

Chapter 1. Re-engineering skills systems

This chapter presents the key messages of the OECD Skills Strategy 2019, providing a concise summary of the chapter on the skills implications of megatrends, as well as the chapters on the components of the skills strategy: 1) developing relevant skills over the life course; 2) using skills effectively in work and society; and 3) strengthening the governance of skills systems.

Overview

Given the rapid pace of change in today's world, a high degree of adaptability is needed for people to grasp life's many opportunities and address its myriad challenges. Important elements in developing adaptability include making sure people acquire the right mix of skills, use them effectively at work and in everyday life, and continuously update them throughout their lifetimes. Megatrends such as globalisation, digitalisation and demographic change are having a major impact on the way people work, socialise, obtain information, purchase goods and enjoy leisure time. These trends, in turn, increasingly influence the skills that people need to navigate this complexity, face uncertainty, and adapt to this rapidly changing landscape. The challenges are real and should not be underestimated, but much can be done to influence the outcomes. People equipped with the right skills for work and life will turn these challenges into opportunities and will play an active role in shaping the future. In contrast, people who remain ill-prepared will be at risk of being left behind and feeling threatened. The balance between the former and the latter will depend on whether governments implement the right policies and will determine whether countries thrive or struggle.

Since 2012, the OECD has embarked on an ambitious agenda to understand skills systems from a whole-of-government approach and identify good practices that lead to better outcomes, especially in a world where skills needs are changing substantially. This led to the development of the OECD Skills Strategy, which has since gone national. Its cross-government approach and recognition of the roles of other key stakeholders were designed to overcome the limitations of working in silos so that policies can be better aligned and co-ordinated in order to ensure a positive and substantial impact. It has also engaged stakeholders in the development and implementation of policies, learning from their expertise, creating a sense of ownership, and making them responsible and accountable for the roles they play. Work carried out in 11 countries have generated new insights and revealed some important barriers to success that need to be overcome in implementing skills policies.

Additional work carried out by different parts of the OECD has also contributed to this body of knowledge, by identifying: the best international practices that lead to high-quality and equitable education systems; how to better align the supply and demand for skills, thus minimising mismatches; the impact that skills have on employability and earnings, as well as on other social outcomes; and the relationships between the skills and productivity, as well as sustainable and inclusive economic growth.

At this point, the time is ripe to update the OECD Skills Strategy. The main changes included in the update are:

- **A revised strategy to respond to the megatrends** that are having and will have a significant impact on the skills needed for successful careers and fulfilling lives. A paradigm shift is needed in skills policies to ensure people can be equipped with higher levels of skills and with new sets of horizontal skills. In addition, traditional front-loaded education systems need to evolve into lifelong learning models, so that adults can continue to reskill and upskill in order to adapt to a rapidly changing landscape. This requires a redesign of skills systems.
- **A stronger emphasis on a whole-of-government and whole-of-society approach**, which builds on the lessons learned from working at the national level with many countries and has allowed us to conclude that the major factor limiting the impact of skills policies is the “silo” approach. The complexity of skills

systems requires that policies from different sectors (education, labour, industry, economy, tax, etc.) are well aligned, and the trade-offs identified, in order to obtain the expected returns. A piece-meal approach risks having little impact.

- The introduction of a new component of the strategy: **strengthening the governance of skills systems**. The development of lifelong learning systems requires the participation of many actors including different ministries, levels of government (central, regional, local) and stakeholders (such as employers, unions and private providers). Governance refers to the way in which responsibilities are shared and co-ordinated between all the relevant actors, the way in which they contribute to efficient funding, and the development of information systems that help identify the respective roles of each stakeholder, the resources available, the policies to be adopted and the impact of these policies.

The skills implications of megatrends

Digitalisation

Digitalisation is leading to the automation of jobs and tasks that require low-level, routine skills. Most of the debate has focused on how many and which jobs will disappear, and whether these job losses will be offset by the creation of new types of jobs. Although initial estimates suggested that almost half of existing jobs would disappear, OECD evidence suggests that around 14% of jobs are at high risk of becoming fully automatable. Less attention has been given to the fact that even if jobs remain, many of the tasks performed may be automated, leading to a profound transformation of the nature of those jobs. Recent work from this perspective has reached the conclusion that, in addition to the jobs that risk disappearing because of automation, about 34% of current jobs will change significantly as many of the tasks currently performed by workers in those jobs may be automated. This implies that those jobs will shift the balance to non-routine, higher skilled tasks, requiring workers to upskill in order to avoid being displaced and to be able to perform the more demanding tasks. Digitalisation will also lead to the emergence of new types of jobs, and new forms of work, which are likely to require higher skills levels. Thus, it seems unlikely that workers in declining sectors, or those who will be displaced from their jobs, will find a safe haven in these emerging niches.

Globalisation

Globalisation has led to the emergence of global value chains that allow different parts of the production processes to be performed in different geographical locations. The general trend in OECD Member countries is for low-skilled, routine tasks to be offshored, leading to the loss of jobs in well-developed economies and the corresponding gain in developing and emerging countries. This process has led to greater convergence between world economies and to the decrease in poverty rates in low- and middle-income countries. This should be regarded as a positive overall outcome, but the challenges that it creates for OECD economies where many jobs are lost should also be addressed.

Demographic trends

Demographic trends in most OECD Member countries are the consequence of ageing populations. While employment rates – the share of people of working age in employment – are increasing in most countries, dependency rates – the ratio of older people (aged 65+) over the working age population (aged 16-64) – is increasing.

