



Anticipating and matching skills and jobs

Many countries are experiencing a persistent gap between the skills needed in the labour market and those offered by the workforce. Skills anticipation is a strategic and systematic process through which labour market actors identify and prepare to meet future skills needs, thus helping to avoid potential gaps between skills demand and supply. Skills anticipation enables training providers,

young people, policy-makers, employers and workers to make better educational and training choices, and through institutional mechanisms and information resources leads to improved use of skills and human capital development. This guidance note explains the key components of skills anticipation systems, including data, methodologies, tools and institutions.

Why is skills anticipation important?

Despite increased spending on education and training and increasing educational attainment, countries around the world are experiencing a persistent gap between the skills demanded and those available. For example, globally around one in three employers say they have trouble filling vacancies because of the lack of appropriately skilled applicants (Manpower Group Survey, 2013). At the same time, over 73 million young people across the world are unemployed (ILO, 2015c). By 2020, a global shortage of 40 million college-educated workers is predicted, with developing countries experiencing a shortfall of 45 million workers with secondary school education and vocational training for jobs in manufacturing and services (McKinsey Global Institute, 2012).

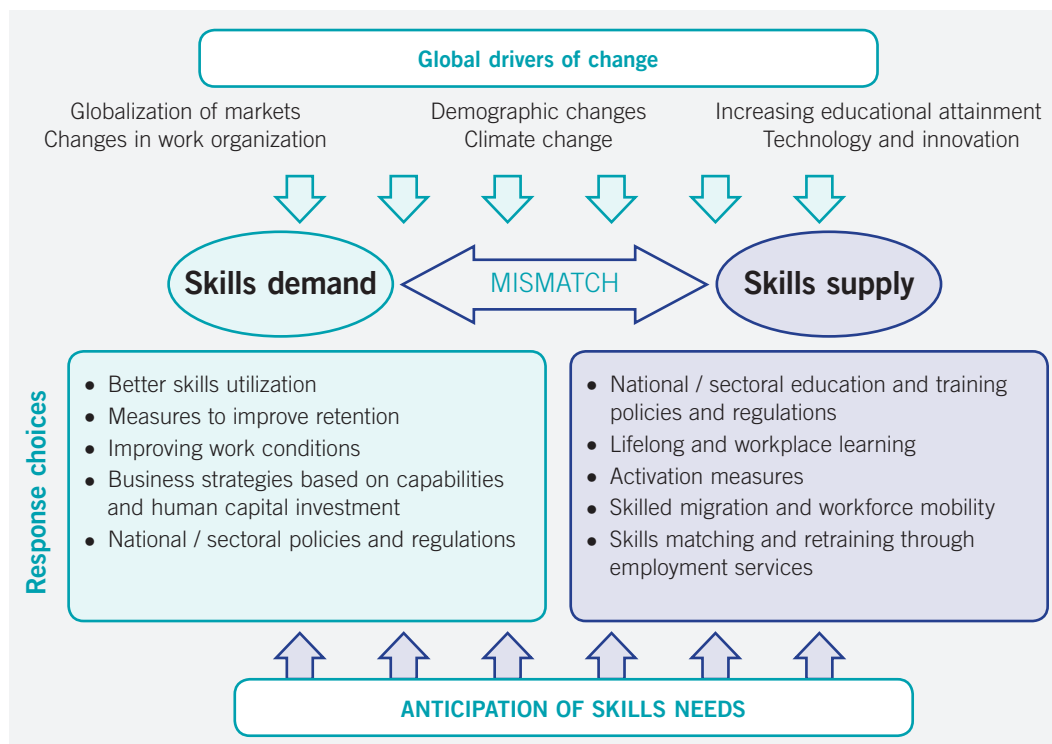
Skills mismatch exacts high economic and social costs at all levels – individual, business and government – and is both a result and a contributory cause of structural unemployment.

A number of factors are influencing the global evolution of skills demand and supply, and if left

unaddressed they are likely to contribute to skills mismatch in the future (see figure 1):

- **Demographic changes** influence labour supply in different ways in developing and developed countries. In developed countries the population is ageing, while in developing countries large numbers of young people are entering the labour market every year. These changes require that young people have appropriate skills which attract investment and create jobs, while older workers continue to learn and upgrade their skills.
- The level of **educational attainment** has increased significantly in recent decades in both developed and developing countries. This means that more talent is available for employers, but also makes it harder for lower-skilled workers to find jobs in an increasingly competitive labour market.
- With **globalization** and trade liberalization, the availability of suitably qualified workers has become a determining factor in many foreign investment decisions. At the same

Figure 1. Global drivers of change and necessary responses to avoid future skills mismatch



time, labour has become more mobile internationally, and large numbers of people migrate to where jobs are available. These changes increase the demand for portable skills (for example, in intercultural communication and foreign languages) and skills in adapting and maintaining new technologies, in marketing, and in achieving quality assurance in compliance with international standards, especially among internationally trading industries.

