

Executive Briefing

The Future of Jobs and Skills in the Middle East and North Africa

Preparing the Region for the Fourth Industrial Revolution

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Preface

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Education and work in the Middle East and North Africa region will determine the livelihoods of over 300 million people and drive growth and development for generations to come. As one of the youngest populations in the world, it is imperative that the region make adequate investments in education and learning that hold value in the labour market and prepare citizens for the world of tomorrow. In addition, as the global transformation of work unfolds in the region, policymakers, business leaders and workers must be prepared to proactively manage this period of transition.

This *Executive Briefing* uses the latest available data, including through a research partnership with LinkedIn, to provide a concise overview of the region's education, skills and jobs agenda. It is intended as a practical guide for leaders from business, government, civil society and the education sector to plan for the needs of the future. It is also a call to action to the region's leaders to address urgently the reforms that are needed today to ensure that the Middle East and North Africa's young people can harness the new opportunities that are coming their way.

In addition to providing insights on current trends and future projections, the World Economic Forum also aims to provide a platform for multistakeholder collaboration to prepare for the future of work by closing skills gaps and gender gaps through two key initiatives in the region. The *New Vision for Arab Employment* consolidates the latest insights, brings together business efforts to impart employability skills and supports constructive public-private dialogue for reform of education systems and labour policies. To date, companies engaged in the initiative have supported skills development for 250,000 people. In addition the *Gender Parity Task Forces* help provide a method for national stakeholders to close economic gender gaps, with the first task force in the region to be launched this year. We invite more stakeholders to join these efforts, enhancing collaboration and coordination to accelerate impact.

Key Findings

- The World Economic Forum's Human Capital Index—which measures the extent to which countries and economies optimize their human capital potential through education and skills development and its deployment throughout the life-course—finds that the Middle East and North Africa (MENA) region as a whole currently only captures 62% of its full human capital potential (compared to a global average of 65%).
- Three common themes characterize MENA's labour markets: low but increasing levels of workforce participation by women; high rates of unemployment and under-employment, especially among the young and relatively well-educated; and large but decreasing shares of public sector employment. However, there are also marked differences between economies in the share of high, medium and low skilled jobs, the prevalence of informal work and the reliance on foreign workers.
- Across the Middle East and North Africa, a number of countries have improved the educational achievement of their younger generations at notable rates and, by 2030, the region is set to expand its tertiary educated talent pool by 50%. However, youth unemployment in the MENA region stands at 31% and university graduates are making up nearly 30% of the total unemployed pool. Workforce participation gender gaps currently remain wide across the region, ranging from just over 40% in Kuwait and Qatar to nearly 80% in Algeria and Jordan, reflecting an inefficient use of education investments.
- Across the region, high-skilled employment stands at 21% on average, while middle-skilled roles account for 66% of all formal sector jobs. The United Arab Emirates (UAE), Egypt, Jordan and Saudi Arabia lead the way in the local availability of high-skilled jobs. Some of the most common types of high-skilled employment in the MENA region include commercial bankers, corporate finance specialists and accountants, schoolteachers and academics, engineers, quality assurance professionals and information technology consultants, according to data from LinkedIn.
- It has been estimated that 41% of all work activities in Kuwait are susceptible to automation, as are 46% in Bahrain and Saudi Arabia, 47% in the UAE, 49% in Egypt, 50% in Morocco and Turkey and 52% in Qatar. In addition, whether jobs are declining, stable or growing, they are going through major changes to their skills profile. The World Economic Forum's Future of Jobs analysis found that, by 2020, 21% of core skills in the countries of the Gulf Cooperation Council and 41% of those in Turkey will be different compared to skills that were needed in 2015. At the same time, across the MENA region, substantial potential exists for creating high value-adding formal sector jobs in a number of sectors, skills levels and work formats.
- Preparing for these disruptions and new opportunities, while address current challenges will require broad reforms and agile, iterative public-private collaboration efforts. The Forum's *New Vision for Arab Employment* and *Gender Parity Task Forces* serve as platforms for closing skills gaps and closing gender gaps to help the region prepare for the future of work.

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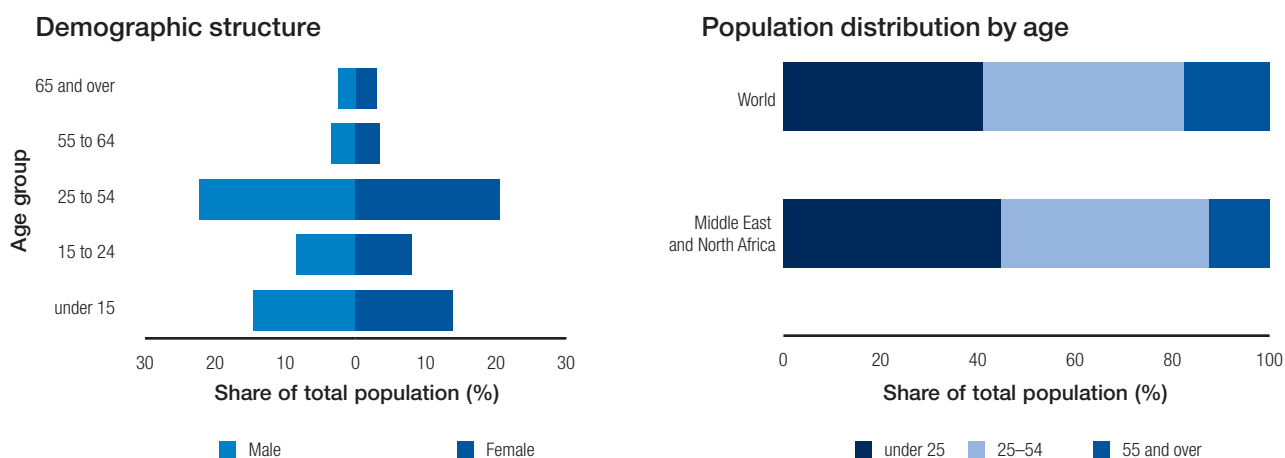
The Future of Jobs and Skills in the Middle East and North Africa

Introduction

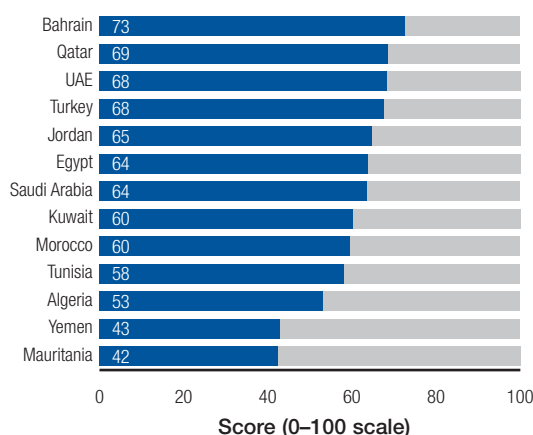
The Middle East and North Africa (MENA) region¹ is endowed with a young, growing and increasingly well-educated population that can significantly enhance the region's future growth trajectory. The region's population is projected to increase by more than a quarter by 2030, and a significant proportion of that population will be of prime working-age (Figure 1). The potential of this large workforce to contribute to economic growth and social dynamism is tremendous, provided that the region's labour markets are prepared.

The World Economic Forum's Human Capital Index—which measures the extent to which countries and economies optimize their human capital potential through education and skills development and its deployment throughout the life-course—finds that the MENA region as a whole currently only captures 62% of its full human capital potential (compared to a global average of 65%), ranging from 73 to 68% in high-income Gulf countries such as Bahrain, Qatar and the United Arab Emirates (UAE), to 64 and 58% in post-Arab spring economies such as Egypt and Tunisia, respectively, to less than 50% in fragile and conflict-affected countries such as Yemen and Mauritania (Figure 2).²

Figure 1: MENA's demographic structure



Source: United Nations Population Division.

Figure 2: Human capital optimization in MENA

Source: World Economic Forum, Human Capital Index 2016.