Increased longevity and better health at older ages imply that older workers can stay in the labour market longer, provided they have adequate incentives and support. Among them, there is certainly the need to provide them with adequate opportunities to reskill and upskill. The growing needs of elderly people also lead to the expansion of sectors that have to do with healthcare and social support, which are difficult to automate given that they require social and interpersonal skills.

Migration

Migration flows, even beyond the recent humanitarian refugee crisis, are on the rise and may well increase further in the future given the large demographic and economic imbalances across countries and regions of the world. Increased mobility has generated the potential to attract talent where it is most needed, and migrants may bring additional benefits since they tend to be entrepreneurial and innovative, introducing new ideas and business models. However, this requires pro-active migration policies that attract migrants, especially in areas where there are shortages. Moreover, it is essential to foster a rapid process of integration of migrants and refugees, which requires providing access to language courses, recognition of qualifications and competences, and rapid integration of children in the education system and adults in the labour market, among others.

Developing relevant skills over the life course: Making skills systems responsive

The main implications of these megatrends on changing skills needs are an increased demand for higher, non-routine skills and for different sets of skills, and the need to move from a front-loaded education system, which ends at early ages when students finish secondary or tertiary degrees, to lifelong learning.

These are major challenges since equipping people with higher levels of skills implies improving the quality of education systems without compromising equity. The new sets of skills required to thrive in the workplace and in modern societies are transversal skills such as complex problem solving, critical thinking, teamwork, resilience and adaptability, which demand teachers of high calibre. Finally, the re-engineering of traditional education systems into lifelong learning models requires the co-ordinated design of all stages starting from early childhood, and including schooling, vocational training, universities and adult learning.

Making each stage of learning a foundation for success in the next

Lifelong learning in its broadest sense covers all stages from early childhood education and care to adult learning. An early start can have a long-lasting impact on the ability to learn. An increasing body of evidence shows that children are able to acquire both cognitive and non-cognitive skills during early ages, before starting compulsory education. Even more, these early developments are crucial for enhancing their learning abilities later during formal education and while in the labour market. Children who have attended early childhood education and care (0-6 years) for at least two years, perform better when they are 15 years old according to evidence from the Programme for International Student Assessment (PISA). The boost in student outcomes is particularly strong for disadvantaged students since early childhood education and care seems to be an efficient compensatory mechanism for their challenging starts in life. Thus, removing financial and other barriers to early childhood education and care and ensuring its quality are essential.

Universal access to compulsory education is crucial. Yet, early school leaving is a major source of inequalities in some countries, since students who leave the education system early do so with low levels of skills, and tend to find great difficulties in engaging in any further form of learning or training, sometimes facing long spells of unemployment. These challenges have become magnified in an environment that demands higher levels of skills. Thus, the implementation of measures to detect students at risk of dropping out, the development of support measures and of flexible pathways, are crucial.

The quality of compulsory education needs to improve in order to equip students with higher levels of skills and new sets of skills. Comparative international evidence from PISA shows that there are major differences between countries in levels of student performance towards the end of lower secondary, equivalent to several years of schooling. Good practices can be learned from countries that have improved in the two dimensions that define a high-performing education system: quality and equity. It is feasible to improve overall student outcomes while at the same time minimising the impact of factors that consistently have a negative impact, such as student socio-economic background, gender biases, migrant status and regional differences. Unfortunately, education systems that improve student outcomes consistently over time are not widespread, but they do show the way forward. They prioritise teacher quality by selecting the best candidates; provide training to high standards; and develop career structures with the right incentives and professional development. Teachers become lifelong learners. Successful education systems also set high standards for all students by modernising their curricula and aligning it with evaluations that signpost the skills required at different stages. More diverse student populations also require more individualised teaching, which allows students to reach their goals through different pathways. Finally, disadvantaged students get additional support from the early stages, when compensatory measures are much more efficient than later on.

The gender dimension deserves particular attention. There seems to be a consistent trend for boys to perform better in mathematics and girls in reading, irrespective of the quality of the education system. However, PISA 2015 shows that boys and girls show similar proficiency levels in science. This being said, PISA findings indicate that girls perceive that they do not perform well and feel higher levels of anxiety, which seems associated with low expectations by both parents and teachers regarding their potential to achieve. This is also the case for mathematics, even for girls that show high levels of performance. The consequences of these early differences are significant since, although more women finish tertiary education than men, few women choose science, technology, engineering or mathematics (STEM) subjects at university (with the exception of those that are related to taking care of others, such as medicine) and are therefore under-represented in those sectors of the economy, which are more likely to grow in the digital era. For example, only 20% of tertiary graduates in information and communication technology-related fields are women. Thus, addressing the gender stereotyping that takes place at school is crucial for women to succeed in the digital economy.

Traditionally, vocational education and training (VET) systems were targeted at low performing students to help them acquire the skills required to work in sectors characterised by the performance of manual, low-skilled tasks. This conception of the role of VET reflects a past when economies relied to a larger extent on these sectors, and a higher proportion of the population had a lower level of skills. However, the world has changed. Most sectors have made (or are in the process of making) a transition to a different business model, more responsive to the needs of modern economies. Even workers in technical fields require higher levels and broader sets of skills. Modern VET

systems attract students with a broad range of performance levels and equip them with the skills required for middle- or high-skilled applied jobs, in which continuous on-the-job training is the norm. Modern VET systems are flexible, allowing students to move from VET to academic tracks (sometimes having more than two pathways), allow for progression to higher levels of educational attainment (including university), and place more emphasis on work-based learning. The strong links between VET systems and the labour market allow them to keep pace with the changes taking place in working environments. When properly designed, VET systems can offer high levels of employability and access to high-quality jobs, including emerging sectors such as the digital economy.

