

Transversal Analysis on the Evolution of Skills Needs in 19 Economic Sectors

Executive summary

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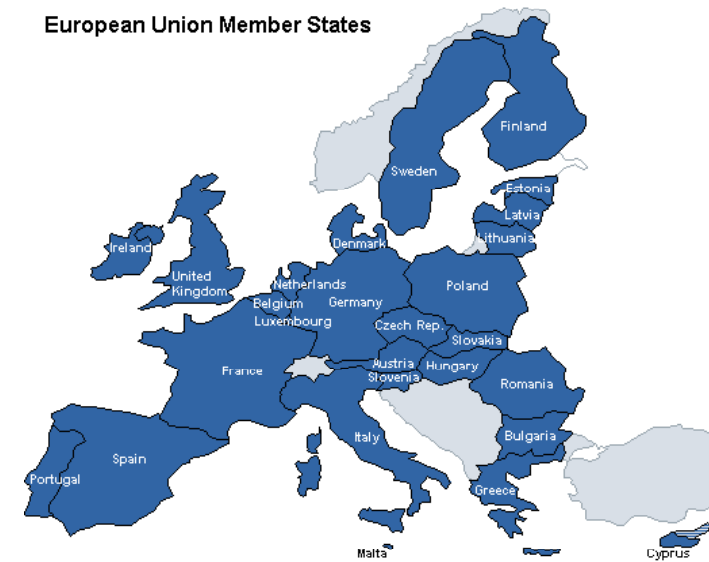
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1. Introduction

In its new **Social Agenda** for modernising Europe, the European Union engages in providing jobs and equal opportunities for all, thus ensuring that benefits of growth reach everyone in society. The goal is to modernize labour markets helping people to seize the opportunities created by international competition, technological advances and changing population patterns while protecting the most vulnerable in society. The overall aim is to be seen in the light of the Lisbon Agenda promoting a **socially fair and competitive Europe**.

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 Commission carried out a number of comprehensive sector studies during 2008 and 2009 (studies available at <http://ec.europa.eu/restructuringandjobs>). The main aim of the sector studies was to map and analyse the evolution of **innovation, skills and jobs** within each of the selected sectors, taking into account the sector's global, national and regional contexts, in order to anticipate possible changes in jobs and skills need until 2020. The studies were carried out by the following contractors: TNO Netherlands Organisation for Applied Scientific Research, SEOR Erasmus University Rotterdam, ZSI Centre for Social Innovation, Oxford Research A/S, Alphametrics Ltd, Ismeri Europa, Economix Research and Consulting, Danish Technological Institute, DKRC Research and Consulting, IKEI Research and Consulting, Eurostrategies sprl, and Alpha Group.

The present executive summary is a summary of these sector studies. Where the sector studies focused on sector specific developments and characteristics, the transversal study aims at identifying common patterns of change across the different sectors and to group the sectors according to common historical and anticipated developments in jobs and skills. The study followed the European Foresight Methodology, the same methodology that was applied to carry out 18 of the 19 sector studies.

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 ongoing 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. As part of the study process, the main results of the report were also presented at the **Restructuring Forum: Sector's New Skills for New Jobs** in Brussels December the 7th and 8th 2009.

2. Methodology

The study is mainly based on the results of 19 individual sector studies (listed in the table below) together covering around 60% of total EU Employment. For the ease of presentation, the denomination of sectors have been shortened in the study (e.g. Electricity, gas, water and waste = Electricity) but the whole sector is covered in the analysis.

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

The 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 asses if the current economic crisis are properly reflected in the sector studies
3. **Multicorrelation:** analyzing 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'

3. Main findings

One of the most important findings of the transversal sectoral study seems to be the polarisation of the labour market and skills needs. This means:

- **Decline in skilled jobs** (E.g. craftsmen, etc.)
- **Moderate increase in very low skilled elementary jobs** (E.g. elementary occupations)
- **High increase in high skilled jobs** (E.g. Professionals, managers, etc.)