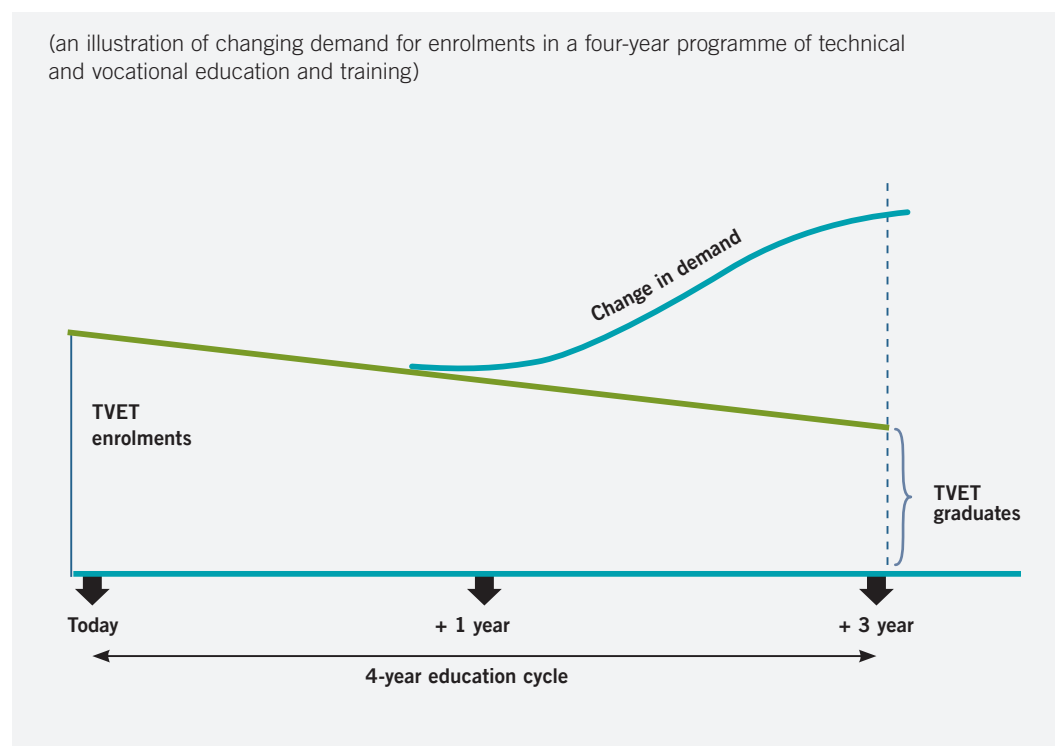
- As the workforce and businesses are becoming more mobile, **work organization** is changing, too. For example, many companies are introducing flatter organizational structures and offering opportunities for online work from a distance. These changes increase the demand for teamwork, initiative, leadership, management skills, and interpersonal and intercultural communication skills.
- **Technology development and innovation** increase the demand for higher-level skills, and accelerate the rate of change in skills demand. STEM (science, technology, engineering and mathematics) and ICT (information and communications technology) skills are important not only among the most highly skilled, who contribute to innovation, research and development, but also among skilled workers who are instrumental in the operation and maintenance of new technologies.

Similarly, the influence of technology and innovation is felt beyond high-tech industries themselves in other areas such as services and customer care.

- **Climate change** and the transition to the green economy influence skills demand through the introduction of new green technologies, new market opportunities in green economic activities and the “creative destruction” of brown jobs, and various policy and regulatory requirements. These processes change the skills requirements within existing occupations, give rise to new occupations and skills needs, and increase the need for retraining and skills upgrading, including in environmental awareness.

While these general trends are likely to influence skills demand and supply all over the world in the future, the extent and nature of change will be different in different country contexts, as local drivers of change also affect labour market outcomes. Meanwhile, the design and delivery of competency standards and of training curricula to meet them can take several years (figure 2). In the context of these changes, and in order to inform the education and training system far enough ahead to create appropriate training programmes, the systematic anticipation of skills needs is essential. Only by anticipating skills needs in this way can informed, strategic responses be developed to meet skills challenges and prevent skill mismatch.

Figure 2. Changing demand for skills is faster than training delivery



What is skills needs anticipation?

Individuals, businesses, training organizations and governments all have to make decisions about what education and training investments they need to make now in order to maximize the future return on those investments. This means assessing the future prospects on the labour market and the potential imbalance between the demand for and supply of skills. There is no one agreed definition of skills needs anticipation, and the term is often used interchangeably with “early identification of skills needs”, “skills needs assessment” or “forecasting”. In a broad sense, skills needs anticipation refers to **activities to assess future skills needs in the labour market in a strategic way, using consistent and systematic methods.**

The aim of these activities is not to provide exact numbers of workers, classified by types and levels of qualifications, who will be required in the future, and their outcomes should not be interpreted this way. Skills needs anticipation does not and cannot answer questions such as: “How many welders trained to a certain level/with certain qualifications will be needed at this or that location at this date?” Rather, skills needs anticipation aims to provide information to all labour market actors about potential future skills

needs and imbalances, so that they can make decisions, develop measures and take actions with a view to meeting the needs and avoiding the imbalances. It is focused on providing guidance, preparedness and flexibility, and supporting more effective operation of labour markets.

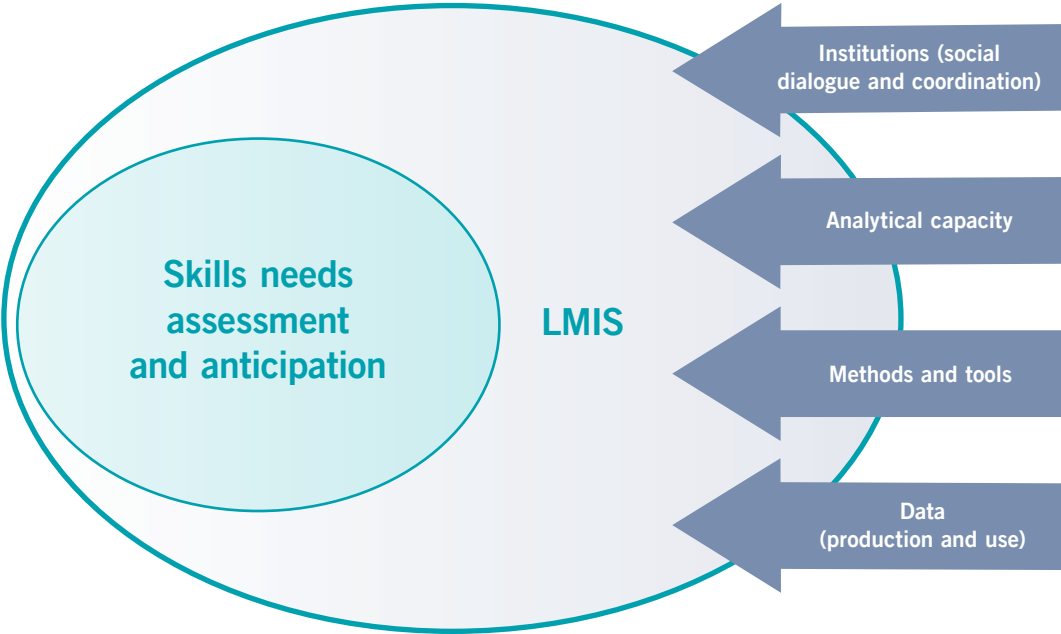
Skills needs anticipation is an essential component of a sound productive transformation and employment strategy. Forward-looking approaches to skills needs should be at the heart of strategic policy mechanisms, with skills development planning integrated in the creation of investment, trade, environmental, fiscal, employment and other national strategies and industrial policies. The ILO has identified anticipation of future skills needs as a key preventative measure to avoid skills mismatch (ILO, 2008), and as the first building block in a strong training and skills development system (ILO, 2010).