The most widespread response to the need to equip people with higher levels of skills has been to expand access to university. This represents a huge investment of resources and has led to the creation of many new universities and the diversification of degrees. Evidence from the Survey of Adult Skills (PIAAC) shows that in countries with high-quality education systems, tertiary education is associated with a considerable increase in the level of skills. When this is the case, the returns for university graduates remain high, despite the massive expansion. However, returns have not always met expectations in countries that have expanded access without ensuring high quality, since in these cases tertiary education does not lead to a substantial improvement in skills. Thus, it is important to keep in mind that increased access does not always imply a substantial improvement in skill levels and that the number of tertiary graduates is not an adequate measure of the skill levels of a population. In fact, PIAAC shows that some tertiary graduates have low levels of skills. The evidence from both PISA and PIAAC on the magnitude of differences in quality between education systems reveals that level of educational attainment is not a good proxy for levels of skills, nor is the number of years of education.

Thus, for both people and employers, educational degrees have become less reliable as guarantees of skills levels. In addition, the dynamism of the labour market requires more individualised, flexible and granular choices than traditional degrees. This has led to the development of new types of courses, including nano courses and different types of online courses (MOOCs: massive open online courses; SOCs: small online courses; SPOCs: small private online courses), which allow more flexibility for people to acquire skills through shorter periods as their needs to reskill or upskill change over time.

Enabling policies to support learning in adulthood

Given that working and social environments are changing rapidly, there is an emerging need for adults to reskill and upskill throughout their lives. A paradigm shift is taking place that requires the transformation of front-loaded education systems into effective lifelong learning models, in which adult learning is perhaps the stage that requires the development of radically new models in most countries. Traditional, front-loaded education systems equipped people with general and specialised skills during childhood and into the early 20s, and these were enough for people to get a job for life or at least jobs for life in the same sector. Evidence from PIAAC shows that with this model, the acquisition of skills increased until the education phase was over, and then declined over time due to obsolescence. People now face very different scenarios: they are likely to have several jobs during their working lives and to move from one sector to another. Even during the period in which they remain in the same job, the nature of that job will change rapidly. All this leads to the new imperative for people to reskill and upskill throughout their lives. But systems for lifelong learning cannot be undertaken by central

governments alone. Many actors, including employers, trade unions, regional and local authorities, private providers and individuals themselves who will become more responsible for making decisions about complex learning pathways, will all need to participate in crafting a new, lifelong learning model.

This new model in which people continue to learn and train during their lifetime, through formal, non-formal and informal means, requires a number of supporting policies:

- **High-quality assessment and anticipation systems** are needed in order to ensure that all actors have the information needed to guarantee that people are able to develop skills that are in high demand.
- **Mechanisms are needed to improve co-operation** between the individual, the employer and employment services, as well as training providers to better match the interests, aptitudes and skills of the individual on the one hand and the demands of the labour market on the other.
- **Efficient funding mechanisms** are required to leverage financial contributions from all those that benefit from investments in adult skills. Governments are unlikely to be able to afford the whole cost of implementing adult-learning systems; thus contributions will be required of governments, employers and individuals, and the optimal balance will depend on the needs and returns. Implementing the right incentives for employers and workers is crucial, as it is to provide targeted funding for training in skills shortages and for disadvantaged groups.
- **Systems to recognise and certify skills** are needed to incentivise adults to continue learning through adulthood. It seems clear that new models of credentials that reflect actual skillsets are required, but it is an open question to what extent (or when) they will replace traditional educational degrees. For individuals, this can lead to higher employability, skills use and job satisfaction. It can also be a bridge to re-engage with formal learning by limiting the amount of time and cost required to complete a credential. For employers, having a better understanding of the skills of their employees can lead to higher productivity and reduced staff turnover. For society at large, skills recognition can improve skills matches in the labour market, leading to improved economic growth and more resilient and inclusive societies.
- **Effective career guidance systems** are increasingly important to help people navigate complex ecosystems at many different stages of their lives. Lifelong learning systems will require that people make many decisions at different stages about the different forms of formal, non-formal and informal learning and training required to move to a new job, keep a current one or get a promotion. The offer for adult learning is very broad, and these decisions will have a major impact on the ability of people to cope with change.

Supporting teachers to become lifelong learners

In order to face the challenges mentioned above, people also need new sets of skills. Employer surveys consistently show the demand is rising quickly for horizontal skills such as complex problem solving, critical thinking, teamwork, creativity, innovation, resilience and adaptability. However, traditional education systems often do not equip people with these skills. Thus, a major transformation is required so that teachers obtain the support required to acquire these skills and learn how to teach them. This a major task that will require new models of teacher training and professional development. It also involves developing new curricula that include these skills in a transversal way, so that they are taught in every subject and not as separate topics.

Teacher careers should be well structured so that teachers can follow different pathways depending on their interests. In addition, professional development should be designed so that teachers have the incentives and the time to obtain the training they need to become the driving force of education systems that will need to adapt rapidly (but consistently) to changing demands from society and the workplace.

