tr>
<tr>
<td>Latin America and the Caribbean</td>
<td>21.80</td>
<td>5</td>
</tr>
<tr>
<td>MENA</td>
<td>34.55</td>
<td>4</td>
</tr>
<tr>
<td>Northern America</td>
<td>69.83</td>
<td>1</td>
</tr>
<tr>
<td>Sub-Saharan Africa</td>
<td>11.14</td>
<td>7</td>
</tr>
</tbody>
</table>

At the country-level, Table 3 clearly suggests that Israel is one of the world’s most advanced countries when it comes to digital skills – being top of the class in High-Level Skills and ranking 8th in Digital Skills. There is some discrepancy between the two variables with respect to other MENA countries and the emerging European countries. In the case of High-Level Skills, Russia and Ukraine perform better than MENA countries like Lebanon, the UAE and Saudi Arabia, but the opposite holds when focusing only on Digital Skills. Some discrepancies are, however, to be expected insofar as High-Level Skills does not include digital skills explicitly and is a broader measure than the GCI’s “Digital Skills among Population” variable. On the other hand, the Digital Skills variable looks at the whole population, while High-Level Skills is more focused on the highly educated stratum of the society. This would, for instance, imply that Russians and Ukrainians with more advanced skill sets are ready to benefit from the digital age, but that other parts of the population risk falling further behind as digital skills become increasingly important. Such a risk of greater inequality would seem to be lower in some MENA countries.

Table 3: High-Level Skills and Digital Skills in selected emerging markets

<table>
<thead>
<tr>
<th>Country</th>
<th>High-Level Skills (GTCI)</th>
<th>Digital Skills (GCI)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Score</td>
<td>Rank</td>
</tr>
<tr>
<td>Israel</td>
<td>76.51</td>
<td>1</td>
</tr>
<tr>
<td>Russia</td>
<td>61.47</td>
<td>12</td>
</tr>
<tr>
<td>Ukraine</td>
<td>49.65</td>
<td>24</td>
</tr>
<tr>
<td>Lebanon</td>
<td>45.57</td>
<td>29</td>
</tr>
<tr>
<td>United Arab Emirates</td>
<td>43.81</td>
<td>32</td>
</tr>
<tr>
<td>Saudi Arabia</td>
<td>37.22</td>
<td>42</td>
</tr>
<tr>
<td>Jordan</td>
<td>35.27</td>
<td>47</td>
</tr>
<tr>
<td>Egypt</td>
<td>34.50</td>
<td>48</td>
</tr>
<tr>
<td>Turkey</td>
<td>29.84</td>
<td>61</td>
</tr>
<tr>
<td>Country</td>
<td>Score</td>
<td>Rank</td>
</tr>
<tr>
<td>-----------</td>
<td>-------</td>
<td>------</td>
</tr>
<tr>
<td>South Africa</td>
<td>20.06</td>
<td>81</td>
</tr>
<tr>
<td>Kenya</td>
<td>19.49</td>
<td>82</td>
</tr>
<tr>
<td>Nigeria</td>
<td>18.72</td>
<td>87</td>
</tr>
<tr>
<td>Morocco</td>
<td>15.06</td>
<td>97</td>
</tr>
</tbody>
</table>

**Looking Ahead: sustaining talent ecosystems for inclusive prosperity**

As the global economy continues to become more and more digital, talent ecosystems will matter more and more for the whole process of value creation in an economy: from producing the right skills for the relevant industries to facilitating multi-sector collaborations in the quest for innovation to achieving inclusive prosperity.

What is the role of governments and policy makers? One of the main goals of the Government remains to support nascent talent ecosystems. While governments often are in a better position than private actors to inform long-term strategic investment in human capital via the educational system, close collaboration of governments with businesses, education and other social partners, becomes vital for employability. Not all countries need the same skills. And, more importantly, not all regions and cities located in a given country need the same talent mix: different clusters of activity need different skillsets.

Governments can also have a more proactive role other than simple ‘facilitators’. They can also become ‘creators’ - without necessarily concentrating economic activity in their hands and undermining the job-generating private sector. Although the so-called “triple helix” of government-industry-education relations fuels the dynamics of innovation, some economists indeed argue for a more entrepreneurial role of government, suggesting that government initiatives historically were vital to the development of technologies - such as those incorporated in the Apple iPhone.  

National governments also need to pay attention to the overall development strategy of the country. The example of UAE shows how a national vision can help change attitudes and practices. The UAE already has many points in its favor to use talent for innovation. The Global Talent Competitiveness Index, and also the Global Innovation Index for that matter, show that the country performs well in creating clusters (e.g. free zones), university-firm linkages and joint-venture alliances (while access to finance keeps increasing). There are organic ecosystems emerging from the bottom-up. Foreign talent is being attracted while ICT adoption is strong in firms and government. Yet, innovation output still lags behind the GTCI leaders while educated locals are not being employed in innovative private enterprises. The economy still needs more diversification.

National talent and innovation strategies can also help mitigate regional disparities. The success of local development strategies by ‘superstar’ cities will not solve all problems of development in countries, one of them being the accentuation of regional inequalities. This is a global challenge – for instance, despite the outstanding success of innovation ecosystems

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\[110\] See Etzkowitz & Leydesdorff (2000).
\[111\] See Mazzucato (2016)
in areas such as Silicon Valley and Boston, swathes of the US, especially rural areas, remain largely untouched. In emerging markets, such disparities could be even more dramatic.

This all takes us to inclusive prosperity. National policies can help develop the right skills, the right enterprises and, in the process, achieve levels of prosperity that are more inclusive. Nevertheless, businesses also have a strong interest in pursuing inclusive prosperity in strong local ecosystems — and government policies alone present their own limitations.\footnote{Conventional wisdom holds that governments and NGOs are the strongest catalysts of social progress, but that is not always true. Governments typically respond only to the most influential interests and may be paralyzed by partisan divides. Few NGOs have the resources and the clout to command attention from governments and global corporations (see Kramer & Pfitzer, 2016).} No company operates in isolation; each exists in an ecosystem where societal conditions may curtail its markets and restrict the productivity of its suppliers and distributors. Such realization has strengthened the idea of ‘collective impact’ via multi-stakeholder collaborations in ecosystems,\footnote{See Kramer & Pfitzer (2016)} through which companies not only advance social progress via a common ‘local agenda’ but also find economic opportunities that their competitors miss. Companies can create shared value in three ways: by reconceiving products and markets, redefining productivity in the value chain, and strengthening local clusters. All three require a sufficiently robust market ecosystem, which information technologies can help to grow and adapt to current and future challenges.
SECTION 4 – POLICY IMPLICATIONS AND RECOMMENDATIONS

The three regions highlighted in this report – MENA, Sub-Saharan Africa and emerging Europe – differ in many regards both with respect to one another and within themselves. Nevertheless, in a globalized world that is becoming increasingly inter-connected and digital, they face many similar challenges. How can the right skills be developed? How can shortages in skills be reconciled with lower number of jobs in highly automated sectors? How can a transition to the ‘future of work’ be achieved without major social upheavals? The problems are manifold and so are the solutions.

What is clear is that all stakeholders have an interest in strengthening talent ecosystems and that there are roles for all of them to do so in a spirit of collaboration. Bearing in mind the diversity of countries, the following is a non-exhaustive list of general action-oriented recommendations for various stakeholders.

National policy makers:

- Improve the institutional and market landscapes to support talent and innovation.
- Enhance the quality of educational systems, which has been dwindling in many emerging countries.
- Strengthen the private sector, including by fostering diversification, improving the ‘doing business’ environment and making the employment conditions of the private sector more attractive.
- Fund skills-building programmes, in particular on digital skills, to address youth unemployment and ensure that the untapped potential of young populations turns into a ‘youth dividend’ rather than a ‘youth liability’.
- Take a more proactive role in supporting nascent talent ecosystems, including by promoting government-industry-education (“triple helix”) relations and having a more entrepreneurial approach in assisting the development of technologies.

City authorities:

- Target more specialized talent linked to particular local issues or typical municipal issues, especially around ‘smart cities’ strategies.
- Promote the building and management of dynamic (and open) ecosystems through collaborative efforts with all types of stakeholders: national governments, businesses, NGOs, even individuals.
- Encourage the development of clusters that are connected globally while leveraging local resources.

Businesses:

- Take greater steps to disseminate frontier technologies and management techniques to the rest of the economy.
- Pursue inclusive prosperity in strong local ecosystems to create shared value by (i) reconceiving products and markets, (ii) redefining productivity in the value chain, and (iii) strengthening local clusters.
Promote IT skills through own initiatives as exemplified by the tech innovation ecosystem Silicon Savannah and by Google’s free digital skills-building program.
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ANNEX 1 - COUNTRY BRIEFS

Selection of 13 countries:

- Egypt
- Israel
- Jordan
- Kenya
- Lebanon
- Morocco
- Nigeria
- Russia
- Saudi Arabia
- South Africa
- Turkey
- Ukraine
- United Arab Emirates
Egypt - Country Brief

Global GTCI Position

Egypt's ranking in the GTCI sample of 125 countries is the position 96 (Figure 1). Access to Global Knowledge (GK) skills is above the median in the global sample. Yet, big challenges remain in order to strengthen the environment for talent: three of the Input pillars rank below the position 100.

Figure 1: Egypt global ranking (GTCl sample of 125 countries)

Comparison with different groups of countries

Egypt belongs to the MENA region and is classified as a lower-middle income country. In general, talent performance is poor. Egypt's relative ranking position is significantly better within its income group (where 42 percent of countries rank lower, as shown in Figure 2) than within its region (where only 17 percent of countries rank lower).
Egypt only compares favorably against Sub-Saharan Africa (where 67 percent of countries have a lower ranking). It also outranks few countries in Central and Southern Asia and, to a lesser extent, in Latin America and the Caribbean.

