# 1. Demanded skills and jobs

🔑 Key messages

Unlike global trends, the Arab region shows a large gap in technological adoption reflected in high demand for traditional skills in **1.7 million jobs**. Business administration-related skills are the most demanded hard skills in Arab labour markets, while communication is the most demanded soft skill.

Almost **55 per cent** of Arab employees work in sectors that have low potential for remote work. Moreover, **women are less likely** to have the option of teleworking than men, and are mainly demanded in entry-level positions.
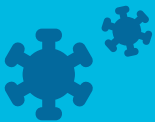
The **abrupt closure of several workplaces** as a result of the COVID-19 pandemic did not accelerate the adoption of teleworking in the Arab region to match global trends.

Based on a country pilot exercise, people in Lebanon accumulated only a **small portion of the market's demanded skills** after being given the option to upskill without policy guidance.

1. Demanded skills and jobs

A. Overview

The new era of digital transformation demands a better understanding of the skills landscape in the Arab region. It is more important than ever to identify the most critical technical (hard) and human (soft) skills that employers are looking for; reveal the most in-demand skills for the future; and efficiently close skill gaps to successfully prepare those in the labour market for the future of work. Pinpointing the most sought-after and valued skills in the wide market and across particular sectors helps promote and build the skills necessary to propel businesses forward and reduce unemployment. Undoubtedly, workers must continually develop knowledge and skills to get their desired job or keep their job, especially those that are related to the Fourth Industrial Revolution. Therefore, reskilling and upskilling workers' qualifications enable shifts in occupational categories that will become indispensable.

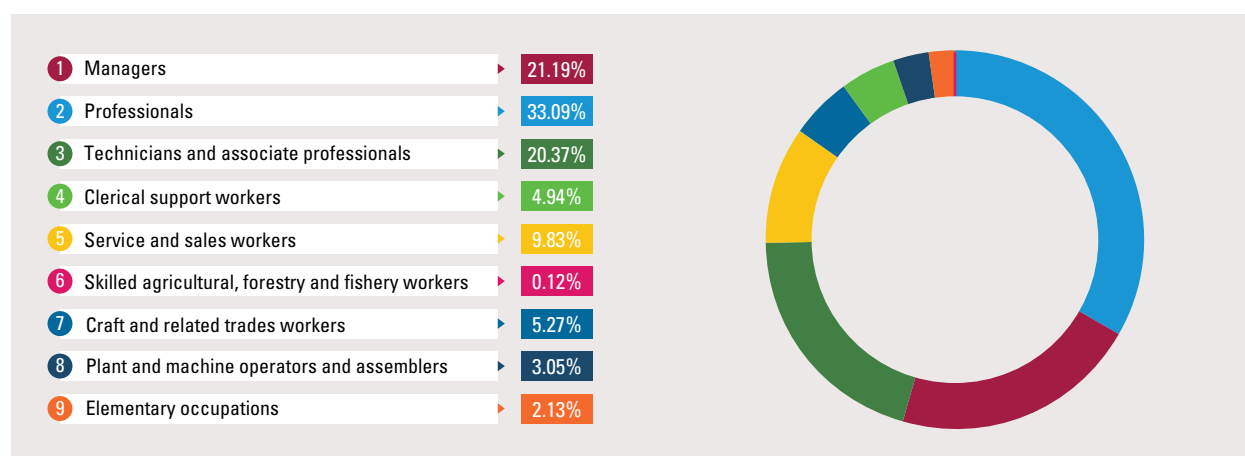## B. Current status of skills and jobs in the Arab region

In the present report, skills are split into two types: hard skills and soft skills. Hard skills can be defined as a worker's technical knowledge, while soft skills are related to overall habits, personality traits and other interpersonal skills in the workplace. Emsi's[33] machine learning algorithms are used to identify the various types of soft and hard skills. Both hard and soft skills are reported according to Emsi's online corpus, which includes almost 40,000 skills extracted based on Emsi, and then classified based on ISCO. Using the ESCWA Skills Monitor for the period June 2020 – March 2022, it is revealed that the largest number of online posted jobs in the Arab region are for professionals (33 per cent), followed by managers (21 per cent). Note that both of the aforementioned groups comprise occupations at the highest ISCO level (figure 2). This implies that a large share of current demanded occupations on the online job market in Arab countries' private sector require high skill levels.[34]

Analysing skill types under the first ISCO level shown in figure 3 indicates that, except for clerical support workers[35] for whom soft skills are demanded slightly more than hard skills, all major groups demand hard skills more than soft skills. This stresses the importance of long-life training, with specific hard skills dictating who will get jobs in the future. In contrast, soft skills may not be easil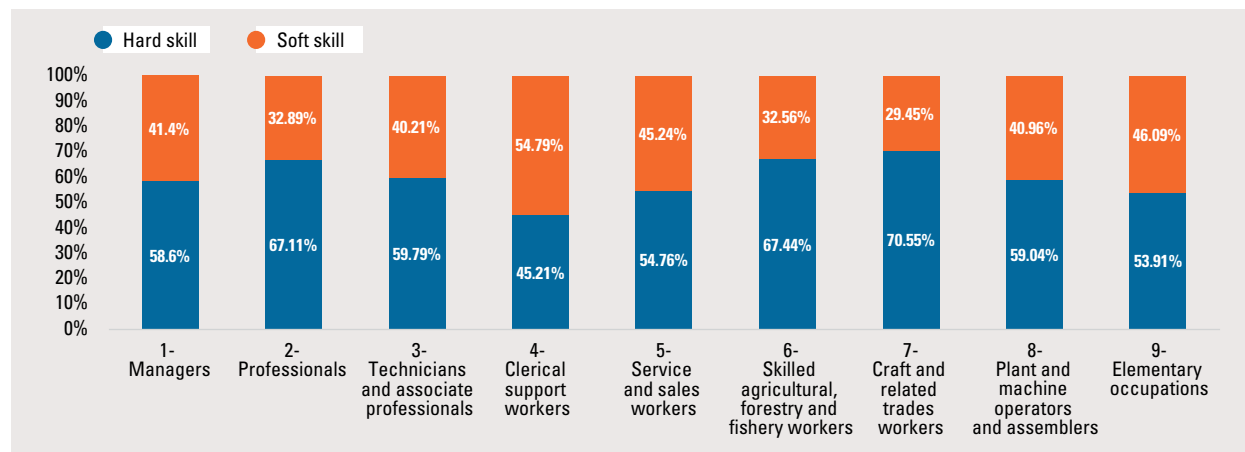y automated and may always be in high demand. State intervention in accumulating soft skills could start as early as secondary schooling. Looking at the demand for skills and without knowing whether hard skills will be demanded in the short, medium or long term, the analysis reveals that more hard skills will be demanded across almost all professions. At the same time, hard skills are more likely to change over time compared with soft skills.