Financing adult learning

Since much adult learning takes place in the workplace, it is important that employers are involved in the design, implementation and financing of adult-learning systems. For these models to be successful, the balance of benefits and costs need to be positive for the employer, as well as for the employee. In this respect, small- and medium-sized enterprises (SMEs) face particular challenges, since the costs are high (fewer staff and resources) and the benefits low (retention rates are low when other SMEs do not invest in training and poach those who have been trained by others). Thus, specific policies need to be developed, particularly in countries in which SMEs represent a large proportion of firms.

Harnessing the power of technology as a tool for learning

It is often suggested that the challenges that the technological revolution has generated can be at least partly addressed by digital tools. However, it is surprising that education systems are lagging behind many other sectors in the use of information and communication technology (ICT) to improve outcomes since their role is to prepare students for a digital future. Perhaps one of the biggest mistakes has been to assume that introducing laptops and tablets in the classroom would be a faster and cheaper alternative to the daunting task of improving teacher quality. OECD evidence shows that this is not the case: the mere presence of technological devices in the classroom is not enough to improve student performance. However, technology holds great promise when teachers are trained to make use of it to improve learning environments, develop more individualised teaching, and save time on the tasks that can be automated, focussing on the new horizontal tasks that technology cannot substitute for, such as creativity, critical thinking and teamwork. Technology in the classroom will never replace teachers. On the contrary, it requires high-quality teachers to be able to use it in order to develop more sophisticated teaching methods and equip students with a broader range of skills.

The opportunities that technology brings to connect people globally has led to the creation of networks in which teachers exchange good practices, including videos of teachers in classrooms, as well as materials, and ideas to improve teaching methods. These global communities of teachers have become a very useful tool for teachers to learn from each other and innovate.

Technology seems to have played a more relevant (and disruptive role) in higher education and adult learning. In many countries, these stages of learning have become very dynamic with new models emerging to adapt to the changing needs of adults, as well as younger generations. Thus, a variety of online courses and blended courses are being developed, in order to offer shorter, more focused and granular approaches that seem to match the needs of young and older adults better, both at university and in vocational education and training.

Using skills effectively in work and society: Making the most of everyone's potential

The degree to which skills are supplied and used in both the economy and society has significant implications for the returns that individuals and countries can expect to receive from their investments in skills. Supply-side interventions will only achieve the desired productivity gains if they are accompanied by simultaneous actions to boost the demand for and effective use of skills. Indeed, the failure to fully utilise skills could result in a waste of the initial investment in human capital, the depreciation and obsolescence of the skills that are left unused and the potential loss of people with higher levels of skills who could move to places where the returns on skills are higher.

Comparative evidence shows that countries that perform well in skills development tend to make extensive use of skills in the workplace and have well-performing labour markets, with high levels of employment. However, the two do not necessarily go together, since some countries have comparatively high levels of skills but do not seem to use them effectively in the workplace, leading to rapid skills obsolescence, while others make much better use of a limited pool of skills.

Making full use of everyone's skills

The combination of the quality of education and training systems and the extent to which the skills acquired are used and further developed at work determine the level of skills of a population. PIAAC shows that countries vary to a large extent in the average level of skills and how they are distributed among different groups. A few countries have a similar level of skills between younger and older generations, due to the lack of progress made over the last 40-50 years. However, most have major age-related differences: young people have much higher levels of skills than older generations, either because the expansion to higher levels of educational attainment has occurred recently or because the quality of education systems has improved greatly over time. Thus, the most widespread trend is for older generations to have lower levels of skills.

In most countries participating in the PIAAC, the pool of adults with low levels of skills is much larger than expected, which implies that policies need to be developed for them. Because groups with low levels of skills are quite diverse (e.g. early school leavers, long-term unemployed, older generations), different and well-targeted interventions are needed. However, PIAAC data show that only 41% of adults surveyed participate in formal or non-formal adult learning. A major concern is the fact that adults who need further training and learning the most are the least likely to seek and benefit from it. These include adults with low levels of skills at jobs that are likely to be automated, as well as the long-term unemployed and, more generally, workers in SMEs. For some, the main barrier is lack of motivation, either because they are not aware of their actual skills levels or do not see the benefit. For others, provision of training opportunities is more limited, either because of the limited capacity of employers to finance it and/or manage the absence of the workers or because of the lack of incentives for the employer to invest

in the human capital of the (often low-skilled) worker. Thus, it is crucial that policies are put in place so that individuals understand the value of learning and training. In contrast, highly skilled adults make ample use of the broad range of opportunities that they have (training at work, online courses, etc.) to continuously upskill. These trends could lead to a growing gap between the high- and low-skilled, as the development of new tools to upskill expands. Thus, ensuring broad participation in adult learning must top the agendas of governments, employers and social partners. This requires designing incentives for employers, developing mechanisms to allow the portability of training rights between employers, and raising motivation.

Most OECD Member countries have recovered from the recent economic crisis, but some scars remain. In countries with large pools of low-skilled adults who used to be employed in declining sectors, unemployment remains high. In particular, youth unemployment and long-term unemployment seem difficult to overcome in contexts in which there are high levels of early school leaving and youth not in education, employment or training (NEETs), and where the unemployed experience skills erosion and motivation loss over time.