Another clear conclusion is that significant job growth, both historically and during the next 10-15 years, mainly has and will happen within service sectors. Furthermore, in contrary to many production sectors there has been a steady increase in the need for both low skilled and high skilled jobs within the services sectors. Therefore it can be concluded that:

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

Within production there has been quite significant job losses during the last decade, this especially within skilled jobs. However, due to enlarged focus on specialisation and new value adding activities there seems to be a development towards European excellence within production resulting in higher added value and more high skilled jobs:

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

Regardless of job losses and other structural developments there is a clear tendency of up-skilling:

- **Up skilling in all sectors** both historically and in the future
- **Increasing educational levels in all sectors**

Another common theme in the sector studies is the dissolution of traditional sector divisions most often due to new technologies , new customer demands and enlarged supply and value chains. The dissolving sector divisions also results in new job profiles and new demands to employees' skills and education:

- **Need for new types and mixes of employees and educational backgrounds** in most sectors
- **Traditional job profiles and work tasks are increasingly combined** demanding new combinations of skills and competencies

When looking at emerging skills and competencies many sectors especially experience new emerging skills need within areas, which are closely connected to the major trends in world policy and economy including climate, ICT and the continued internationalisation of markets and supply chains:

- **New skills and competences** are especially related to **sustainability** (environment, climate, health, etc.), **ICT**, and to the **internationalisation** of both workforce, markets and supply chains

At the same time, many sectors will face serious recruitment and skills problems in the coming years if no actions are taken. The ageing workforce, poor working conditions and/or a faded sector image will for many sectors result in problems in getting sufficient labour and the right skills:

- **High risk of skills (and labour) shortages in many sectors** due to an ageing workforce, poor image among young candidates and/or problems to attract women
 - Production sectors: Faded and heavy technical image (Ex. ship building, energy(-production))
 - Service sectors: Poor working conditions and career opportunities (Ex.: Horeca, Other Services)

4. Recommendations

The following recommendations are the most mentioned recommendations in the sector studies. Firstly, the more general recommendations on how to improve innovation, skills and jobs within the studied sectors and the European economy as such are presented. Secondly, the more specific recommendations regarding training and education are listed. Finally, recommendations are grouped with the main findings to give an overview of the correlation between the two.

4.1 General recommendations

- Enhance **innovation and R&D**
- Invest strongly in **human capital**
- Improve **sector image** – especially for young candidates
 - Improve **working conditions**
 - Improve **career and personal development possibilities** – especially for low skilled workers
- Improve **collaboration** among all stakeholders
 - Support and enforce **social dialogue**
- Support diversity policies and programmes aimed at:
 - Keeping **elderly** employees (active ageing)
 - **Attract female workers/managers**
 - Integrate and attract **immigrant workers** and expats
- Develop **sector monitoring systems** on employment, skills and competencies
- Support **clustering** and cross border networking (for joint training and R&D projects)

4.2 Recommendations for education and training

The majority of the recommendations in the sector studies concerns education and training. The most common and important recommendations within this area seems to be:

- Adapt and **modernise vocational education and training (VET)** and education systems in general
- Increase the **flexibility of the educational system**. New business models demands new skills
- Include **inter- and multidisciplinary approaches** in education
- Closer **cooperation between stakeholders** is important in order **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 educational system
- EU standardisation and **certification of educations and skills** to ensure 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 life long learning**
- Support **in-house up skilling and (re)training** of workers

5. Summing up: Common paths of sectoral evolution

To sum up, four common paths of sectoral evolution or evolutionary paradigms that encapsulates the most important and essential sectoral developments in the EU can be identified:

- **Sun rises in the East**
- **European Excellence**
- **Mind the gap: Polarisation of skills needs**
- **The greening of jobs**

Following, the characteristics of each of the common paths / paradigms is described briefly

Sun rises in the east

Many sectors in the EU are experiencing increased competition from neighbouring countries and Asia. This has resulted in the **movement of many (mostly basic processing and assembling) functions towards the east** during the last 10 years. This movement increasingly also includes more knowledge intensive activities. In the beginning, many functions were moved to the New Member States. However, this movement now increasingly includes neighbouring EU countries, Asia and other emerging economies.

The evolution is most prevalent within **production sectors** (especially **textiles, defence, automotives**), but can also be observed within **tourism**. Basic mass tourism has increased in eastern Europe and some Asian countries and competition within luxury and customised tourism from Asia and other emerging economies is increasing as well

Sun rises in the east
Production activities moves eastwards



European excellence

As basic processing, assembling and service functions are off-shored and moved out of Europe, **focus is put on high end value and more knowledge intensive activities** for example connected to R&D, tests, marketing, sales, value chain management and financial management. This generates higher added value and increased need for high skilled labour. Global competition is also increasing within these activities, but in this evolutionary paradigm Europe will stand competition and maintain its position as a world centre of excellence of technology and know-how.