**Figure 2: Egypt GTCI performance vs. groups of countries**

<table>
<thead>
<tr>
<th>Comparison Group</th>
<th>Top 3 scores of the group</th>
<th>Score GAP:</th>
<th>% of countries in the group ranked below Egypt</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Egypt score minus group highest score</td>
<td></td>
</tr>
<tr>
<td>(by Region)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Central and Southern Asia</td>
<td>Kazakhstan, India, Tajikistan</td>
<td>-10.1</td>
<td>40%</td>
</tr>
<tr>
<td>Eastern, Southeastern Asia and</td>
<td>Singapore, New Zealand, Australia</td>
<td>-45.6</td>
<td>7%</td>
</tr>
<tr>
<td>Oceania</td>
<td>Switzerland, Norway, Denmark</td>
<td>-60.1</td>
<td>0%</td>
</tr>
<tr>
<td>Latin America and the Caribbean</td>
<td>Chile, Costa Rica, Uruguay</td>
<td>-20.5</td>
<td>28%</td>
</tr>
<tr>
<td>Northern America</td>
<td>United States, Canada</td>
<td>-45.0</td>
<td>0%</td>
</tr>
<tr>
<td>MENA*</td>
<td>United Arab Emirates, Israel, Qatar</td>
<td>-34.2</td>
<td>17%</td>
</tr>
<tr>
<td>Sub-Saharan Africa</td>
<td>Mauritius, Botswana, South Africa</td>
<td>-13.5</td>
<td>67%</td>
</tr>
<tr>
<td>(by Income Group)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High-income countries</td>
<td>Switzerland, Singapore, United States</td>
<td>-50.1</td>
<td>-2%</td>
</tr>
<tr>
<td>Upper-middle-income countries</td>
<td>Malaysia, Costa Rica, Azerbaijan</td>
<td>-26.9</td>
<td>13%</td>
</tr>
<tr>
<td>Lower-middle-income countries*</td>
<td>Philippines, Ukraine, Indonesia</td>
<td>-9.3</td>
<td>42%</td>
</tr>
</tbody>
</table>

*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 in the MENA region, in addition to Turkey. The group includes 13 countries. Figure 3 compares their GTCI score together with their GDP per capita and population size.

Morocco is perhaps the most similar country in terms of their GDP per capita and population size; Egypt performs slightly better in terms of talent – and it is also above Algeria, a country with higher income per capita. Yet, Egypt is lagging well behind the leading countries of the Gulf and also middle-east emerging markets such as Jordan and Lebanon.

**Figure 3: Egypt GTCI score vs. the group of “competitors”**
Performance across Pillars

When compared to other countries in its region, Egypt is lagging behind in every pillar (Figure 4) – though the pool of GK skills is close to the average. When compared to its income group, the pool of GK skills is above the average.

Figure 4: Egypt pillar scores vs. relevant comparison groups
Israel - Country Brief

Global GTCI Position

Israel’s ranking in the GTCI sample of 125 countries is the position 20 (Figure 1). Israel is a top country in the production of Global Knowledge (GK) skills – whereas its pool of Vocational and Technical (VT) skills is also strong. Pillar Attract remains one of its greatest challenges.

Figure 1: Israel global ranking (GTCI sample of 125 countries)

Comparison with different groups of countries

Israel belongs geographically to the MENA region and is classified as a high-income country. Its relative ranking position is significantly better within its regional group, where it ranks in 2nd position (94 percent of countries in this group rank lower, as shown in Figure
2). Only UAE performs better – and it is followed by Qatar. Within the group of high-income countries, 60 percent of countries rank lower.

Israel compares favorably against most other regions, ranking above any country from Central and Southern Asia, Latin America and the Caribbean, or Sub-Saharan Africa. It is also well positioned when compared to East, South-eastern Asia and Oceania and Europe (where 65 percent of countries rank lower).

Figure 2: Israel GTCI performance vs. groups of countries

<table>
<thead>
<tr>
<th>Comparison Group</th>
<th>Top 3 scores of the group</th>
<th>Score GAP: Israel score minus group highest score</th>
<th>% of countries in the group ranked below Israel</th>
</tr>
</thead>
<tbody>
<tr>
<td>(by Region)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Central and Southern Asia</td>
<td>Kazakhstan, India, Tajikistan</td>
<td>21.5</td>
<td>100%</td>
</tr>
<tr>
<td>Eastern, Southeastern Asia and Oceania</td>
<td>Singapore, New Zealand, Australia</td>
<td>-14.0</td>
<td>80%</td>
</tr>
<tr>
<td>Europe</td>
<td>Switzerland, Norway, Denmark</td>
<td>-18.6</td>
<td>65%</td>
</tr>
<tr>
<td>Latin America and the Caribbean</td>
<td>Chile, Costa Rica, Uruguay</td>
<td>11.1</td>
<td>100%</td>
</tr>
<tr>
<td>Northern America</td>
<td>United States, Canada</td>
<td>-13.4</td>
<td>0%</td>
</tr>
<tr>
<td>MENA*</td>
<td>United Arab Emirates, Israel, Qatar</td>
<td>-2.6</td>
<td>94%</td>
</tr>
<tr>
<td>Sub-Saharan Africa</td>
<td>Mauritius, Botswana, South Africa</td>
<td>18.1</td>
<td>100%</td>
</tr>
<tr>
<td>(by Income Group)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High-income countries*</td>
<td>Switzerland, Singapore, United States</td>
<td>-18.6</td>
<td>60%</td>
</tr>
<tr>
<td>Upper-middle-income countries</td>
<td>Malaysia, Costa Rica, Azerbaijan</td>
<td>4.6</td>
<td>100%</td>
</tr>
<tr>
<td>Lower-middle-income countries</td>
<td>Philippines, Ukraine, Indonesia</td>
<td>22.3</td>
<td>100%</td>
</tr>
</tbody>
</table>

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

The Group of competitors

Although Israel belongs geographically to MENA, the characteristics of its high-income economy are closer to European countries – whereas high-income countries in its region rely more on natural resources. Figure 3 compares Israel against the sample of European countries - displaying GTCI score together with GDP per capita and population size.

Israel is at the level of France in terms of GDP per capita and talent performance. It is above small Eastern European countries (e.g. Slovenia or Czech Republic) and bigger economies such as Spain or Italy. By contrast, Nordic countries perform better.

Figure 3: Israel GTCI score vs. the group of “competitors”
Note: the size of the bubble indicates the size of the country population

**Performance across Pillars**

Israel is well above the average pillar performance of its regional peers (Figure 4) with the exception of Attract – though recently an active policy was put in place to allow quick visa process for experts in the high-tech industry, representing a change in policy approach towards foreign talent. When compared to the pack of high-income countries, GK skills is well above the average, which confirms the ability of Israel of using its talent for innovating.

Figure 4: Israel pillar scores vs. relevant comparison groups
Jordan - Country Brief

Global GTCI Position

Jordan’s ranking in the GTCI sample of 125 countries is the position 57 (Figure 1). Jordan has a relative strength in attracting foreign talent. By contrast, the pillar Grow remains one of its greatest challenges.

Figure 1: Jordan global ranking (GTCI sample of 125 countries)

<table>
<thead>
<tr>
<th>TOTAL POPULATION:</th>
<th>9.70 MILLIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP:</td>
<td>US $40.07 BILLIONS</td>
</tr>
<tr>
<td>GDP PER CAPITA (PPP):</td>
<td>US $9,153.35 (87 OUT OF 125 COUNTRIES)</td>
</tr>
<tr>
<td>COUNTRY INCOME LEVEL:</td>
<td>UPPER-MIDDLE INCOME</td>
</tr>
</tbody>
</table>

Comparison with different groups of countries

Jordan belongs to the MENA region and is classified as an upper-middle income country. Its relative ranking position is better within its income group (where 71 percent of countries have a lower ranking, as shown in Figure 2), than within its region (where 56 percent of countries rank lower).
Jordan compares favorably against countries in Central and Southern Asia, Latin America and the Caribbean, or Sub-Saharan Africa. Only few countries in these regions rank higher. Yet, Jordan is lagging well behind developed, high-income countries.

**Figure 2: Jordan GTCI performance vs. groups of countries**

<table>
<thead>
<tr>
<th>Comparison Group</th>
<th>Top 3 scores of the group</th>
<th>Score GAP: Jordan score minus group highest score</th>
<th>% of countries in the group ranked below Jordan</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>(by Region)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Central and Southern Asia</td>
<td>Kazakhstan, India, Tajikistan</td>
<td>-0.8</td>
<td>90%</td>
</tr>
<tr>
<td>Eastern, Southeastern Asia and Oceania</td>
<td>Singapore, New Zealand, Australia</td>
<td>-36.3</td>
<td>47%</td>
</tr>
<tr>
<td>Europe</td>
<td>Switzerland, Norway, Denmark</td>
<td>-40.9</td>
<td>16%</td>
</tr>
<tr>
<td>Latin America and the Caribbean</td>
<td>Chile, Costa Rica, Uruguay</td>
<td>-11.2</td>
<td>72%</td>
</tr>
<tr>
<td>Northern America</td>
<td>United States, Canada</td>
<td>-35.7</td>
<td>0%</td>
</tr>
<tr>
<td>MENA*</td>
<td>United Arab Emirates, Israel, Qatar</td>
<td>-24.9</td>
<td>56%</td>
</tr>
<tr>
<td>Sub-Saharan Africa</td>
<td>Mauritius, Botswana, South Africa</td>
<td>-4.2</td>
<td>96%</td>
</tr>
<tr>
<td><strong>(by Income Group)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High-income countries</td>
<td>Switzerland, Singapore, United States</td>
<td>-40.9</td>
<td>2%</td>
</tr>
<tr>
<td>Upper-middle-income countries*</td>
<td>Malaysia, Costa Rica, Azerbaijan</td>
<td>-17.7</td>
<td>71%</td>
</tr>
<tr>
<td>Lower-middle-income countries</td>
<td>Philippines, Ukraine, Indonesia</td>
<td>0.0</td>
<td>100%</td>
</tr>
</tbody>
</table>

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 MENA, 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 is perhaps the closest competitor of Jordan. Although Lebanon has higher income per capita, Jordan is slightly above talent performance - likely helped by its ability to attract foreign talent. Richer Arab countries in GCC show better talent performance in general.

