Investing in the Future of Jobs and Skills

Scenarios, implications and options in anticipation of future skills and knowledge needs

Sector Report
Other Services

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Preface

This report presents the final results of the study *Comprehensive analysis of emerging competences and economic activities in the European Union in the other services sector*. The report is part of a series of sixteen future-oriented sector studies on innovation, skills and jobs under the same heading, commissioned by the European Commission (DG Employment, Social Affairs and Equal Opportunities). Eleven of these studies were executed by a core consortium led by TNO (Netherlands Organization for Applied Scientific Research) and consisting of TNO Innovation Policy group (Leiden, the Netherlands), TNO Labour (Hoofddorp, the Netherlands), TNO Innovation and Environment (Delft, the Netherlands, SEOR Erasmus University (Rotterdam, the Netherlands) and ZSI (Centre for Social Innovation, Vienna, Austria). The core consortium was in charge of the overall management of the study, the further elaboration and application of the overall approach and methodology, as well as data collection and analysis.

The study was carried out during the period January 2008-March 2009. Stakeholders in the sector, including the European sectoral partners and representatives of various other organisations, have been involved in various ways and forms throughout the study. This included a sectoral kick-off meeting at the start of the study and three multisectoral stakeholder meetings in Brussels during which intermediate results of the studies were presented and discussed. Valuable workshop discussions in the frame of the project were held and inputs received from a number of experts. Apart from multiple inspiring consortium ('internal') workshops, one 'external' workshop was held. A draft final version of this report was validated and complemented during this final workshop in Brussels on 12 and 13 march 2009. The final workshop brought together an apt mixture of different European and national sector experts representing the industry, European social partners, other various representative organizations, academia as well as the European Commission (see Annex 2 for a full list of participants). The workshop, which formed an explicit and integral part of the methodological approach, yielded a number of helpful comments and insights which have been used in further finalising the study. We express our sincere gratitude to all workshop participants and to all those that contributed to this study.

A special word of thanks holds for the European Commission, notably Jean-François Lebrun and Manuel Hubert, and Gregorio de Castro of the European Foundation for the Improvement of Living and Working Conditions who proved to be excellent guides during the project.

Delft, 1 May 2009

Dr Frans A. van der Zee (overall project leader)

1 General introduction

This report presents the final results of the study Comprehensive analysis of emerging competences and economic activities in the European Union in the other services sector. The report is part of a series of sixteen future-oriented sector studies on innovation, skills and jobs under the same heading, commissioned by the European Commission (DG Employment, Social Affairs and Equal Opportunities). The study was executed by a consortium led by TNO (Netherlands Organization for Applied Scientific Research) and consisting of TNO, SEOR – a consultancy of Erasmus University (Rotterdam, the Netherlands) and ZSI (Centre for Social Innovation, Vienna, Austria). The study was carried out during the period January 2008-April 2009.

While the main focus of the study is on the future of skills and jobs by 2020, the study is both backward- and forward-looking in nature. It analyses recent relevant sector developments and trends and, at the same time, depicts the current state of play in the sector with an emphasis on innovation, skills and jobs. Current trends and developments form the stepping stone and fundament for the second and third future-oriented part of the study which is scenario-based, forward-looking and exploratory in nature.

Background and context

The study should be placed against the background of the EU's renewed Lisbon strategy in which securing and improving EU competitiveness and redeploying the European economy to new activities with more value-added and new and better jobs are key. In the process of change and restructuring to adapt to new realities, there is a need for a more strategic management of human resources, encouraging a more dynamic and future-oriented interaction between labour supply and demand. Without there is the risk that bigger shortages, gaps and mismatches of skills will result not only in structural unemployment but also hamper longer-term competitiveness.

Skills and jobs are of vital importance for the future of the European economy and have recently gained increasing attention, both at national and EU level. As stressed by the European Council in March 2008, investing in people and modernising labour markets is one of the four priority areas of the Lisbon Strategy for Growth and Jobs. The New Skills for New Jobs initiative launched in December 2008 (European Commission, 2008) elaborates on how this could best be done. The initiative aims to enhance human capital and promote employability by upgrading skills, as well as to ensure a better match between the supply of skills and labour market demand. More transparent information on labour market trends and skills requirements, but also the removal of obstacles to the free movement of workers in the EU, including administrative barriers would help achieve this goal, and improve occupational, sector and geographical mobility. The initiative also stresses the need to improve the Union's capacity for skills assessment (by improved monitoring and forecasting), anticipation (by better orientating skills development) and matching with existing vacancies.

The current financial and economic crisis makes these challenges even more pressing. Further strengthening the economic resilience and flexibility of the European economy and its Member States calls, along with other measures, for support of employment and further facilitation of labour market transitions (European Commission, 2008a:10).

Approach and methodology

The study takes a longer term future perspective, and looks ahead to 2020, but also back, and takes a highly aggregated European perspective. While it is fully acknowledged that more detailed Member State and regional analyses are important and vitally important for anticipating future skills and knowledge needs, the European perspective has been central in this analysis. Key to the study and a common point of departure was the use of a pre-defined methodological framework on innovation, skills and jobs (Rodrigues, 2007). During the course of this study this framework has been further developed, operationalised and applied to the sector. The approach combined desk research and expert knowledge available in a broad and dedicated research team with the knowledge and expertise of 'external' sector experts. The purpose of this *common uniform methodology* is to deliver results that enable comparisons across and between sectors and hence enable the preparation of possible future actions to investigate the topic of new future jobs and skills for Europe, by encouraging a more effective interaction between innovation, skills development and jobs creation. The methodology is structured along various steps, each step providing inputs and insights for next steps to come. Overall, the methodology covers the following steps:

Step 1. Identification of economic activities to be considered (i.e. sector selection)
Step 2. Main economic and employment trends and structures by sector
Step 3. Main drivers of change
Step 4. Main scenarios
Step 5. Main implications for employment – changes by job function
Step 6. Main implications for skills – emerging needs by job function
Step 7. Main strategic choices to meet future skills and knowledge needs
Step 8. Main implications for education and training
Step 9. Main recommendations
Step 10. Final Workshop.

Further and next steps

The results of this study – along with 15 other sector studies using the same approach and being released at the same time - will serve as a guide in launching further EU-led but also other actions, by industry, sectoral partners, education and training institutes and others. One important aim of the study is to promote the strategic management of human resources and to foster stronger synergies between innovation, skills and jobs in the sector in the medium and longer run, taking into account the global context and encouraging adaptations to national and regional specificities. A very important element in further enabling and facilitating these goals is sound and continuous monitoring together with a uniform and consistent way of analysing future skills and knowledge needs for the various decision-making levels involved. The approach taken in this study aims to provide a broader framework that does exactly this.

Further dissemination and explanation of the methodology at the Member State, regional and local level are therefore vital in the follow-up of this EU level study, as is its actual take-up. The results of the study include implications, conclusions and recommendations to anticipate future skills and knowledge needs. It does not in any way, however, assess or evaluate current or planned policies. Conclusions and recommendations may therefore coincide but may also oppose current policies and/or policy plans at the EU, national or regional level. The implications, conclusions and recommendations logically follow from scenarios – credible plausible sector futures – meant to better structure and anticipate possible future developments.

Looking ahead in times of crisis

Even though the year 2020 may currently seem far off for most of us, the future will announce itself earlier than we think. In times of financial and economic crisis there is a logical tendency to focus on the now and tomorrow; withstanding and surviving the crisis are prime. Nevertheless, at the same time the medium and longer term ask for adequate attention. In this current age of continuing and pervasive globalisation, strong technological change and innovation affecting production and consumption around the globe, timely preparations to be able meet future skills and job needs are called for more than ever before. This is even more true in the face of an ageing European society and ditto workforce.