The evolution is most prominent within **production sectors**: (Especially: **furniture, automotives, computer, ship building** and **electromechanical** but can also to a certain degree be observed within highly international service sectors such as **Transport** and **Distribution & trade**).

European excellence

Focus on knowledge intensive activities



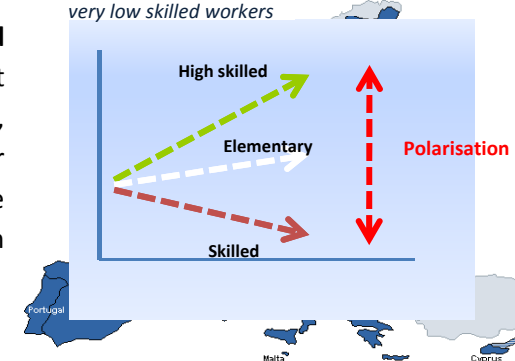
Mind the gap: Polarisation of skills needs

Several sectors report on **rising skills needs together with a steady need for low skilled** manual workers (elementary occupations): Some functions are still highly manual and are at the same time place bound (they cant be off-shored). At the same time internationalisation, market segmentation and new complex consumer demands creates increased need for highly professional managers, expert technical and administrative staff, specialised service workers , etc. Another trend belonging to the polarisation of skills needs is the decrease in the share of skilled workers.

This trend is **prominent within most sectors** but **especially within service sectors** such as Post & tele, Distribution & trade and Transport. The decrease in skilled workers is, however, most prominent within production sectors.

Polarisation of skills needs

Increased need for high skilled and very low skilled workers



The greening of jobs

The increased focus of both consumers and politicians on climate changes and the need to cut down CO2 emissions and energy consumption is generating a **rising need of skills and jobs related to climate and environmental friendly solutions, technology and services**. Today Europe is among the world leaders when it comes to green skills and technology, so the future opportunities are promising.

The greening of skills and jobs is **prominent within all sectors** but political pressure, which is a lead driver within this area, has especially been put on sectors with high direct impact on climate and environment such as **Transport, Electricity and Automotives**.

The greening of jobs *Focus on green skills and sustainable technology*



6. Summing up

The current economic crisis is increasing the speed of transformation in Europe and in the world. That emphasizes, even stronger than before, the need for implementing the new social agenda in Europe.