**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**

Jordan is very close to the average of its region and its income group in each pillar (Figure 4). While other upper-middle income countries show on average better performance in the pillar Grow, Jordan excels in Attract – although not at the level of UAE or Qatar in luring the highly-skilled foreign talent.

*Figure 4: Jordan pillar scores vs. relevant comparison groups*
Kenya - Country Brief

Global GTCI Position

Kenya’s ranking in the GTCI sample of 125 countries is the position 85 (Figure 1). The greatest strength is the pillar Attract, which is above the median of the sample of GTCI countries. By contrast, the pillar Retain is the greatest challenge (including how to improve lifestyle).

Figure 1: Kenya global ranking (GTCI sample of 125 countries)

Comparison with different groups of countries

Kenya belongs to the region of Sub-Saharan Africa and is classified as a lower-middle income country. Like in the whole region, talent performance is not strong – countries in this part of Africa are among the worst performers. Kenya is among the good performers of its region (where 78 percent of countries in this group rank lower, as shown in Figure 2). When compared to the group of lower-middle income countries, 65 percent rank lower.
Kenya, like other neighbouring countries, only compares favourably against countries in Central and Southern Asia. No high-income country has a lower ranking – while in Europe only Bosnia and Moldova rank below.

**Figure 2: Kenya GTCI performance vs. groups of countries**

<table>
<thead>
<tr>
<th>Comparison Group</th>
<th>Top 3 scores of the group</th>
<th>Score GAP: Kenya score minus group highest score</th>
<th>% of countries in the group ranked below Kenya</th>
</tr>
</thead>
<tbody>
<tr>
<td>(by Region)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Central and Southern Asia</td>
<td>Kazakhstan, India, Tajikistan</td>
<td>-7.6</td>
<td>50%</td>
</tr>
<tr>
<td>Eastern, Southeastern Asia and Oceania</td>
<td>Singapore, New Zealand, Australia</td>
<td>-43.1</td>
<td>20%</td>
</tr>
<tr>
<td>Europe</td>
<td>Switzerland, Norway, Denmark</td>
<td>-47.6</td>
<td>5%</td>
</tr>
<tr>
<td>Latin America and the Caribbean</td>
<td>Chile, Costa Rica, Uruguay</td>
<td>-18.0</td>
<td>44%</td>
</tr>
<tr>
<td>Northern America</td>
<td>United States, Canada</td>
<td>-42.4</td>
<td>0%</td>
</tr>
<tr>
<td>MENA</td>
<td>United Arab Emirates, Israel, Qatar</td>
<td>-31.7</td>
<td>21%</td>
</tr>
<tr>
<td>Sub-Saharan Africa*</td>
<td>Mauritius, Botswana, South Africa</td>
<td>-10.9</td>
<td>78%</td>
</tr>
<tr>
<td>(by Income Group)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High-income countries</td>
<td>Switzerland, Singapore, United States</td>
<td>-47.6</td>
<td>0%</td>
</tr>
<tr>
<td>Upper-middle-income countries</td>
<td>Malaysia, Costa Rica, Azerbaijan</td>
<td>-24.4</td>
<td>25%</td>
</tr>
<tr>
<td>Lower-middle-income countries*</td>
<td>Philippines, Ukraine, Indonesia</td>
<td>-6.7</td>
<td>65%</td>
</tr>
</tbody>
</table>

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

**The Group of competitors**

Kenya’s group of competitors is defined as those countries from Sub-Saharan Africa that are not low-income countries (they are thus mainly lower-middle income and upper-middle income countries). This group includes 10 countries. Figure 3 compares their GTCI score together with their GDP per capita and population size.

Kenya is similar to Ghana and to Cameroon in terms of population and GDP per capita, and it outperforms both in terms of talent performance – it also performs better than Nigeria. The upper-middle income countries of this group have a relatively much larger income per capita, but this is not reflected in much better talent performance – GTCI scores are very close.

**Figure 3: Kenya 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, Kenya performs above average in every single pillar - although the score for Retain is close to the average. Its relative strengths are in Attract (particularly because of inward Foreign Direct Investments) and Grow (driven mainly by lifelong learning investments given that formal education performs poorly). These strengths are also visible when compared to other lower-middle income countries.

**Figure 4: Kenya pillar scores vs. relevant comparison groups**
Lebanon - Country Brief

Global GTCI Position

Lebanon’s ranking in the GTCI sample of 125 countries is the position 59 (Figure 1). Lebanon’s relative strength is its pool of Global Knowledge (GK) skills – while the pool of Vocational and Technical (VT) skill is adequate. Yet, attracting talent remains one of the biggest challenges.

Figure 1: Lebanon global ranking (GTCI sample of 125 countries)

Comparison with different groups of countries

Lebanon belongs to the MENA region and is classified as an upper-middle income country. Its relative ranking position is better within the group of upper-middle income countries (where 68 percent of countries show a lower ranking, as shown in Figure 2), than within its region (50 percent of countries rank lower).
Lebanon compares favorably against most countries in Central and Southern Asia and Sub-Saharan Africa. It also in good position relative to countries in Latin America and the Caribbean (where 72 percent of countries show a lower performance). Yet, Lebanon is lagging well behind developed, high-income countries.

Figure 2: Lebanon GTCI performance vs. groups of countries

<table>
<thead>
<tr>
<th>Comparison Group</th>
<th>Top 3 scores of the group</th>
<th>Score GAP: Lebanon score minus group highest score</th>
<th>% of countries in the group ranked below Lebanon</th>
</tr>
</thead>
<tbody>
<tr>
<td>(by Region)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Central and Southern Asia</td>
<td>Kazakhstan, India, Tajikistan</td>
<td>-0.9</td>
<td>90%</td>
</tr>
<tr>
<td>Eastern, Southeastern Asia and Oceania</td>
<td>Singapore, New Zealand, Australia</td>
<td>-36.4</td>
<td>40%</td>
</tr>
<tr>
<td>Europe</td>
<td>Switzerland, Norway, Denmark</td>
<td>-41.0</td>
<td>16%</td>
</tr>
<tr>
<td>Latin America and the Caribbean</td>
<td>Chile, Costa Rica, Uruguay</td>
<td>-11.3</td>
<td>72%</td>
</tr>
<tr>
<td>Northern America</td>
<td>United States, Canada</td>
<td>-35.8</td>
<td>0%</td>
</tr>
<tr>
<td>MENA*</td>
<td>United Arab Emirates, Israel, Qatar</td>
<td>-25.1</td>
<td>50%</td>
</tr>
<tr>
<td>Sub-Saharan Africa</td>
<td>Mauritius, Botswana, South Africa</td>
<td>-4.3</td>
<td>96%</td>
</tr>
<tr>
<td>(by Income Group)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High-income countries</td>
<td>Switzerland, Singapore, United States</td>
<td>-41.0</td>
<td>2%</td>
</tr>
<tr>
<td>Upper-middle-income countries*</td>
<td>Malaysia, Costa Rica, Azerbaijan</td>
<td>-17.8</td>
<td>68%</td>
</tr>
<tr>
<td>Lower-middle-income countries</td>
<td>Philippines, Ukraine, Indonesia</td>
<td>-0.1</td>
<td>96%</td>
</tr>
</tbody>
</table>

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 MENA, 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 is perhaps its closest competitor. Although Lebanon has slightly higher income per capita, its GTCI performance runs a bit behind that of Jordan. Rich countries in the Gulf generally show better talent performance.

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

When compared to other countries in its region, Lebanon has a relatively strong pool of both GK and VT skills (Figure 4) – with a good performance in matching the skills of its population with the needs of enterprises. Such performance also outperforms the group of upper-middle income countries – whereas scores are close to the average in the pillars Enable and Attract. Lebanon lags behind in attracting foreign talent, ranked still far away from the high-performers in the Gulf.

Figure 4: Lebanon pillar scores vs. relevant comparison groups

Note: the size of the bubble indicates the size of the country population
Global GTCI Position

Morocco’s ranking in the GTCI sample of 125 countries is the position 100 (Figure 1). Morocco is among the low performers in the GTCI sample. Although still low, the pool of Global Knowledge (GK) skills is better positioned than that of Vocational and Technical (VT) skills. There is large room for improvement in terms of development of human capital and proper market and business environment that enable talent.

Figure 1: Morocco global ranking (GTCI sample of 125 countries)

Comparison with different groups of countries

Morocco belongs to the MENA region and is classified as a lower-middle income country. Although in general not in a good position, Morocco’s relative ranking is significantly better within its income group (31 percent of lower-middle income countries rank lower, as shown
in Figure 2), than within its regional group in which it ranks third to last before Algeria and Yemen.

Outside of Africa and Western Asia, Morocco only compares favorably to Sub-Saharan Africa (where 63 percent of countries from this region rank below). In Central and Southern Asia, 30 percent of countries rank below.