Currently, youth under the age of 25 constitute nearly half of the MENA region's population and **more than** a quarter of them are unemployed. The region urgently needs to create more dignified and productive work and employment opportunities for this cohort of young women and men who have entered or will soon enter the labour force. It is also important that the existing opportunities engage the best talent, regardless of gender. In addition, the region needs to ensure that both the younger cohorts and those already in the workforce have the right skills to succeed in tomorrow's jobs. The current wave of technological change will have as profound an impact on MENA's labour markets as it has around the world, although the pace of change will vary within the region. These new opportunities have the potential to augment the abilities and productivity of workers at all skills levels and to create new and more flexible ways of participating in the region's workforce, strengthening inclusivity and social cohesion in the process.³ However, this future potential can only be unlocked if the region makes the right investments in reforming education broadly, upskilling and reskilling large cohorts of the population and preparing labour policy for the changes to come.

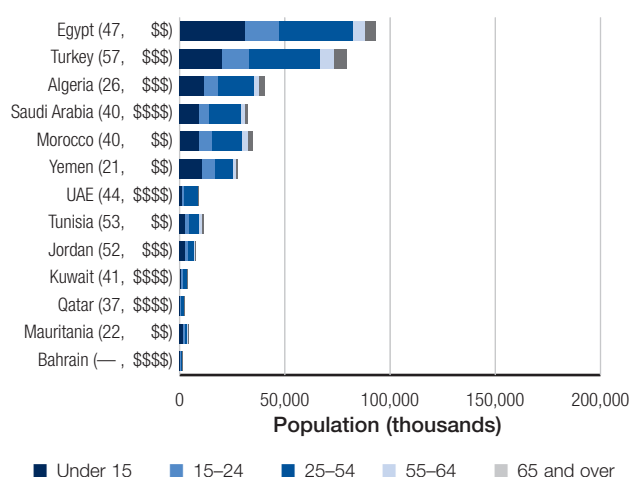
This *Executive Briefing* on the future of jobs and skills in MENA is intended as a practical guide for leaders from business, government, civil society and the education sector. Utilizing the latest available data, including through a research partnership with LinkedIn, it provides a concise overview of the region's emerging opportunities and challenges with regard to the future jobs and skills agenda and recommendations for priority actions. It concludes with an overview of two opportunities for public-private collaboration to prepare the region to seize the opportunities of the future of work—the *New Vision for Arab Employment* to close skills gaps and the *Gender Parity Task Forces* to close gender gaps.

Labour market overview

The economies of the Middle East and North Africa region may be divided into three distinct groups: the natural resource-rich, high-income countries of the Gulf Cooperation Council (GCC); labour-abundant, middle-income countries such as Egypt, Algeria and Tunisia; and conflict-affected countries such as Syria, Iraq and Yemen.⁴

More than half of the MENA region's total labour force hails from the group of middle-income, labour-abundant countries, including Egypt, Tunisia, Algeria and Morocco (Figure 3). One common characteristic of employment in this subset of countries is the prevalence of job informality. For example, 75% of recent labour market entrants in Egypt are estimated to be employed in the informal sector—combining jobs in agriculture, unregistered firms and self-employment with frequent income fluctuations—and the informal sector accounts for about 30% of all jobs across the MENA region.⁵ These countries have also traditionally supplied a significant number of workers to the Gulf countries in the form of migrant and expatriate labour.⁶

The reliance on foreign workers by the group of high-income, resource-rich Gulf countries, including Saudi Arabia, the UAE, Kuwait and Qatar, has its historical roots in the time of early fossil fuel discoveries, leading to an influx of physical and service workers as well as high-skilled technical and managerial talent.⁷ This has

Figure 3: MENA's demographic and economic structure

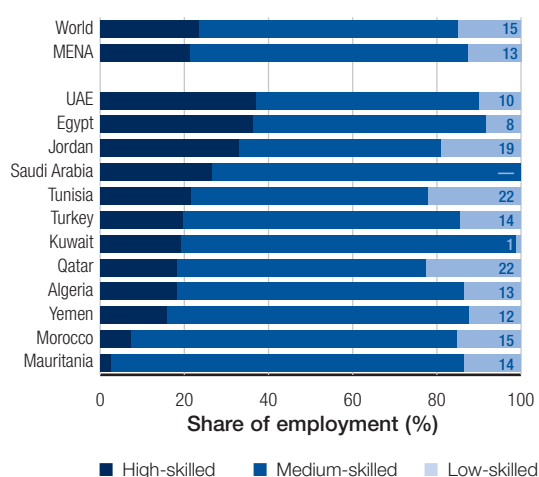
Source: World Economic Forum, Human Capital Index 2016.

Note: Information in parenthesis after country names refers to economic complexity score and income level. Economic complexity score is calculated on a scale of 0 (least complex) to 100 (most complex); income level is based on World Bank 2016 figures on a scale from \$ (low income) to \$\$\$\$ (high income). For example, Egypt has an economic complexity score of 47 out of 100 and an income level of \$\$ (lower-middle income).

led to segmented labour markets in the Gulf region, with technical, service and manual jobs mostly held by expatriates and, until recently, a relative lack of investment in rigorous training and development of local talent across the workplace. It has also meant that a large share of wages earned in Gulf countries is not spent locally, with, for example, Saudi Arabia being the world's second largest source of foreign worker remittances, just behind the United States.⁸ Another prominent feature of this group of countries is that family firms dominate the private sector, with up to 90% of business in the GCC conducted by family-controlled firms.⁹

Across the region, high-skilled employment stands at 21%, on average, while middle-skilled roles account for 66% of all formal sector jobs, broadly in line with the world average (Figure 4). The United Arab Emirates and Saudi Arabia, as well as Egypt and Jordan, lead the way in the local availability of high-skilled jobs. Some of the most common types of high-skilled employment in the MENA region include commercial bankers, corporate finance specialists and accountants, schoolteachers and academics, engineers, quality assurance professionals and information technology consultants, according to data from LinkedIn. The agricultural sector remains the largest employer in less affluent MENA countries, where they account for more than 50% of jobs, with a particularly large share among women.¹⁰

Figure 4: MENA's employment distribution, by skill level required



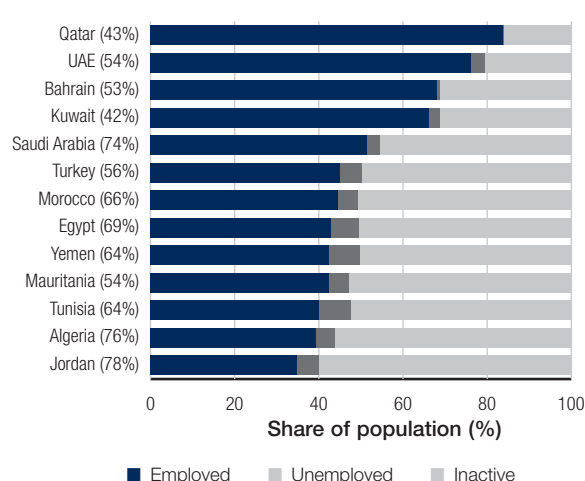
Source: World Economic Forum, Human Capital Index 2016.

While the resource-rich and labour-abundant groups of countries face different human capital development challenges, there are also a range of common patterns—such as high youth unemployment and high levels of inactivity driven by comparatively large gender gaps—as well as a high degree of intra-regional labour mobility. These elements point to a wide range of opportunities for MENA's economies to learn from each other and collaborate on talent development.

Three common themes characterize MENA's labour markets: low but increasing levels of workforce participation by women; high rates of unemployment and under-employment, especially among the young and relatively well-educated, and large but decreasing shares of public sector employment.