As one component of a broader labour market information system (LMIS), skills needs anticipation can be broken down into a number of key elements, namely: data, methods, tools, analytical capacity and institutions (figure 3). It is crucial to understand that the mere production

of information on current and future skills needs is necessary, but not sufficient, for effective skills anticipation and matching. The concept of anticipation is broader, requiring not only the production of results from analytical models, but

the analytical expertise to interpret and validate them, and the capacity then to translate them into the development of practical policies. Both these steps require agreed and coordinated responses by a range of stakeholders.

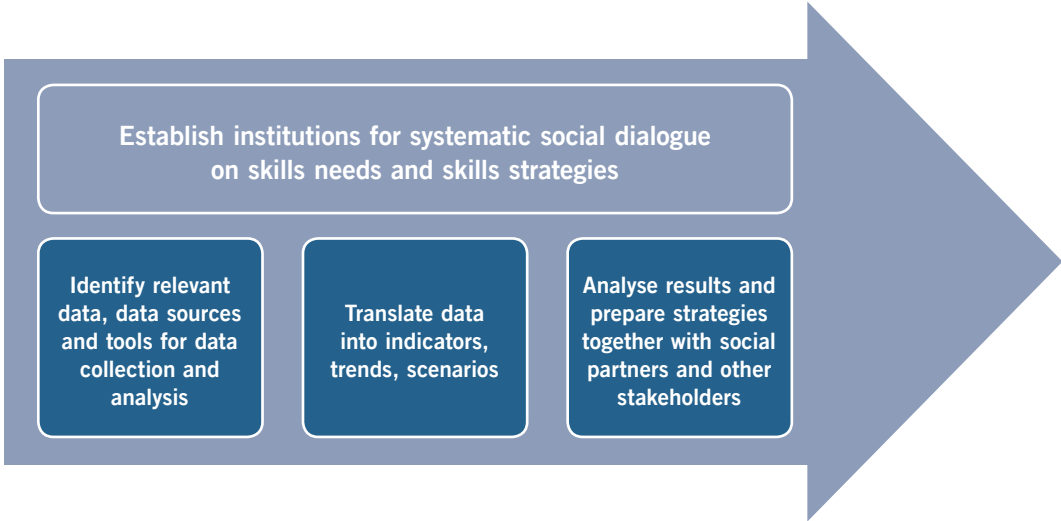
Figure 3. The essential components of skills needs anticipation



Social dialogue is a cornerstone of skills needs anticipation: it is critical for the informed decision making as well as for the implementation of findings and recommendations. Therefore, anticipation needs to include appropriate institutional mechanisms and procedures for generating constructive responses on the basis of the information generated. The approach

promoted by the ILO is to identify relevant data and tools; translate data into indicators, trends and scenarios; analyse these outputs and prepare strategies in direct interaction with key stakeholders; and establish institutional arrangements that are conducive to matching demand for, and supply of, skills through systematic social dialogue (figure 4).

Figure 4. The ILO approach to skills needs anticipation



The key elements of skills needs anticipation

We turn now to look more closely at the key elements of the system of skills needs anticipation: data and data sources; methods; tools; and the role of institutions.

Key data and data sources

Various data sources are available to identify key past and current trends in the demand for and supply of skills. Demand is ultimately linked to economic activity, while supply depends on population and education characteristics. In most countries, a central statistical agency collects and publishes data and indicators which provide information on various aspects of these areas. Unemployment and job vacancy data recorded by public employment services, along with advertisement data from print, broadcast and internet media, directly reflect which occupations and skills are in demand, and which skills are currently available among jobseekers but not being utilized. Further information and labour market indicators can be derived from household surveys, social surveys, the national accounts, education statistics, demographic indicators, tracer studies, enterprise surveys and other administrative data sources (e.g. tax and social insurance databases), where these are available (for more details see Cedefop, ETF, ILO, 2015, Volume 1). In some countries (for example, for the green jobs assessment in Malaysia, South Africa and Turkey), the social accounting matrix, has also been used to identify new and emerging skill needs (for more details see ILO, 2015a).

Labour force and other household social surveys are used in many countries as a key data source for skills needs anticipation. They can provide information on the structure of the population by age, education and labour force status, and also the sectoral and occupational structure of employment. Household surveys have the advantage of covering those engaged in the informal economy; however, they may omit some parts of the labour force such as migrant workers, those commuting or not living in households, or population in remote areas. The challenge is always related to the balance between the detail required and the sample size afforded.

Education statistics provide information about enrolments and completion numbers for a range of qualifications. However, the link between qualifications and jobs is not necessarily

straightforward: usually any one qualification may be used in a number of occupations, while any one occupation may be reached by more than one qualification. Furthermore, not all qualified individuals take up a position in a corresponding occupation, and so their qualifications may be seen as “wasted”, even if these individuals are employed in other occupations.

Each data source has its own strengths and limitations, and provides insight into different aspects of skills needs. Data availability and quality can present difficulties, particularly in developing and transition countries. Ideally, a number of different data and indicators need to be considered in the analysis to gain a detailed and objective picture.

Methods

As well as identifying past and current trends, the anticipation of skills needs clearly requires a future focus. The trends identified, and various other pieces of intelligence, can be combined and projected to reflect potential future outcomes in different ways. These may be summarized as follows:

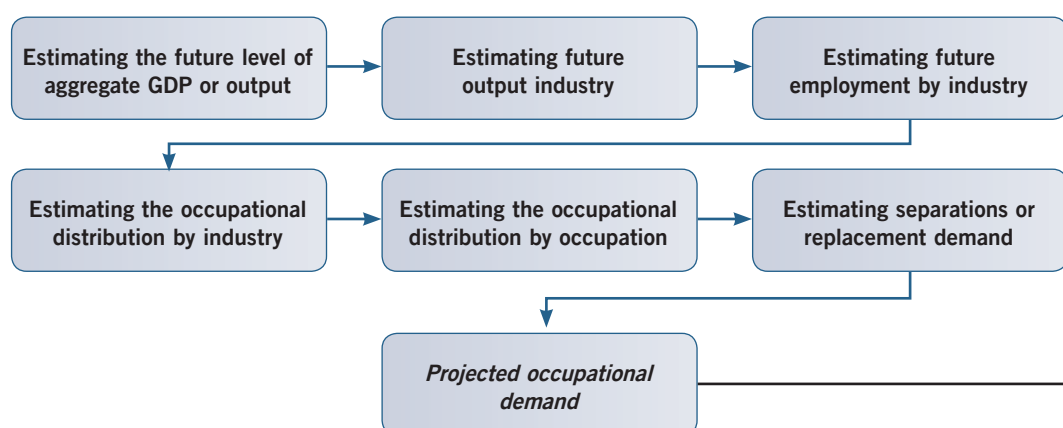
- quantitative employment projections by sector and occupation, based on macroeconomic modelling, referred to as “forecasts”;
- qualitative methods, including focus groups, round tables, expert interviews, foresights and scenario development;
- surveys among employers, i.e. establishments or enterprises;
- tracer studies of school/training graduates and school-to-work transition surveys.

Quantitative model-based forecasts are widely used in many countries (e.g. Australia, Canada, Cyprus, the Czech Republic, Germany, Ireland, the Netherlands, the Philippines, the United Kingdom, the United States and Viet Nam, as well as in the pan-European forecast) to project labour market prospects for jobseekers, in terms of the ease of finding a job, and for employers, in terms of potential recruitment problems (see figure 5). The results are also used to inform policy-making and investment decisions related to extending or reducing the offer of this or that field or type of training. (For more details, see Cedefop, ETF, ILO, 2015, Volume 2.)

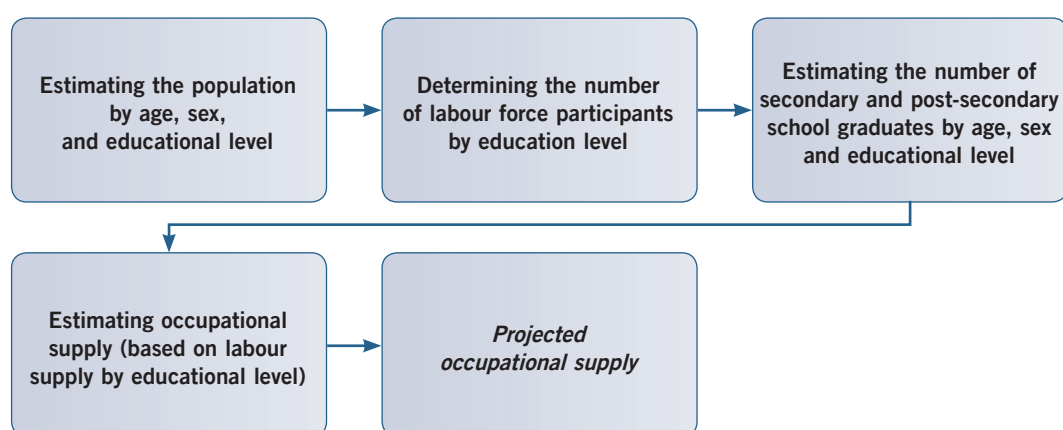
While quantitative forecasts focus on the analysis of one likely state of the labour market

Figure 5. Developing an occupational forecasting model

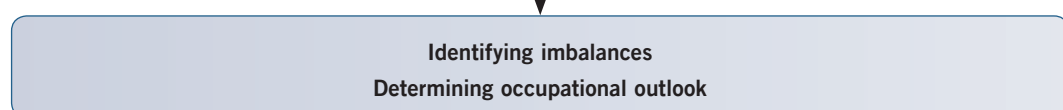
Stage 1: Demand side



Stage 2: Supply side



Stage 3: Demand and supply



Source: S. El Achkar, *A companion guide to analysing and projecting occupational trends*, CSLs Research Report (Ottawa, 2010).

(or several clearly defined quantitative scenarios), **foresights** are used to generate creative thinking about a set of possible future states of the labour market and skills needs in a systematic way. This intelligence is then used to identify opportunities and challenges, to develop a medium- to long-term vision, and to formulate policy strategies accordingly. The key element in foresight activities is that they are action-oriented, in the sense that the final aim for all participating stakeholders is to influence, shape and act upon the future.

Foresight methods can take into account quantitative, qualitative or mixed inputs. Some

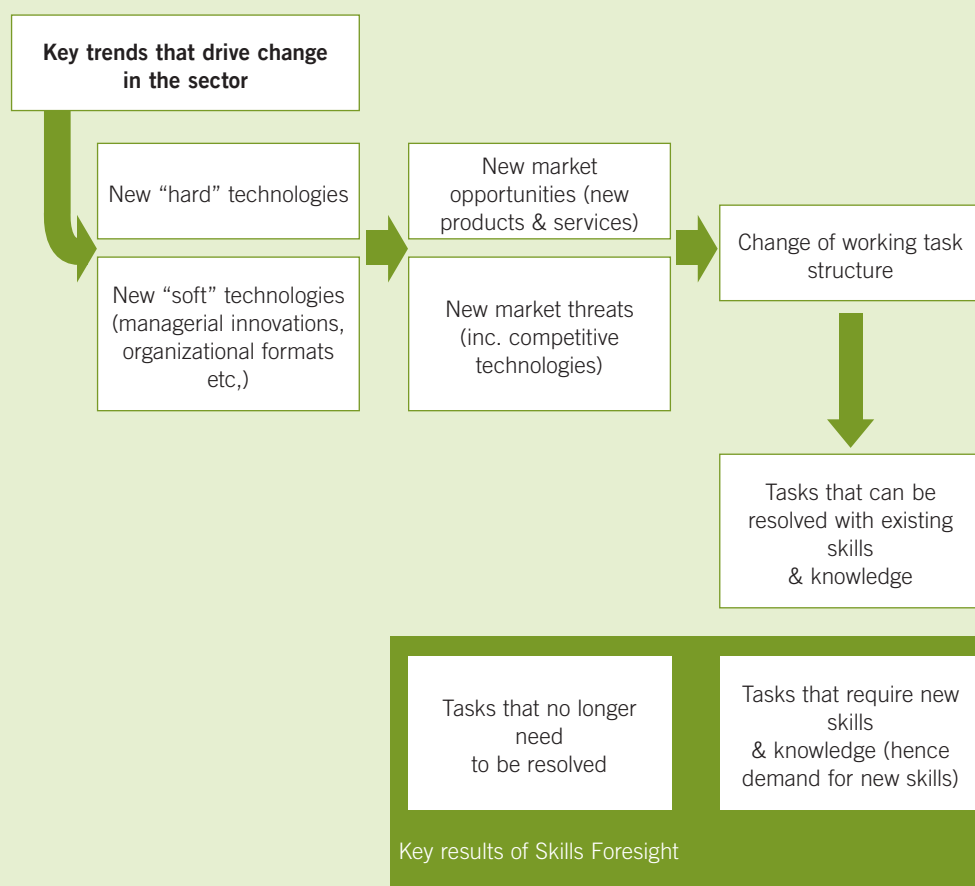
foresights include technological roadmapping with an element of planning of productive transformation including skills needs and training implications (see boxes 1 and 3). The stakeholders usually include decision-makers, experts, and representatives of education and training institutions and private sector enterprise. A number of countries have used foresight initiatives to inform skills planning, including Australia, Brazil, Denmark, Finland, Germany, Japan, the Republic of Korea, Russia and the United Kingdom. Changes in the structure and quality of employment and jobs are considered

