

SECTOR BASED SKILLS ANTICIPATION

MAKING SENSE OF EMERGING LABOUR MARKET TRENDS



A sector-based analysis of current and future employment and skills is based on a variety of approaches, uses diverse tools and methods and pursues different objectives. Sector-based (or sector-focused) skills anticipation explores demands and trends from the meso-level and provides a medium-term perspective of developments and scenarios. Results and products contribute to a wide range of information and action objectives, oriented towards policy making bodies at national level, sector / branch organisations representing employers as well as employees, businesses, and other users (learners, education and training providers, recruitment agencies, guidance officers).

From the skills perspective a sector focus is typically used to address:

- Types of skills and competences that jobs require;
- Emerging jobs and future skills;
- Changing skills profiles of occupations;
- The ability of the education and training system to meet the needs of the sector / industry.

Examples of such sector-based results and products include:

- Strategic scenarios for sector development including economy, technology and innovation, employment, export, competitive advantage in the national / global economy (e.g., strategic sector

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studies, Morocco¹; 19 European Union sector studies²)

- Medium-term anticipation of future jobs and skills of the sector / branch based on a

¹ At website of the research and consulting: http://www.serec.ma/services/etudes_sectorielles_generales.asp

² European Commission, Directorate General Employment Social Affairs and Inclusion: <http://ec.europa.eu/restructuringandjobs>



combination of quantitative and qualitative analysis (e.g., analysis of the occupations of the food industry – Observia, France³).

- Trends in sector occupations: sector-specific skills, competences and qualifications
- In-depth qualitative analysis of skills and qualifications by sector / occupation.
- Wide range of information and guidance for businesses, job seekers, and learners: i.e., on content, learning outcomes, standards of the main occupations of the sector, by families of occupations (Examples: Mapping of occupations in the food industry – Observia, France⁴; Cards of current and future skills relevance by occupation - NTF-NOET Czech Republic)
- Sector studies of training: comprehensive studies, focused on education and training approaches and issues to accompany - in terms of skills and qualifications - the economic and employment development of the sector (Example: Morocco: sector studies on education and training (files and reports available upon request)).

More detailed information on the main features, methodology and tools and conclusions of the selected types of sector-based skills anticipation is provided below.

TYPES OF SECTOR-BASED SKILLS ANTICIPATION

I) SECTOR DEVELOPMENT SCENARIOS

European Union (EU) sector studies (2009):

Comprehensive, resource-intensive, scenario-based, combining quantitative and qualitative analysis

Sector analysis has been performed for decades. It appears, however, that for the first time comprehensive, in-depth sector analysis applying the same methodology has been performed for a large number of sectors at the same time, covering around a majority of total employment in Europe. The amount of comparable data, both qualitative and quantitative, has provided a unique opportunity for developing a coherent view on the on-going restructuring process in Europe, identifying strategies to secure and improve EU's competitiveness redeploing the economy to new activities providing more value added as well as new and better jobs.

In order to enhance strategic human resource management, and thereby improve European competitiveness in the global economy, the European Commission has pointed to the importance of developing better methods and tools to anticipate trends and changes in the European labour market. On this background, the European Commission carried out a number of comprehensive sector studies during 2008 and 2009 (studies

available at <http://ec.europa.eu/restructuringandjobs>).

Sector studies in a country context

National Training Fund-National Observatory Employment and Training of the Czech Republic (NTF-NOET): project "Future Skills Needs in the Czech Energy Industry"

Sector-based skills anticipation studies have been published at <http://budoucnostprofesi.cz/sectoral-studies/about-sectoral-studies.html>

The development of sector studies focusing the future of the labour market is a relatively new topic in the Czech Republic, and therefore the necessary methodology was not available. The study "Future Skills Needs in the Energy Supply Industry", which was implemented by the National Observatory of Employment and Training in 2007, allowed development and testing of a qualitative approach to anticipation of skills at sector level. In addition, sector-based skills studies were completed for the sectors of electrical engineering and IT. The studies concern the 2008-2018 period.

Sector studies by a sector/branch organisation

Observia: Observatory of the Food Industry, France publishes prospective studies of the sector occupations, with a medium-term horizon (5-6 years). These prospective studies focus on sensitive occupations from the Cartographie, and combine scenario

³ At Observia website: <http://observia-metiers.fr/Etudes-et-publications/Prospective-Metiers/Horizon-2020-Quel-avenir-pour-les-Industries-Alimentaires-et-leurs-metiers>

⁴ At Observia website: <http://observia-metiers.fr/Les-metiers/Carrousel-des-metiers-par-famille>

building, quantitative analysis and forecast of future trends. Observia's Parity Committee has a consultative role in various phases of the study.