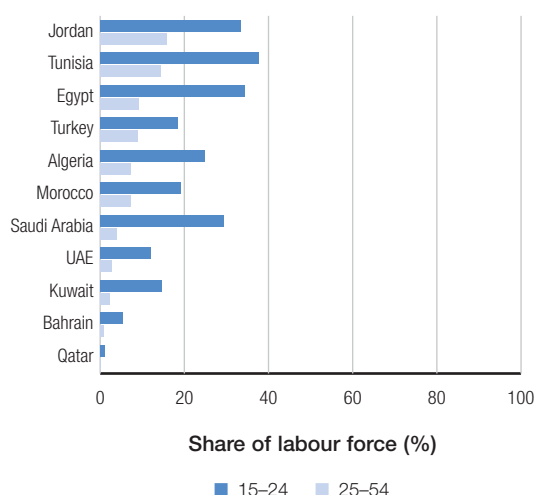
As women begin to have equal levels of educational attainment compared to men and equal, or arguably better, workplace skills to match,¹¹ the MENA region's women represent a large body of latent talent. It is estimated, for example, that closing the female employment gender gap would increase the Egyptian economy's GDP by over 34% and that of the UAE by over 12%.¹² While more women are beginning to enter the workforce and remain active for longer periods of time, workforce participation gender gaps currently remain wide across the region, ranging from just over 40% in Kuwait and Qatar to nearly 80% in Algeria and Jordan (Figure 5).

Figure 5: Economic activity, unemployment and inactivity among MENA's working-age population



Source: World Economic Forum, Human Capital Index 2016.

Note: Percentages in parenthesis after country names refer to the labour force participation gender gap. For example, Qatar has a 43% gap in women's labour force participation.

Figure 6: Unemployment by age in the MENA region

Source: World Economic Forum, Human Capital Index 2016.

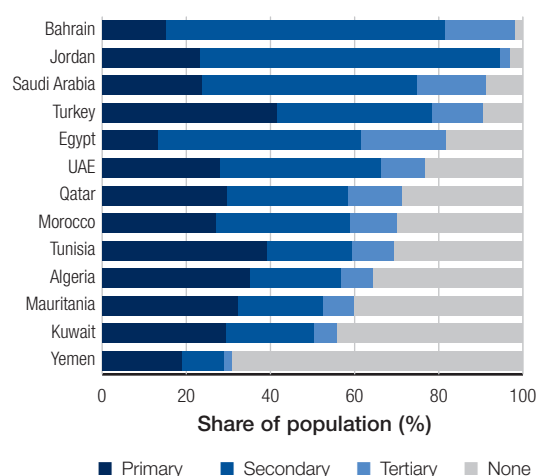
Youth unemployment in the MENA region stands at 31%, with young people, on average, almost five times more likely to be unemployed than their adult counterparts (Figure 6).¹³ However, in marked contrast to global patterns, university graduates make up nearly 30% of the total pool of unemployed in the region, with two in five MENA graduates out of a job.¹⁴ In addition, the duration of unemployment for youth is longer than for adults, contrary to the pattern in other regions, with detrimental effects in the long term for the region's human capital potential.¹⁵ This limited success in capitalizing on the region's existing education investment among women and youth goes to the heart of the region's lacklustre performance on the Forum's Human Capital Index and uneven readiness for the future of jobs.

Finally, the region's public sector has traditionally been a preferred source of employment for MENA's new labour market entrants and experienced job seekers alike,¹⁶ resulting in an oversaturated public sector. Public sector jobs account for 42% of non-agricultural formal sector employment of national citizens in Jordan, 70% in Egypt, and about 80% across the UAE¹⁷—and the highest central government wage bill (as a percentage of GDP) in the world, 9.8% of GDP, nearly twice the world average and fourfold that of Japan. In its current form this public employment model also creates disincentives for young nationals to join the private sector and, as the region begins to reach a limit in its capacity to absorb others, contributes to growing youth unemployment¹⁸ as educated young people wait for jobs in the public sector to open up.¹⁹

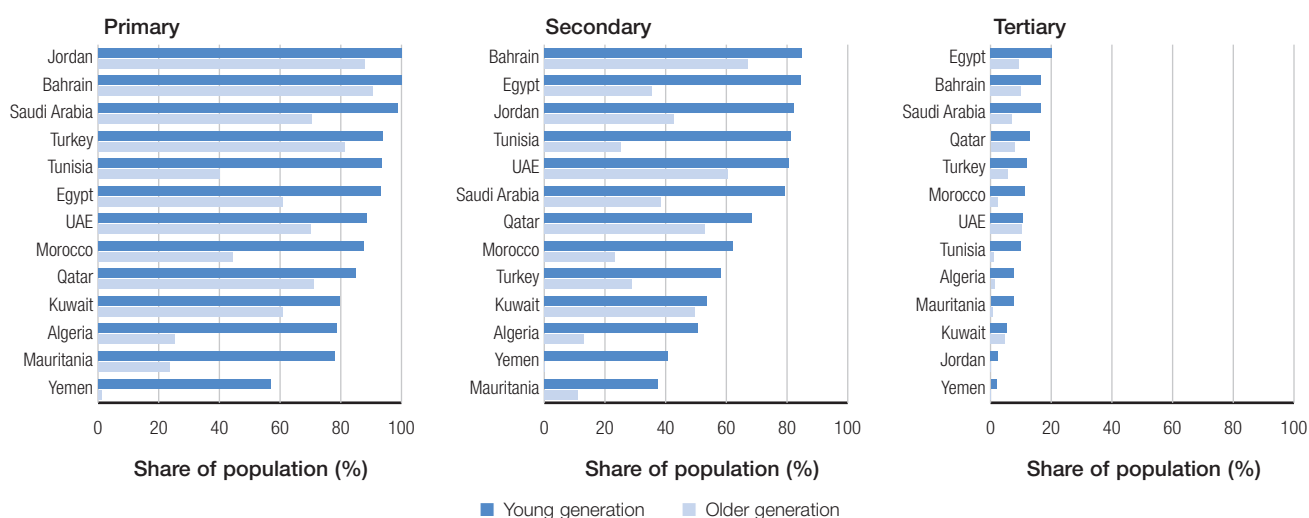
Education and skills across generations

The MENA region has made significant improvements in expanding the reach of its education system over several decades and this will pay off in the coming years. In Bahrain, Saudi Arabia and Egypt, the pool of working-age adults holding tertiary qualifications is above or near the global average (17%). In Jordan, a lesser proportion of the working-age population holds tertiary degrees, but the country has achieved near universal basic education. Still, compared to other regions globally, the proportion of those currently in the labour market who have not completed primary or secondary education remains sizable (Figure 7). Finally, a group of conflict-affected and low-income MENA countries face more fundamental challenges in developing their human capital through education. Sudan and Yemen account for three quarters of out-of-school children in the region, and many of those children will never enter school.²⁰ Relatively large gender gaps in education contribute to this pattern. For example, the chance of ever attending school of a rural girl from the bottom wealth quintile in Yemen has been estimated at about 6%, as opposed to 95% in Tunisia.²¹

Across the Middle East and North Africa region a number of countries have improved the educational attainment of their younger generations at notable rates (Figure 8). Tunisia, Morocco, Algeria and Mauritania have made significant progress in educating their younger populations. Egypt and Saudi Arabia have improved outcomes in primary education, as well as driving significant progress in increasing the completion of secondary and tertiary

Figure 7: Formal qualifications held by MENA's core working-age (25–54) population

Source: World Economic Forum, Human Capital Index 2016.

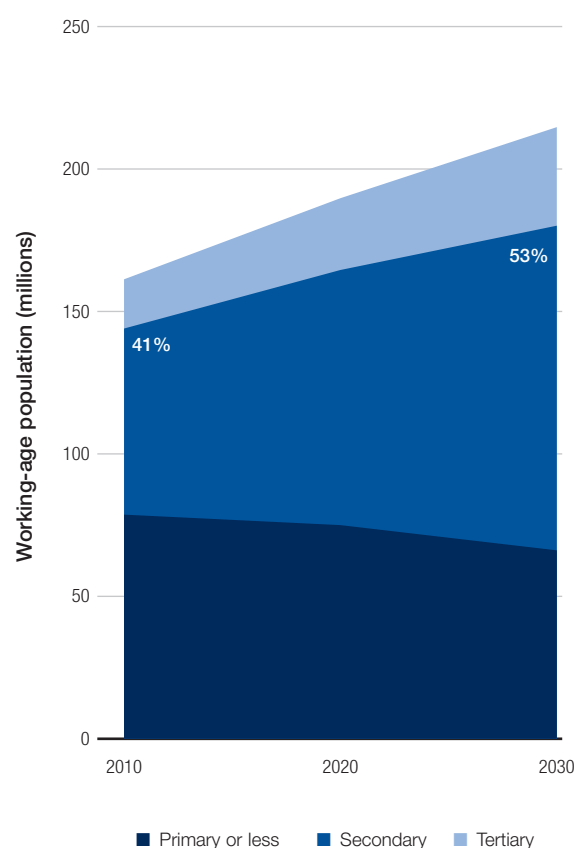
Figure 8: Educational attainment of MENA's young and older generations

Source: World Economic Forum, Human Capital Index 2016.