Box 1. The Russian Skills 2030 Foresight

The Ministry of Education and Science of the Russian Federation launched the Skills 2030 Foresight as part of its Third Science and Technology Foresight. Focusing on sectors where technology is the primary driver of change in skills demand, the project set out to identify how key trends and new technologies are changing the nature of working tasks and the demand for skills. It was carried out by the Moscow School of Management Skolkovo.

The skills foresight process comprised the following steps:

- economic analysis based on global trends and interviews with leading experts to identify future trends and challenges;
- industry analysis with the use of Russian and international industry level forecasts;
- consultation of expert groups comprising representatives of businesses, research institutions, universities, professional associations, government agencies, professional advisers, and suppliers and users of industries' products;
- interactive foresight session on the future vision of the industry (see the picture below); and
- verification of results through round tables and questionnaires.



The process generated new competency maps for key high-tech and technology-driven sectors; it also identified key competencies which will be required in all technology-driven sectors, and key managerial competencies in high-tech sectors which will be the new drivers of economic growth. These findings have resulted in revision of education programmes and of course structures.

Sources: Cedefop, ETF, ILO, 2015, Volume 2; Moscow School of Management Skolkovo/ILO. 2014.

as part of this broader picture, and the outcomes have direct implications for skills and education policies. (For more details, see Cedefop, ETF, ILO, 2015, Volume 2.)

Establishment or enterprise skills surveys can generate unique demand-side data about

skills needs and skills utilization which otherwise might not exist, or might be difficult to access. They provide direct, first-hand information about current skills gaps and recruitment difficulties, training needs and short-term (usually three months ahead) hiring intentions communicated by

employers, i.e. by company owners and managers or human resources (HR) directors. A number of countries, including Australia, Bulgaria, Cyprus, Estonia, Finland, France, Germany, Hungary, Italy, Lithuania, Luxembourg, Poland, Spain and the United Kingdom conduct establishment surveys to inform planning of TVET provision. However, conducting such surveys is expensive; the process is complex, and requires considerable expertise (for more information, see Cedefop, ETF, ILO, 2015, Volume 5). Some large HR and recruitment companies also conduct establishment surveys, focusing on short-term employer sentiment and hiring intentions (e.g. the Manpower Group survey); these are available for a number of countries. The engagement and participation of businesses in establishment surveys is crucial if robust results are to be derived. It is not easy to conduct such surveys in developing countries, where institutional capacity is often weak, records of firms may be absent or of poor quality, and the informal sector is often large. In these cases, survey data need to be complemented with other data and focus group discussions (see box 2).

Tracer studies among graduates of training programmes can provide key insights into the utilization of qualifications and skills, and thereby into skills imbalances on the labour market. They are primarily designed to obtain feedback on how graduates use their qualifications and to what extent their training meets employers' needs. The studies trace graduates by specific institutions (training course, school, college, university surveys). Many countries, including Germany, Hungary, Indonesia, Montenegro, Romania and Serbia, run national monitoring schemes based on surveys by training institutions (see Cedefop, ETF, ILO, 2015, Volume 6). Students' pathways to further training and/or into the labour market can also be studied through school-to-work transition surveys, which may be longitudinal panel-based surveys or age-group surveys. One of such surveys is the ILO School-to-Work Transition Survey (http://www.ilo.org/employment/areas/youth-employment/work-for-youth/WCMS_191853/lang-en/index.htm).

Almost all the available methods can be applied at, or if national data allow, disaggregated to, **sectoral or regional level**. For instance, prospective sector studies focus on identifying skill needs in one particular sector using a range of approaches (including trend analysis, modelling, surveys, expert interviews and scenario development) and detailed sector-specific data. Many countries, including Bangladesh, Cyprus, the Czech Republic, Egypt, Finland, France, Jordan, Kyrgyzstan, Malta, Norway, Portugal,

Box 2. Skills survey of employers in Cambodia

Cambodia's National Employment Agency carried out an establishment survey in 2013 to identify skills gaps and shortages in six sectors with rapid rates of value-added growth and large shares of national employment: accommodation services; construction; finance and insurance; food and beverages; textiles, wearing apparel and leather products; and rubber and plastics.

Implementation of the survey faced a number of difficulties, including the prominence of the informal sector and the associated poor record-keeping of many companies, posing problems for the sampling frame; problems in adapting the questionnaire to the Cambodian context; scarce use and poor understanding by employers of classifications of occupations and economic activities; and lack of capacity both to implement surveys and to analyse the data generated. The survey was therefore complemented by the analysis of additional available data and subjected to a thorough validation process under technical guidance from the ILO.

The results of the survey, which were discussed at a national workshop, were used to inform the design of national skills and employment strategies and provided labour market information for employment services, especially in career counselling.