In most countries, governments are responsible for training the unemployed, but when traditional training models are followed, they often involve offering courses that are not well aligned to labour market needs and do not result in upskilling. On the other hand, efficient systems use considerable amounts of funding to assess actual skills, equip people with skills demanded by the labour market and provide appropriate career guidance by integrating a vast amount of information on job prospects and the required training to qualify for them. Thus, for those who lose their jobs, safety nets need to be in place, linked to activation strategies, to enable them to integrate again into the labour market before their skills deteriorate.

In addition, early intervention services appear to be quite effective, by initiating re-employment services in sectors that are declining before people lose their jobs. However, they are not used as widely as desired and are often limited to workers affected by mass layoffs. Policies need to be developed to help workers move from declining sectors, industries and regions, to those where there are opportunities. This will avoid large parts of the population becoming unemployed for long spells of time, and will contribute to inclusive economic growth and rapid technological progress.

Finally, unemployment benefits are still largely based on the notion of an employer-employee relationship; new models need to be designed, however, to adapt to the new world of work. Individuals in non-standard forms of employment, such as the self-employed, temporary as well as part-time workers, are particularly vulnerable given the scarcity of safety nets for them. This may require a fundamental paradigm shift, where entitlements are linked to individuals rather than jobs, and portable from one job to the next.

Making the most of migrants' skills

Given the large influx of migrants into many OECD Member countries and their specific circumstances, this group requires specific efforts to encourage effective integration. Migrants now account for one in ten people living in OECD Member countries, and immigrants comprise between one-quarter and one-half of new entries to the labour force. Some countries have developed specific policies to attract migrants with relevant skills to address the shortage of skills in certain economic sectors. These selective policies have led to stronger economies. In those cases in which migrants are fleeing regions of conflict

or looking for better economic prospects, countries need to put in place mechanisms to assess the level of skills of migrants in order to identify potential job prospects, while at the same time provide language training. In general, low-educated immigrants and native-born peers have comparable levels of employment rates. In contrast, the employment rates of highly educated immigrants tend to be lower than their native counterparts. One reason is that employers have poor knowledge of the actual level of skills associated with foreign degrees. Thus, training must account for individual skills needs and be geared towards labour market integration.

Activating skills to build more inclusive and cohesive societies

Adult skill levels are also associated with levels of social cohesion. Adults with higher levels of skills have higher levels of trust in others, in institutions and in governments, perceive themselves as having better health, and feel that they participate actively in society. This sense of social cohesion will become more relevant as the complexity of our societies increases, the issues on which decisions need to be taken become more difficult to understand, and a global perspective is required. At the same time, technology has led to exponential growth of sources of information, so being able to discriminate between different sources and content and to integrate vast amounts of information, has become more important than ever before. Highly skilled people will be more motivated and able to tackle this complexity, while others will seek the refuge of echo chambers where only like-minded people participate, or they will simply ignore the issues at stake, under the impression that nothing they say or do will make a difference. The erosion of trust in governments and the fact that growing sectors of the population are becoming less active as citizens is a major threat to the effective functioning of democratic societies.

Making intensive use of skills in work

Encouraging and supporting individuals to bring their skills to the labour market is only the first step towards ensuring that skills are used fully and effectively. The developing of skills-intensive workplaces matters greatly for ensuring high returns to investments in developing skills. Governments can support firms by raising awareness about the benefits of improved organisation and management practices that contribute to better skills use, including teamwork, task discretion, mentoring, job rotation, applying new learning, incentive pay and flexible working hours. Governments can also disseminate good practice, develop diagnostic tools to help firms identify room for improvement, promote knowledge transfer and offer management skills development programmes. Interventions should be particularly targeted to SMEs, who face cost constraints in implementing new management and organisation practices.

Aligning skills with the needs of the economy and society

In a context of rapid change, mismatches are more likely to emerge between the sets of skills that workers have and those demanded by the labour market. Indeed, in most countries, employers report that they are unable to find people with the skills they need. There are several measures of mismatch, which have very different implications. The type of mismatch that is most prevalent is field-of-study mismatch (around 40%), i.e. people working in a different study or field than the one they have studied for. This clearly shows that people make choices that are not always well aligned with labour market needs. More information on employability rates, the range of wages and sectors with high demand, could contribute to rebalancing skills supply and demand. The second is qualification mismatch: about 20% of the workforce has higher qualifications than their

jobs require. However, the level of skills mismatch is much lower, suggesting that in many cases people with those degrees do not have the level of skills that would be expected and that employers are finding ways to match people to the skills required for jobs. Despite the smaller magnitude of skills mismatches, it is an issue that leads to wage penalties for individuals and productivity costs for the economy and should be addressed.

Aligning skills policies with industrial and innovation policies

Digitalisation and globalisation are likely to generate greater distortions, as jobs and tasks become automated or offshored. Thus, people who occupy these jobs are at risk of becoming unemployed or displaced. As a result, there is a widespread trend for job polarisation, with the demand for high-skilled jobs increasing, middle-skilled jobs declining, and low-skilled jobs remaining more or less stable. Those people who acquire the skills required to adapt to these changes will have jobs that are more creative and fulfilling, and in which automation will be seen as an ally rather than a threat. Workers will rely on robots to carry out the routine tasks and integrate massive amounts of information, while workers will be responsible for decision making at higher levels. These megatrends also allow individuals around the world to bring their ideas into the market more easily, boosting opportunities for entrepreneurship. Digital technologies have also enabled the rise of the platform economy.