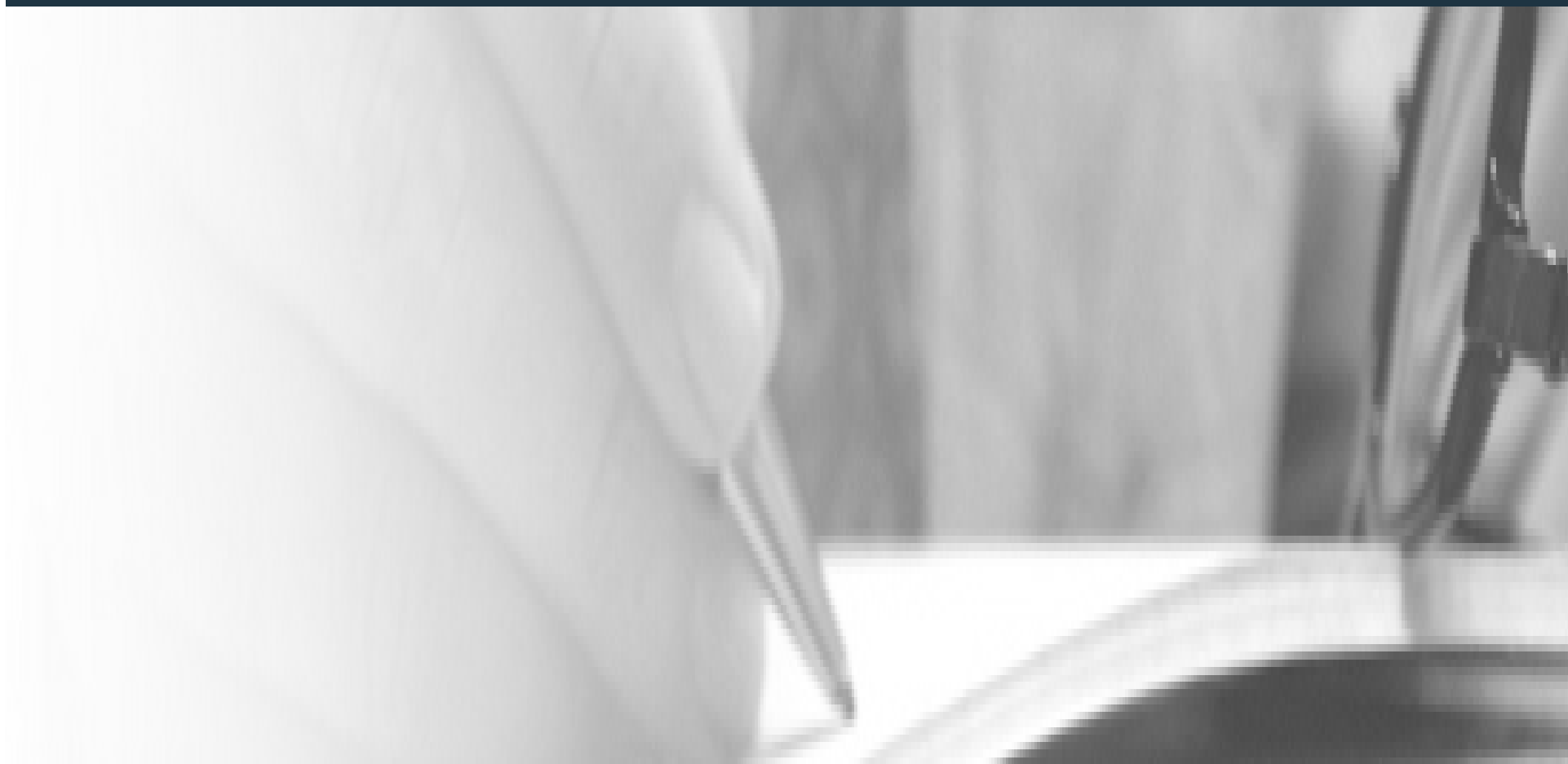
In depth studies of the 19 economic sectors in Europe, accounting for two thirds of European employment, reveals the increasing polarization of the demand for skills and competencies. At the one hand, the strive of European production to pursue an excellence strategy, in order to sustain competitiveness in an increasingly competitive world, drives a strong demand for high skilled professionals. At the other hand, the growth of service industries drives a steady demand for both high skilled and low skilled workers. At the same time off-shoring of production activities is lowering the number of skilled jobs in Europe.

However, despite the level of skills and competencies, all economic sectors report a need for continuous up skilling of the labour force among others driven by internationalisation, specialisation, rising climate concerns, ICT and new technological possibilities. To deepen the challenges for Europe even further, most sectors also forecast a shrinking supply of labour available due to the ageing of the European labour force.

All in all, the transformation of Europe sums up to a tremendous task to be met jointly by the European stakeholders in order to sustain a socially fair, environmentally sustainable and competitive economy. Companies need to enhance innovation and R&D, invest strongly in human capital and engage in social dialogue. Governments need to improve the framework conditions for investments in innovation, R&D as well as human capital and to promote diversity policies aimed at keeping the elderly engaged, attract female workers and managers and integrate immigrant workers and expats.

Education and training Institutions are playing a key role in facilitating the transformation of Europe. First of all the flexibility of the educational system needs to be increased, inter- and multidisciplinary approaches to be applied and greater emphasis to be placed on also teaching cultural and social skills. Lastly, the high focus on climate changes is generating increased need for green skills in most sectors. The education and training sector needs to open up itself for more cooperation with its stakeholders in order to promote sector specific skills at an early stage, increase the use of apprenticeship and mentoring programmes, engage in EU standardisation and certification of education and skills and to develop joint education and training programmes especially for SME's.

Europe has managed economic crisis and major transformations before and Europe will do it again. The key is the new social agenda of Europe, enforcing a culture of life-long learning and sharing a common vision of a socially fair, sustainable and competitive Europe.



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