Ukraine and Viet Nam, have used sector studies covering one or more economic activities. Sector studies facilitate detailed skills analysis and can use sector-specific expert views to fill data gaps, without incurring the costs of studies across the whole economy. They are effective in facilitating social dialogue and generating useful and relatively quick results on future skill needs in the sector studied. They can be linked to industrial strategies and competitiveness policies (see boxes 3 and 4). However, they can rarely be aggregated to yield a national perspective as they do not necessarily use consistent definitions, data and methodologies, and they may lack information on mutual influences, linkages and overlaps between sectors on both the supply and the demand side (for more information, see Cedefop, ETF, ILO, 2015, Volume 3).

Each of the methods described above has its strengths and weaknesses; there is no single ideal method. In order to achieve reliable and meaningful results, a combination of different methods, sometimes both quantitative and qualitative, is necessary.

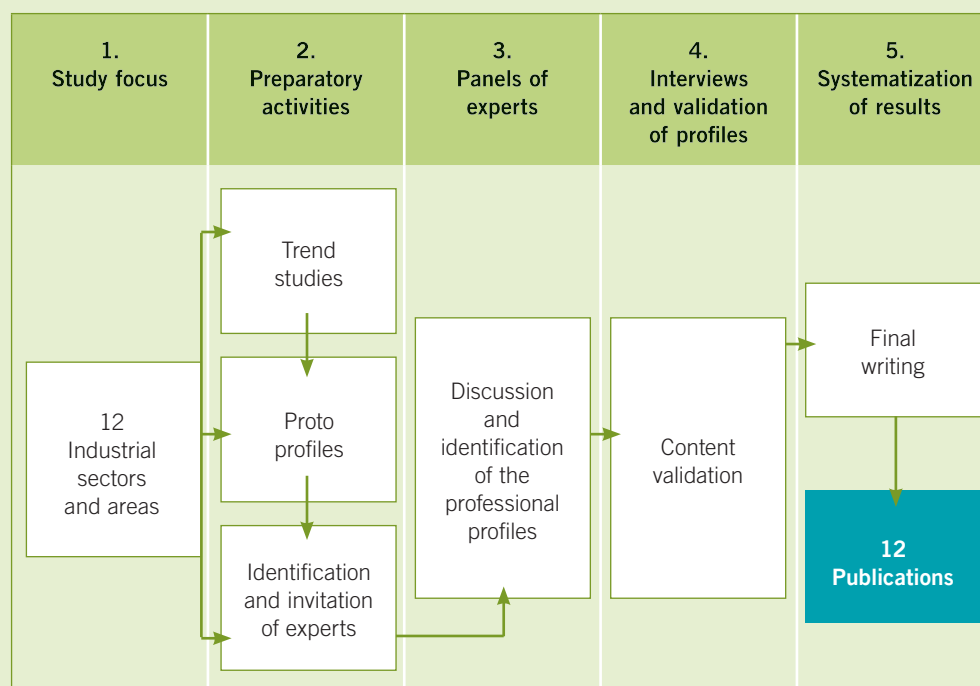
Tools

Tools are guidelines and instruments that provide good practice on the use of data sources, methodologies and approaches relevant to a specific aspect of skills needs anticipation. They are aimed at providing step-by-step assistance in the development and implementation of systems to anticipate skills needs, based on what works best in

Box 3. Professional Profiles for the Future of Paraná's Industry, Brazil

The project Professional Profiles for the Future of Paraná's Industry was developed by the Industry Federation of the State of Paraná (FIEP) in southern Brazil. The project aimed at producing a set of professional profiles to generate new perspectives for the industrial development and productive transformation of Paraná. In the context of the study, professional profiles are understood as sets of technical skills required of professionals of the future that will enable them to perform activities that are currently non-existent or embryonic.

The method employed identified possible futures, and consolidated strategies and actions to be taken for achieving the desired vision. The research resulted in 227 professional profiles based on the technological trends in 12 sectors and the views of 13 expert panels involving 291 experts. These are now incorporated into the programmes offered by vocational colleges and through other channels administered by the National Service for Industrial Training (SENAI).



Source: Moscow School of Management Skolkovo/ILO, 2014.

countries around the world. They are not “one size fits all” solutions, but need to be interpreted and adjusted to suit specific country contexts. The ILO together with Cedefop and ETF has developed a compendium of practical guides, focusing on the use of labour market information, forecasts, foresights and scenarios, sectoral and employment service providers’ approaches, and the development of establishment surveys and tracer studies in anticipating and matching skills needs.

In addition, the ILO has prepared a number of tools for the inclusion of skills needs anticipation in national and sectoral strategies: these include guidelines for anticipating skills needs for green jobs and skills for trade and economic diversification (STED) (see box 4), and on how to incorporate skills needs analysis into national and sectoral employment policies. (See the list of ILO tools for skills needs anticipation at the end of the document.)

The role of institutions

In every country, a number of institutions have an interest in skills development: these include, among others, various government agencies, education and training institutions, and employer and worker organizations. The functions of various institutions in the labour market information system ideally should be complementary to one another in order to ensure:

- good coverage and dissemination of data;
- multifaceted and multipurpose analytical outputs; and
- translation of findings into policy and practice.