Contents in three parts

The report consists of three main parts. Part I analyses recent relevant sector developments and trends and depicts the current state of play in the sector, with an emphasis on innovation, skills and jobs. The findings of Part I of the report combine original data analysis using Eurostat structural business statistics and labour force survey data with results from an extensive literature review of relevant already existing studies. While giving a clear and concise overview of the most important trends and developments, the prime function of Part I is to provide the fundaments and building blocks for Part II of the study. The findings of Part I are based on the present and the recent past. The second part of the report is future-oriented and looks at sectoral developments and more specifically developments in skills and jobs in and towards 2020. The core of part II consists of plausible future scenarios and their implications for jobs, skills and knowledge. These implications have been analysed for various job functions. In a final part III, a range of main strategic options ('choices') to meet the future skills and knowledge needs is reviewed, including implications for education and training. The study concludes with a number of recommendations for the sector (individual firms, sector organizations, sectoral partners), education and training institutes and intermediary organisations, and last but not least, policy-makers at various levels, ranging from the EU to the local level. Terminology used in this report is further explained and defined in a Glossary at the end of this report.

Part I

Trends, Developments and State-of-Play

Part I. Trends, Developments and State-of-Play

Guide to the reader

Part I presents the results of steps 1, 2 and 3 of the common methodology applied to the other services sector. Step 1 delineates and defines the sector. Step 2 presents the main economic and employment trends and developments in the sector (mapping) and reports the results of a SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis. Step 3 analyses the main drivers of change of relevance for the sector based on a meta-driver approach and expert opinion. Part I of the report consists of 8 chapters. Chapter 2 identifies and statistically defines the sector. Chapter 3 provides an overview of the structural characteristics of the sector, including developments and trends in employment, production and value added. It contains information on work organisation (part-time/full-time, gender, age), and industrial relations, but also on emergent trends by function. It also addresses existing partnerships for innovation, skills and jobs, one of the possible policy instruments to better prepare for and adapt to the future, facilitate mutual learning and boost innovative capacity both at the sector and firm level. While not part of the methodology as such, partnerships form an interesting example of how the development of skills and jobs can be linked to innovation. Chapter 4 discusses the value chain (network) and its evolution over time, including issues of restructuring and relocation. Chapter 5 focuses on innovation, R&D and technological change, while chapter 6 analyses the impact of globalisation and trade on and for the sector. Chapter 7 highlights the importance of regulation especially in relation to employment. Chapter 8 provides the results of a SWOT analysis of the sector. Chapter 9 concludes with an overview of the most important drivers for the sector.

2 Defining the sector

This report sketches the trends and developments over the last seven years in the other services sector. The goal of this analysis is to provide information to be able to estimate in the next stages of the research project whether skills are changing in the sector. In this report we focus on the main developments.

For the purpose of this study other services comprises the activities summed up in Table 2.1. This report concentrates on other personal services (93/96) and activities of households as employer of domestic personnel (95/97).

Other personal services comprise a variety of activities:

- hairdressing and other beauty treatment;
- washing and (dry-) cleaning of textiles and clothing;
- funeral and related activities;
- physical well being activities (sauna, steam bath, massage salons, not included: fitness centres and medical treatment);
- other personal services (among others: dating and escort services, pet care service, astrologists and spiritualists, tattooing and piercing studio's, etc.).

The activities of households as employers are a special case, as they belong for a large, if not major part to the informal sector (moonlighting or undeclared work of the working force, officially inactive population and persons on benefits). It comprises personal services (e.g. hairdressing, child care, pet care and transport of elderly, sick and disabled) and activities like cleaning, construction, repair and gardening. But also administrative activities, such as assistance in filling in forms (registration forms, tax forms), are delivered by individual workers to households. For a part relatives, friends and acquaintances, partly paid, partly free of charge, supply these services.

In this study activities of membership organizations (91/94) are less relevant. Nevertheless, in some countries in the north and west of the EU, some membership organizations (for instance organizations in sports, environment, consumer interests, patients organisations) become more and more professional and relying less on only volunteers. Although the scale of employment might remain rather small in these activities, a further increase in employment can be expected, creating opportunities for specialists. Repair and maintenance (95) is very often combined with trade and should better be taken into account in the discussion of that sector. In our opinion the household production of goods and services for own use (98) is also less relevant to this study, as it will have little meaning in terms of required skills. However, in various countries in the Middle and Eastern parts of the EU this production might be important, although it is not certain whether it is registered or measured accurately in the country statistics.

Table 2.1 Overview of activities and their relevance to this study

NACE Rev 1.1	NACE Rev 2.0	Description	Relevancy[1]
90		Sewage and refuse disposal, sanitation and similar activities	Irrelevant
91	94	Activities of membership organizations	Irrelevant
92		Recreational, cultural and sporting activities	Irrelevant
	95	Repair of computers and personal and household goods	Regarded as part of retail
93	96	Other personal service activities	Relevant
95	97	Activities of households as employers of domestic personnel	Relevant: Important share of informal activity
	98	Undifferentiated goods- and services-producing activities of private households for own use	Less relevant

3 Structural characteristics of the sector: past and present[1]

3.1 Value added and employment trends in the EU

Employment

The employment in the EU in the other services industry totals about 14 million jobs (Table 3.1). The overwhelming majority of the jobs, 90% are to be found in EU 15. The industry faces a structural growth between 1995 and 2006, with an annual average of 2.6% in the EU. The growth in the new member states lies on a slightly higher level than in the EU as a whole.

There appears to be no country with a high concentration of other services employment and also an increase of the number of jobs (designated as 'winning'). There are, however, countries with a high concentration of other services but with a declining employment. These countries are labelled 'Losing momentum' and are always members of the EU 15. Two large groups of countries do not have a high concentration in other services and show opposite trends. Upcoming countries are dominated by new member states, while retreating countries are dominated by old member states. In this last group, however, also four new member states are present.

Note, however, that these figures are including data for sectors not reflecting our sectors of interest (like sector 90, waste). The next paragraph shows that developments are very different when data are available for the sectors of interest.

[1] Due to the fact that the other services industry produces non-tradables by definition, figures on trade and trade balance are not relevant. No figures are therefore given for exports, imports and trade imbalances. For the same reason no comparable figures are presented for BRIC countries, Japan and the United States.

Table 3.1 Employment other services, 2000-2006[1]

	Level	Annual growth	Share in EU	Change in share
EU 27	14 046	2.6	100	0
EU 15	12 638	2.6	90	0
NMS	1 409	2.7	10	0
Winning	0	n.a.	0	n.a.
Losing momentum	7 972	2.5	56	0
Upcoming	2 920	3.6	21	2
Retreating	3 155	2.0	23	-1
Definition	Level (*1000) 2006	Average annual growth (%) 2000-2006	Share in EU employment sector (%) 2006	Change in share in EU employment sector (%) 2000-2006

	Concentration >100	Concentration <100
Growth	**Winning:** None	**Upcoming:** France, Greece, Bulgaria, Czech Republic, Lithuania, Poland, Romania, Slovenia
Decline	**Losing momentum:** Germany, Italy, Netherlands, Spain, Sweden	**Retreating**: Belgium, Luxemburg, Austria, Denmark, Finland, Ireland, Portugal, United Kingdom, Estonia, Hungary, Latvia, Slovakia

Note: NACE 1.1: 90, 91, 92, 93 and 95. Source: Eurostat/TNO data

Value added

Looking at the other services industry as a whole, total value added in EU is € 282 billion (Table 3.2). Value added in the EU increased annually with 1.6% between 1995 and 2006. There are, however, large differences in the development of value added between the EU 15 and the new member states. In the EU 15 value added grew with an average of 1.8% annually. Between 2000 and 2006 the growth slowed down. In the new member states value added declined between 1995-2006 with an average of 1.3% annually. In the downturn of the economic cycle (2000-2006) the decline was mitigated. In many cases, exceptions are winning and upcoming countries, the overall economy grew faster than the other services sector.

Countries with a strong concentration of value added in other services who achieved an increase of GDP ('winners') are always EU 15 members. The group of upcoming countries shows the strongest growth and is dominated by EU 15 members. Several EU 15 member states, however, are losing momentum or even retreating.

Table 3.3 shows the share of value added of other services industry in national and EU GDP. In 2006 value added in other services industry made up 2.5% of national GDP. Due to a smaller increase of value added compared with GDP, the change is negative for losing momentum and retreating countries.