**Figure 2: Morocco GTCI performance vs. groups of countries**

<table>
<thead>
<tr>
<th>Comparison Group</th>
<th>Top 3 scores of the group</th>
<th>Score GAP: Morocco score minus group highest score</th>
<th>% of countries in the group ranked below Morocco</th>
</tr>
</thead>
<tbody>
<tr>
<td>(by Region)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Central and Southern Asia</td>
<td>Kazakhstan, India, Tajikistan</td>
<td>-12.1</td>
<td>30%</td>
</tr>
<tr>
<td>Eastern, Southeastern Asia and Oceania</td>
<td>Singapore, New Zealand, Australia</td>
<td>-47.6</td>
<td>7%</td>
</tr>
<tr>
<td>Europe</td>
<td>Switzerland, Norway, Denmark</td>
<td>-52.1</td>
<td>0%</td>
</tr>
<tr>
<td>Latin America and the Caribbean</td>
<td>Chile, Costa Rica, Uruguay</td>
<td>-22.5</td>
<td>22%</td>
</tr>
<tr>
<td>Northern America</td>
<td>United States, Canada</td>
<td>-47.0</td>
<td>0%</td>
</tr>
<tr>
<td>MENA*</td>
<td>United Arab Emirates, Israel, Qatar</td>
<td>-36.2</td>
<td>11%</td>
</tr>
<tr>
<td>Sub-Saharan Africa</td>
<td>Mauritius, Botswana, South Africa</td>
<td>-15.5</td>
<td>63%</td>
</tr>
<tr>
<td>(by Income Group)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High-income countries</td>
<td>Switzerland, Singapore, United States</td>
<td>-52.1</td>
<td>0%</td>
</tr>
<tr>
<td>Upper-middle-income countries</td>
<td>Malaysia, Costa Rica, Azerbaijan</td>
<td>-28.9</td>
<td>9%</td>
</tr>
<tr>
<td>Lower-middle-income countries*</td>
<td>Philippines, Ukraine, Indonesia</td>
<td>-11.3</td>
<td>31%</td>
</tr>
</tbody>
</table>

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 MENA 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. Tunisia shows better GTCI performance than Morocco.

**Figure 3: Morocco GTCI score vs. the group of “competitors”**
Performance across Pillars

The overall poor talent performance of Morocco is reflected in each of its pillars. The six pillars are close to the average performance of lower-middle income countries (Figure 4), and the pool of VT skills is particularly poor – the skills developed by the country’s population are not relevant for the needs of the economy and its enterprises. The score of each pillar is well below the regional average – which is pulled by the good performance of resource-rich countries like UAE and Qatar.

Figure 4: Morocco pillar scores vs. relevant comparison groups
Nigeria - Country Brief

Global GTCI Position

Nigeria’s ranking in the GTCI sample of 125 countries is the position 99 (Figure 1). Although overall performance is poor in general, Nigeria shows contrasting situations in the Attract and Retain pillars: despite having one of the worst lifestyles for retaining talent within the GTCI sample, Nigeria still attracts foreign talent and investments. There is large room for improvement in educational and training systems (Pillar Grow), particularly to enhance the pool of Global Knowledge (GK) skills.

Figure 1: Nigeria global ranking (GTCI sample of 125 countries)

Comparison with different groups of countries

Nigeria belongs to the region of Sub-Saharan Africa and is classified as a lower-middle income country. Its relative ranking position is significantly better within its regional group (where 65 percent of countries have a lower ranking, as shown in Figure 2) than within the group of lower-middle income countries (35 percent of which rank lower).
In general, Sub-Saharan African countries occupy the last positions of the GTCI sample. Nigeria is above the median of the region. Botswana and South Africa continue to dominate the continent. As for other regions, only Central and Southern Asia has several countries ranking below Nigeria.

Figure 2: Nigeria GTCI performance vs. groups of countries

<table>
<thead>
<tr>
<th>Comparison Group</th>
<th>Top 3 scores of the group</th>
<th>Score GAP: Nigeria score minus group highest score</th>
<th>% of countries in the group ranked below Nigeria</th>
</tr>
</thead>
<tbody>
<tr>
<td>(by Region)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Central and Southern Asia</td>
<td>Kazakhstan, India, Tajikistan</td>
<td>-12.1</td>
<td>30%</td>
</tr>
<tr>
<td>Eastern, Southeastern Asia and Oceania</td>
<td>Singapore, New Zealand, Australia</td>
<td>-47.6</td>
<td>7%</td>
</tr>
<tr>
<td>Europe</td>
<td>Switzerland, Norway, Denmark</td>
<td>-52.1</td>
<td>0%</td>
</tr>
<tr>
<td>Latin America and the Caribbean</td>
<td>Chile, Costa Rica, Uruguay</td>
<td>-22.5</td>
<td>22%</td>
</tr>
<tr>
<td>Northern America</td>
<td>United States, Canada</td>
<td>-46.9</td>
<td>0%</td>
</tr>
<tr>
<td>MENA</td>
<td>United Arab Emirates, Israel, Qatar</td>
<td>-36.2</td>
<td>16%</td>
</tr>
<tr>
<td>Sub-Saharan Africa*</td>
<td>Mauritius, Botswana, South Africa</td>
<td>-15.4</td>
<td>65%</td>
</tr>
<tr>
<td>(by Income Group)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High-income countries</td>
<td>Switzerland, Singapore, United States</td>
<td>-52.1</td>
<td>0%</td>
</tr>
<tr>
<td>Upper-middle-income countries</td>
<td>Malaysia, Costa Rica, Azerbaijan</td>
<td>-28.9</td>
<td>9%</td>
</tr>
<tr>
<td>Lower-middle-income countries*</td>
<td>Philippines, Ukraine, Indonesia</td>
<td>-11.2</td>
<td>35%</td>
</tr>
</tbody>
</table>

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

The Group of competitors

Nigeria’s group of competitors is defined as those countries from Sub-Saharan Africa that are not low-income countries (they are thus mainly lower-middle income and upper-middle income countries). This group includes 10 countries. Figure 3 compares their GTCI score together with their GDP per capita and population size.

Nigeria has by far the largest population from this group, so it is difficult to say that there are competitors that are similar. Yet, it has similar income per capita as Kenya or Ghana, both of which show a better GTCI performance. The upper-middle income countries of this group have a relatively much larger income per capita, but this is not reflected in much better talent performance – GTCI scores are very close.

Figure 3: Nigeria GTCI score vs. the group of “competitors”
Note: the size of the bubble indicates the size of the country population

Performance across Pillars

Performance by pillar is very close to the average score of both the Sub-Saharan region and the group of lower-middle income countries. The pillar of Vocational and Technical (VT) skills is slightly above average in both cases (Figure 4), mainly given the access to secondary and technical education – though the skills available do not match well the needs of enterprises. In terms of Retain, scores are below average in both groups: Nigeria suffers from bad performance in Lifestyle variables.

Figure 4: Nigeria pillar scores vs. relevant comparison groups
Russia - Country Brief

Global GTCI Position

Russia’s ranking in the GTCI sample of 125 countries is the position 49 (Figure 1). Russia shows a relatively strong position in its pool of Global Knowledge (GK) skills. The pillar Grow, encompassing formal education and firm training, is also solid. The greatest challenge is the pillar Attract.

Figure 1: Russia global ranking (GTCI sample of 125 countries)

Comparison with different groups of countries

Russia is classified in Europe as its regional group and is classified as a upper-middle income country. Its relative ranking position is significantly better within its income group (where 84% of countries rank lower, as shown in Figure 2), than within Europe, which

<table>
<thead>
<tr>
<th>TOTAL POPULATION:</th>
<th>144.50 MILLIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP:</td>
<td>US $1577.52 BILLIONS</td>
</tr>
<tr>
<td>GDP PER CAPITA (PPP):</td>
<td>US $ 25,533.00 (49 OUT OF 125 COUNTRIES)</td>
</tr>
<tr>
<td>COUNTRY INCOME LEVEL:</td>
<td>UPPER MIDDLE INCOME</td>
</tr>
</tbody>
</table>
includes many of the top talent performers (only 28 percent of the European countries in the sample rank lower).

Russia in general compares favorably against most emerging markets: it ranks higher than any country in Central and Southern Asia; in Sub-Saharan Africa and in Latin America and the Caribbean, only exceptions such as Mauritius, Chile or Uruguay rank higher. Yet, Russia does not compare well against high-income countries.

Figure 2: Russia GTCI performance vs. groups of countries

<table>
<thead>
<tr>
<th>Comparison Group</th>
<th>Top 3 scores of the group</th>
<th>Score GAP: Russia score minus group highest score</th>
<th>% of countries in the group ranked below Russia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central and Southern Asia</td>
<td>Kazakhstan, India, Tajikistan</td>
<td>1.7</td>
<td>100%</td>
</tr>
<tr>
<td>Eastern, Southeastern Asia and Oceania</td>
<td>Singapore, New Zealand, Australia</td>
<td>-33.8</td>
<td>47%</td>
</tr>
<tr>
<td>Europe*</td>
<td>Switzerland, Norway, Denmark</td>
<td>-38.4</td>
<td>28%</td>
</tr>
<tr>
<td>Latin America and the Caribbean</td>
<td>Chile, Costa Rica, Uruguay</td>
<td>-8.7</td>
<td>83%</td>
</tr>
<tr>
<td>Northern America</td>
<td>United States, Canada</td>
<td>-33.2</td>
<td>0%</td>
</tr>
<tr>
<td>MENA</td>
<td>United Arab Emirates, Israel, Qatar</td>
<td>-22.4</td>
<td>58%</td>
</tr>
<tr>
<td>Sub-Saharan Africa</td>
<td>Mauritius, Botswana, South Africa</td>
<td>-1.7</td>
<td>96%</td>
</tr>
<tr>
<td>High-income countries</td>
<td>Switzerland, Singapore, United States</td>
<td>-38.4</td>
<td>10%</td>
</tr>
<tr>
<td>Upper-middle-income countries*</td>
<td>Malaysia, Costa Rica, Azerbaijan</td>
<td>-15.2</td>
<td>84%</td>
</tr>
<tr>
<td>Lower-middle-income countries</td>
<td>Philippines, Ukraine, Indonesia</td>
<td>2.5</td>
<td>100%</td>
</tr>
</tbody>
</table>

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

The Group of competitors

Given the territorial size of the country and the difficulty to classify Russia within a single continent, the group of competitors is defined as the Group of G8 countries plus the BRICs (see Figure 3).