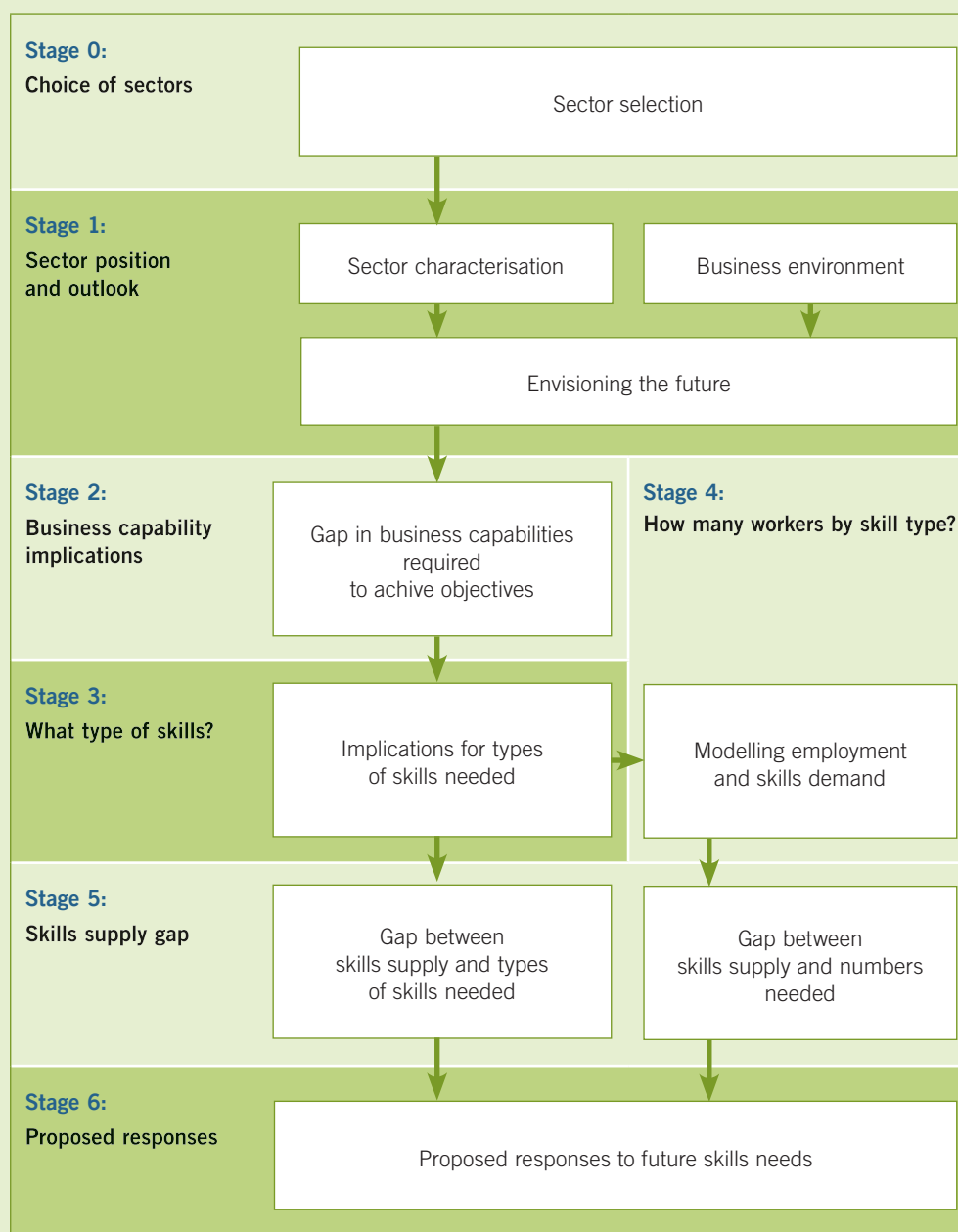
Therefore, the institutions should provide, as a matter of priority:

- coordination of functions in relation to anticipation of skills needs;

Box 4. The STED tool

The STED tool was developed to provide practical guidance in the formulation of skills policies as an integral part of strategies to develop trade-exposed sectors. It focuses on sectors with the potential to act as key drivers of national competitiveness, by increasing exports, while also contributing to a diversified economic structure. The tool can be applied for the analysis of skills needs in the trade-exposed sectors of any country, at any stage of economic development.

Drawing on the experience of four pilot countries (Bangladesh, Kyrgyzstan, the former Yugoslav Republic of Macedonia and Ukraine), a six-stage process was developed to identify skills needs and policy responses in specific sectors. The first stage is sector selection, which is based on the assessment of growth and employment potential and on the country's strategic priorities in trade and economic competitiveness, and undertaken in close consultation with key national and sectoral decision-makers. In each of the selected sectors, current supply of and demand for skills are analysed to identify existing and future skills shortages. The STED process complements qualitative analysis through discussions with representatives of employers, workers, government, and education and training providers in each sector studied. The tool generates concrete recommendations at policy, institutional and enterprise levels, and can be used to pre-empt and prevent skills mismatch.



Source: ILO, 2012.

- capacity to collect, disseminate and analyse data; and
- platforms for social dialogue to underpin the identification and fulfilment of skills needs.

Some countries have established **national tripartite bodies** that coordinate the whole system of data collection and analysis, and policy formation and implementation, to help align skills demand and supply. For instance, the UK Commission for Employment and Skills (UKCES), a publicly-funded, private sector-led organization, offers guidance on skills and employment issues in the United Kingdom. The commissioners comprise a social partnership made up of CEOs from large and small businesses, employment advisers and trade union representatives from across the country. Their role is to give businesses and individuals advice on the labour market to enable them to make informed decisions; to put into practice employment and skills policies designed to develop an internationally competitive workforce; and to help more employers invest in their employees' skills (<https://www.gov.uk/government/organisations/uk-commission-for-employment-and-skills>).

Many countries have established **sectoral bodies** whose overall objectives are to ensure that training in their respective sectors meets the needs of employers, workers and society more generally, and to promote skills development in those sectors. Such institutions have been established in, for example, Australia, Bangladesh, Brazil, Canada, Denmark, France, Germany, India, the

Box 5. Establishing sectoral bodies in priority sectors of the economy

In **Botswana**, sectoral committees have been established within the Human Resources Development Council for key strategic sectors of the economy (currently: mining and resources, tourism, financial and business services, transport and communications, manufacturing and commercial agriculture) and in the “enabling” sectors of health, education and training, ICT, research and innovation, and science and technology.

In **Ghana**, the Council for Technical and Vocational Education and Training has an Industrial Training Advisory Committee with five subcommittees that represent various key skills areas.

In **Bangladesh**, five industry skill councils were established in agro-food processing, transport equipment, leather and leather products, information technology and tourism. In addition, similar bodies, known as “sector working committees”, were established in the construction, light engineering and ready-made garments sectors, and for the informal economy.

In **India**, the National Skill Development Council board has approved the establishment of 18 sector skill councils covering a list of identified high-growth sectors. Proposals to cover additional sectors are being considered.

Source: Cedefop, ETF, ILO, 2015, Volume 3.

Netherlands, New Zealand, South Africa and the United Kingdom. In many countries where the tradition of social dialogue is strong (for example, Canada, Germany and the Netherlands), the social partners themselves have initiated the creation of sectoral bodies or assumed some of their functions.



(For more details, see Cedefop, ETF, ILO, 2015, Volume 3.)