Box 1. Concentration index: what it is and what it measures

The concentration index assesses the relative contribution of a specific sector to the national economy compared to a greater entity, such as the EU, thereby correcting for the size of the country. In more general terms, the concentration index is a measure of comparative advantage, with changes over time revealing changes in the production structure of a country. An increase of the concentration index for a sector signifies relatively fast growth of that particular sector in the country concerned compared to the same sector in the EU.

How does the concentration index work in practice? We'll give a few examples: if sector x represents a 5% share of the German economy and a 5% share of the EU economy, the concentration index of sector x equals a 100. If sector x represents 5% of the German economy, but 10% of the EU economy, the concentration index of sector x is 50. If the same sector x represents 10% of the German economy and 5% of the EU economy, the concentration index of sector x is 200.

The concentration index concept can be applied using different indicators (variables). In our study we measure the concentration index using employment, value added and trade, in order to make a distinction between the relative performance of countries EU-wide. We distinguish between four country groupings, each signifying a different sector performance over time. If a sector in a country has a strong position (hence showing a concentration index higher than 100) and has experienced a clear index growth over the last years, the sector is defined as *winning* in that country. If the sector has a strong position, but experienced a decline of the concentration index, we say the sector is *losing momentum*. If the sector has a weak position, but gained in the past, we say that the sector in that country is *upcoming*. If the sector has a weak position and experienced a decline of the index, we say that the sector is *retreating*.

Table 3.2 Value added other services and overall economy, 1995-2006

	Sector				Overall economy			
	Level	95-00	00-06	95-06	Level	95-00	00-06	95-06
EU	282 064	1.9	1.4	1.6	11 468 970	2.8	2.0	2.3
EU 15	268 436	2.1	1.5	1.8	10 883 245	2.8	1.9	2.3
NMS	13 628	-1.9	-0.7	-1.3	585 725	2.7	3.7	3.2
Winning	93 283	2.0	1.5	1.7	2 857 582	2.4	1.2	1.7
Losing mom.	14 596	-1.1	-1.7	-1.4	527 654	3.2	2.4	2.8
Upcoming	66 745	4.5	2.9	3.6	3 201 242	3.1	2.4	2.7
Retreating	106 936	0.9	0.9	0.9	4 848 640	2.7	2.1	2.4
Definition	Value added	Annual average growth			GDP	Annual average growth		
	Million euro	%	%	%	Million	%	%	%
	2006	1995-2000	2000-2006	1995-2006	euro 2006	1995-2000	2000-2006	1995-2006

	Concentration >100	Concentration <100
Growth	**Winning:** Belgium, Germany, Netherlands	**Upcoming:** France, Greece, Portugal, Spain, Estonia, Slovakia
Decline	**Losing momentum:** Austria, Poland	**Retreating**: Italy, Denmark, Finland, Ireland, Sweden, United Kingdom, Czech Republic, Hungary, Lithuania, Slovenia

Note: NACE 1.1: 90, 91, 93 and 95
Source: Eurostat/TNO data

Table 3.3 Value added other services, 1995-2006

	Share in country		Share in EU		Concentration index	
	Level	Change	Level	Change	Level	Change
EU	2.5	-0.2	100	0	100	0
EU 15	2.5	-0.1	95	2	100	2
NMS	2.5	-1.2	5	-2	102	-40
Winning	3.2	0.1	33	1	130	10
Losing momentum	3.0	-1.3	5	-2	120	-42
Upcoming	2.1	0.2	24	4	85	11
Retreating	2.2	-0.3	38	-3	90	-8
Definition	Share in national GDP	Total change in share	Share in value added sector EU	Total change in share	Share in country divided by share in EU	Total change in index
	2006	1995-2006	2006	1995-2006	2006	1995-2006

Note: NACE 1.1: 90, 91, 93 and 95
Source: Eurostat/TNO data

For value added we have also data on the subsectors 'other personal service activities' and 'activities of household as employers of domestic personnel' (NACE 1.1 93 and 95). This is interesting as it gives an indication of the differences with the data including sectors which are not primarily interesting (90 and 91). Table 3.4 and 3.5 show that the two interesting subsectors make up 54% of value added in the other services industry.

It shows that the pictures for the underlying subsectors are significantly different (compare Tables 3.4 and 3.5 with Tables 3.2 and 3.3). Not only are developments very different, also the country groupings change significantly. The new member states, for instance, show now a major decrease of -10.5% in value added for other personal service activities, but an increase for households as employers of 3.3%. As another example, Belgium and the Netherlands are no longer winning, but even retreating for households as employers.

From the differences in developments of value added between the true sectors of interest and the total figures, we conclude that it is not useful to rely on the summed data. In the remainder of this study we therefore present only data when specific figures are available for sectors 93 and 95 (NACE 1.1).

The grouping of countries is much more comparable between other personal services and households as employers. Most countries show growth or decline in both sectors. Exceptions are present, however, and consist of Czech Republic, Lithuania, Portugal and Slovenia where growth is visible in one sector and decline in the other sector.

Value added in other personal services (NACE 1.1 code 93) in the EU amounts to € 93 billion in 2006 (Table 3.4). Between 1995 and 2006 value added in this sector increased with a modest 0.8 annually. In EU 15 the growth was relative strong (1.3%). In the new member states the change was dramatic, with an annual average decline of value added of 6% between 1995 and 2006. Personal services in the EU make up 0.8% of national GDP,

both in the old and new member states. Value added is dominated by winning and upcoming countries (80%). Actually there is only one winner (Germany), but many upcoming countries. With a share of 1.4% of national GDP Germany stands out. In upcoming countries the average annual growth is strong (2.8%). This group, dominated by EU 15 countries, now makes up for 44% of value added in personal services in EU

Table 3.4 Value added 1995-2006 other personal service activities (NACE 1.1 93)

	Sector		Share in country		Share in EU	
	Level	Change	Level	Change	Level	Change
EU	93 410	0.8	0.8	-0.1	100	0
EU 15	89 259	1.3	0.8	-0.1	95	5
NMS	4 151	-6.0	0.8	-1.2	5	-5
Winning	33 879	1.2	1.4	0.0	36	2
Losing momentum	1 234	0.1	1.2	-0.5	1	0
Upcoming	41 545	2.8	0.6	0.0	44	8
Retreating	16 632	-3.1	0.7	-0.4	19	-9
Definition	Value added Million euro 2006	Annual average growth 1995-2006	Share in value added GDP 2006	Total change in share 1995-2006	Share in value added sector 2006	Total change in index 1995-2006

	Concentration >100	Concentration <100
Growth	**Winners:** Germany	**Upcoming:** France, Netherlands, Austria, Denmark, Greece, Finland, Spain, Sweden, United Kingdom, Estonia, Slovakia
Decline	**At Risk:** Italy, Hungary, Lithuania	**Retreat**: Belgium, Ireland, Portugal, Czech Republic, Poland, Slovenia

Source: Eurostat/TNO data

Value added in households with employed personnel is € 59 billion in the EU. The sector makes up for 0.5% of national GDP. The annual average growth of value added of household personnel (+2.9%) is high compared to the development in other personal services. In the new member states the growth is even slightly stronger (3.3%) and much stronger than in other personal services. This points at a substitution between the fast declining other personal services and households as employers in these countries, suggesting a trend that more and more people are working for themselves.

The majority of value added can be attributed to retreating and losing momentum countries. Winning countries, with a strong concentration and a strong growth, are the southern countries Greece, Spain and Portugal. Retreating countries are dominated by EU 15 members. Still, some EU 15 members are in the upcoming category.