The Observia website provides information, data and trends, reports, tools and other readable products for users: <http://observia-metiers.fr/L-Observatoire/Missions>.

II) SECTOR STUDIES FOCUSED ON VOCATIONAL TRAINING PLANNING

Such studies are regularly carried out in Morocco and are the starting point for the planning and conception of VET programmes

and qualifications according to the "Competence-Based Approach (APC)": The results of sector studies for training are used to define the competence standards, the training courses, pedagogical resources and other measures. These sector studies contribute to improving the matching of training content and qualifications with skills requirements and trends in occupations by sector. By steering human resources development to requirements and skills needs of the sectors, these studies provide much-needed support to the implementation of national economic sector development strategies.

SECTOR-BASED SKILLS ANTICIPATION IMPLEMENTATION

A sector-based approach to skills analysis can encompass a vast range of different quantitative and qualitative components. In some cases, these form an integral part of the analysis itself; in others, they are complementary elements carried out separately (and possibly independently).

1. The general steps / elements of sector-based skills studies include:

- Clarifying the aims and objectives of the study;
- Defining the sector and scope of the study;
- Carrying out a data audit;
- Consulting key stakeholders;
- Identifying the main target audiences;
- Clarifying the key objectives and questions to be addressed;

- Deciding how to best answer them (choice of methodology and tools);
- Executing the study;
- Finaling outcomes (dissemination, validation and policy action).

Particular attention should be paid to:

2. Defining the scope – the sector:

- Which sector to analyse – strategic priorities (growth potential, change in technology, users and institutional context, developing a more elaborate vision for the sector);
- Definitions, classifications and measurements of the sector (official classification, "supply chains" ("input-output" tables);

- Broader definitions of a sector "occupational sector – observatories" and transversal sectors.

3. Key questions in analysing the sector include:

- Understanding the context (key drivers of change generally and in the sector), links to other parts of the economy;
- Sector position and outlook (analyses of trends and future developments /scenarios);
- Implications for jobs and skills (numbers of jobs / changes in requirements for skills);
- Skills supply (possible imbalances and mismatches).



SUCCESS FACTORS

- Methodological credibility: from data generation and analysis; to structured stakeholder involvement and consultation from the start to the end of the study;
- Combination of relevant tools and approaches, in-house or outsourced data generation, analysis and interpretation. Combination of quantitative and qualitative analysis;
- Ability to use the potential of Big Data - for data generation and analysis;
- Networking and alliances – with data generation bodies, social partners, state actors, other labour market and training observatories, international cooperation (EU and beyond);
- Adaptation of final products to users: readability and attractiveness, online access
- Ability to link research independence with useful recommendations;
- Generating credible and valid data for the sector-based studies can represent a challenge that should not be underestimated by the research team and the promoters of the study;
- The need to distinguish between questions of fact, opinion or perception. The focus should be on obtaining factual data rather than opinions or perceptions, but the former are generally much more difficult to obtain than the latter;
- Particular concerns arise when asking for opinions about the future. Such views are generally subjective and not very reliable;
- The need for representative surveys to get unbiased data. Good sampling frames are also important to ensure that the sample surveyed provides a true representation of the population;
- Technical issues arise about the best way to obtain certain types of information e.g., are data on occupation employment structure best obtained by asking employers or individuals.

TYPICAL INSTITUTIONS/ ACTORS INVOLVED

1. In the definition of the scope, approach and structure of the sector-based anticipation:

- Sector bodies: associations, councils;
- Relevant state bodies, if appropriate sector ministry or department; ministry in charge of education and training;
- The research institute / team in charge of the anticipation study.

2. In the consultation and review of preliminary results, validation of the final output (beyond those indicated above):

- Qualifications and training actors;
- Relevant businesses;
- Social partners.

EXAMPLES

I) SECTOR DEVELOPMENT SCENARIOS

European Union (EU) sector studies (2009): comprehensive, resource-intensive, scenario-based, combining quantitative and qualitative analysis

This case includes 19 sector studies + one transversal synthesis study.

The main aim of the sector studies is to map and analyse the evolution of innovation, skills and jobs within each of the selected sectors, taking into account global, national and regional contexts, in order to anticipate possible changes in the jobs and skills needed until 2020. Besides the 19 sector studies⁵, the initiative included a transversal synthesis study, which defined common patterns of change across the different sectors and grouped them according to common historical and anticipated developments in jobs and skills. The study followed the European Foresight Methodology (EFM), the same methodology that was applied to carry out 18 of the 19 sector studies.