In this rapidly changing environment, skills policies need to be well aligned with industrial and innovation policies, so that employers can access the skills they need to move their firms to higher value-added and innovation-intensive activities. Innovation and industrial policies can also be designed to encourage skills development through training and knowledge transfer. Innovation requires strong STEM skills, as well as soft and entrepreneurial skills. Investing in research and development (R&D) helps to develop knowledge and skills, spurs innovation and enhances a firm's ability to absorb and exploit the available knowledge base. On the other hand, when skills policies are not aligned with industrial and innovation policies, countries and regions may get trapped into "low skills equilibria". These are characterised by workforces made up of adults with low skills who have little incentive to upgrade their skills since they know it would be difficult to find jobs rewarding their efforts; and by employers who cannot move to higher value-added activities given the low skill levels of the workforce. Low-skill equilibria hinder growth and economic development and make economies vulnerable to economic and technological shocks, such as those related to global value chains or the digital transformation.

Strengthening the governance of skills systems: Tackling increased complexity

Across the spectrum of policy sectors, policies aimed at improving skills outcomes – skills policies – are a prominent example of complexity. The success of policies to improve the development and use of skills typically depends on the responses and actions of a wide range of actors, including government, students, teachers, workers, employers, trade unions, etc. In many regards, the policy area of skills policies is fundamentally different from other policy areas. They have widespread support given their relevance in improving people's labour market outcomes and well-being, and the central role they play in boosting countries' economic development and inclusive growth. However, they are much more complex than many other policies because they are located at the intersection of education, labour market, industrial and other policy domains. Thus, they also generate

conflicts of interest between powerful stakeholders and the need to co-ordinate and align policies from different sectors.

The complexity of implementing reforms increases when policies involve a wide range of actors and entities, such as different levels of government and stakeholders, and cut across multiple policy sectors. When designing and implementing inter-sectoral policies, governments often face enormous political and technical challenges, including the need to co-ordinate across different levels of government, to engage with stakeholders, and to define the financial and information aspects of the reform, among others. Furthermore, inter-sectoral reforms are often associated with very complex redistributive trade-offs as they often go along with the distribution and redistribution of resources across and between sectors as well as levels of government.

Current reform efforts addressing the skills system often take place in the context of decentralisation processes, which delegate the administration and partly the financing of social services, implying that more policies and services will be designed and delivered with or by sub-central authorities, social partners and other stakeholders, whose actions are not always under the control of central authorities. In consequence, designing governance systems that can both ensure a co-ordinated approach to steering and priority setting and remain sensitive to particular regional and sectoral needs is challenging.

In fact, the 14 OECD Skills Strategy Diagnostic Reports completed to date show that inherent difficulties in co-ordinating and aligning different policy sectors and actors is among the main challenges impeding more effective and efficient implementation of skills policies. Many of today's skills challenges are rooted in poor governance arrangements across policy areas and levels of government as well as with stakeholders, inadequate information on skills and learning outcomes, and inefficient financing mechanisms. Government structures and bodies are usually designed to advance specific sectoral policies and do not co-ordinate actions across sectors.

Promoting co-ordination, co-operation and collaboration across the whole of government

Skills-related policies are rarely the exclusive domain of one ministry or level of government. Higher levels of co-ordination, co-operation and collaboration have the potential to improve skills outcomes. The co-ordination of different policy areas is facilitated if there is a shared conviction that skills are a national priority. Governments should encourage co-ordination between central and sub-national authorities. A good first step is to map all the policies and institutional actors that affect skills development and skills use. Co-ordination efforts should be supported by the right institutions. These institutions can take various shapes. However, it is important that they adopt a “life-course perspective” and put in place effective monitoring and evaluation mechanisms to assess the functioning of the skills systems

The development of a whole-of-government approach to skills policies is in many countries hampered by the complexities of multi-level governance arrangements, which distribute policy-making authority unevenly across different policy sectors. For instance, in many countries, the authority for education policy is delegated to sub-national governments or divided between the central and regional governments. In contrast, labour market and lifelong learning policies are often the responsibility of federal/central agencies in order to ensure joint standards on national labour markets, but in other countries, the local governments are important in administering and financing these policies. In any case, often the policy-making authority for different elements of a

comprehensive set of skills policies are distributed unevenly across different levels of government, turning co-ordination across these levels of government into a significant challenge for policy makers. Irrespective of which model is present in different countries and how responsibilities are defined between levels of governance, the most effective mechanisms to avoid growing disparities between regions is for central government to remain responsible for defining common standards of the appropriate levels of skills for each level of educational attainment and training models for all regions, and to evaluate the efficiency of the different actors and policies.

Engaging stakeholders throughout the policy cycle

The need to engage stakeholders emerges from the complexity and the multiplicity of policy actions that need to be undertaken to improve a country's human capital development and use. Policy makers dealing with complex policy choices need and benefit from stakeholders' expertise and knowledge. But engaging stakeholders also enhances the legitimacy of policy-making decisions. A first step towards engaging stakeholders is to map all the players in the skills system and identify how and to what extent they interact with each other. It is very important that engagement leads to something tangible in practice, and stakeholders must have opportunities to influence skills policy. However, it is critical that their involvement in decision making does not lead to the "capture" of public institutions by private interests.