Figure 2. Percentage distribution of online job postings according to the International Standard Classification of Occupations

1 Managers	21.19%
2 Professionals	33.09%
3 Technicians and associate professionals	20.37%
4 Clerical support workers	4.94%
5 Service and sales workers	9.83%
6 Skilled agricultural, forestry and fishery workers	0.12%
7 Craft and related trades workers	5.27%
8 Plant and machine operators and assemblers	3.05%
9 Elementary occupations	2.13%

Source: ESCWA calculations based on the ESCWA Skills Monitor.

Figure 3. Skill type distribution across each first level occupation

Hard skill ● Soft skill ●

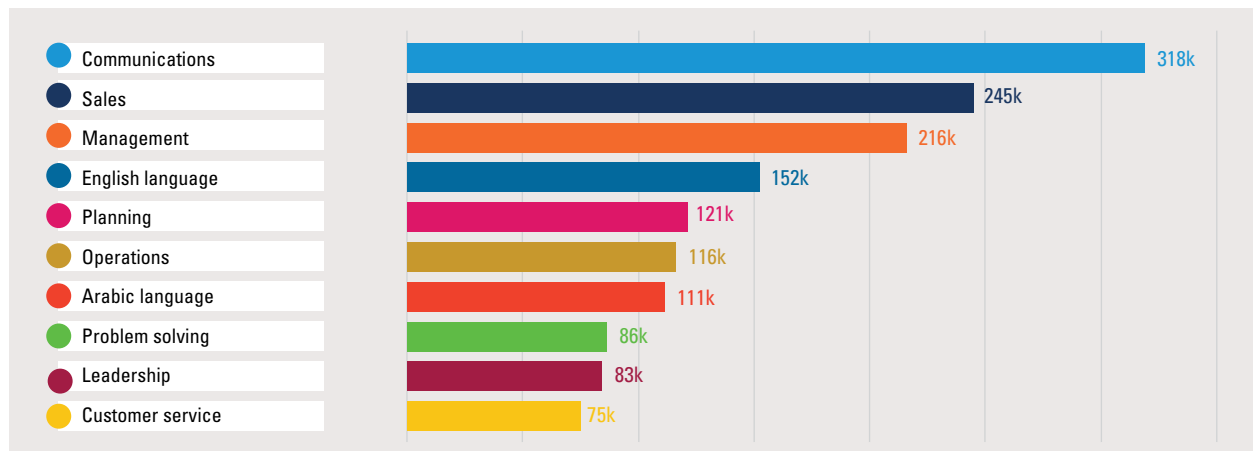| Occupation	Hard skill	Soft skill
1- Managers	58.6%	41.4%
2- Professionals	67.11%	32.89%
3- Technicians and associate professionals	59.79%	40.21%
4- Clerical support workers	45.21%	54.79%
5- Service and sales workers	54.76%	45.24%
6- Skilled agricultural, forestry and fishery workers	67.44%	32.56%
7- Craft and related trades workers	70.55%	29.45%
8- Plant and machine operators and assemblers	59.04%	40.96%
9- Elementary occupations	53.91%	46.09%

Source: ESCWA calculations based on the ESCWA Skills Monitor.

Figures 4 and 5 respectively illustrate the most in-demand soft and hard skills across the Arab region. Whereas hard skills are applicable to specific jobs, soft skills are applied not only to one specific job but also to everyday life. Figure 4 shows that communication skills are the most essential soft skills[36] in the Arab labour market. Good communication allows workers to not only clearly express their thoughts, but also to bridge gaps among colleagues, especi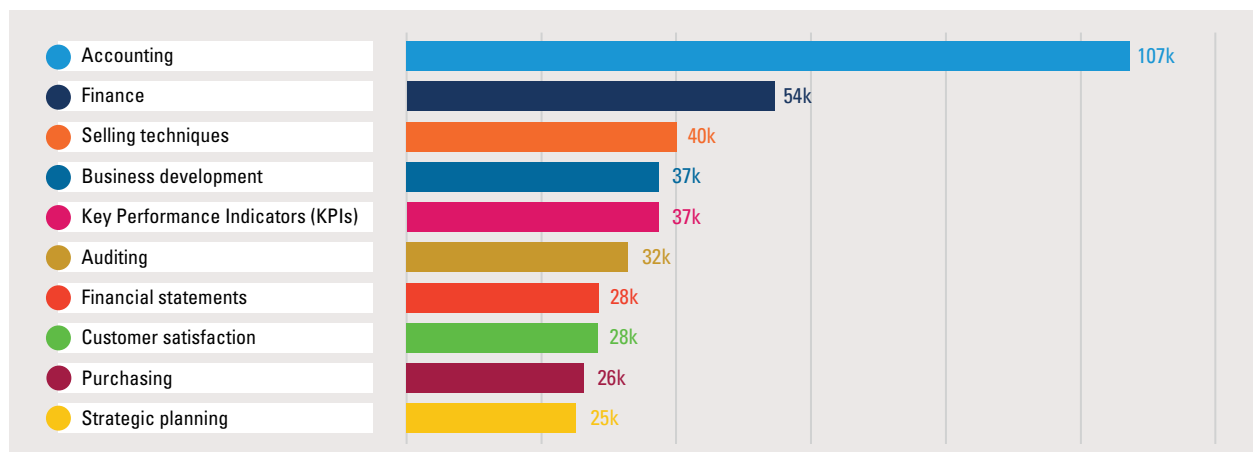ally in team settings. Furthermore, communication is considered a cornerstone of new work modalities, as evidenced during the COVID-19 pandemic. Nonetheless, despite its importance, communication did not make it onto the most demanded skills list globally in 2021. Observing the top five soft skills under the first ISCO classification for all major groups (except technicians and associate professionals), communication is identified as the most required soft skill, thus stressing the importance of communication as a soft skill across all occupations.