Table 3.5 Value added 1995-2006 households as employers of personnel (NACE 1.1 95)

	Sector		Share in country		Share in EU	
	Level	Change	Level	Change	Level	Change
EU	58 535	2.9	0.5	0.0	100	0
EU 15	56 844	2.9	0.5	0.0	97	0
NMS	1 692	3.3	0.3	0.0	3	0
Winning	12 091	4.5	0.9	0.1	20	3
Losing momentum	14 525	1.4	0.8	0.0	25	-4
Upcoming	10 720	12.6	0.3	0.2	16	10
Retreating	21 073	0.6	0.4	-0.1	38	-9
Definition	Value added Million euro 2006	Annual average growth 1995-2006	Share in value added GDP 2006	Total change in share 1995-2006	Share in value added sector 2006	Total change in index 1995-2006

	Concentration >100	Concentration <100
Growth	**Winners:** Greece, Spain, Portugal	**Upcoming:** Germany, Finland, Sweden, Czech Republic, Lithuania, Slovenia
Decline	**At Risk:** Italy, Poland	**Retreat**: Belgium, France, Netherlands, Austria, Denmark, Ireland, United Kingdom, Slovakia

Source: Eurostat/TNO data

Conclusions

Three major conclusions can be drawn from this analysis:

- Many data sources have summed data including also sectors like sewage and refuse disposal (NACE 90) and recreational, cultural and sporting activities (NACE 91). Data for value added are available for the true sectors of interest (other personal services, NACE 93, and households as employers, NACE 95). These data show that it is not possible to rely on summed data as trends are very different. In the following analysis we, therefore, present only data that is dedicated at the sectors of interest.
- All country groupings show positive growth figures for value added for households as employers of personnel. This is not the case for other personal service activities. Here especially new member states show a significant decline. This is probably due to substitution for households as employers.
- Other services are highly concentrated in the EU 15. For other personal service activities the current share in EU is 97% and the last years this share has risen. No rise is visible for households as employers, but also there the share is currently 97%.

3.2 Employment- main trends by job function

One of the most interesting indicators for analysing the future on jobs and skills is the trends and developments that can be identified at the (micro) level of job functions. More than aggregate employment and more than figures about gender and age distribution can changes in job functions tell us something about ongoing change and restructuring in the sector. Changes in (the need for) competences and changes in the distribution of job functions are closely linked to each other, both at the level of the sector and at the level of the firm. Competences are combined in occupation profiles, and can be distinguished in core competences, specialization competences or complementary competences (Rodrigues, 2007:34). Another distinction is between theoretical, technical and social competences (i.e. knowledge, skills and competences in ECVET) (ibidem). Identifying the changes in job functions by sector is a first step towards a better understanding of the changing competence needs in the sector. Competences for the purpose of this study are assumed to be located in a general grid defined by the main occupation functions: general management, marketing, financial and administrative management, R&D, logistics, production management, production, quality and maintenance (Rodrigues, 2007:35).

As a first step towards identifying trends in competences, the observed changes in the distribution of job functions over time will be analysed, using Labour Force Survey (LFS) data.[2] In the second part (the scenario-based future-oriented part), a further elaboration of these changes on the need for new and existing competences will be provided. The analysis starts with an analysis of the state-of-play, i.e. the situation as per 2006. Subsequently, changes in job functions over time are discussed, in general (overall) and for different categories of workers classified according to educational level.

Main emergent competences in the other services sector

In this section we discuss the trends in occupations in general and the combination with education level, gender and age. It should be noted that data for occupations in general is much more reliable at the (groups of) country level than data for occupations combined with one of the three other measures as these have much less observations available. In the text and tables this shows up in sometimes large increases or decreases. In these cases, figures indicate primarily directions of changes and not so much magnitudes of changes.

Occupations in general

Data are available for the number of people working in different occupations in other services, but only combined with other sectors (like waste and recreation) that hamper the true picture on occupations in the other service sector. Fortunately, we have figures for occupation shares for other services only (table 3.6).

The occupation structure is dominated by other personal service workers and other service workers (51% in EU 15 and 45% in new member states) and domestic helpers, cleaners and launders (16% in EU 15 and 22% in new member states). These categories are gaining ground as the shares have risen in the last seven years. In the new member states the change in share is large for domestic helpers, cleaners and launderers.

[2] Data on occupational structure follow the availability of overall employment figures presented earlier.

Occupations and education level

Only a few figures are available for the education level combined with occupations.[3] It is clear, however, that the majority of the services in this sector do not require more than elementary skills. However, table 3.7 shows that the last seven years for most occupations the share of low education decreased, while the share of mid education increased. In the new member states we see a decrease both in low and mid education for other service workers, where the share of high education increased significantly. An exception are the craft and related trade occupations, where the share of low education increased during the last seven years.

There is another interesting relation between education and other services, but now the other way around. Demand for personal services rises with qualification of demanders, especially with the skill level of women. Dathe and Schmid (2000) found higher service employment rates in regions with high skill levels, a pattern that correlates with agglomeration, since the skill and income level in these regions is higher than in rural areas.

Table 3.6 Occupation shares and changes in shares other services, 2000-2006

	Share in total 2006			Change in share 2000-2006		
	EU 15	NMS	EU 27	EU 15	NMS	EU
Managers	5	4	5	-2	-1	-2
Professionals. technicians	8	7	8	0	2	0
Clerks	5	3	5	-1	-1	-1
Other personal service workers	46	31	46	3	2	3
Other service workers	5	14	6	-2	0	-2
Skilled agricultural and fishery workers	2	1	2	1	1	1
Craft and related trade workers	3	6	3	0	-3	0
Motor vehicle drivers. mobile plant operat.	1	1	1	0	0	0
Other plant and machine operators	4	2	4	0	-1	0
Domestic helpers, cleaners, launderers	16	22	16	2	12	2
Other elementary occupations	4	8	4	-1	-10	-1

Note: NACE 1.1 93 and 95

Table 3.7 Occupation share changes by education level other services, 2000-2006

	Low education			Mid education			High education		
	EU 27	EU 15	NMS	EU	EU 15	NMS	EU	EU 15	NMS
Other personal service workers	-7	-5	-1	7	4	0	0	0	1
Other service workers	-6	-7	-4	3	3	-6	3	3	10
Craft and related trade workers	2	2	-3	-2	-2	2	0	0	1
Domestic helpers, cleaners, launderers	-15	-14	-13	12	11	13	3	3	-1

Source: Alphametrics/Eurostat/TNO

[3] As data are only available for the summed sector including figures for waste, recreation etc., we concentrate on occupations that are clearly in the other services sector.

Occupations and gender

Regarding the gender distribution we see that in the EU female employment is very high, but for craft and related trade workers (table 3.8). For domestic personnel the share of female workers climbs up to 94% in the EU. The share of female workers in other personal services amounts to 84%. The figures for the new member states differ modestly: they have more male domestic workers (13% compared to 6% in the EU 15) and craft workers (92% compared to 76% in the EU 15) but also more women working in other personal services (90% compared to 83% in the EU 15). The share of women working in the other services industry has slightly increased between 2000 and 2006 for most categories. The exceptions are other service and craft workers in the new member states.

A German study concludes that the service society provides a path for woman into the system of gainful labour market work (Dathe and Schmid, 2000). The study found a strong correlation between female labour participation and the share of personal or social services. Regions with a high share of personal or social services show higher female labour force participation and vice versa.

Table 3.8 Occupation shares and changes in shares women other services, 2000-2006

	Level 2006			Change 2000-2006		
	EU	EU 15	NMS	EU	EU 15	NMS
Other personal service workers	84	83	90	4	3	1
Other service workers	87	88	75	2	0	-2
Craft and related trade workers	21	24	8	3	1	-2
Domestic helpers. cleaners. launderers	94	94	87	2	1	3

Source: Alphametrics/Eurostat/TNO data

Occupations and age

Table 3.9 shows the changes in shares by age categories. For most occupations the share of young workers (younger than 40) is decreasing the last seven years. This is especially the case for other service workers and domestic workers in the new member states. Increases in shares are dominated by people older than 50. This means that ageing does play a major role in the sector. The only exception are other personal service workers in the new member states. For this occupation we see an increase in younger workers and a decrease in people older than 40 years.