Effective and politically legitimate governance of skills systems requires policy makers to engage with relevant stakeholders in the field. The challenge here is to identify the relevant actors while balancing out potential power asymmetries between highly organised special interests and the often weakly organised and more diffuse collective interests. Engagement with stakeholders needs to go beyond the classic tripartite bodies representing business, labour and state interests found in many countries. In the context of lifelong learning, the success of skills policies is increasingly influenced by and dependent on a larger number of stakeholders, representing emerging sectors of the economy such as new tech firms and training providers, as well as new types of employees (e.g. the self-employed and atypical workers) many of whom are not necessarily well represented by traditional institutions or entities. In developing an encompassing skills strategy, it is important to appeal to both the traditional and well-established associations in the economy as well as those representing newly emerging interests.

More concretely, the whole-of-government approach aims to pursue long-term skills policy agendas, establishing strong institutions that monitor and evaluate the implementation and outcomes of policy reforms, engaging stakeholders directly to share the ownership (or burden) of the policy reform within a framework in which the public sector remains accountable for the quality and accessibility of services; and, finally, at addressing asymmetries between the winners and losers of reform processes. The latter point – the redistributive implications of policy reform – can often become a major obstacle in the design and implementation of policy reforms. In order to prevent gridlock in the later stages of the implementation process, it is, therefore, crucial to involve stakeholders in earlier stages of the decision-making process.

Furthermore, co-operation can be achieved in more formal ways such as the creation of specific institutions or councils that guarantee the continuity of the dialogue among the main stakeholders. While designing the institutions and deliberative forums, it is important to pay attention to the potential trade-off between the number of stakeholders to

be involved and the effectiveness of decision making. If the number of stakeholders and bargaining partners is too large, the deliberative process runs the risk of becoming too cumbersome, which could effectively lead to a rather superficial and ineffective involvement of stakeholders. Government actors can prevent this situation by encouraging stakeholders to organise themselves before participating in the deliberation process, i.e. by appointing spokespersons for a particular sector or group of stakeholders. However, the concomitant danger in this situation is that if the number of stakeholders drops too low, it could trigger concerns about the broadness of the group of stakeholders involved. There is no simple solution to these trade-offs, as countries differ widely with regard to the number and kind of societal stakeholders. Governments should be aware, however, of the challenges related to the organisation and involvement of societal actors in public policy making.

The government can also be pro-active and participate in existing fora created and managed by stakeholder organisations/entities. Besides promoting skills policy dialogue, this methodology has the advantage of demonstrating to stakeholders that their perspectives matter to the government. It is not only a matter of governments engaging stakeholders but also about ensuring that governments themselves are willing to be engaged. In addition, this pro-active approach can be important when stakeholders are particularly weak and marginalised due to their lack of organisation, fiscal or administrative capacities (including lack of organised representation) that negatively affect their ability to engage with policies and dialogues.

Finally, some skills reforms can improve the welfare of some groups of stakeholders, while negatively affecting others. Even though the process of stakeholder engagement could and should strive to find consensual solutions to policy problems, there may be instances where policy solutions involve difficult trade-offs. Government actors cannot stay out of these political conflicts but should remain a neutral arbiter to the greatest extent possible in order to ensure that stakeholders, in general, remain committed to the collective effort. Increasing the input from and involvement of empirical research may help to pacify potential conflicts of interest as evidence-based policy making can contribute to developing a foundation of objectivity shared and recognised by all involved.

Building integrated information systems

As skills systems evolve and become more complex, managing data and information becomes a key policy issue. Effective information systems are needed to collect and manage the data and information that governments and stakeholders produce, analyse and disseminate to ensure that policy makers, firms, individuals and others have access to accurate, timely, detailed and tailored information.

Relevant data and information include measuring the actual levels of skills of individuals, identifying the skills demanded by the labour market, anticipating skills needs in the future, as well as information on learning and training opportunities and their effectiveness.

Policy makers should make use of these data to evaluate the impact of the policies that they implement so that they can test whether training programmes are raising the levels of skills of individuals and improving their employability. Accurate assessments of over- or under-supply of skills may also help policy makers develop initiatives to achieve better matching between supply and demand, by putting in place incentives to skills investments in those areas or incentives for people to acquire skills that are in shortage.

Sound career guidance should be based on solid data on the outcomes of different options (for example, university and vocational training), institutions and field of study, in terms of employability and earnings. Similarly, education and training institutions can make good use of data on changing trends in skills demand, to better align their programme and degree offers.

However, there are major challenges that need to be overcome. First, privacy issues may pose limits to the kind of information that can be gathered and/or disseminated. Second, there is a large number of data sources that need to be integrated. Third, there is a multiplicity of end-users with different needs, who may, therefore, require access to different parts of the information or different levels of aggregation.

Aligning and co-ordinating financing arrangements

Governance and financing are inexorably intertwined. Efforts aimed at improving the efficiency of expenditures on skills need to be accompanied by strong institutional capacity. Financial arrangements should rely upon more flexible cost-sharing mechanisms that facilitate integration from multiple sources. Public funds ought to be allocated carefully to promote better policy outcomes and to ensure equitable access to skills development opportunities for all. A first step in prioritising skills investments and expenditures is to assess the financing gaps in the systems. Investment strategies ought to be defined in line with the medium-term strategic priorities of government. Resources need to be allocated in such a way that responsibilities and accountability mechanisms are matched with funding so that those with responsibilities have the capacity and funding to operate at the desired standard of service.