Figure 4. Top 10 demanded soft skills in the Arab region

Skill	Value
Communications	318k
Sales	245k
Management	216k
English language	152k
Planning	121k
Operations	116k
Arabic language	111k
Problem solving	86k
Leadership	83k
Customer service	75k

Source: ESCWA calculations based on the ESCWA Skills Monitor.

Figure 5. Top 10 demanded hard skills in the Arab region

Skill	Value
Accounting	107k
Finance	54k
Selling techniques	40k
Business development	37k
Key Performance Indicators (KPIs)	37k
Auditing	32k
Financial statements	28k
Customer satisfaction	28k
Purchasing	26k
Strategic planning	25k

Source: ESCWA calculations based on the ESCWA Skills Monitor.

Command of English also seems to be one of the most needed soft skills in Arab countries. In Arab labour markets, language skills provide workers with a competitive advantage over their monolingual peers. Employers seek candidates who are able to seamlessly communicate with overseas customers in continuously expanding markets that are interconnected with global value chains. Problem solving is also another soft skill needed most for the future of work across the Arab region. Comparing the present report's findings with the globally most in-demand hard and soft skills for 2020 (identified by LinkedIn) and 2021 (identified by Indeed), sales and management are the only two soft skills that are common between Arab demanded skills and globally demanded ones.

Regarding hard skills, figure 5 demonstrates that accounting is the most in-demand hard skill across the Arab region. Even though accounting might be one of the skills that may be automated in the near future, it is still frequently demanded in the Arab region. This is not surprising since most jobs in the region are in the services sector, and accounting as a skill and occupation is traditionally cross-cutting in most professions.[37] Figure 5 also demonstrates the importance of selling techniques, auditing and other business administration-related skills as core demanded skills in the Arab region.

Based on these demanded technical skills in the Arab region, a key question arises regarding whether the region is on the right side of economic development based on the most demanded skills and its connection to technological adoption. To answer this question, the present report investigates the demand for skills based on their links to the Fourth Industrial Revolution. For instance, according to Indeed, the following are the top 10 skills in demand for 2021: cloud computing, AI, sales leadership, analysis, translation, mobile app development, people management, video production, audio production, and user experience design. Figure 5 shows that skills in the Arab region do not match the most demanded skills globally. This is a clear indication that the Arab region still lags behind the rest of the world when it comes to the demanded skills that drive the Fourth Industrial Revolution. The question may arise as to why the Arab region should rush into keeping pace with the Fourth Industrial Revolution since most demanded skills are traditional ones. However, global trends have shown that labour substitution is taking place at a faster pace in developing and least developing countries, where upskilling for technological augmentation is becoming a necessity. A re-skilling and life-long learning culture is needed in the Arab region, given that many traditional jobs will be substituted by machines soon, as evidenced in the banking and tourism sectors worldwide.

C. New era of remote and hybrid work

The idea of remote work from outside the traditional office space has been increasingly embraced over the past couple of years. This modality has been supported by advancements in Fourth Industrial Revolution technologies and trends,

powered by improved communication technologies, digitalization, and augmented or virtual realities. The pandemic has accelerated the work-from-home transition, and acted as a catalyst to a long-overdue shift in work modalities worldwide. It has

also forced several businesses globally to rethink traditional work setups and find ways to keep their employees safe, thus requiring employees to work remotely.

Globally, pre-pandemic remote working growth was mostly represented in the United States of America, where remote work growth reached 65 per cent between 2014 and 2019.[38] Although the pandemic entailed an unprecedented shift to remote work, today this working modality is applicable in certain sectors and unattainable in many others (table below). Currently, on a global scale, remote work is most notable in ICT-reliant sectors, services sectors, and among professionals and managers, while other occupations, such as frontline workers and workers with lower levels of skills, have not been widely encompassed in the "new normal" transition. The abrupt closure of several workplaces as a result of the pandemic ushered in a new era of telework and accelerated its adoption in many sectors in the Arab region. However, as shown in table below, many sectors with significant numbers of employees have a lower potential for remote work.

Potential for remote work and share of employment by economic activity in the Arab region

|	Baseline potential for remote work	Impact of COVID-19 on remote work potential	Sectoral share of employment in the Arab region (percentage)
Agriculture, forestry and fishing	Low	Low–medium	19.9
Mining	Low	Medium	1.1
Manufacturing	Low	High	9.8
Utilities	Medium	Low	1.0
Construction	Low	Medium	13.0
Wholesale and retail trade,	Medium–high	High	14.9
Transport, storage and communication	Low	Medium–high	7.1
Accommodation and food service	low	High	2.9
Financial activities and insurance	High	Medium	0.9
Real estate, business and administration	Medium	High	3.8
Public administration and compulsory social security	Medium	Low	9.2
Education	Medium-High	Low	7.3
Human health and social work	Low	Low	3.0

Sources: ESCWA calculations based on Mckinsey (2020) Global Institute analysis, ILO (2019b) modelled estimates, and ILO (2020a). COVID-19: Labour Market Impact and Policy Response in the Arab States. Briefing Note with FAQs.

Note: The second column represents the potential for transition into remote working across each economic activity pre-COVID-19, while the third column illustrates the impact of the pandemic on the likelihood of this transition.

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The table above shows that almost 57 per cent of Arab employees are working in sectors that have a low potential for remote working. At the same time, these sectors also incubate the most informal and low value-adding activities (such as agricultural and construction), which have nearly zero potential for performing tasks remotely.