Russia lags well behind G7 countries in terms of GTCI performance. Also, despite having a much higher income per capita than China, the GTCI score is lower. Russia outperforms India and Brazil.

Figure 3: Russia GTCI score vs. the group of "competitors"
Note: the size of the bubble indicates the size of the country population

**Performance across Pillars**

The performance across pillars is well below the European average, with the exception of GK skills in which Russia ranks 28. This is reflection of Russian strengths in Engineering and science. When compared to upper-middle income countries, Russia has an edge in GK skill and pillar Grow (i.e. formal education system and training), but it is struggling to attract foreign talent.

Figure 4: Russia pillar scores vs. relevant comparison groups

- Russia’s talent performance is located above the median in the sample of GTCI countries (position 49).
• Russia has a strong pool of Global Knowledge Skills (28th) as a result of the High-Level Skills (12th) available in the country.
• The country has a solid system of Formal Education (30th), which contributes to a rank of 44th in growing talent despite poor access to growth opportunities (91st).
• Employment has remained remarkably high over the years despite periods of volatility.
• Unemployment rates have been less dramatic than in other transitional economies.
• The flexibility of wages and of working hours, which declined during downturns, may explain the resilience of employment across the economic cycle. Wages, not employment, has been the mechanism of adjustment in recent Russia.
• A poor Regulatory Landscape (103rd) can hurt Russia's long-term ability to maximize the productivity of its educated workforce. Although innovation performance is above the median of GTCI countries, Russia is not attracting the best global talent to compete with developed nations (ranked 109th in pillar Attract).
Global GTCI Position

Saudi Arabia’s ranking in the GTCI sample of 125 countries is the position 39 (Figure 1). The greatest strength is the pillar Enable, characterized by the regulatory, market and business landscapes – the latter two being particularly well ranked. It is in the pillar Grow (formal education and firm training) that there is more room for improvement. This has also been recognized by Saudi policy makers, which was reflected in the IMD World Competitiveness Ranking 2019, where Saudi Arabia was the top-ranked country in terms of investment in education.  

Figure 1: Saudi Arabia global ranking (GTGI sample of 125 countries)

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Comparison with different groups of countries

Saudi Arabia belongs to the MENA region and is classified as a high-income country. Its relative ranking position is significantly better within its regional group (where 78 percent of countries rank lower, as shown in Figure 2), than within the group of high-income countries (of which only 23 percent of countries rank lower).

 Saudi Arabia compares favorably against most countries in the regions of Central and Southern Asia, Latin America and the Caribbean, or Sub-Saharan Africa. In East and south-eastern Asia also 53 percent of countries rank lower. It is against high-income countries in Europe and North America that there is some catch-up to do.

Figure 2: Saudi GTCI performance vs. groups of countries

<table>
<thead>
<tr>
<th>Comparison Group</th>
<th>Top 3 scores of the group</th>
<th>Score GAP: Saudi score minus group highest score</th>
<th>% of countries in the group ranked below Saudi</th>
</tr>
</thead>
<tbody>
<tr>
<td>(by Region)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Central and Southern Asia</td>
<td>Kazakhstan, India, Tajikistan</td>
<td>7.0</td>
<td>100%</td>
</tr>
<tr>
<td>Eastern, Southeastern Asia and Oceania</td>
<td>Singapore, New Zealand, Australia</td>
<td>-28.5</td>
<td>53%</td>
</tr>
<tr>
<td>Europe</td>
<td>Switzerland, Norway, Denmark</td>
<td>-33.0</td>
<td>38%</td>
</tr>
<tr>
<td>Latin America and the Caribbean</td>
<td>Chile, Costa Rica, Uruguay</td>
<td>-3.4</td>
<td>89%</td>
</tr>
<tr>
<td>Northern America</td>
<td>United States, Canada</td>
<td>-27.9</td>
<td>0%</td>
</tr>
<tr>
<td>MENA*</td>
<td>United Arab Emirates, Israel, Qatar</td>
<td>-17.1</td>
<td>78%</td>
</tr>
<tr>
<td>Sub-Saharan Africa</td>
<td>Mauritius, Botswana, South Africa</td>
<td>3.6</td>
<td>100%</td>
</tr>
<tr>
<td>(by Income Group)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High-income countries*</td>
<td>Switzerland, Singapore, United States</td>
<td>-33.0</td>
<td>23%</td>
</tr>
<tr>
<td>Upper-middle-income countries</td>
<td>Malaysia, Costa Rica, Azerbaijan</td>
<td>-9.8</td>
<td>94%</td>
</tr>
<tr>
<td>Lower-middle-income countries</td>
<td>Philippines, Ukraine, Indonesia</td>
<td>7.8</td>
<td>100%</td>
</tr>
</tbody>
</table>

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 MENA, 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 is ranked well above countries in North Africa and middle-income countries of the Middle East.
Performance across Pillars

Performance across all the pillars is above the average of its region (Figure 4) – the greatest lead is in the pillar of Vocational and Technical (VT) skills. Saudi has good access to secondary and technical education and the skills produced match relatively well the needs of the economy and its enterprises. Yet, when compared to high-income groups, the greatest gap is in terms of pillar Grow (formal Education) and the production of Global Knowledge (GK) skills, i.e. those skills needed for entrepreneurship and innovation.
Global GTCI Position

South Africa’s ranking in the GTCI sample of 125 countries is the position 71 (Figure 1). Its greatest strength is the pillar Grow, also supported by a pillar Attract that is strong for an emerging country. The greatest challenge is the pillar Retain, given the large room for improvement in terms of lifestyle and safety.

Figure 1: South Africa global ranking (GTCI sample of 125 countries)

Comparison with different groups of countries

South Africa belongs to the region of Sub-Saharan Africa and is classified as an upper-middle income country. Its relative ranking position is significantly better within its regional group, where it ranks in 3rd position (91 percent of countries in this group rank lower, as shown in Figure 2), than within the group of upper-middle income countries (where 42 percent of countries rank lower).
Sub-Saharan Africa in general is the region with poorer performance in GTCI. With an income per capita that is higher than most in the region, South Africa is only outperformed by Botswana and Mauritius. South Africa compares favourably against most countries in the region of Central and Southern Asia (where 90 percent of countries rank lower); yet, many middle-income countries in regions like Latin America and the Caribbean or East and southeastern Asia perform better.

**Figure 2: South Africa GTCI performance vs. groups of countries**

<table>
<thead>
<tr>
<th>Comparison Group</th>
<th>Top 3 scores of the group</th>
<th>Score GAP: South Africa score minus group highest score</th>
<th>% of countries in the group ranked below South Africa</th>
</tr>
</thead>
<tbody>
<tr>
<td>(by Region)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Central and Southern Asia</td>
<td>Kazakhstan, India, Tajikistan</td>
<td>-3.8</td>
<td>90%</td>
</tr>
<tr>
<td>Eastern, Southeastern Asia and Oceania</td>
<td>Singapore, New Zealand, Australia</td>
<td>-39.3</td>
<td>27%</td>
</tr>
<tr>
<td>Europe</td>
<td>Switzerland, Norway, Denmark</td>
<td>-43.9</td>
<td>8%</td>
</tr>
<tr>
<td>Latin America and the Caribbean</td>
<td>Chile, Costa Rica, Uruguay</td>
<td>-14.3</td>
<td>56%</td>
</tr>
<tr>
<td>Northern America</td>
<td>United States, Canada</td>
<td>-38.7</td>
<td>0%</td>
</tr>
<tr>
<td>MENA</td>
<td>United Arab Emirates, Israel, Qatar</td>
<td>-28.0</td>
<td>37%</td>
</tr>
<tr>
<td>Sub-Saharan Africa*</td>
<td>Mauritius, Botswana, South Africa</td>
<td>-7.2</td>
<td>91%</td>
</tr>
<tr>
<td>(by Income Group)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High-income countries</td>
<td>Switzerland, Singapore, United States</td>
<td>-43.9</td>
<td>0%</td>
</tr>
<tr>
<td>Upper-middle-income countries*</td>
<td>Malaysia, Costa Rica, Azerbaijan</td>
<td>-20.7</td>
<td>42%</td>
</tr>
<tr>
<td>Lower-middle-income countries</td>
<td>Philippines, Ukraine, Indonesia</td>
<td>-3.0</td>
<td>89%</td>
</tr>
</tbody>
</table>

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

**The Group of competitors**

South Africa’s group of competitors is defined as those countries from Sub-Saharan Africa that are not low-income countries (they are thus mainly lower-middle income and upper-middle income countries). This group includes 10 countries. Figure 3 compares their GTCI score together with their GDP per capita and population size.

Only two countries have a larger GDP per capita than South Africa, and both have a little edge in terms of talent performance. Although South Africa’s income per capita is then much larger that the next group of countries, the advantage in terms of talent performance is not large; South Africa does perform better than many peers in the region, but it is punching below its weight.

**Figure 3: South Africa GTCI score vs. the group of “competitors”**

84
Performance across Pillars

Performance by pillar is very close to the average of upper-middle income countries, with the exception of pillar Retain (Figure 4). Poor lifestyle hinders the capacity of South Africa to empower talent. The pillar Grow is above the average of the income group and way beyond the average of its region; this is driven by firm training and access to professional opportunities, though formal education is not adequate for the needs of the economy – there are large skills mismatches and many university graduates are not being employed.