Sectoral bodies provide a link between the training system and the labour market (see box 5). They engage with both demand and supply sides of the vocational education and training market, identifying skills needs, and then developing training measures to address them. Sectoral bodies also operate as platforms for social dialogue around skills needs in the industry. They bring together the social partners, including employers, workers, government and training providers, to jointly identify issues and develop mutually agreed solutions. They often include representation from social partners on their governing boards, and also pursue this engagement through consultations, forums, conferences etc. For example, the observatories for occupational forecasting in France are sectoral monitoring institutions that bring together the various stakeholders with the aim of arriving at a “shared diagnosis”. The engagement of social partners is essential to ensure that sectoral bodies have a good understanding of current and emerging skills requirements, gaps and issues in training provision. (For more details, see Cedefop, ETF, ILO, 2015, Volume 3.)

Besides sectoral bodies, a number of other institutions may play key roles in anticipating and meeting skills needs. **Government agencies** in most countries produce statistics and key

forecasts on trends in employment and skills needs which can be used for further analysis by other stakeholders. In some countries, too, ministries of the economy, labour and education are responsible for governance of skills needs anticipation systems.

Private and public employment service providers can also play a key role in anticipating and meeting skills needs. The ILO Employment Service Convention, 1948 (No. 88), ratified by 89 countries, requires employment services to “collect and analyse, in co-operation where appropriate with other authorities and with management and trade unions, the fullest available information on the situation of the employment market and its probable evolution, both in the country as a whole and in the different industries, occupations and areas, and make such information available systematically and promptly to the public authorities, the employers’ and workers’ organizations concerned, and the general public” (ILO, 1948). Given their immediate responsibilities to match current jobseekers with available jobs, and organize relevant training to provide the skills needed in current vacancies, employment services are most interested in the short-term anticipation of skills needs. Their role also demonstrates that skills anticipation can be implemented at local or regional level (Cedefop, ETF, ILO, 2015, Volume 4).

Challenges for the anticipation of skills needs

There are a number of challenges in the development of systems to anticipate skills needs, including the provision of adequate and coherent data, the identification of the most appropriate methodologies, and the availability of institutional capacities and expertise. These challenges are especially pronounced in developing and emerging economies. Besides these issues, the large share of the informal economy in many developing countries poses particular obstacles to the development of skills anticipation systems here.

Further challenges to the establishment of successful systems include achieving and maintaining the commitment of all stakeholders, and establishing ways to incorporate information from the grass roots within a holistic approach. Finally, the results from skills anticipation exercises need to be interpreted, transmitted into policy formulation mechanisms, and implemented in practice, all of which requires appropriate institutional mechanisms and capabilities.

Using the results of skills needs anticipation

The results of skills needs analysis and anticipation exercises are used widely:

- to inform vocational guidance and career counselling;
- to underpin budget allocations for education and training programmes;
- in the design of occupational and competency standards and training programmes;
- to inform human resource development decisions by enterprises;
- in targeting retraining programmes offered through employment services;
- to inform policy decisions on the encouragement of workforce migration;
- as a component of industrial, investment, trade, technology and environmental policies;
- as an input to national and sectoral employment and skills strategies;
- as a mechanism for evaluating training and skills development programmes and measuring the impact of skills policies.

Evidence demonstrates that emerging economies that have put future-oriented skills strategies at the heart of their productive development (for example, the Republic of Korea and Singapore) have succeeded in achieving

considerable progress in impressively short historic periods. Also, advanced economies that have invested in ambitious skills and jobs strategies have managed to reduce skills mismatch (for example, the UK Ambition 2020 Strategy led by UKCES from 2009 achieved a reduction of skills gaps and shortages in the first years of implementation, as evidenced through the annual employers' skills survey).

Successful skills needs anticipation systems share a number of common features. They are:

- focused on solving specific problems;
- clear about their principal objectives, whether these are to support policy formulation and contribute to strategic planning, or to provide data for better-informed career choices, or both;
- user oriented;
- stakeholder owned and private sector led;
- coordinated;
- able to access institutional platforms for social dialogue on education and training;
- able to rely on competent institutions and expert networks;
- able to achieve good data coverage and complementarity of information;
- able to cover all relevant levels (macro, sector, subnational, micro).



ILO tools for skills needs analysis and anticipation

<i>Skills for trade and economic diversification: A practical guide.</i> ILO, 2012	Addresses anticipation of skills needs in promoting trade strategies and in exporting industries.
<i>Anticipating skill needs for green jobs: A practical guide.</i> ILO, 2015a	Addresses approaches to analysing and anticipating skills needs for the green economy and sustainable development.
<i>Guidelines for inclusion of skills aspects into employment-related analyses and policy formulation</i> ILO, 2015b.	Addresses the analysis of skills barriers to employability and skills needs for employment, and how to integrate the analysis in the process of national employment policy formulation.
<i>Guide to anticipating and matching skills and jobs.</i> Cedefop, ETF, ILO, 2015:	A compendium of tools for guidance and assistance in designing methods, instruments and institutional solutions to meet the challenge of matching current and future skills and jobs:
➤ <i>Volume 1: Using labour market information</i>	Provides guidance on the principal types of data, data sources and indicators that can answer key policy questions related to overcoming or preventing skills mismatch.
➤ <i>Volume 2: Developing skills foresights, scenarios and forecasts</i>	Addresses quantitative and qualitative methods of anticipation and forecasting of future skills needs at a macroeconomic level.
➤ <i>Volume 3: Working at sector level</i>	Addresses methods, processes and institutional mechanisms of skills identification and anticipation at sectoral level.
➤ <i>Volume 4: The role of employment service providers</i>	Addresses the role of public employment services and private employment agencies in skills anticipation and matching, including the collection and use of relevant labour market information.
➤ <i>Volume 5: Developing and running an establishment skills survey</i>	Provides guidance on the implementation of surveys among employers (establishments) on skills shortages and gaps, recruitment difficulties and training measures.
➤ <i>Volume 6: Carrying out tracer studies</i>	Assists training providers and analysts in designing and implementing surveys among their graduates on their employability, how their skills are used, and how those skills relate to gaps on the labour market.

Key ILO resources:

Human Resources Development Recommendation, 2004 (No. 195).

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For more information on links between education and training and productive and decent work, visit the Global Public–Private Knowledge Sharing Platform on Skills for Employment, initiated by the ILO and benefiting from the support and collaboration of the Organisation for Economic Co-operation and Development (OECD), the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the World Bank.

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