Table 3.9 Occupation share changes age categories other services, 2000-2006

	Younger than 40			Age between 40 and 50			Older than 50		
	EU	EU 15	NMS	EU	EU 15	NMS	EU	EU 15	NMS
Other personal service workers	-1	-2	5	1	2	-3	-1	0	-2
Other service workers	-2	0	-11	-1	-2	1	3	2	9
Craft and related trade workers	-1	1	-3	0	-2	2	1	1	1
Domestic helpers, cleaners,	-2	-2	-15	2	2	0	1	1	14

launderers

Source: Alphametrics/Eurostat/TNO data

3.3 Informal versus formal services

The figures presented in former paragraphs are based on formal services. However, a large part of personal services are delivered informally, mainly because of the price (with or without taxes). The share of the formal market differs between various services, and is, apart from price, highly dependent on:

- The average level of household income and income distribution. In general only high income groups hire or employ formal personal service providers;
- The participation rate and especially the participation rate of women (see before);
- The skill level of the service provided. For instance hair dressing demands more skills than house cleaning;
- Safety and trust concerning the person delivering the service. As the service provider enters the personal environment, the household hiring or employing them need to have confidence in the person they allow to enter their house and family. Especially caretakers (of vulnerable people and children) need to be trusted.
- Regulation and especially complying with administrative demands (forms, social insurance, etc). The majority of personal services are jobs for only a few hours per week or less. Only caretaking (child care, care of elderly) requires sometimes longer work times. General legal requirements for hiring personnel are often disproportionate in relation to the amount of wages or salaries paid.

No precise figures are available concerning the size of the informal market. Available figures concern all non-declared work, but this comprises informal work in all economic activity (manufacturing, construction, business services, tourism, etc.)[4]. Only a small percentage of these figures concerns personal and household services. The small size of the sample and the sensibility of the subject make the estimates even more uncertain.

A few years ago a Dutch survey estimated the size of the informal market for housemaids (domestic help), child care and small (technical) jobs in and around the house, also based on a sample survey (Van Nes et al., 2004). Informal housecleaning comprised about 70% of the total market and informal child care about 50% of the total market for childcare[5].

Nevertheless, the available figures indicate the potential to increase the size of the formal market in these services. This market will grow anyway, as a consequence of:

- demographic trends (rising share of elderly people);
- the growth in average income and a rising share of high income households (double income, etc.);
- increase in female participation rates and increasing number of working couples;
- increase in the number of employed single parents.

[4] See for instance Glovackas (2005), European Commission (2007) and Riedmann (2008).

[5] Recent subsidies for child care have enlarged the share of the formal market considerably.

Any growth in formal activities will also depend on (tax) regulations. However, examples of initiatives in for instance the USA and Canada suggest that service providers and intermediate organisations themselves need to make use of the opportunities at hand, to realise the potential. According to Statistics Canada (2006) total earnings of personal care providers (hair and beauty salons, spas and the like) increased on average 10% a year in Canada between 2002 and 2004.

By now also in most European countries new services and intermediate organisations have been established, providing a range of personal and household services at demand. Internet and other modern communication (mobile phones) facilitate these developments (Zimmermann et al., 2001). Some specific examples of these initiatives:

- "Rent a BOB". This organisation delivers drivers to customers that are not allowed to drive as a consequence of the use of alcohol. The driver arrives by bike, puts this in the trunk, drives the person home with his own car and leaves again on his bike;
- Pet care, either pet sitting or walk the dog;
- Dating services at the internet.

3.4 Industrial relations

The general relationship between employees and employers is often not very formal between households as employer and workers as employees. In other cases less informal structures are found between small companies and employees. The activities are very scattered resulting in very loose representation by labour unions. Strikes are not very effective as this immediately leads to substitution to other employees.

3.5 Partnerships for innovation, skills and jobs

One of the central tenets of the renewed Lisbon Strategy is the partnership concept; by building a European partnership for growth and employment, the reforms needed to boost growth and employment will be facilitated and speeded up (European Commission, 2005). Partnership in this view "mobilises support" (mobilisation) and "gets the different players at work together" (collective effort), as well as "makes sure that the(se) objectives and reforms are taken on board by all the various players" thus spreading ownership (ibidem, page 14). In the implementation of the European Cohesion Policy, the partnership principle is fundamental as well. The EU recognises the importance of involving local and regional actors, in particular in areas where greater proximity is essential such as innovation, the knowledge economy and new information and communication technologies, employment, human capital, entrepreneurship, support for SMEs and access to capital financing. Beyond that public-private partnerships and further improvement of governance in the fields of entrepreneurial innovation, cluster management, innovation financing are promoted at all levels – from the local to the regional, the national and the EU level as well as across sectors. Partnerships for innovation, skills and jobs, in connection with technology platforms, industrial high level groups, as well as lead market and cluster initiatives are being promoted at both European and national level.

Existing partnerships for innovation, skills and jobs generally show a number of characteristics, which include:

- *Involvement of all relevant actors,* ranging from companies, research organisations, education and training institutes to public administration and others.
- *Cross-sectoral approach:* even though partnerships may be assigned to a specific sector, they often work across different business sectors.
- *Cross-thematic approach, i.e.* linking innovation, skills and jobs.
- *Inclusion of general human needs into the partnership strategy:* human needs, such as housing, health or mobility can be part of the formulated partnership vision or strategy
- *Long term commitment of actors (members).*
- *Joint problem solving,* i.e. working on problems that cannot be met by one member alone
- *European dimension,* i.e. being established at the European level.

Partnerships for innovation, skills and jobs can create a leverage effect for innovation, especially if broader *general human needs* are taken into consideration.[6] For instance, partnerships in the tourism sector aiming at developing 'leisure' should combine knowledge in tourism with, e.g., culture, sports and environment. A partnership aiming at developing the quality of habitat consequently should combine knowledge on at least construction, furniture, electronics and urban management. Partnerships for innovation, skills and jobs integrating general human needs on European level are still very rare.[7] It is likely to find more inclusive partnerships on the national and regional level.

Whereas the potential benefits of partnerships are clear, finding strong examples that fit the above characteristics at EU level are still difficult to find. There are, however, good examples in various sectors at the national and the regional level. Some of these stand out in terms of partnership approach, innovation capacity, approach for skills development, or their job maintaining and job creating capacity. Examples include the City Fringe Partnership for developing regional job opportunities in the printing sector and the ERRAC and EURNEX network in the rail sector where a European approach is combined with a strong effort to integrate latest research results in an virtual European training curriculum.

Partnerships, networks and clusters on innovation, jobs and skills often face similar barriers and obstacles, whatever sector is at stake. These include:

- *Restricted scope:* Partnerships often are set up in order to solve problems which can not be met by one partner on its own. The problems, thereby, are either defined bottom-up or articulated by the politics in a top-down process. In the latter case, the

[6] An argument put forward by professor Rodrigues at the workshop "Innovation policies for a knowledge intensive economy – assessing the European experience" in 2005 in Brussels.

[7] Outside the scope of the current series of studies, there is at least there is one good example, the European Construction technology platform (see http://www.ectp.org/default.asp).

scope of partnership is limited to their given geographical scope and/or their thematic focus (If partnerships are established top-down as instrument to address specific problems they are usually restricted to the policy represented by the awarding authority, e.g. a particular Ministry). Similarly, partnerships and networks established at the European level, such as e.g. networks of excellence, technology platforms, etc. have a specific thematic focus (in this case innovation in research and development).

- *Short-term nature:* Partnerships which are built up by means of public funding are often project driven, feature a short term nature and, generally, are not sustainable due to their dependence of a single fund.
- *Weak direct links between skills, jobs and innovation processes:* Skills upgrading and job opportunities are a result of innovation processes. Therefore, partnerships which focus on innovation do seldom focus on skills and jobs with the same strong interest.
- *Sectoral restrictions:* In general partnerships working on international or European level seem to be more likely to occur in strongly internationalised economic sectors with a common universal challenge (e.g. pollution or sustainable development). Then they are mostly limited to the problems they want to address.

To support this goal, we tried to identify two partnerships for innovation, skills and jobs mainly working in the sector at European level if possible, and otherwise examples at national level or regional level that could serve as a benchmark or blueprint for the European level. In the other services sector no partnership could be detected.