To validate the above global trends, an investigation was conducted of jobs tracked by the ESCWA Skills Monitor from June 2020 to March 2022, which found that telecommuting trends were not popular across main occupations in labour intensive sectors, such as the agricultural, forestry and fisheries sector, and the tourism sector.[39]

Figure 6. Distribution of demand for remote work across occupations
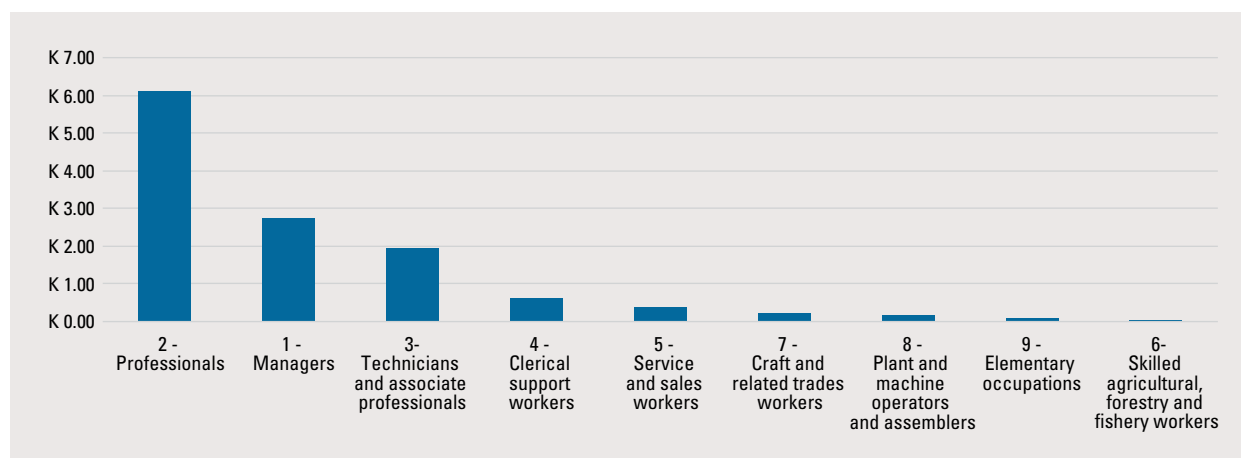
Source: ESCWA calculations based on the ESCWA Skills Monitor.

Figure 7. COVID-19 waves and online openings for remote work
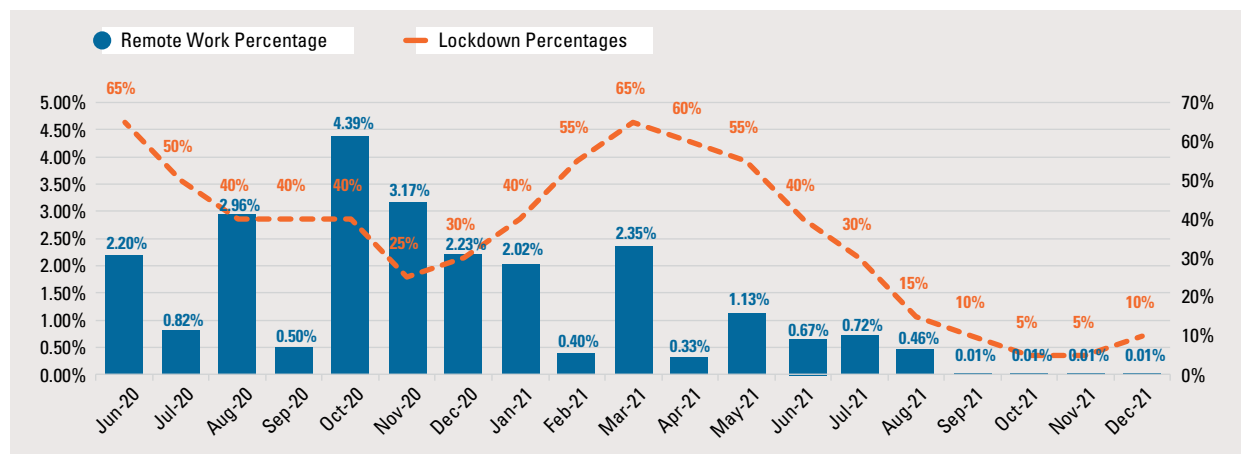
Source: ESCWA calculations based on the ESCWA Skills Monitor.

Note: The dotted line represents the percentage of countries in the Arab region having a complete lockdown for at least two weeks.

Although the pandemic has caused various challenges for employers and employees, the benefits and limitations of remote work are now clearer. Figure 6 shows the distribution of remote work across demanded occupations in the region. Based on the ESCWA Skills Monitor, and within the three most demanded job families, remote work seems to be offered mostly in professionals job openings then in managerial job openings, and less in technician and associate professional job openings. It is not surprising that activities requiring mechanical tasks, such as machine operators, elementary occupations and agriculture activities, are among the least to demand remote work.

The pandemic has changed the way many companies operate and has altered "where" work is done. Figure 7 shows variations in job opening explicitly mentioning remote work in the Arab region, along with the lockdown rate[40] in each corresponding time period (from June 2020 to December 2021). We have modelled the remote jobs percentage out of the total job openings in the region over time to see how employers' demand for remote work varied during the pandemic. Job openings that do not specify a possible remote work modality are assumed to request physical presence in the work premises. In general, the share of remote jobs advertised online is low levels in the region. The abrupt closure of several workplaces as a result of the pandemic encouraged a shift to teleworking but did not significantly accelerate its adoption in the Arab region. The highest percentage for online job openings indicating a remote work modality was during October 2020 (4.39 per cent) when the lockdown rate was around 40 per cent. As lockdown measures began to ease (November 2020), the percentage of remote jobs started to trend downwards. However, when the lockdown rate resurged to reach a maximum of simultaneous lockdowns in the region (65.42 per cent) in March 2021, the momentum was already lost and recruiters shied away from advertising jobs featuring remote work modalities. This might signal that the region is not ready to move to remote work. The associated costs of remote work, its institutional and corporate governance, and the absence of necessary infrastructure for its success may contribute to its low adoption in the Arab region. Moreover, this market behaviour could be motivated by the availability of COVID-19 vaccinations, which make the workplace a safer environment given that the share of remote jobs records a low 0.01 per cent in September 2021 once vaccinations became widely available.
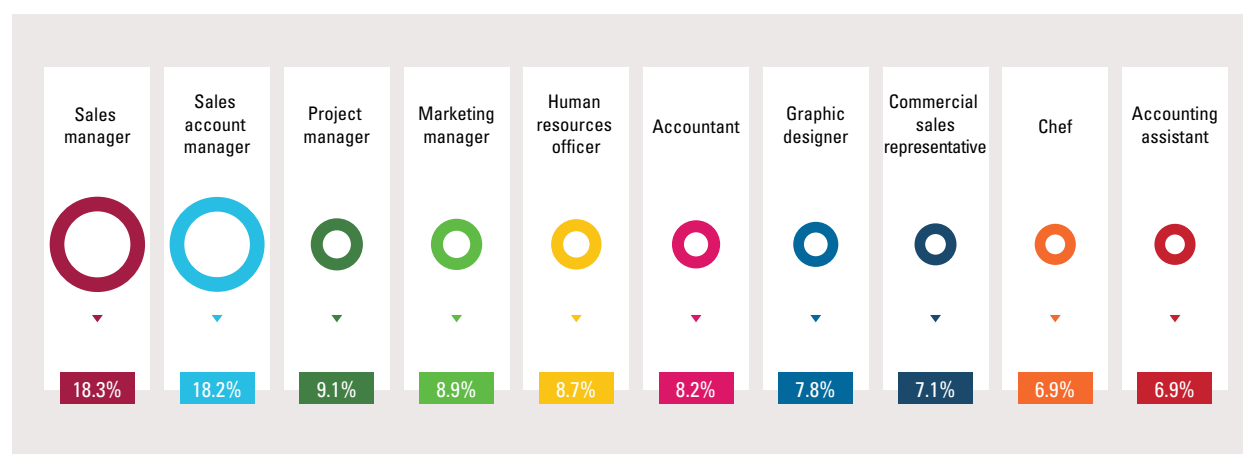
1. Demanded skills and jobs