Note: For primary and secondary education attainment, "Young generation" refers to the 15-24 age cohort and "Older generation" refers to the 55-64 age cohort. For tertiary education attainment, "Young" refers to the 25-54 age cohort and "Older" refers to the cohort aged 65 and above.

education among their younger generations. Tunisia, Algeria and Mauritania have created almost wholly new tertiary educated talent pools. By 2030, the region is set to expand its tertiary educated talent pool by 50% (Figure 9). Several countries in the region are also investing in technical and vocational education and training (TVET), notably Egypt and Turkey, although this particular form of education remains under-used across the region.

A combination of LinkedIn's data and UNESCO's statistics provides a unique view of the region's high- and medium-skilled white collar workforce (Figure 10). Across the region, there is a distinct tendency towards a select number of specializations, resulting in a somewhat less diversified talent pool compared to other regions, as measured by the Forum's Human Capital Index. Nearly a third of LinkedIn's tertiary-educated members in the region hold Business, Administration and Law degrees, with a particular emphasis on qualifications in accounting, banking and finance, marketing and business management. The data also reveals the availability of a significant pool of talent focused broadly on science, technology, engineering and mathematics (STEM), with nearly half of LinkedIn's tertiary-educated members in the region holding such degrees. This STEM talent pool is mainly dominated by a specialization in Engineering, Manufacturing and Construction (29%), with a smaller set of professionals specialized in Information and Communication Technologies (13%) and Natural Sciences, Mathematics and Statistics (8%).

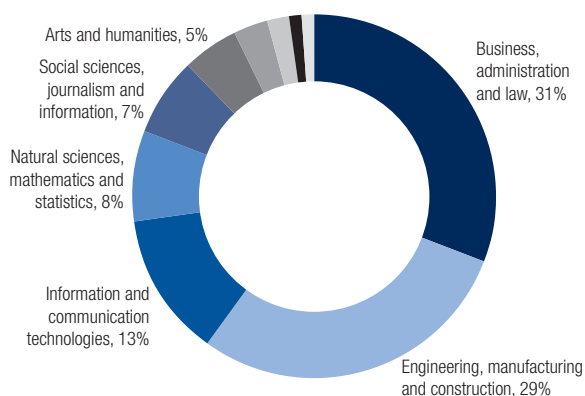
Figure 9: Projection of MENA's working-age population, by level of qualification, 2010–2030

Source: Lutz et al., IIASA/VID Educational Attainment Model, GET Projection, Wittgenstein Centre for Demography and Global Human Capital.

Within Engineering, Manufacturing and Construction, more than half of graduates have specialized in electrical, civil, mechanical and chemical engineering, or architecture and urban design. Among those with an ICT qualification, the large majority have specialized in either computer science or in developing and maintaining information systems and databases. A much smaller cohort of MENA's professionals have studied hardware and software engineering and only a select few have focused on emerging trends such as artificial intelligence. Among those who have specialized in Natural Sciences, Mathematics and Statistics, more than half have studied basic sciences such as biology, chemistry or mathematics, while a smaller subset have focused on applied fields such as biochemistry, bioinformatics, neuroscience or environmental science.

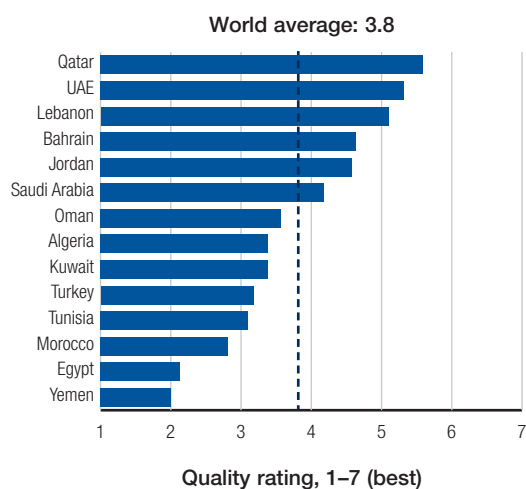
The quality of education is inconsistent across the region.²² In tests such as the Trends in Mathematics and Science Study (TIMSS) and the Programme for International Student Assessment (PISA), MENA test-takers score well below the average and below what is expected given the qualifications achieved. Respondents to the World Economic Forum's Executive Opinion Survey rate the quality of education in half the countries in the region below the world average (Figure 11).

Figure 10: Distribution of fields of study among MENA's tertiary-educated workforce



Source: LinkedIn.

Figure 11: Quality of MENA's education systems



Source: World Economic Forum, Executive Opinion Survey.

The future of jobs

The creative disruption triggered by the Fourth Industrial Revolution presents both a challenge and a unique opportunity for the MENA region's workforce.²³ It will interact with a range of additional socio-economic and demographic factors affecting the region, resulting in growth in wholly new occupations, decline in some occupations, new skills requirements in all jobs, new ways of organizing and coordinating work, and new tools to augment workers' capabilities (Figure 12). If harnessed well, the trend could help the region's group of labour-abundant middle-income countries broaden their manufacturing base by expanding their pool of advanced manufacturing talent; support the resource-rich Gulf countries to further diversify their economic activities, reducing dependence on oil and gas exports and vulnerability to price fluctuations; and enable the region's lowest-income countries to reduce fragility and increase stability through deeper integration of their local labour markets into regional supply chains and industry ecosystems.²⁴

Figure 12: Drivers of Change, 2015–2020

Drivers of change, 2015–2020	Rank
New energy supplies and technologies	1
Mobile Internet, cloud technology	2
Changing nature of work, flexible work	3
Young demographics in emerging markets	4
Geopolitical volatility	5
Climate change, natural resources	6
Women's economic power, aspirations	7
Consumer ethics, privacy issues	8
Middle class in emerging markets	9
Processing power, Big Data	10
Sharing economy, crowdsourcing	11
Artificial Intelligence	12
Adv. Manufacturing, 3D printing	13
Robotics, autonomous transport	14

Source: World Economic Forum, The Future of Jobs Survey.

Note: Survey based on Gulf Cooperation Council (GCC) countries only.

Much as in other parts of the globe, the potential impact of job automation in the region could be challenging. It has been estimated that 41% of all work activities in Kuwait are susceptible to automation, as are 46% in Bahrain and Saudi Arabia, 47% in the UAE, 49% in Egypt, 50% in Morocco and Turkey and 52% in Qatar.²⁵ In fact, recent research found that concern about innovation leading to higher unemployment is especially pronounced among business leaders in MENA — unsurprisingly, given the region's already high burden of youth unemployment.²⁶ In addition, whether jobs are declining, stable or growing, they are going through major changes to their skills profile. The World Economic Forum's Future of Jobs analysis found that, compared to 2015, 21% of core skills required across all occupations will be different by 2020 in the GCC as will be 41% of those in Turkey.²⁷

At the same time, across the MENA region, substantial potential exists for creating high value-adding formal sector jobs in a number of areas. While the Fourth Industrial Revolution may be disruptive to many occupations, it is also projected to create a wide range of new jobs in fields such as data analysis, computer science and engineering. The MENA region's large established industries—such as oil and gas, aviation, transportation and healthcare—will be central to the Fourth Industrial Revolution and can act as anchors for technology diffusion and the emergence of smaller companies across the region, helping MENA economies shift towards more knowledge-intensive, higher value-added tasks and activities. Countries such as Morocco and Tunisia are expected to see growth in sectors such as automotive, mechanical equipment, electronics and chemicals.²⁸