Figure 4: South Africa pillar scores vs. relevant comparison groups
- South Africa is the third-highest ranked BRICS member (71st). China is the leading country of this group (45th), followed by Russia (49th, discussed in further sections).
- Private sector does facilitate Lifelong Learning (42nd) and Access to Growth Opportunities (33rd), which leads to a rank of 45th in the Grow pillar.
- Yet, its system of Formal Education (77th) is not catering the needs of the economy (90th in Employability). The result is a high unemployment rate, including among the NEETs many people with higher education and diplomas – who have high job expectations which are not compatible with opportunities available.
- The main problem is lack of demand. 'Wage employment' (i.e. in the formal sector) has been very slow. Private investment has not created labor-intensive enterprises.
- The informal sector does not absorb many of the least educated youth as it does in poorer countries in Africa.
- In the agriculture sector, high minimum wages do seem to be reducing employment as in this sector capital can easily substitute for unskilled labor.
- South Africa has poor conditions to retain talent: 102nd in Pillar Retain given poor Sustainability (103rd) and Lifestyle (99th).
Global GTCI Position

Turkey’s ranking in the GTCI sample of 125 countries is the position 74 (Figure 1). Turkey ranks relatively better in the pillar Global Knowledge skills. By contrast, the country ranks very low in the pillar Attract, which constitutes one of its greatest challenges.

Figure 1: Turkey global ranking (GTCI sample of 125 countries)

Comparison with different groups of countries

Turkey is an upper-middle income country and, for the purposes of this report, is classified as belonging to the MENA region\(^{115}\) – though given its location, as bridge between Asia and Europe, it can often be compared to eastern European countries in economic terms.

\(^{115}\) The definitions of regions and of income groups are based on the World Bank’s classification. An exception is made with respect to Turkey, which the World Bank classifies as belonging to the region Europe and Central Asia.
Turkey’s relative ranking position is similar within its income group (35 percent of countries in this group rank lower, as shown in Figure 2) and within its regional group (where 33 percent of countries in this group rank lower).

As a country edging closer to become a high-income economy, Turkey is punching well below its weight. It compares indeed favorably to most emerging countries in regions like Sub-Saharan Africa and Central and Southern Asia (respectively 83 and 90 percent of the countries from these regions rank below). Yet, Turkey is below all high-income countries in the GTCI sample and many middle-income countries in the Middle East, Asia and Latin America perform better.

Figure 2: Turkey GTCI performance vs. groups of countries

<table>
<thead>
<tr>
<th>Comparison Group</th>
<th>Top 3 scores of the group</th>
<th>Score GAP: Turkey score minus group highest score</th>
<th>% of countries in the group ranked below Turkey</th>
</tr>
</thead>
<tbody>
<tr>
<td>(by Region)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Central and Southern Asia</td>
<td>Kazakhstan, India, Tajikistan</td>
<td>-4.3</td>
<td>90%</td>
</tr>
<tr>
<td>Eastern, Southeastern Asia and Oceania</td>
<td>Singapore, New Zealand, Australia</td>
<td>-39.8</td>
<td>27%</td>
</tr>
<tr>
<td>Europe</td>
<td>Switzerland, Norway, Denmark</td>
<td>-44.4</td>
<td>8%</td>
</tr>
<tr>
<td>Latin America and the Caribbean</td>
<td>Chile, Costa Rica, Uruguay</td>
<td>-14.8</td>
<td>50%</td>
</tr>
<tr>
<td>Northern America</td>
<td>United States, Canada</td>
<td>-39.2</td>
<td>0%</td>
</tr>
<tr>
<td>MENA*</td>
<td>United Arab Emirates, Israel, Qatar</td>
<td>-28.5</td>
<td>33%</td>
</tr>
<tr>
<td>Sub-Saharan Africa</td>
<td>Mauritius, Botswana, South Africa</td>
<td>-7.7</td>
<td>83%</td>
</tr>
<tr>
<td>(by Income Group)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High-income countries</td>
<td>Switzerland, Singapore, United States</td>
<td>-44.4</td>
<td>0%</td>
</tr>
<tr>
<td>Upper-middle-income countries*</td>
<td>Malaysia, Costa Rica, Azerbaijan</td>
<td>-21.2</td>
<td>35%</td>
</tr>
<tr>
<td>Lower-middle-income countries</td>
<td>Philippines, Ukraine, Indonesia</td>
<td>-3.5</td>
<td>89%</td>
</tr>
</tbody>
</table>

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

The Group of competitors

Turkey is located at the intersection of Europe and the Middle East and it shares some similarities with countries in Southern Europe. Figure 3 compares Turkey against an ‘Eurasia’ group: pooling together Arab countries from MENA and selected countries from Eastern Europe. It compares their GTCI score together with their GDP per capita and population size.

Although Turkey ranks above emerging countries in North Africa in the GTCI ranking, it is outperformed not only by the resource-rich countries in the Gulf but also middle-income countries in the Middle East like Jordan or Lebanon. In Europe, only Albania, Bosnia and Moldova rank lower – while Ukraine, Serbia and Romania show a slight edge.
Note: the size of the bubble indicates the size of the country population

**Performance across Pillars**

Performance across pillars is close to the average of upper-middle countries – with the exception of pillar Attract (Figure 4). For a country with such level of economic development, Turkey is missing some opportunities and needs to work on attracting more FDI and foreign talent to improve its External Openness score. Also, Turkey needs to continue improving its Internal Openness by increasing the employment rate of women and integrating better its minorities. Improvement is also needed in Vocational and Technical (VT) skills, given the poor matching of available skills with the needs of the economy.

*Figure 4: Turkey pillar scores vs. relevant comparison groups*
Ukraine - Country Brief

Global GTCI Position

Ukraine’s ranking in the GTCI sample of 125 countries is the position 63 (Figure 1). Although Ukraine has a relatively strong pool of Global Knowledge (GK) skills, it is among the worst countries in the Pillar Attract. The pillar Enable is also weak.

Figure 1: Ukraine global ranking (GTCI sample of 125 countries)

Comparison with different groups of countries

Ukraine belongs to Europe (region) and is classified as a lower-middle income country. Its relative ranking position is significantly better within its income group, where it ranks in 2nd position (96 percent of countries in this group rank lower, as shown in Figure 2), than within its regional group (only 14 percent of European countries rank lower).

Ukraine compares favorably against Central and Southern Asia and Sub-Saharan Africa, where the majority of countries rank lower. In Latin America and the Caribbean, 67 percent
of countries have a lower ranking. Yet, Ukraine ranks lower than many emerging markets in Asia – although it compares favorably against 59 percent of those emerging markets classified as upper-middle income countries.

**Figure 2: Ukraine GTCI performance vs. groups of countries**

<table>
<thead>
<tr>
<th>Comparison Group</th>
<th>Top 3 scores of the group</th>
<th>Score GAP: Ukraine score minus group highest score</th>
<th>% of countries in the group ranked below Ukraine</th>
</tr>
</thead>
<tbody>
<tr>
<td>(by Region)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Central and Southern Asia</td>
<td>Kazakhstan, India, Tajikistan</td>
<td>-2.4</td>
<td>90%</td>
</tr>
<tr>
<td>Eastern, Southeastern Asia and Oceania</td>
<td>Singapore, New Zealand, Australia</td>
<td>-37.9</td>
<td>40%</td>
</tr>
<tr>
<td>Europe</td>
<td>Switzerland, Norway, Denmark</td>
<td>-42.4</td>
<td>14%</td>
</tr>
<tr>
<td>Latin America and the Caribbean</td>
<td>Chile, Costa Rica, Uruguay</td>
<td>-12.8</td>
<td>67%</td>
</tr>
<tr>
<td>Northern America</td>
<td>United States, Canada</td>
<td>-37.2</td>
<td>0%</td>
</tr>
<tr>
<td>MENA</td>
<td>United Arab Emirates, Israel, Qatar</td>
<td>-26.5</td>
<td>42%</td>
</tr>
<tr>
<td>Sub-Saharan Africa</td>
<td>Mauritius, Botswana, South Africa</td>
<td>-5.7</td>
<td>92%</td>
</tr>
<tr>
<td>(by Income Group)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High-income countries</td>
<td>Switzerland, Singapore, United States</td>
<td>-42.4</td>
<td>0%</td>
</tr>
<tr>
<td>Upper-middle-income countries</td>
<td>Malaysia, Costa Rica, Azerbaijan</td>
<td>-19.2</td>
<td>59%</td>
</tr>
<tr>
<td>Lower-middle-income countries</td>
<td>Philippines, Ukraine, Indonesia</td>
<td>-1.5</td>
<td>96%</td>
</tr>
</tbody>
</table>

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

**The Group of competitors**

Ukraine’s group of competitors is defined as all those “Emerging” European countries that are not classified as high-income countries. The group includes 9 countries. Figure 3 compares their GTCI score together with their GDP per capita and population size.

Based on their GDP per capita, only Moldova is poorer and yet Ukraine performs better than other countries classified one level above in terms of income (upper-middle income). Russia is the high performer of this group while Ukraine outperforms countries in South-eastern Europe – even EU members as Romania.

**Figure 3: Ukraine GTCI score vs. the group of “competitors”**
Note: the size of the bubble indicates the size of the country population

**Performance across Pillars**

The pool of GK skills, and also that of Vocational and Technical (VT) skills, performs well above lower-middle income countries – such performance is even close to the average of Europe as a whole (Figure 4). The pillar Grow (i.e. Formal Education and Lifelong Learning) is good relative to the standards of emerging countries but well behind Europe’s average. The Pillar Attract (i.e. foreign talent and inclusion at home) is among the worst in the GTCI sample (with an score even lower than for lower-middle income countries).

**Figure 4: Ukraine pillar scores vs. relevant comparison groups**
United Arab Emirates - Country Brief

Global GTCI Position

The United Arab Emirates’ ranking in the GTCI sample of 125 countries is the position 19 (Figure 1). The United Arab Emirates ranks in the top 5 countries in the pillar Attract. The attraction of foreign talent is driven by a solid Enable pillar (strong regulatory, market and business environment). By contrast, the country ranks low in the pillar of Global Knowledge (GK) skills.