Figures 8 and 9 set out the top 10 demanded office jobs and the top 10 demanded remote jobs advertised online in the Arab region between June 2020 and March 2022. The ESCWA Skills Monitor indicated that ICT system developers, sales account managers, and software developers were among the top professions providing telework. Consequently, it could be inferred that these three occupations offer flexible work a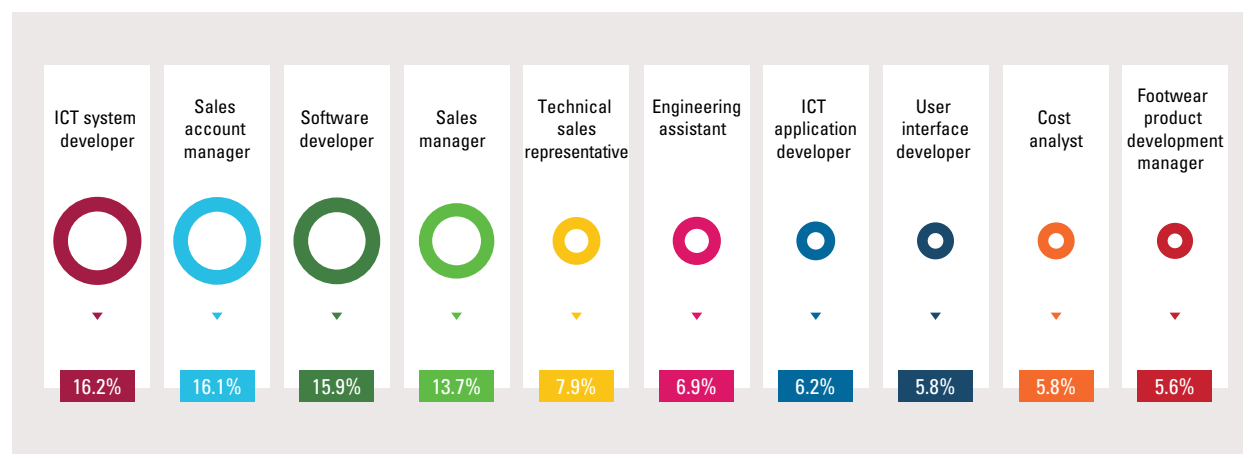rrangements in the region. Although the transition to remote work arrangements is expected to gain momentum, some sectors and occupations have been slow to embrace this trend, especially since most employment in the region is in sectors that have a low likelihood of remote employment. Figure 8 shows the top 10 demanded office jobs. The responsibilities and nature of such occupations prevents them from lending themselves to remote work, whether in the region or globally.

Figure 8. Top 10 demanded office jobs advertised online

Sales manager	Sales account manager	Project manager	Marketing manager	Human resources officer	Accountant	Graphic designer	Commercial sales representative	Chef	Accounting assistant
18.3%	18.2%	9.1%	8.9%	8.7%	8.2%	7.8%	7.1%	6.9%	6.9%

Source: ESCWA calculations based on the ESCWA Skills Monitor.

Figure 9. Top 10 demanded remote jobs advertised online

| ICT system developer	Sales account manager	Software developer	Sales manager	Technical sales representative	Engineering assistant	ICT application developer	User interface developer	Cost analyst	Footwear product development manager
16.2%	16.1%	15.9%	13.7%	7.9%	6.9%	6.2%	5.8%	5.8%	5.6%

Source: ESCWA calculations based on the ESCWA Skills Monitor.

Figures 10 and 11 do not indicate stark gender differences when it comes to the type of work modality. However, based on the ESCWA Skills Monitor, job openings that specify a remote work modality are more oriented towards recruiting men. Particularly, the results convey that more male-targeted job openings (3.04 per cent) advertise for remote work modality compared with female targeted jobs (2.31 per cent). This may be because most female-targeted jobs are at the entry level, with fewer teleworking opportunities compared with other jobs with different seniority levels. As conveyed by the International Labour Organization (ILO) (2020b), remote working might disproportionately disadvantage women, given that women must typically undertake household chores and childcare, in addition to paid work. Since political instability and gender-biased social norms are considered the biggest hurdle facing female economic participation, promoting telework for women could better integrate them in the labour force and reduce female unemployment, which is a major issue in the Arab region. However, this cannot be attained without providing the means to telework, such as access to technology and appropriate living space with privacy to work.