There will be strong demand for professionals who can blend digital and STEM skills with traditional subject expertise, such as digital-mechanical engineers and business operations data analysts, who combine deep knowledge of their industry with the latest analytical tools to quickly adapt business strategies. There will also be more demand for user interface experts, who can facilitate seamless human-machine interaction. For the MENA region, the transformation of certain working environments and their physical boundaries—such as the more safe and inclusive shop floor of advanced manufacturing plants or the ability to work remotely through online collaboration platforms—may also open up a wider range of careers to women.²⁹

However, future job growth potential is not limited to the science and technology dependent sectors alone. Investment in the MENA region's enormous public infrastructure needs, if properly implemented, could generate significant numbers of new medium- and low-skilled jobs.³⁰ While the potential benefits of 'hard' infrastructure investments are well-recognized, economists predict equivalent or greater—often untapped—job creation potential of investments in countries' 'soft' infrastructure of childcare, eldercare and education facilities, which also often produce more gender-balanced labour market outcomes.³¹ Investing in the care economy by formalizing, professionalizing and upgrading the MENA region's large domestic workforce would similarly dovetail with the recognized importance of early-childhood education for human capital development.³² In addition, with rising student numbers, tens of thousands of new teachers will also be needed across the region. The region's education sector has been growing in line with this, and has seen a significant amount of private sector investment as the education industry responds to growing demand.³³

The transition to a more ecologically sustainable economic model also has the potential to create millions of new jobs globally, including in the MENA region. For example, the energy efficiency sector is expected to be the single largest generator of new jobs within the UAE, and is projected to create more than 65,000 jobs by 2030. The UAE's broader Green Growth Strategy aims to create 160,000 new jobs and boost GDP by 4-5% by 2030.³⁴

Regardless of sector or occupation, new work formats are offering individuals and entrepreneurs new opportunities. Online platform work is on the rise globally, including in the MENA region. In a number of Gulf countries, for example, dialogue around crowdsourcing, remote and virtual work is well under way and legal amendments to support these alternative working arrangements can be expected.³⁵ Across MENA, online talent platforms have the potential to create significant benefits by moving people from informal to formal jobs, by increasing workforce participation and additional hours worked of those formerly under-employed or inactive, by shortening the duration of job searches and by enabling matches that would otherwise not have happened.³⁶ By 2025, this could result in as much as 945,000 additional full-time equivalent jobs and a US\$21bn increase in GDP in Egypt, 799,000 jobs and US\$41bn in Turkey, and 276,000 jobs and US\$32bn additional GDP in Saudi Arabia.³⁷ As elsewhere, firms in MENA will increasingly need to learn to manage a distributed and virtual workforce, to integrate virtual freelance workers and to mitigate the challenges engaging in online work.

Future-ready strategies

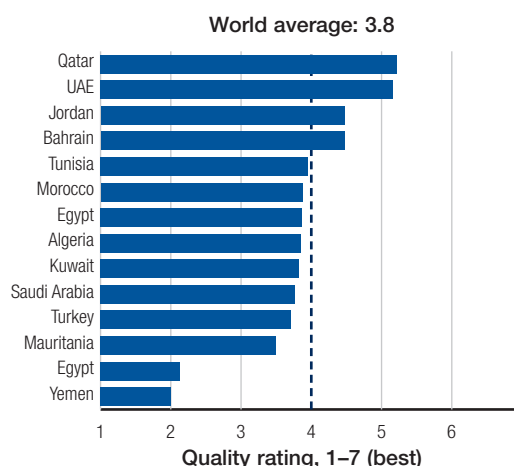
The current spread of education across generations and the expected future trajectory of jobs point to specific challenges and particular strategies for the MENA region to ensure that it has the skills base for the labour markets of the future. For an optimistic vision of the future of jobs in MENA to become a reality, investment in human capital must aim not just to urgently close the region's skills gap today, but also to start building the skills needed to successfully leverage the technological advances of tomorrow.

There is growing evidence of a sizeable skills mismatch in the MENA region, as young people fail to acquire the skills needed to succeed in today's jobs, let alone tomorrow's. Nearly 40% of employers in the MENA region indicate that skills gaps are a major impediment to business growth³⁸ and several countries in the region fall below the global average in the ease of finding skilled employees according to business leaders (Figure 13). This is also reflected in the perceptions of the youngest generation in the region, who rate the quality of their own education poorly and experience high levels of unemployment on their route into paid, formal sector work.³⁹ The skills gap exists across basic skills, such as creative and independent thinking, problem solving skills and soft skills, as well as in sector-specific and functional skills, including due to low levels of technical and vocational education and training (TVET).⁴⁰ The region is also starting to experience inter-generational differences in styles of work and communication, which will require not only careful attention to employability skills but also towards managing inter-generational change.

The strong dependence on public sector employment has led to further distortions. For example, looking at expected wages by years of education reveals that, in the public sector, returns on education are much lower than in the private sector—suggesting a de-coupling between skills and employment opportunities. In addition, the private sector and the education system remain in silos, lacking mechanisms for sharing responsibility in crafting appropriate skills for driving productive employment.⁴¹ In essence, there is no common ownership of the unemployment problem between the public and private sectors and, consequently, little joint responsibility to solve it.⁴²

With the MENA region's 'replacement ratio' of 4–6 new job market entrants for every one person leaving the workforce, the need for action is urgent.⁴³ Having expanded its industries and educational capacity, the region must now enhance the match between skills and jobs. Achieving this will require a shift in strategies, actions and attitudes of the region's governments, businesses and workers alike. While there is a broad range of measures that address job creation, including support for entrepreneurship, this section address strategies to address education and skills in particular.

Figure 13: Ease of finding skilled employees in MENA



Source: World Economic Forum, Executive Opinion Survey.

Recent World Economic Forum research on *Realizing Human Potential in the Fourth Industrial Revolution*, developed through in-depth consultation with leading experts and practitioners, recommends a number of levers for creating stronger education systems, including: 1) expanded access to early-childhood education; 2) ensuring the 'future-readiness' of curricula; 3) investing in developing and maintaining a professionalized teaching workforce; 4) early exposure to the workplace and career guidance; 5) investing in digital fluency and ICT literacy skills; 6) providing robust and respected technical and vocational education and training (TVET); 7) creating a culture of lifelong learning; and 8) openness to education innovation.

All eight areas apply to the region and it must ensure that leadership of reforms is drawn from multiple sectors, access is universal, for females and males alike, and that new education systems are designed for the long-term, while maintaining agility to cope with the accelerating pace of change. This section highlights four particular areas for strategic focus: ensuring the 'future-readiness' of curricula; investing in digital fluency and ICT literacy skills; early exposure to the workplace and career guidance; and creating a culture of lifelong learning including through openness to education innovation.

Ensuring the 'future-readiness' of curricula

There is a significant need for MENA's governments, industries and educators to work in much closer partnership to improve the relevance of formal education—from primary through to tertiary and vocational education—to the world of work. In an ideal scenario, forward-looking macro-level skill supply and demand estimation should precede and inform curriculum design. In this regard, Bahrain's relative success in vocational education could provide a role model to others in the region.⁴⁴ Beyond

subject- and sector specific work-relevant skills, fostering greater employability and life skills among MENA's young people is critical. Learning should be encouraged through experiential project-based approaches and skills such as communication, teamwork, resilience, self-confidence, negotiation and self-expression should be incorporated into curricula and should engage teachers and parents as well.⁴⁵ Education technology and innovation has expanded globally. To harness these new opportunities, new mindsets about what education means should be encouraged, local language-specific content should be developed and new solutions should be quickly tailored to national curricula.