The main conclusions of the transversal synthesis of the 19 sectors can be summarised as follows:

1. Polarisation of the labour market and skills needs:

- Decline in skilled jobs (e.g. craftsmen, etc.);
- Moderate increase in very low skilled elementary jobs (e.g. elementary occupations);
- High increase in highly skilled jobs (e.g. professionals, managers, etc.).

2. Services will continue to grow in importance to the European economy the next 10-15 years.

3. European production goes towards specialisation and excellence meaning significant loss in skilled jobs but increase in high skilled jobs.

4. Regardless of job losses and other structural developments there is a clear tendency of up-skilling: in all sectors both historically and in the future; increasing educational levels in all sectors.

The majority of the recommendations in EU sector studies concern education and training. The most common and important recommendations within this area were:

- Adapt and modernise vocational education and training (VET) and education systems in general;
- Increase the flexibility of the education system. New business models demand new skills;
- Include inter- and multidisciplinary approaches in education;
- Closer cooperation between stakeholders is important to adapt the education system to new skills needs;
- Promote sector specific skills at an early stage by renewing forms of education;
- Increase use of apprenticeship and mentoring programmes;
- Greater emphasis should be put on teaching cultural and social skills in the education system;
- EU standardisation and certification of education and skills to ensure the free movement of the labour force;
- Develop special/joint education and training programmes for SMEs;
- Develop high quality online and digitalised learning tools;
- Create a culture of lifelong learning;
- Support in-house up skilling and (re)training of workers.

The methodology is structured as follows:

Part 1: Analysis of recent sector trends and drivers with an emphasis on innovation, skills and jobs;

Part 2: Future-oriented examination of possible sectoral developments especially focused on skills and jobs using scenario development techniques;

⁵ Sectors: Automotive; Building of ships and boats; Chemicals, pharmaceuticals, rubber and plastics; Computer, electronic and optical devices; Construction; Defence industry; Distribution and trade; Electricity, gas, water and waste; Electromechanical engineering; Financial services; Furniture Health and social work; Hotels, restaurants and catering (Horeca); Non-metallic materials; Other services, maintenance and cleaning; Post and telecommunications; Printing and publishing; Textiles, apparel and leather products; Transport and logistics

Part 3: Exploitation of a range of main strategic options (choices) to meet future skills and knowledge needs, incl. implications for education and training:

- Analyse the main trends and structures for the sector;
- Identify the main drivers of change (economy, technology, organisation);
- Identify emerging or changing sector job profiles, skills and competencies;
- Build possible scenarios and identify implications for employment trends;
- Analyse a scenario's implications for competencies and occupation profiles;
- Identify strategic choices to be taken by companies to meet skills needs;
- Identify the implications for education and training.

Data for the studies were collected from the following sources:

- Official statistics from Eurostat, the European labour force survey and Cedefop;
- Reviews of existing reports, analyses, statistical publications, policy papers and communications from the social partners, the EU and others;
- Sectoral meetings and consultations with the social partners and other EU-level stakeholders;
- Furthermore, the initiative included a transversal synthesis study, mainly based on the results of 19 individual sector studies (listed below) together covering around 60% of total EU Employment.

The transversal study process consisted of the four following main steps:

1. **Compilation:** collecting all data from the sector studies. Where needed extra data were added from Eurostat or other relevant sources.
2. **Validation:** checking latest available sector reports and forecasts to assess if the current economic crisis are properly reflected in the sector studies.
3. **Multi-correlation:** analysing patterns of similar attributes across sectors providing overviews of main economic and employment trends.
4. **Path finding and paradigms:** grouping sectors with similar paths of evolution and identifying a number of evolutionary paradigms.

II) SECTOR STUDIES IN A COUNTRY CONTEXT

National Training Fund-National Observatory Employment and Training of the Czech Republic (NTF-NOET): "Future Skills Needs in the Czech Energy Industry" project.

Sector-based skills anticipation studies have been published at <http://budoucnostprofesi.cz/sectoral-studies/about-sectoral-studies.html>.

The energy sector study analyses future skills needs in the production and distribution of electricity, gas and heating in the Czech Republic in the 2007–16 period. It also addresses the expected labour market situation in related sectors (particularly mining and manufacturing of fuels, mechanical engineering or services related to energy consultancy, projecting and design).