4 Mapping and analysis of the value chain

4.1 Mapping of the value chain

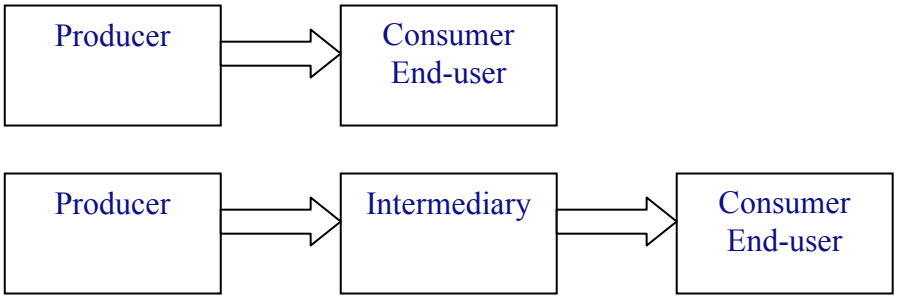
In most cases “other services” and especially personal and household services are delivered directly to persons and households, which is the consumer or end-user. Therefore the value chain is very simple. In some case intermediary organizations such as commercial labour agents or social programs may act an intermediary. (Figure 4.1)

The majority of activities within this sector are aimed directly at consumers. The use of inputs is comparatively marginal. Labour is the dominant production factor.

Hairdressers and comparable services (manicure, pedicure, beauty treatment, etc.) use inputs from the pharmaceutical industry and some tools and equipment. Funeral companies use inputs like natural stone, wood, textile and fuel.

Services supplied to households by individual workers (formal and informal) do not use any inputs directly from other production sectors. Retail trade delivers material needed.

Figure 4.1 Value chain in personal services



4.2 Restructuring and change

Nearly all production is local by definition and does not change over time in terms of changes between countries.

5 Sector dynamics and the role of technological change, R&D and innovation

Technological change and R&D are less relevant as a consequence of a simple production process, low value added and lack of economies of scale. ICT has no particular meaning for most of the activities, but nevertheless offers various possibilities for marketing personal services. Especially dating and escort services have made use of this medium to increase earnings. Other intermediate organisations, bringing personal and household services supply and demand together, might use the internet as useful medium.

Product innovation occurs in activities like funeral companies and physical well-being activities. In economies with high disposable incomes new and more exclusive forms of funerals are developed. Within physical wellbeing (sauna, solarium) and comparable activities new concepts have been introduced (various forms of sauna and bath), also using new equipment.

6 Trade, globalization and international competition

6.1 International competition

International competition is not an issue for the services in this sector, but international labour migration is, as (low skilled) labour dominates in this type of activity. It concerns both legal and illegal international labour migration.

As a consequence of wage differences and job opportunities labour migration from the new member states to the EU 15 has increased considerably after accession. In general migration is directed westward. This means that migrants from the north-eastern part of the EU (Baltic states, Poland) move to the north-western part of the EU (Scandinavian countries, Germany, Netherlands, UK) and migrants from the south-eastern part to the south-western part of the EU (Italy, France, Spain, Portugal). At this moment Romanian and Bulgarian migrants still need a work permit in various EU countries.

Especially the flows from Poland to the UK, Ireland and Germany are large. UK and Ireland attract relatively more high-educated migrants, who for a large part tend to settle in these countries. Germany and the Netherlands attracted relatively more low skilled migrants, who for the largest part work on a temporary basis (Okólski, 2007). This labour migration has been accommodated for a part by commercial labour brokers, actively hiring workers from the new member states (especially Poland). Permanent settling of highly educated migrants is regarded by some as brain drain, which might damage the development of the new member states. Overall it is expected that this labour migration will decrease when wage differences between the European countries diminish, and even

more when the economies of the new member states offer enough job and career opportunities.

These legal (European) low skilled migrants are active in all kinds of economic activity (agriculture, industry, construction, trade, transport, tourism). In most cases working in households seems less obvious, as wages are comparatively low and language might be a barrier. It might be regarded as a last resort, in case no other job opportunities are available, but official data are hardly available. Data for the Netherlands suggest that both permanent and temporary labour migrants from the new member states are rarely employed in personal services (Corpeleijn, 2006). About two third of the temporary migrants are hired by temporary work agencies and work in low skilled jobs in various economic activities. About a quarter of the temporary migrants work a few months as seasonal worker in agriculture. Only a small percentage of them work in manufacturing, construction, trade, tourism and commercial services (like cleaning). Permanent migrants are employed in various economic activities. The structure of their employment is often comparable to the Dutch average employment structure, given their skills. Participation among permanent migrants is considerably lower than the Dutch average participation rate.

Evidence from the UK suggests that migration had no deterring effects on unemployment, but a dampening effect on wage levels may have occurred (Gilpin et al., 2006). Employment grew fast enough to accommodate the new labour supply, so no displacement occurred. Comparable analysis for other European countries is not (yet) available. As the Netherlands and Germany were faced with more low skilled migrants the effects might be different, as unemployment is already high among low skilled workers. Especially in Germany unemployment increased in recent years.

A clear picture of illegal labour migration (from outside the EU) is even harder to depict because of lack of data. It is also not clear to what extent illegal labour migrants are working for households (or other services).

Illegal immigration is a structural phenomenon in all (developed) countries. Huge welfare differences are the main (economic) driver behind this. It is impossible to identify trends in illegal and informal labour, especially within households. Regulation and difficulty in reinforcing rules create job opportunities for illegal immigrants. Incidents seem to dominate the political debate (e.g. people trafficking). However, at a recent conference in Brussels[8] a more fundamental issue was brought into discussion. Redesigning tax systems away from payroll taxes was suggested as a more thorough solution to the problem of tax evasion at the lower level of the labour market.

6.2 Trade

Local and regional – nearly all (very) small and medium sized - companies deliver services locally. Large companies are exceptional in personal services. Hardly any of the services of this sector is traded internationally. As stated before the use of inputs is comparatively small. Trade is therefore hardly an issue in this sector.

[8] SUBLEC international workshop/seminar/colloquium: *A survey instrument for revealing social and fiscal fraud,* Brussels, 25 February 2008.

The absence of large companies indicates that no use is made of economies of scale. At local or regional level some hair dressers or beauty salons exploit a (mostly limited) number of small establishments. Spas and comparable activities are (also) exploited by hotels and hotel organisations.

The low level of skills needed in combination with the absence of scale economies indicate that there are no important barriers to entry.

6.3 Externalisation strategies-outsourcing and offshoring

Historically laundering (for hotels, etc.) might have been one of the first services to be outsourced. Further growth in outsourcing can hardly be expected in other services. Off shoring is hardly an option for personal services. Services have to be delivered locally.

Box 2. Defining and measuring relocation and outsourcing

One of the biggest challenges when analysing and discussing offshoring and outsourcing is the definitional issue of what precisely is meant and - closely related – how to measure the phenomenon. Outsourcing covers activities previously carried out in-house sourced to third parties whether abroad or in the home country. Offshoring in its strictest sense relates to activities being discontinued in the home country and transferred to a location abroad managed within the same entity or by an affiliated legal entity (OECD, 2007). Frequently, the political debate mixes the above three and also discusses job losses due to restructuring unrelated to offshoring under the same label. Furthermore, the political debate is fuelled by estimates which are the main source of evidence in the absence of hard statistics. Two broad sources on job relocation have as a result emerged: private consulting estimates and press monitoring estimates (Van der Zee et al., 2007). While consulting estimates have severe limitations (ibidem), the estimates collected by press monitorings such as the ERM are more reliable. The most valid data, however, systematic official statistics on the employment impact of relocation, are not collected anywhere in the world today. As a result, academics who nevertheless want to use official statistical data resort to proxies of indicators of relocation activity, such as trade data, FDI flows and input–output tables (Van der Zee et al., 2007). However, these indicators only measure the indirect effects of relocation and are affected by a number of other factors making hard conclusions difficult to draw.

7 Regulation

Environmental regulation influences funeral companies. Work safety rules have an impact as far as chemicals are used. Some occupational diseases are common to hairdressers and other personal services (eczema).

Because labour is the dominant production factor, tax regulations have an important impact on this type of (personal) services and labour taxes are the main cause for the existence of informal activity, especially within households employing domestic personnel (OECD, 2005 and Saracoğlu, 2008). Services are supplied both by local residents and (legal and illegal) immigrants. Also a portion of people on social benefit performs non-declared work within households.