Investing in digital fluency and ICT literacy skills

A number of countries in the MENA region—including Egypt, Turkey, Morocco, Jordan, the UAE and Tunisia—have successfully positioned themselves in the global ICT-enabled services and ICT outsourcing sector. For example, Egypt's outsourcing sector currently supports 90,000 direct jobs and is growing at 7.5% annually, partly driven by business from Saudi Arabia and the Gulf, while Turkey's employs more than 80,000 workers and creates US\$1.6 billion in value.⁴⁶ To harness the sector's full potential, and ensure the market's future skills needs are met, governments across the MENA region should encourage vocational training within the ICT sector itself, and provide support and recognition to specialized capacity-building and certification programmes, such as micro-credentials, addressing the needs of individuals, institutions and industry.⁴⁷ In addition, beyond the ICT sector itself, occupations across all sectors and skill levels are becoming more intensive in their use of digital technologies, and the MENA region is no exception. Digital fluency and ICT literacy skills are therefore becoming critically important for all learners and workers. In particular, governments should enhance business involvement in the provision of training and education beyond their own workforces.

Early exposure to the workplace and career guidance

Individual educational choices and career decisions in environments with information asymmetry can have a disproportionate aggregate effect on aspects such as a region's employment, under-employment, overall workforce engagement and productivity levels. Expanding exposure among students through internships, work placements and mentoring can help support decision-making and increase transparency. Such measures should be coupled with proactive but agile approaches on the demand side to anticipate future needs (including through the use of new data sources) and encourage career choices and appropriate qualifications in growing sectors. This requires closer alignment between ministries of education, labour and industry, along with other related government agencies, and greater public-private sector partnerships. Finally, simple but effective measures should be considered to overcome public sector employment bias, by, for example, stipulating experience in the private sector as a prerequisite for government jobs and creating supporting incentives to facilitate this.⁴⁸

Creating a culture of lifelong learning

While the bulk of the region's population is young, for those cohorts that are already part of the workforce, there is a need for both a culture of lifelong learning as well as the infrastructure that can help make such continued learning and training feasible. This is particularly necessary due to the rapid technological developments taking place in the global labour market, even for those who are highly educated. The region's backlog of unemployed, and under-employed people in particular, will benefit from the rapid provision of reskilling and upskilling opportunities and a shift towards a more holistic approach for encouraging and recognizing skills acquisition across all types of training. More learning will need to take place in the workplace, in collaboration with governments, schools, universities and non-formal education providers, to build more resilient talent pools in the region. In part employers can facilitate this by fostering more innovative, equitable and less hierarchical work cultures and addressing multigenerational workplaces.⁴⁹

Dynamic data for decision-making

A nuanced view on the current deployment of educational specializations across key industries, rather than assumptions based on past patterns, is critical to understanding the extent to which particular industries and degrees are tied in today's labour market. This is particularly important for identifying and engaging industry stakeholders in the co-development and refurbishing of relevant degree curricula. We provide one such view below through our research partnership with LinkedIn, indicating the pattern of co-occurrence between degrees and industries, which suggests that some fields of study have particularly close relationships to certain industries, while others feed more broadly into the Middle East and North Africa's labour market. For example, the financial

services sector draws much of its talent from those holding Business, Administration and Law degrees while the media and entertainment sector draws more evenly from a wide range of fields (Figure 14). When it comes to STEM specializations, it is clear that while a large proportion of these degree holders join the 'traditional' sectors requiring their know-how, there is a broad application of STEM specializations across a range of industries. For example, while nearly half of ICT degree holders go into the software sector, the other half enter a range of sectors, including professional services; financial services and insurance; architecture and engineering; and government, education and non-profit (Figure 15).

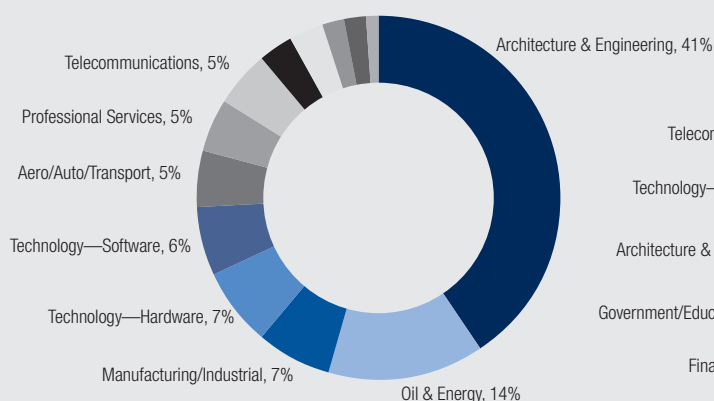
Figure 14: Employment distribution of MENA's tertiary-educated workforce by degree and industry, overall

Field of Study	All Industries	Aviation, Transport and Automotive	Architecture and Engineering	Financial Services and Insurance	Government, Education, Non-profit	Healthcare and Pharmaceutical	Manufacturing	Media and Entertainment	Oil and Energy	Professional Services	Retail and Consumer Products	Staffing	Technology, Hardware	Technology, Software	Telecommunications
Business, administration and law	31	33	15	72	26	16	29	26	19	44	46	48	15	15	25
Engineering, manufacturing and construction	29	34	68	4	12	10	39	9	58	11	13	8	57	15	44
Information and communication technologies	13	9	4	7	11	4	7	9	6	8	9	10	19	59	19
Natural sciences, mathematics and statistics	8	6	3	4	13	35	13	6	9	7	7	6	3	4	3
Social sciences, journalism and information	6	7	3	9	14	2	5	21	3	10	8	9	2	3	5
Arts and humanities	5	4	5	2	12	2	4	20	3	9	5	7	2	2	2
Health and welfare	3	1	0	1	4	27	1	2	1	3	2	6	0	0	0
Services	2	4	1	0	1	1	1	4	0	5	5	2	0	0	1
Education	1	1	0	0	7	1	0	2	0	1	1	1	0	1	0
Agriculture, forestry, fisheries and veterinary	0	0	0	0	1	1	0	0	0	1	3	0	0	0	0
Unspecified	1	1	1	1	1	1	1	1	1	1	1	2	1	0	1
All	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

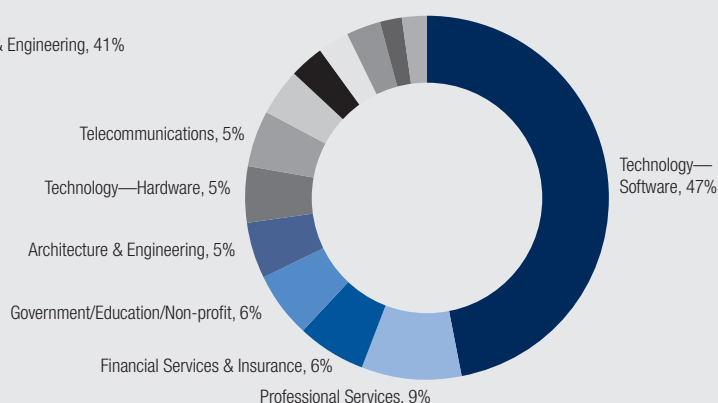
Source: LinkedIn.

Figure 15: Employment distribution of MENA's tertiary-educated workforce, by degree and industry, broad STEM specialization

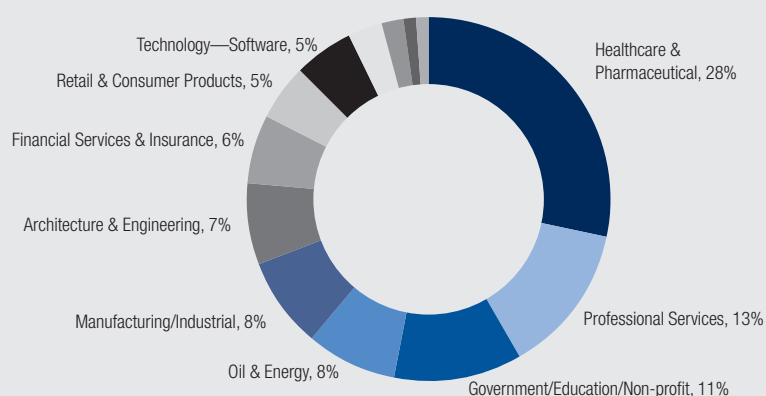
Engineering, Manufacturing, Construction