The study analyses the current state of human resources within the sector as well as major expected drivers (new technologies, changes in energy mix, outsourcing in energy sector etc.) influencing demand for and supply of workforce in the coming years.

Aging employees and a decreasing interest among young people to work within the sector is the main problem. A quantitative estimate of possible retirements and inflows of graduates (for the main education groups) in the production and distribution of energy is an important part of the analysis.

Pilot information products were developed within the Konzept: Qualification Cards for Occupations and Educational Field Analyses project. They are designed to support the development of the National Register of Vocational Qualifications. Each card contains a set of analytical data that point to the position of the occupation at the labour market and its existing and future relevance for the economy. The cards are designed to facilitate the choice and preparation of partial qualifications as part of the system for recognition of results of continuing education and training. Educational Field Analyses are designed as background material for sector councils to prepare so-called "sector agreements".

Sector-based studies are one of the dimensions of skills anticipation used by NTF-NOET. These studies are qualitative and will thus enable conclusions to be drawn and adjustments to be made in education programmes to adapt them to the future demands of the labour market. They make it possible to capture the development of new occupations and principal changes to the existing ones.

The results of sectoral studies are interconnected with the outputs of the ROA-Cerge quantitative model in order to get a quantitative/qualitative view of the development of occupations and qualification requirements.

NTF-NOET structured its approach to sector studies as follows:

1. Sector selection: Based on an analysis of both potentials and threats for the entire Czech economy – promising or declining sectors
2. Analysis of sector prospects
3. Strategic balance of factors, influencing sector (not SWOT, it is more sophisticated)
4. Supply side analysis: LEON forecast model outputs, projection of school leavers and others
5. Qualitative research (outsourced): Focus groups, interviews
6. Synthesis
7. Sector scenarios, recommendations, regional specifics

NTF-NOET uses data and information from a combination of tools: in-depth interviews; surveys; data mining and analysis; scenario thinking; forecasting.

III) SECTOR STUDIES BY A SECTOR/ BRANCH ORGANISATION

Observia: Observatory of the Food Industry, France, was established in 2004 as a Prospective Observatory of Occupations Qualifications and Skills (OPMQC) in the food industry. It gathers 33 professional federations and 5 employee trade unions, representing 9,600 companies and 300,000 employees.

Observia monitors sectoral developments on a regular basis, through anticipatory analysis and forecasting – to propose adjustment actions, particularly in terms of training and development of occupations.

The rich web portal of Observia provides information, data and trends, reports, tools and other excellent readable products for users: <http://observia-metiers.fr/L-Observatoire/Missions>.

A very relevant Observia research product is the mapping of the main occupations (*cartographie des métiers*) in the various branches of the food industry,

developed from a structured nomenclature. The *cartographie* organises the 46 main occupations in the sector in nine occupational families .

Observia publishes sector occupation studies, within a medium-term horizon (5-6 years). These prospective studies focus on sensitive occupations from the *cartographie*, and combine scenario building, quantitative analysis and forecast of future trends. Observia's Parity Committee is involved in the various phases of the study, with a consultative role.

IV) SECTOR STUDIES FOCUSED ON VOCATIONAL TRAINING PLANNING

Morocco completed such studies for VET in the following sectors: agro-food industry; renewable energies and energy efficiency; electronics; automobile industry; commerce and distribution; environment; IT and Offshoring; car maintenance and repair; administration, management and commerce; agriculture; logistics. Among the useful outputs of these studies: the occupational profiles, with a presentation of main functions and competences. Feasibility and /or opportunity studies related to VET have been carried out for the sectors: metallurgy; handicrafts; leather; audio-visual and cinema; logistics; construction materials; tourism; textile-garments; construction; road transport.

The Department of Vocational Training (Département de la Formation Professionnelle, DFP) tested and adopted a Methodological Guide for all such sector studies (DFP, Guide de conception et de production d'une étude sectorielle, 2009). This methodology is based on six key steps: A) planning of the study; B) labour market research (statistical data, interviews and analysis); C) survey of the main occupations groups and jobs of the sector; D) identification of the main functions of the occupations; e) research on the existing training provision; F) Conclusions on the relationship between occupational functions and provision, recommendations. Besides extensive use of quantitative data, the process includes much consultation with stakeholders and businesses, in the form of interviews and workshops.

REFERENCE READING

ETF-Cedefop-ILO (2016): Working at sector level, Volume 3, Guide to Anticipation and Matching Skills and Jobs, Luxembourg (forthcoming)

For information on our activities, job and tendering opportunities, as well as a detailed bibliography for this policy briefing, please visit our website, www.etf.europa.eu

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