Formalization of this type of work proves to be very difficult. In various countries specific arrangements have been made, but these seem to be hardly effective in combating non-declared work or can only be maintained at the basis of large subsidization. Examples are the so-called 'service cheques' in France and Belgium, the 'mini-jobs' in Germany and tax regulation in the Netherlands. In this last case households do not have to pay wage tax and benefit premiums when they employ a household worker for the maximum of three days. The worker however is compelled to register their income at the tax service. Official childcare has increased significantly in the Netherlands after subsidisation was increased. As a consequence government expenditure on childcare has increased to the extent that this policy is highly debated. Enforcement of existing (tax) rules is very costly and practically very difficult, as it is nearly impossible to prove (juridical) violation of rules, especially within households.

8 SWOT

SWOT analysis is a tool in management and strategy formulation, used to evaluate the Strengths, Weaknesses, Opportunities, and Threats involved in a project, business venture or – as in this case – a sector, the latter being defined within a well-described geographical entity. The aim of a SWOT analysis is to identify the key internal and external factors that are important to achieving a particular objective or set of objectives. Strengths and weaknesses are internal factors that create or destroy value. For a company these can include assets, skills or resources that a company has at its disposal, compared to competitors. Opportunities and threats are external factors that create or destroy value. They emerge from either the company dynamics of the industry/market or from demographic, economic, political, technical, social, legal or cultural factors (STEEP or DESTEP, see also chapter 9). When applied to the sector level, SWOT has a similar meaning, albeit on a higher, more aggregated level.

The SWOT analysis presented in Table 8.1 is the result of an intensive workshop discussion which was subsequently validated and amended in two external workshops, including the final workshop in Brussels (step 10 in the methodological framework).

Table 8.1 Analysis of Strengths, Weaknesses, Opportunities and Threats-other services

Strengths	**Weaknesses**
o Customized services, tailor-made solutions, personalized, one-on-one services o Low barriers to entry	o Lack of innovation due to severe price competition, low profits, value added o Lack of economies of scale o Enforcement of rules and regulations difficult
Opportunities	**Threats**
o Structural growth of incomes o Demography and ageing o Development of new business models o Transparency in labour markets o Quality assurance, certification	o Enforcement of rules and regulations difficult

9 Drivers

9.1 Identifying sector drivers: methodology and approach

The methodological framework as defined by Rodrigues (2007) serves as the starting point for the identification of drivers. Rodrigues identifies three main driver categories: economic, technological and organizational drivers, with the economic dimension representing the main trends in demand and supply, the technological dimension covering the main trends in process and product innovation (including services) and the organizational dimension representing main trends in job functions (conceptual, executive). The Rodrigues' approach in principle enables the identification of drivers, and especially so at the meso (sector) and micro (firm or company) level. The search and identification procedure of drivers itself is less well defined, however. Implicitly it is assumed that expert opinion and desk study are sufficient tools to come up with a relevant and plausible set of drivers at the sector level.

During the first stage of the project, a methodological tool (approach) has been developed to facilitate and help the identification and further delimitation of drivers, to arrive at a set of key drivers. Apart from expert opinion mobilised and managed as discussion panel (in a similar manner as a SWOT analysis is usually organised), this approach strongly builds on the findings of existing foresight and other future studies. By consistently linking the search for drivers with the findings in existing foresight and other future studies, a more coherent and all-embracive methodology to finding sector-specific drivers can be deployed.[9] This so-called 'meta-driver' approach of identifying main sectoral drivers starts from a more generic list of meta-drivers derived from a literature survey, and subsequently in a step-wise manner delimits the drivers to a set of most relevant and credible drivers. It does so by combining adequate expert (sector) knowledge in a panel setting. By subsequently asking the expert panel to score the different drivers on a range of characteristics, including relevance, uncertainty, and expected impact (similar to a SWOT procedure), a corroborated and conclusive list of sector-specific drivers can be derived. The meta-driver approach hence enables filtering out in a systematic and consistent way meso and possibly micro (sector-specific) as well as the macro (economy-wide) trends and developments judged relevant and important to the sector, directly and indirectly.

[9] Common ways to rank trends and drivers are the DESTEP (Demographic-Economic-Social-Technological-Ecological-Political) and STEEP (Social-Technological-Economic-Ecological-Political) categorisations. For our purpose, slightly altered DESTEP definitions are used to reflect the embracing dimension of analysis.

The meta-driver approach includes the following five steps:

Step 1. Drawing up of a list of relevant generic or meta-drivers based on literature review and expert knowledge (check-list: rows)

Step 2. Designing a list of key questions in order to identify the sector relevance and other properties of meta-drivers at sector level (check-list: columns)

Step 3. Filling in the check-list matrix: which meta-drivers do matter most for the sector?

Step 4. Which drivers do matter most for jobs and skills?

Step 5. Does the tailor-made list herewith cover all relevant sectoral drivers, i.e. are there any sector-specific drivers missing (check on completeness)

Arguments in favour of the use of the 'meta-driver' approach are:

- The ability and opportunity to use the rich potential of a multitude of already available studies on drivers, determinants of change and key trends
- Circumventing the risk of a too narrow focus on the sector per se while acknowledging sector-specificity, and avoiding the risk of analyzing sectors as if they were isolated (cf the difference between 'general equilibrium' and 'partial equilibrium' approaches)
- Guaranteeing overall consistency, coherence and completeness, as well as warranting a same point of departure important across lots/sectors – i.e. a way of integral assessment, making sure that all important factors are systematically taken on board.

An alternative and second way to arrive at a list of main sector-specific drivers of change is to start with a SWOT and subsequently translating the Opportunities and Threats part into sector-specific drivers. The SWOT is used as a tool to verify and check the resulting list of drivers. By combining the results of both the "from meta-drivers to sector-drivers" and the "from SWOT to sector-drivers" exercises a complete and consistent list of sector-specific drivers can be derived.

9.2 Identification and discussion of sectoral drivers

The table 9.1 below presents the analyses of the main drivers for change in personal and household services. These can be summarised to:

- Ageing: adapt to market demands;
- Economic: income level and distribution;
- Cultural values: life style changes;
- Cultural values: increasing market segmentation;
- Institutional: labour market regulation.

Table 9.1 Assessment of main drivers based on meta-driver approach

Category	Driver	Is this driver relevant for the sector? Y / N	How relevant is this driver for the sector? Scale 0-10	How uncertain is this driver for the sector? Scale 0-10	Are substantial impacts expected on the volume of employment? Y/N	Are substantial impact expected on employment composition? Y/N	Are substantial impacts expected on new skills? Y/N	Short, medium or long run impact?[10] S	M	L	Are substantial differences expected between (groups of) countries? Y / N	Are substantial differences expected between subsectors? Y / N[2]
Ageing / demographics	Ageing - Adapt to the market demands of an ageing and more diversified society	Y	9	0	Y	Y	Y			Y	N	N
	Ageing – declining labour force	N										
	Population growth (birth and migration)	Y	7	0	N	N	Y	Y	Y	Y	N	N
Economic	Income per capita and household	Y	9	0	Y	N	Y			Y	Y	Y
	Income distribution	Y	9	0	Y	N	Y			Y	Y	Y
Globalisation	Outsourcing & offshoring	N										
	Increasing global competition	N										

[10] Short = 0-3 years; medium = 3-7 years; long = > 7 years. All three categories may apply

Category	Driver	Is this driver relevant for the sector? Y / N	How relevant is this driver for the sector? Scale 0-10	How uncertain is this driver for the sector? Scale 0-10	Are substantial impacts expected on the volume of employment? Y/N	Are substantial impact expected on employment composition? Y/N	Are substantial impacts expected on new skills? Y/N	Short, medium or long run impact?[10] S	M	L	Are substantial differences expected between (groups of) countries? Y / N	Are substantial differences expected between subsectors? Y / N[2]
	Emerging economies driving global growth (new market demand, especially BRIC[11] countries)	N										
	Global / regional production networks (dispersed production locations, transport)	N										
	Counter-trend regionalism / protectionism	N										
Cultural values	Increasing market segmentation (tailor made production, mass customization)	Y	9	3	N	Y	Y		Y	Y	Y	N
	Lifestyle changes	Y	9	3	N	Y	Y		Y	Y	Y	N
	Increasing demand for environmentally friendly / organic products	Y	3	4	N	N	Y		Y	Y	Y	N