Information and Communication Technology



Natural Sciences, Mathematics, Statistics



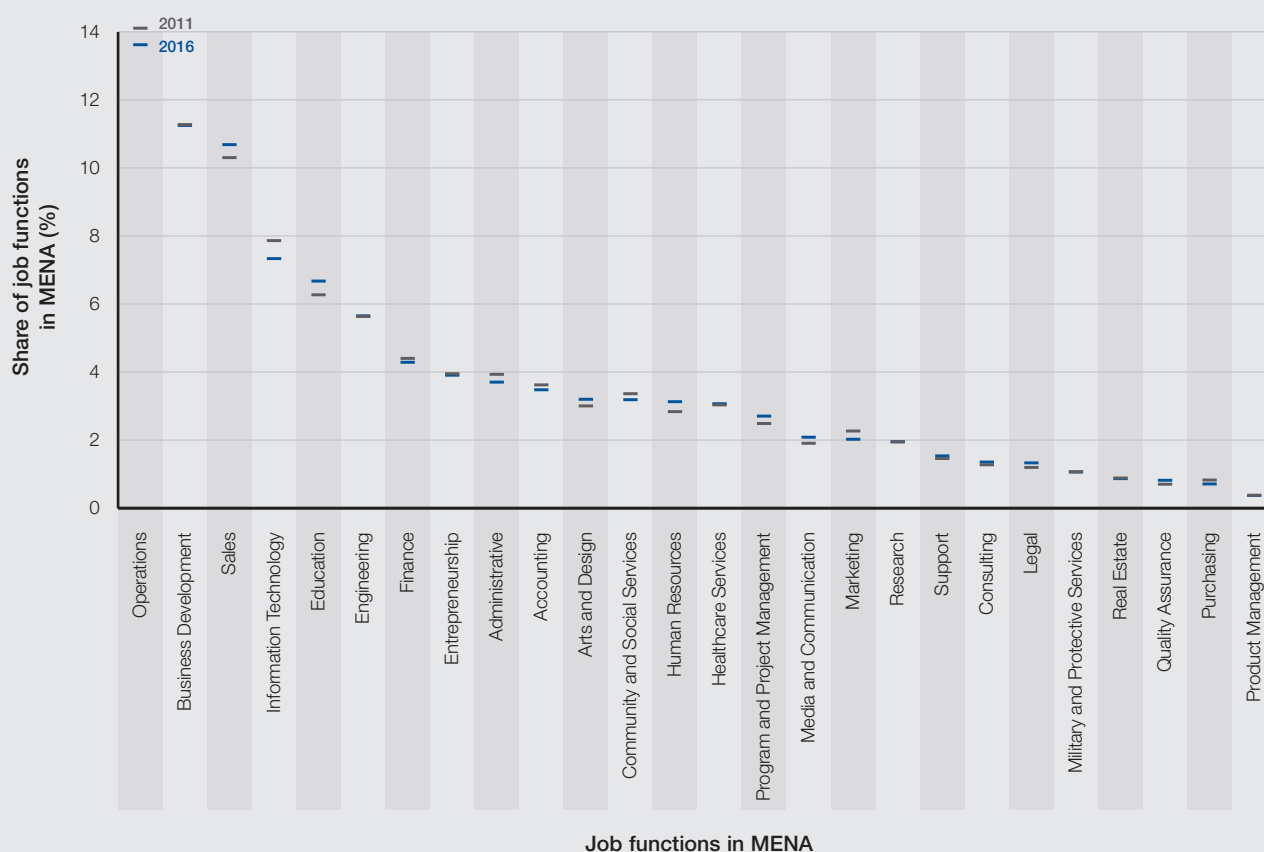
Source: LinkedIn.

A second promising approach for policymakers, businesses, educators and workers to understand the unfolding employment landscape consists of tracking the growing and declining share of specific job functions and particular professions on the basis of data from professional networking sites and online job adverts. We provide one such picture for the Middle East and North Africa below through our research partnership with LinkedIn, indicating growing shares of job functions broadly in the fields of Engineering, Business Development, Human Resources and Consulting, as well as Marketing, Media

and Communications (Figure 16). Reviewing the detailed matching data for particular professions reveals upward trends in professions such as Health, Education, Care and Personal Services as well as Creative Professions alongside Travel and Tourism (Figure 17).

Such data, while often available for the high- and medium-skilled white-collar workforce only, holds strong potential for improving forecasts and planning for specific skills, occupations, sectors and geographies over time.

Figure 16: Emerging job functions in MENA, 2011–2016



Source: LinkedIn.

Figure 17: Emerging professions in MENA, 2011–2016

Profession	Growth, 2011–2016
Entrepreneur	37%
Program Analyst	34%
Quality Assurance Tester	34%
Health and Medical	22%
Business Leadership	21%
Education	19%
Physicist	15%
Technician	13%
Language and Localization Specialist	13%
Non-profit Board Member	11%
Accounting and Tax	10%
Care and Personal Services	10%
Political and Legislative	9%
Mariner	9%

Source: LinkedIn.

Profession (cont'd.)	Growth, 2011–2016
3D Design	8%
Creative	8%
Public Relations Specialist	7%
Business and Financial Operations	7%
Agriculturist	5%
Travel and Tourism	5%
Information Technology System Administrator	4%
Mechanic and Maintenance Tradesperson	4%
Investment and Banking	3%
Surveyor	2%
Loss Prevention Specialist	2%
Journalist	1%
Military Officer	1%

Opportunities for public-private collaboration

The Middle East and North Africa region urgently needs to make the investments and reforms needed today to strengthen its workforces for the economy—and labour market—of tomorrow. In particular, the region's public and private sectors need to work together to ensure that the talent pool is expanded and better skilled for the future. To this end, the World Economic Forum, as part of the broader efforts of its System Initiative on Shaping the Future of Education, Gender and Work, is supporting the region's stakeholders through two types of public-private collaboration platforms: the *New Vision for Arab Employment*, that seeks to close skills gaps, and the *Gender Parity Task Forces*, which seek to close gender gaps.

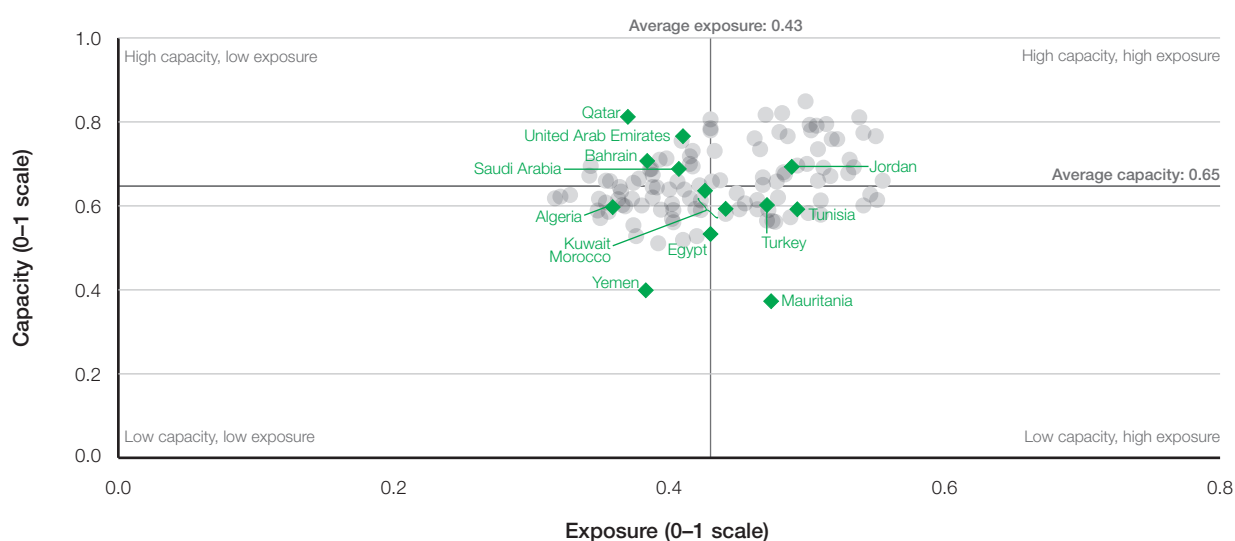
The New Vision for Arab Employment

One key challenge for the region entails reshaping countries' skills development agendas in line with their exposure to the jobs landscape of the future (Figure 18). At present, few of the MENA region's economies are fully prepared (as measured by assessing the quality and extent of their education and staff training systems, post-basic education attainment and breadth of skills) for the impending disruption to jobs and skills brought about by the Fourth Industrial Revolution,⁵⁰ relative to the region's exposure to these emerging trends (as measured by

assessing the impact of latest technologies, local economic diversification and complexity, employee productivity and unemployment). Countries such as Turkey and Tunisia have relatively high exposure coupled with relatively low capacity to adapt, while Jordan has both high exposure and a relatively higher capacity to adapt. A number of Gulf countries have a unique window of opportunity due to low exposure and relatively high capacity to adapt. Finally, countries like Morocco and Egypt have relatively low exposure but must urgently expand their ability to help their workforces adapt.