Figure 10. Work modality for female-targeted vacancies
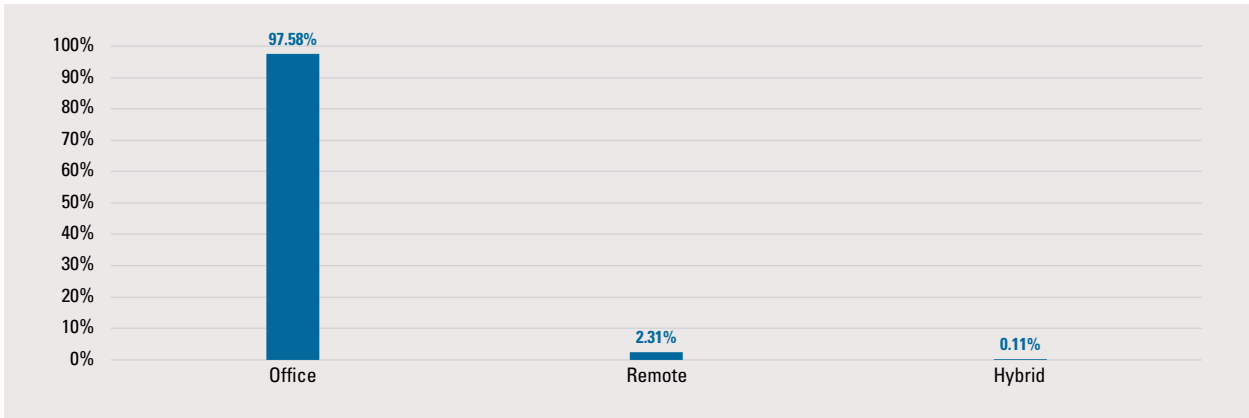
Source: ESCWA calculations based on the ESCWA Skills Monitor.

Figure 11. Work modality for male-targeted vacancies
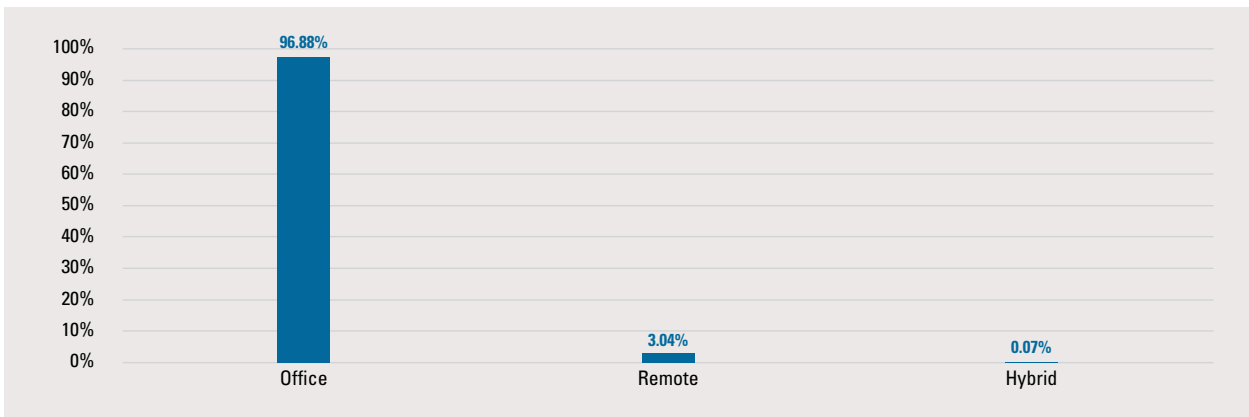
Source: ESCWA calculations based on the ESCWA Skills Monitor.

D. E-accessibility and remote working for persons with disabilities

Remote working could unlock more employment opportunities for persons with disabilities. The global disability movement has long advocated for online and remote working arrangements, which would provide many job seekers with disabilities the opportunity to work from home rather than face transport and workplace barriers. Adopting remote working is not a substitute for ensuring more inclusive workplaces and advancing physical and digital accessibility. However, all these approaches can be pursued in parallel, making the workplace more accessible while providing remote-working arrangements.

Furthermore, in the age of the Fourth Industrial Revolution, automation and advanced technology, e-accessibility and digital inclusion should be at the centre of the digital transformation. E-accessibility refers to the ease of use of ICTs, such as the Internet and online services, by persons with disabilities, and is based on the principle that websites should be developed so that all users can access the information. To promote e-accessibility, websites, tools, digital equipment, applications, web-based government services and digital content must be designed and developed so that people with disabilities, of all ages, can use them. More specifically, individuals with disabilities must be able to perceive, understand, navigate and interact with the web; and contribute to digital content and online applications.[41,42]

Lastly, since remote workers may or may not enjoy a more balanced work-life schedule, there are also concerns about

the skill readiness of workers to telework, especially in middle- and low-income countries with poor ICT infrastructure. The pandemic has definitely accelerated trends that previously struggled to gain traction before the outbreak of COVID-19, which has disrupted where and how work is done. Companies have been considering how to establish workspaces that enhance the safety of employees in the wake of the pandemic, so remote work is expected to persist for the foreseeable future. The shift to virtual interactions accompanied by the surge in the use of digital platforms will most likely reshape future operation methods for a large segment of the workforce, even after the pandemic recedes. Overall, arrangements that encompass the use of non-traditional locations and job structures must consider whether operational continuity is threatened by telework.

E. Skills misinformation: evidence from Lebanon

Based on PISA and TIMSS international examination results, the Arab region showed poor education quality and the irrelevance of training programmes that do not match labour market needs. This may be driven by a lack of public guidance and private sector involvement in the design of quality training and education curriculums, and weak information sharing between employers and potential employees. According to the World Bank Enterprise Survey, around 40 per cent of firm owners claim that in the Arab region, the inadequately educated workforce is a big obstacle to firm owners.[43]

**Box 1.** Case of Lebanon: a non-balanced reskilling and upskilling approach

Reskilling and upskilling guidance in the Arab region has an important role to play, given the large gap between attained skills and those required in the job market. To estimate this gap, ESCWA piloted a field study in partnership with the Lebanese Ministry of Labor, and launched an initiative ("لأنّ العلم مفتاح العمل، #لازم_نتعلّم") which offered unique free-of-charge and certified learning opportunities on the e-learning platform Coursera. This initiative provided Lebanese citizens with the chance to choose from over 3,000 online training courses. A total of 39,792 applicants registered, and 25,000 completed 44,377 courses of their choice (equivalent to 549,517 learning hours), thus accumulating various types of skills in multiple domains. Many applicants attained the needed skills, but many others several courses whose skills are not needed in the Lebanese job market. For example, of the first 260 demanded skills in the Lebanese market, only 42 per cent were taken by Coursera applicants. This percentage dropped drastically when looking at the top 1,000 demanded skills. According to the figures below, most applicants in the Coursera initiative were young people, with the post-university degree age bracket comprising the largest number of applicants. Of almost 39,792 applicants, 26,426 were between the ages of 19 and 29. The gender gap was obvious across all ages, with females outnumbering males in courses taken in all specialties.