Figure 1: United Arab Emirates global ranking (GTCl sample of 125 countries)

Comparison with different groups of countries

The United Arab Emirates belongs to the MENA region and is classified as a high income country. Its relative ranking position is significantly better within its regional group, where it ranks in 1st position (100 percent of countries in this group rank lower, as shown in Figure 2), than within the group of high income countries (62 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 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 (65 percent of the countries from both regions rank lower).

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

<table>
<thead>
<tr>
<th>Comparison Group</th>
<th>Top 3 scores of the group</th>
<th>Score GAP: UAE score minus group highest score</th>
<th>% of countries in the group ranked below UAE</th>
</tr>
</thead>
<tbody>
<tr>
<td>(by Region)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Central and Southern Asia</td>
<td>Kazakhstan, India, Tajikistan</td>
<td>24.1</td>
<td>100%</td>
</tr>
<tr>
<td>Eastern, Southeastern Asia and Oceania</td>
<td>Singapore, New Zealand, Australia</td>
<td>-11.4</td>
<td>80%</td>
</tr>
<tr>
<td>Europe</td>
<td>Switzerland, Norway, Denmark</td>
<td>-15.9</td>
<td>65%</td>
</tr>
<tr>
<td>Latin America and the Caribbean</td>
<td>Chile, Costa Rica, Uruguay</td>
<td>13.7</td>
<td>100%</td>
</tr>
<tr>
<td>Northern America</td>
<td>United States, Canada</td>
<td>-10.7</td>
<td>0%</td>
</tr>
<tr>
<td>MENA</td>
<td>United Arab Emirates, Israel, Qatar</td>
<td>0.0</td>
<td>100%</td>
</tr>
<tr>
<td>Sub-Saharan Africa</td>
<td>Mauritius, Botswana, South Africa</td>
<td>20.8</td>
<td>100%</td>
</tr>
<tr>
<td>(by Income Group)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High-income countries</td>
<td>Switzerland, Singapore, United States</td>
<td>-15.9</td>
<td>62%</td>
</tr>
<tr>
<td>Upper-middle-income countries</td>
<td>Malaysia, Costa Rica, Azerbaijan</td>
<td>7.3</td>
<td>100%</td>
</tr>
<tr>
<td>Lower-middle-income countries</td>
<td>Philippines, Ukraine, Indonesia</td>
<td>26.0</td>
<td>100%</td>
</tr>
</tbody>
</table>

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 MENA, 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 any 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 - although the score for GK skills is close to the average. 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, while lagging behind in terms of Grow and GK skills.

**Figure 4: United Arab Emirates pillar scores vs. relevant comparison groups**
Audit by the Joint Research Centre of the European Commission

The Joint Research Centre (JRC) of the European Commission has conducted extensive research on the development of composite indicators, most notably publishing the Handbook on Constructing Composite Indicators: Methodology and User Guide in collaboration with the Organization for Economic Co-operation and Development (OECD). For the sixth consecutive edition of the Global Talent Competitiveness Index (GTCI), the GTCI development team engaged the JRC to conduct an audit. This exercise has provided external validation and further improved the statistical analyses to ensure the consistency and rigor of the GTCI index model.

In July 2018, an earlier version of the index model for the GTCI 2019 was submitted to the JRC team. The results from the preliminary audit were taken into account and are reflected in the final version of the index model, as appropriate. The final audit was then completed in September 2017 based on the latest model, the results of which can be found in Chapter 6.

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 from the simple arithmetic average of its individual variables. The successive arithmetic aggregation continues at 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, economy rankings are provided for each variable, sub-pillar, pillar, and sub-index in the Country Profiles.

Individual Variables

The GTCI 2019 model includes 68 variables, which fall within the following categories:

1 Hard/quantitative data (25 variables)
2 Index/composite indicator data (15 variables)
3 Survey/qualitative data (28 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 database of the Doing Business report), the International Telecommunication Union (ITU), 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 28 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/Economy Coverage and Missing Data**

The 125 economies covered in the GTCI 2019 were selected based on an aggregate data availability threshold of at least 80% (54 out of 68 variables) and a sub-pillar level data availability threshold of at least 40%. The most recent data points for each economy were considered in the calculation, with 2006 as the cut-off year. Meanwhile, each variable had to pass a country-based availability threshold of 50% (63 out of 125 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:

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

**Normalization**

To adjust for differences in units of measurement and ranges of variation, all 68 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.

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

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

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

\[
-100 \times \frac{(\text{value} - \min)}{\max - \min}
\]
### ANNEX 3 - SOURCES AND DEFINITIONS OF VARIABLES

The Table below lists the definitions of all variables used in GTCI 2019.