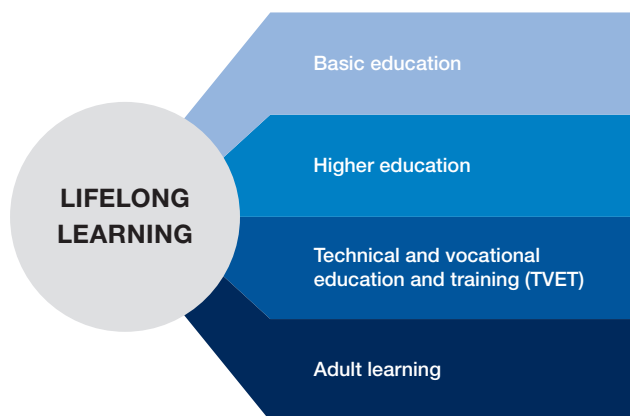
Business executives in the region cite a general lack of alignment of firms' talent strategies with their broader innovation strategies as the single biggest obstacle to future workforce planning, followed by resource constraints and insufficient understanding of the disruptive changes underway in the Fourth Industrial Revolution.⁵¹ For individual businesses, such adaptation will remain challenging, but pooling efforts and working closely with the public sector could support both specific businesses and the broader workforce adapt. While innovative solutions may be identified, created and even implemented in isolation, ensuring that these actions are sustainable and extended to meet the scale of the region's challenges requires a wholly different level of partnership.⁵² In addition, there is relatively little collaboration among the firms that are seeking to address skills gaps in their own workforces as well as in the communities around them, resulting in

Figure 18: Baseline analysis of country-level priorities for the New Vision for Arab Employment



Source: World Economic Forum analysis.

Figure 19: Target areas of the *New Vision for Arab Employment*



Source: World Economic Forum.

uncoordinated, potentially wasteful, efforts. Addressing this requires cooperation and support from governments, the educational sector and private enterprises, each working on a different but strategically coordinated mandate.

The *New Vision for Arab Employment* serves as a platform to help address the coordination challenge and accelerate the closure of skills gap. It provides relevant new insights, brings together businesses' efforts to address future-oriented skills development and supports constructive public-private dialogue for urgent and fundamental reform

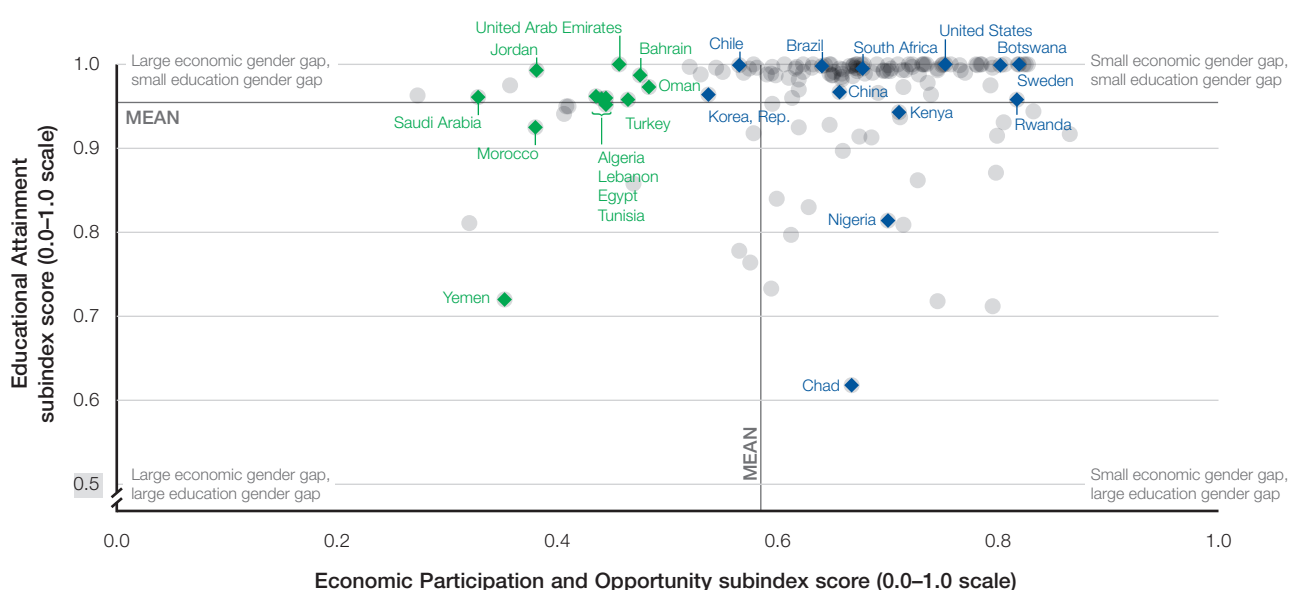
of education systems and labour policies to prepare workforces for the future of jobs (Figure 19). The Initiative is championed by the Forum's Middle East and North Africa Regional Business Council and supported by a large number of other constituents. We invite others to join our platform and accelerate progress.

The Gender Parity Task Forces

A second structural challenge in the MENA region is that investments in female education have not translated into commensurate employment gains for women. Even though more women than men are enrolling at university in the majority of countries covered by the World Economic Forum's Global Gender Gap Index (97 out of 145) and the average gender gap in tertiary education is less than 10%, men still outnumber women in skilled jobs; the gender gap in senior management roles is over 70%. This suggests that, although countries are ideally poised to maximize opportunities from women's participation in the labour market, many have failed to reap the returns from this investment in education due to inhibiting and unaddressed cultural, structural and workplace factors.

To meet the need for country-level action, the Forum has designed a model of public-private collaboration for advancing economic gender parity that is particularly relevant for those countries where education investments have already been made (Figure 20). The *Gender Parity Task Forces* engage a wide range of companies,

Figure 20: Baseline analysis of country-level priorities for the *Gender Parity Task Forces*



Source: Global Gender Gap Index 2016.

Note: The Y-axis has been truncated to enhance readability.

government, and civil society actors with the capacity to bring more women into the economy at the national level. The task forces set targets, create a dialogue across sectors, stimulate new initiatives, and share best practices to increase female representation in the labour force; advance female progression into management and leadership positions; narrow the gender wage gap; raise awareness of the business case for gender parity and help shift stereotypes.

Pilot *Gender Parity Task Forces* were launched in Mexico, Turkey and Japan in 2012. A subsequent task force followed in 2014 in the Republic of Korea. In all cases the pilot task forces had a positive effect by facilitating exchange and galvanizing efforts between stakeholders, supporting a narrowing of the economic gender gap and acceleration in the rate of progress, as measured by the Forum's Global Gender Gap Index.⁵³ Learning from these pilot experiences, the Forum is now expanding the *Gender Parity Task Force* model to new countries in partnership with regional and national organizations—empowering leaders to take forward the model independently, using the Forum's platform, insights and guides to implementation.⁵⁴ Such new task forces have been established in Chile and Argentina in Latin America. Bahrain will serve as the founding task force in the MENA region. We invite others to join our platform and accelerate progress.

Notes

- 1 This *Executive Briefing* covers the current countries of operation of the World Economic Forum's *New Vision for Arab Employment* as well as additional data and insights for countries targeted by the initiative for future geographic and programmatic expansion. This currently includes Turkey and may include additional countries in future updates of the publication.
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