The main challenges associated with putting in place effective funding arrangements are:

- **Diversifying sources of funding.** Promoting the development and use of skills, especially in the context of lifelong learning is costly and may require that the costs and benefits of skills investments are more equitably shared between governments, individuals and the private sector – with country-specific differences in how exactly this balance is achieved. In a context of increasing pressure on state budgets, financial arrangements will increasingly rely upon more flexible cost-sharing mechanisms that facilitate integration with resources from private households and employers on the one hand, and public budgets both at the central and at the sub-central level on the other. Investments in human capital create both public (societal) and private individual benefits (in terms of higher wages and/or increased productivity); hence a sharing of costs between public and private actors is justified to some extent, although politically contentious in many cases as it involves redistributive trade-offs between the different groups of stakeholders. Finding the right mix of public versus private funding requires an assessment of the benefit to each party as well as co-ordination efforts to align the incentives of public and private actors. Furthermore, the relative mix between public and private sources of funding might vary across sectors. For instance, investing in early childhood education and care could be recognised as a public good as it is deemed to be particularly effective in mitigating educational inequalities in the early stages of the lifecycle. On the other hand, investments in skill formation at higher levels (post-secondary and higher education as well as lifelong learning) are usually associated with concrete and immediate pay-offs in the labour market and could, therefore, justify a larger involvement of private actors (households and employers).

- **Finding appropriate resource allocation and budgeting mechanisms.** Public funds ought to be allocated carefully to promote better policy outcomes. However, prioritisation and budgeting procedures can be complex and give rise to major conflicts of interest. Sound mechanisms to prioritise skills investments and allocate public funds to execute them need to be responsive to a country's skills needs; should assess the cost and benefits of such investments; and generate trust among individuals and stakeholders. Optimal investment of resources in skills often involves reallocation of funds that have a limited impact; when this implies the transfer of funds between ministries or the elimination of policies, which although inefficient, may be popular or benefit certain stakeholders, political costs and conflicts of interest will arise.
- **Ensuring equity in funding considerations.** Government spending on skills investments is justified by the benefits at the aggregate level that arise when the population reaches higher levels of skills. Finding the right mix of public versus private funding requires an assessment of those potential benefits and a co-ordination effort to align the incentives of public and private actors so that country-specific balances in cost-sharing are widely recognised as fair and not preventing individuals from pursuing educational goals. Equity requires that funding is targeted to disadvantaged populations, or to urgent needs such as the reskilling and upskilling of adults at risk of losing their jobs.
- **Providing commensurate resources and management.** Evidence collected in the OECD National Skills Strategy Projects, and other OECD assessments, shows that there is often an imbalance between policy responsibilities and resource allocation. This may cause, in turn, a disconnection between policy design and policy implementation. Typically responsibilities are scattered over many different ministries, bodies or agencies, operating at different levels and with different organisational cultures. Also, some responsibilities are delegated to agents in the private sectors, such as non-governmental organisations, or to hybrid bodies or organisations, such as public-private partnerships.

In summary, skills systems are very complex given the multiplicity of actors. This complexity is increasing as traditional education systems evolve into lifelong learning systems and the diversity of actors increases. The lack of co-ordination between different actors within governments, between levels of government, and with stakeholders, is one of the main obstacles to the successful implementation of co-ordinated skills policies. Equally important are the definition and sharing of responsibilities, the implementation of accountability mechanisms, information systems and efficient funding arrangements. In addition, most skills reforms need to address serious conflicts of interests between different actors and keep the focus on improving the acquisition and use of skills by all sectors of the population. Thus, proper governance arrangements are becoming even more important for the success of skills policies.

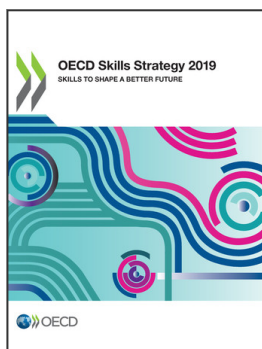
The role of governments: New challenges and shared responsibilities

Megatrends are not only affecting our working and social environments, but they are also influencing the role of governments. Globalisation and digitalisation have led to the decentralisation of information, generated new, non-standard forms of work, facilitated the offshoring of certain parts of production processes, and have eliminated geographical barriers. In addition, demographic changes are putting significant pressure on public budgets. In many ways, the traditional roles of government are increasingly difficult to fulfil.

In most OECD Member countries, people expect a high-quality education in public schools and universities, believing these will lead to quality jobs for life. At the same time, many expect access to a free healthcare system and pensions when they retire.

However, the new dynamics imply that people in the future will be unlikely to have a job for life. They will have to reskill and upskill to move from one job to another as some jobs disappear and others emerge. The sustainability of traditional pension schemes is also in question. This new scenario may lead people to mistrust, feel fear or even anger at governments who are no longer able to provide them with the safety nets they expect.

The erosion of trust in governments represents a very serious risk that must be addressed. On the one hand, governments need to develop policies to address these challenges well in advance and minimise the risks. On the other hand, people must acquire the skills needed to transform these challenges into opportunities, to take more responsibility for their own learning and training, to adapt to a rapidly changing landscape, to become resilient so that they can overcome the fear of being left behind, and to hold reasonable expectations that buoy them above supporting over-simplistic, unrealistic solutions. In so doing, people will understand that they should not wait passively for changes to occur, but rather, that they are the architects of the future, that they can shape the trends in their societies, and that they play a very important role in defining how governments can help.



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