Coursera applicants by age

● Coursera female applicants   ● Coursera male applicants   ● Coursera applicants
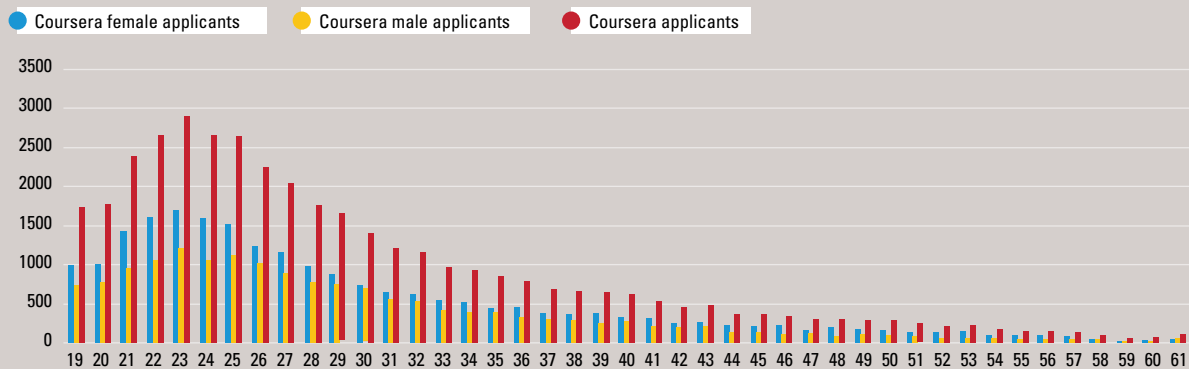
Source: ESCWA calculations.

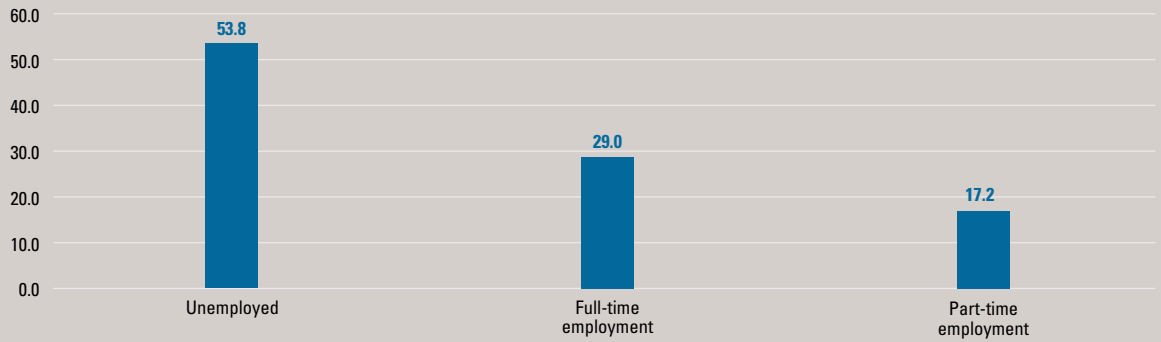## Coursera applicants by education level
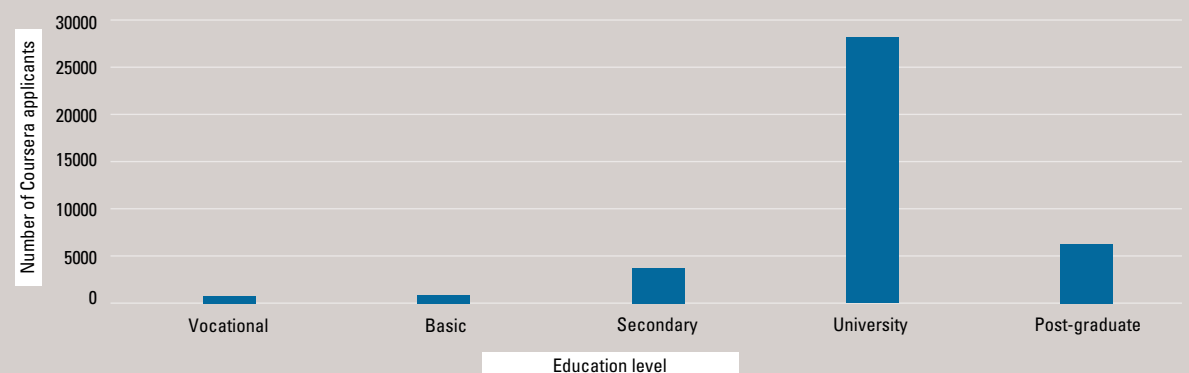
Source: ESCWA calculations.

The number of courses relating to the Fourth Industrial Revolution and the future of work increased by the level of education. The figure above shows that more applicants with higher education levels applied to participate in Coursera courses, highlighting the large gap between applicants with vocational education and those with university degrees. Regarding the future of skills, 42 per cent of higher education applicants completed courses directly related to the Fourth Industrial Revolution and the future of work. This number dropped slightly to 38 per cent among applicants with pre-secondary education.