<table>
<thead>
<tr>
<th>Pillar</th>
<th>Sub-pillar</th>
<th>Variable name</th>
<th>Definition</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1.2 Market Landscape</td>
<td>1.2.1 Competition intensity</td>
<td>Average answer to the question: In your country, how intense is competition in the local markets? [1 = not intense at all; 7 = extremely intense]</td>
<td>Source: World Economic Forum, Executive Opinion Survey 2015–2016 (<a href="http://reports.weforum.org">http://reports.weforum.org</a>)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.2.3 Cluster development</td>
<td>Average answer to the question: In your country, how widespread are well-developed and deep clusters (geographic concentrations of firms, suppliers, producers of related products and services, and specialized institutions in a particular field)? [1 = nonexistent; 7 = widespread in many fields]</td>
<td>Source: World Economic Forum, Executive Opinion Survey 2015–2016 (<a href="http://reports.weforum.org">http://reports.weforum.org</a>)</td>
</tr>
<tr>
<td>2. ATT RAC T</td>
<td>1.3 Business Landscape</td>
<td>1.2.6 Technology utilization</td>
<td>Average answer to the question: In your country, to what extent do businesses adopt the latest technologies? [1 = not at all; 7 = to a great extent]</td>
<td>Source: World Economic Forum, Executive Opinion Survey 2015–2016 (<a href="http://reports.weforum.org">http://reports.weforum.org</a>)</td>
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<tr>
<td>1.3.1 Ease of hiring</td>
<td>Hiring indicators</td>
<td>1.3.1 Ease of hiring</td>
<td>Average answer to the question: In your country, to what extent do businesses adopt the latest technologies? [1 = not at all; 7 = to a great extent]</td>
<td>Source: World Economic Forum, Executive Opinion Survey 2015–2016 (<a href="http://reports.weforum.org">http://reports.weforum.org</a>)</td>
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<tr>
<td>1.3.2 Ease of redundancy</td>
<td>Redundancy indicators</td>
<td>1.3.2 Ease of redundancy</td>
<td>Average answer to the question: In your country, to what extent do businesses adopt the latest technologies? [1 = not at all; 7 = to a great extent]</td>
<td>Source: World Economic Forum, Executive Opinion Survey 2015–2016 (<a href="http://reports.weforum.org">http://reports.weforum.org</a>)</td>
</tr>
<tr>
<td>1.3.3 Active labour market policies</td>
<td>Average answer to the question: In your country, to what extent do labour market policies help unemployed people to reskill and find new employment (including skills matching, retraining, etc.)? [1 = not at all; 7 = to a great extent]</td>
<td>Source: World Economic Forum, Executive Opinion Survey 2015–2016 (<a href="http://reports.weforum.org">http://reports.weforum.org</a>)</td>
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<tr>
<td>1.3.4 Labour-employer cooperation</td>
<td>Average answer to the question: In your country, how would you characterise labour-employer relations? [1 = generally confrontational; 7 = generally cooperative]</td>
<td>Source: World Economic Forum, Executive Opinion Survey 2015–2016 (<a href="http://reports.weforum.org">http://reports.weforum.org</a>)</td>
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<tr>
<td>1.3.5 Professional management</td>
<td>Average answer to the question: In your country, who holds senior management positions? [1 = usually relatives or friends without regard to merit; 7 = mostly professional managers chosen for merit and qualifications]</td>
<td>Source: World Economic Forum, Executive Opinion Survey 2015–2016 (<a href="http://reports.weforum.org">http://reports.weforum.org</a>)</td>
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<tr>
<td>1.3.6 Relationship of pay to productivity</td>
<td>Average answer to the question: In your country, to what extent is pay related to employee productivity? [1 = not at all; 7 = to a great extent]</td>
<td>Source: World Economic Forum, Executive Opinion Survey 2015–2016 (<a href="http://reports.weforum.org">http://reports.weforum.org</a>)</td>
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<tr>
<td>2.1 FDI and technology transfer</td>
<td>Average answer to the question: To what extent does foreign direct investment (FDI) bring new technology into your country? [1 = not at all; 7 = to a great extent]</td>
<td>Source: World Economic Forum, Executive Opinion Survey 2015–2016 (<a href="http://reports.weforum.org">http://reports.weforum.org</a>)</td>
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<td>2.1.1 FDI and technology transfer</td>
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<td>Source: World Economic Forum, Executive Opinion Survey 2015–2016 (<a href="http://reports.weforum.org">http://reports.weforum.org</a>)</td>
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<tr>
<td>Section</td>
<td>Sub-section</td>
<td>Description</td>
<td>Source</td>
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<tr>
<td>2.1.5</td>
<td>Brain gain</td>
<td>Average answer to the question: Does your country attract talented people from abroad? [1 = not at all; 7 = to a great extent—attracts the best and brightest from around the world]</td>
<td>World Economic Forum, Executive Opinion Survey 2015–2016 (<a href="http://reports.weforum.org">http://reports.weforum.org</a>)</td>
<td></td>
</tr>
<tr>
<td>2.2.1</td>
<td>Tolerance of minorities</td>
<td>Discrimination and violence against minorities</td>
<td>Social Progress Imperative, The Social Progress Index 2016 (<a href="http://www.socialprogressimperative.org/publication/2016-social-progress-index/">http://www.socialprogressimperative.org/publication/2016-social-progress-index/</a>) based on the Fund for Peace Fragile States Index</td>
<td></td>
</tr>
<tr>
<td>2.2.2</td>
<td>Tolerance of immigrants</td>
<td>The percentage of respondents answering yes to the question: Is the city or area where you live a good place or not a good place to live for immigrants from other countries?</td>
<td>Social Progress Imperative, The Social Progress Index 2016 (<a href="http://www.socialprogressimperative.org/publication/2016-social-progress-index/">http://www.socialprogressimperative.org/publication/2016-social-progress-index/</a>) based on the Gallup World Poll</td>
<td></td>
</tr>
<tr>
<td>2.2.3</td>
<td>Social mobility</td>
<td>Average answer to the question: In your country, to what extent do individuals have the opportunity to improve their economic situation through their personal efforts regardless of the socioeconomic status of their parents? [1 = not at all; 7 = to a great extent]</td>
<td>World Economic Forum, Executive Opinion Survey 2015–2016 (<a href="http://reports.weforum.org">http://reports.weforum.org</a>)</td>
<td></td>
</tr>
<tr>
<td>2.2.4</td>
<td>Female graduates</td>
<td>Female tertiary graduates (%)</td>
<td>UNESCO Institute for Statistics, UIS.Stat (<a href="http://data.uis.unesco.org/">http://data.uis.unesco.org/</a>)</td>
<td></td>
</tr>
<tr>
<td>2.2.6</td>
<td>Leadership opportunities for women</td>
<td>Average answer to the question: In your country, how do you assess the following: Quality of business schools [1 = extremely poor — among</td>
<td>World Economic Forum, Executive Opinion Survey 2015–2016 (<a href="http://reports.weforum.org">http://reports.weforum.org</a>)</td>
<td></td>
</tr>
<tr>
<td>3.1.1</td>
<td>Vocational enrolment</td>
<td>Vocational enrolment (%)</td>
<td>UNESCO Institute for Statistics, UIS.Stat (<a href="http://data.uis.unesco.org/">http://data.uis.unesco.org/</a>)</td>
<td></td>
</tr>
<tr>
<td>3.1.2</td>
<td>Tertiary enrolment</td>
<td>Tertiary enrolment (%)</td>
<td>UNESCO Institute for Statistics, UIS.Stat (<a href="http://data.uis.unesco.org/">http://data.uis.unesco.org/</a>)</td>
<td></td>
</tr>
<tr>
<td>3.1.4</td>
<td>Reading, maths and science</td>
<td>PISA average scores in reading, mathematics, and science</td>
<td>OECD Programme for International Student Assessment (PISA) (<a href="http://www.oecd.org/pisa">www.oecd.org/pisa</a>)</td>
<td></td>
</tr>
<tr>
<td>3.1.5</td>
<td>University ranking</td>
<td>QS World University Ranking</td>
<td>Quacquarelli Symonds Ltd (QS), QS World University Ranking 2014/2015, Top Universities (<a href="http://www.topuniversities.com/university-rankings/world-university-rankings">www.topuniversities.com/university-rankings/world-university-rankings</a>)</td>
<td></td>
</tr>
<tr>
<td>3.2.1</td>
<td>Quality of management schools</td>
<td>Average answer to the question: In your country, how do you assess the following: Quality of business schools [1 = extremely poor — among</td>
<td>World Economic Forum, Executive Opinion Survey 2015–2016 (<a href="http://reports.weforum.org">http://reports.weforum.org</a>)</td>
<td></td>
</tr>
<tr>
<td>3.2.2 Prevalence of training in firms</td>
<td>Proportion of firms offering formal training (%)</td>
<td>Source: World Bank, Enterprise Surveys (<a href="http://www.enterprisesurveys.org">www.enterprisesurveys.org</a>)</td>
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</tr>
<tr>
<td>3.2.3 Employee Development</td>
<td>Average answer to the question: In your country, to what extent do companies invest in training and employee development? [1 = not at all; 7 = to a great extent]</td>
<td>Source: World Economic Forum, Executive Opinion Survey 2015–2016 (<a href="http://reports.weforum.org">http://reports.weforum.org</a>)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.3.1 Delegation of authority</td>
<td>Average answer to the question: In your country, to what extent does senior management delegate authority to subordinates? [1 = not at all; 7 = to a great extent]</td>
<td>Source: World Economic Forum, Executive Opinion Survey 2015–2016 (<a href="http://reports.weforum.org">http://reports.weforum.org</a>)</td>
<td></td>
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<tr>
<td>3.3.3 Use of virtual social networks</td>
<td>Average answer to the question: In your country, how widely are virtual social networks used (e.g., Facebook, Twitter, LinkedIn)? [1 = not at all used; 7 = used extensively]</td>
<td>Source: World Economic Forum, Executive Opinion Survey 2015–2016 (<a href="http://reports.weforum.org">http://reports.weforum.org</a>)</td>
<td></td>
<td></td>
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<tr>
<td>3.3.4 Use of virtual professional networks</td>
<td>LinkedIn users (per 1,000 labour force)</td>
<td>Source: LinkedIn, LinkedIn Campaign Manager and International Labour Organization, Key Indicators of the Labour Market, 8th edition (<a href="http://key-indicators-of-the-labour-market-8th.software.informer.com/download">http://key-indicators-of-the-labour-market-8th.software.informer.com/download</a>)</td>
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</tr>
<tr>
<td>3.3.5 Collaboration within organization</td>
<td>Average answer to the question: In your country, to what extent do people collaborate and share ideas within a company? [1 = not at all; 7 = to a great extent]</td>
<td>Source: World Economic Forum, Executive Opinion Survey 2015–2016 (<a href="http://reports.weforum.org">http://reports.weforum.org</a>)</td>
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<tr>
<td>3.3.6 Collaboration across organizations</td>
<td>Average answer to the question: In your country, to what extent do companies collaborate in sharing ideas and innovating? [1 = not at all; 7 = to a great extent]</td>
<td>Source: World Economic Forum, Executive Opinion Survey 2015–2016 (<a href="http://reports.weforum.org">http://reports.weforum.org</a>)</td>
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<tr>
<td>4.1.2 Social protection</td>
<td>Average answer to the question: In your country, to what extent does a formal social safety net provide protection to the general population from economic insecurity in the event of job loss or disability? [1 =</td>
<td>Source: World Economic Forum, Executive Opinion Survey 2015–2016 (<a href="http://reports.weforum.org">http://reports.weforum.org</a>)</td>
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<tr>
<td>4.1.3 Brain retention</td>
<td>Average answer to the question: To what extent does your country retain talented people? [1 = not at all—the best and brightest leave to pursue opportunities abroad; 7 = to a great extent—the best and brightest stay and pursue opportunities in the country]</td>
<td>Source: World Economic Forum, Executive Opinion Survey 2015–2016 (<a href="http://reports.weforum.org">http://reports.weforum.org</a>)</td>
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<tr>
<td>4.2.1 Environmental performance</td>
<td>Environmental Performance Index</td>
<td>Source: The 2016 Environmental Performance Index, Yale Center for Environmental Law and Policy (<a href="http://epli.yale.edu">http://epli.yale.edu</a>)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.1.4 Labour productivity per employee</td>
<td>Labour productivity per person employed (constant 2015 US$)</td>
<td>Source: The Conference Board, Total Economy Database (<a href="http://www.conference-board.org/data/economydatabase">www.conference-board.org/data/economydatabase</a>)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.2.1 Ease of finding skilled employees</td>
<td>Average answer to the question: In your country, to what extent can companies find people with the skills required to fill their vacancies? [1 = not at all; 7 = to a great extent]</td>
<td>Source: World Economic Forum, Executive Opinion Survey 2015–2016 (<a href="http://reports.weforum.org">http://reports.weforum.org</a>)</td>
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<tr>
<td>5.2.2 Relevance of the education system to the economy</td>
<td>Average answer to the question: In your country, how well does the education system meet the needs of a competitive economy? [1 = not well at all; 7 = extremely well]</td>
<td>Source: World Economic Forum, Executive Opinion Survey 2015–2016 (<a href="http://reports.weforum.org">http://reports.weforum.org</a>)</td>
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</tr>
<tr>
<td>5.2.3 Skill match secondary education</td>
<td>Average answer to the question: In your country, to what extent do graduating students possess the skills needed by businesses at the following</td>
<td>Source: World Economic Forum, Executive Opinion Survey 2015–2016 (<a href="http://reports.weforum.org">http://reports.weforum.org</a>)</td>
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</tr>
</tbody>
</table>
5.2.4 Skill match tertiary education

| Levels: a. Secondary education [1 = not at all; 7 = to a great extent] |

| 6.1 Workforce with tertiary education |
| Labour force with tertiary education (%) |

| 6.2 Population with tertiary education |
| Population with tertiary education (%) |

| 6.3 Professionals |
| Professionals (%) |

| 6.4 Researchers |
| Full-time equivalent researchers (per million population) |

| 6.5 Senior officials and managers |
| Legislators, senior officials, and managers (%) |

| 6.6 Availability of scientists and engineers |
| Average answer to the question: In your country, to what extent are scientists and engineers available? [1 = not at all; 7 = widely available] |

| 6.7 Innovation output |
| Innovation output sub-index |

| 6.8 High-value exports |
| High technology manufactures (%) |

| 6.9 New product entrepreneurial activity |
| New product entrepreneurial activity (%) |
| Source: Global Entrepreneurship Research Association, Global Entrepreneurship Monitor database (www.gemconsortium.org/data) |

| 6.10 New business density |
| New corporate registrations (per 1,000 working-age population) |

| 6.11 Scientific journal articles |
| Number of scientific and technical journal articles (per million PPP$ GDP) |
| Source: World Bank, World Development Indicators based on National Science Foundation, Science and Engineering Indicators, 2013; GDP data come from the International Monetary Fund, World Economic Outlook database, 2013 |