The figure below reveals that the majority of Coursera applicants were unemployed (53.8 per cent) in 2020.[a] As reported by ILO, the unemployment rate in Lebanon for 2020 was 37 per cent, driven by the COVID-19 lockdowns and the Beirut port explosion. Among the unemployed Coursera applicants, 83.7 per cent belonged to the junior and mid-career age brackets, and 60.4 per cent were females (figures below, respectively).
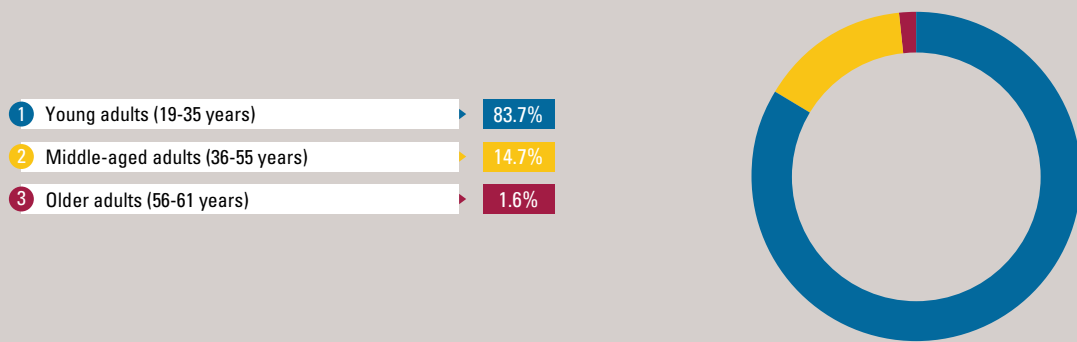
[a] As per the Coursera Dashboard, out of 39,792 applicants to this Coursera initiative, 21,394 were unemployed in 2020.

Employment status of Coursera applicants age bracket

Source: ESCWA calculations.

Unemployed Coursera applicants by age

1. Young adults (19-35 years) ▶ 83.7%
2. Middle-aged adults (36-55 years) ▶ 14.7%
3. Older adults (56-61 years) ▶ 1.6%

Source: ESCWA calculations.

Unemployed Coursera applicants by gender

1. Female ▶ 60.4%
2. Male ▶ 39.6%

Source: ESCWA calculations.

Most courses taken by business-major applicants were business-related. However, there was a large number of business-major applicants taking courses in areas related to the future of work, such as blockchain, data science, cloud computing, digital marketing and advertising, Excel VBA, along with many demanded soft skills. Applicants who specialized in health-related topics (12.5 per cent) mostly completed health-related courses. However, applicants with arts and humanities backgrounds (10.5 per cent) took a wide range of soft and hard skills courses. Physical science and engineering majors (15.5 per cent) took various engineering and computer-related courses. They also took key soft skills courses, mainly related to leadership and project management. Information technology (IT) and computer science applicants (15 per cent) had a higher tendency to learn data science skills. Besides computer science related topics, IT and computer science applicants focused on data science, machine learning and AI.

As shown in figure below, results of the ESCWA Skills Monitor reveal that the highest percentage of online job openings in Lebanon are as follows: software developer followed by technical architect, net developer, assurance services senior associate, and graphic designer. All these areas require strong computer and programming skills.

Job openings for different job titles, Lebanon
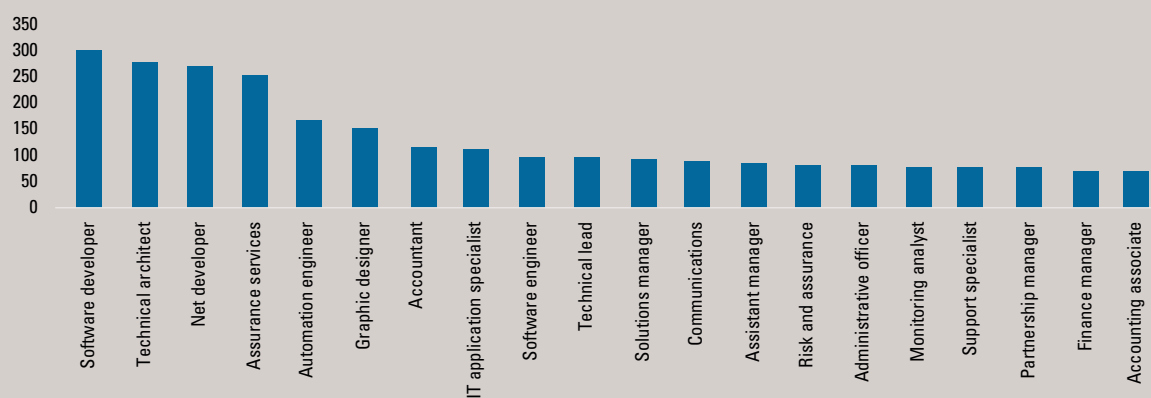
Source: ESCWA calculations based on the ESCWA Skills Monitor.

According to the ESCWA Skills Monitor, the most demanded hard skills in the Lebanese job market are business administration, graphic design, and IT-related skills. Communication, sales and management are the most demanded soft skills. Among the most popular 20 hard skills in Lebanon, the highest in-demand hard skills are Java (programming language) and application programming.

Taking the 260 most demanded skills in Lebanon, Coursera applicants accumulated 42 per cent of these skills in addition to their baseline skill set. Only about 1,000 Coursera applicants gained the 10 most demanded skills mentioned above. Although this might imply that Coursera applicants had already acquired those skills, applicants might also not have been aware of the skills demanded in the Lebanese labour market. If the former is true, then applicants only need the tools for self-upskilling or reskilling. If the latter is true, then applicants need more guidance on the skills they are missing. Joint efforts between Governments and educational institutions are therefore required to equip labour market participants with relevant soft and technical skills. Building a labour market information system would also reduce labour market information gaps, and create the right upskilling/reskilling environment.

F. Policy recommendations

The following policy recommendations highlight key initiatives that could promote regional technological adoption and adaptation:

1 Benefit from opportunities created by the Fourth Industrial Revolution and keep pace with the rest of the world by structurally transforming Arab economies towards more technological diffusion. Productive jobs require productive firms and vice versa. This can be done by building the right infrastructure for non-traditional sectors, such as the digital economy.

2 Encourage Arab Governments to guide the nationwide skill sets by reducing labour market information gaps by building labour market information systems and creating the right upskilling/reskilling/TVET programmes based on ESCWA Skills Monitor recommendations.

3 Build the connection between private sector research and development investments and educational research entities for better technological adaptation, adoption and innovation. This could be done through partnerships, joint research and additional research and development spending in countries with adequate research and development enabling environment, such as GCC countries.

4 Promote teleworking as a booster for female employment to integrate more women into the labour force, and to reduce female unemployment which is a major issue in the Arab region. This is most relevant in countries where political instability and traditional cultural norms are key issues impeding female employment. Remote working can be used as a tool to reduce female unemployment and increase their economic empowerment.