[11] BRIC countries: Brazil, Russia, India, China

Category	Driver	Is this driver relevant for the sector? Y / N	How relevant is this driver for the sector? Scale 0-10	How uncertain is this driver for the sector? Scale 0-10	Are substantial impacts expected on the volume of employment? Y/N	Are substantial impact expected on employment composition? Y/N	Are substantial impacts expected on new skills? Y/N	Short, medium or long run impact?[10] S	M	L	Are substantial differences expected between (groups of) countries? Y / N	Are substantial differences expected between subsectors? Y / N[2]
Technology, R&D and product and process innovation	Advances in IT impacting on organizational structures & new business models	N										
	Internet changing production and consumption patterns (e-business; etc.)	N										
	New types of work organisation (teams-based, sociotechnique, etc.)	N										
	New/additional value-added services	N										
	Robotics	Y	3	9	N	N	N			Y	N	N
Natural resources	Availability (and price developments) of oil and energy	N										
	Availability and price of other natural resources	N										

Category	Driver	Is this driver relevant for the sector? Y / N	How relevant is this driver for the sector? Scale 0-10	How uncertain is this driver for the sector? Scale 0-10	Are substantial impacts expected on the volume of employment? Y/N	Are substantial impact expected on employment composition? Y/N	Are substantial impacts expected on new skills? Y/N	Short, medium or long run impact?[10] S	M	L	Are substantial differences expected between (groups of) countries? Y / N	Are substantial differences expected between subsectors? Y / N[2]
Institutional / Political	Trade and market liberalisation (national level)	N										
	EU integration – deepening (single European market etc.)	N										
	EU integration – broadening (bigger domestic market)	N										
	Quality of institutions (judiciary, transparency, lack of corruption, viable business climate, structural rigidities)	Y	7	0	Y	Y	Y	Y	Y	Y	Y	N
	Labour market regulation	Y	9	0	Y	Y	Y	Y	Y	Y	Y	N
	Environmental regulation	N										
	Security and safety regulation	N										

Part II.

Future Scenarios and Implications for Jobs, Skills and Knowledge

Part II. Future Scenarios and Implications for Jobs, Skills and Knowledge

Guide to the reader

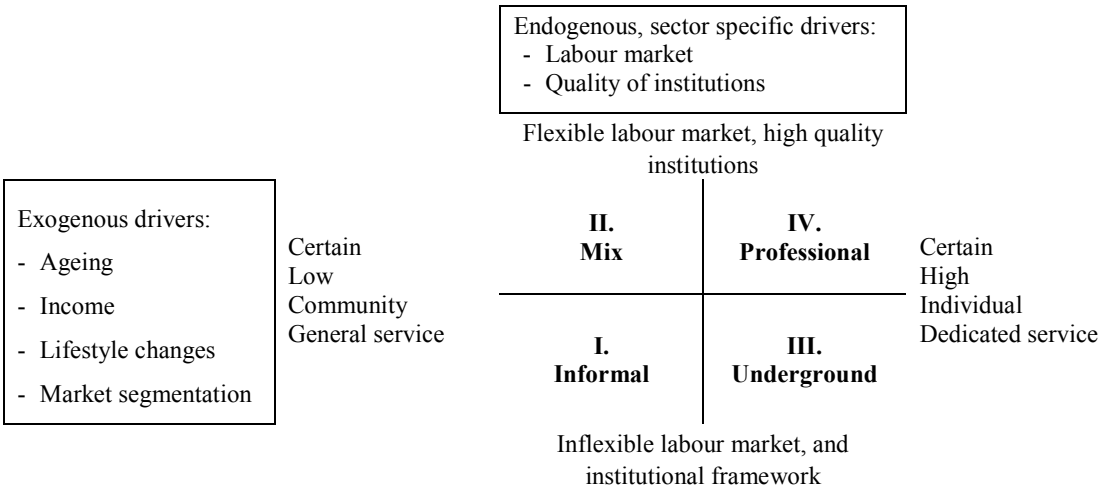
Part II presents the scenarios and their implications for jobs, skills and knowledge. It reflects steps 4, 5 and 6 of the common methodology. The contents of part II are as follows: Chapter 10 describes the structure and highlights the content of the four main scenarios (step 4). For each of these scenarios plausible yet different assumptions have been made as to how the main drivers of change will develop and add up to different states of the future. In subsequent steps the implications of the scenarios for jobs and skills are analysed. In order to facilitate a translation of these implications to the job function level, first a workable job function structure is proposed. This structure is based on the functions as they appear in Eurostat's Labour Force Survey and further elaborated. Chapter 11 discusses the main implications of the scenarios in terms of future employment volumes by job function (step 5). Chapter 12 assesses the implications of scenarios for future skills and knowledge needs by job function. It translates the implications of the scenarios for skills and knowledge by function (step 6).

10 Scenarios

10.1 Overview of scenarios and main underlying drivers

Figure 10.1 presents four different scenarios and their underlying drivers for the other services sector (see further below). The scenarios which were specifically constructed for and used in this study are based on a clustering of relevant drivers identified in part I.

Figure 10.1 Drivers and scenarios for other services



The scenarios are constructed to 'scan' the future, and are for the purpose of this study used to assess the impact of future developments on jobs, skills and knowledge. It is important to understand what scenarios can deliver and what not. Scenarios depict plausible futures and might reveal possible paths of development towards these futures. They are neither predictions or forecasts, nor wishful pictures ('dreams', 'crystal ball gazing') of the future. Grounded in existing data and trends, scenarios are derived in a logical and deductive way, with different and sometimes opposing presumptions about how key drivers might develop, resulting in inferences about plausible, i.e. credible and imaginable, futures.

In drafting the scenarios, a clear distinction has been made between exogenous and endogenous drivers; the horizontal axis in the figure represents the relevant exogenous drivers, whereas the vertical axis represents the relevant endogenous drivers. The main difference between the two categories of drivers is the scope and ability for direct influence. Exogenous drivers are drivers that form a "given" for the sector without much room for influence for/by individual actors drivers. Endogenous drivers are drivers that can be influenced at the sector level, for instance by national or European policy-making. Only those drivers that received the highest ranking - a score between 8 to 10 on a scale of 0 to10 (see chapter 9) - have been taken into consideration.

The goal of the scenarios presented here is to analyse whether different futures will have different implications for job volumes and skill needs by function. If this is the case, it is clear that the answers to arising volume gaps and skill needs should reckon with these differences, and hence will imply different (sets) of possible answers – i.e. strategic choices – for each scenario. It should be emphasized that by definition it is unknown which scenario will become reality.

In fact, there is only a tiny little chance that indeed one of the scenarios will become the 'real' future. Chances are much higher that the future will be a mix (of elements) of the described scenarios. Scenario analysis, however, enables us to get a better view on the wide range of volume effects and skills needed in the future, and therefore also of possible solutions.

10.2 The drivers – building blocks for scenarios

The drivers form the main fundament and can be regarded as the key building blocks for the construction of the scenarios. One of the central tenets of the scenarios identified here is a clear distinction between exogenous and endogenous drivers. The endogenous drivers are defined as those drivers which can be directly influenced by governmental actors, in other words where there is the scope and ability to change the course of action by policy-making, either at the regional/national or the European level. Two sets of drivers - which *a priori* might also be labelled endogenous factors - are not included in the scenarios. These concern those factors that concern possible actions taken at the industry and company level itself and measures directed towards the educational and training system, respectively. The reason for excluding these drivers in the formulation of the scenarios is that these factors have to regarded as solutions, so-called strategic options, that logically follow from the scenarios as implications rather than as building bricks for the scenarios. These strategic options represent the degrees of freedom for policy and other action (see further section 6: strategic choices to meet emergent skill needs).

Figure 10.1 summarizes the scenarios and highlights the various drivers that together make up the distinguishing elements for the identification of the scenarios, with the horizontal axis reflecting the relevant exogenous drivers and the vertical axis reflecting the relevant endogenous drivers.

Overview and description exogenous drivers:

- *Ageing*: It is certain that ageing plays a major role in the sector. In all scenarios we assume that ageing increases demand for other personal services and decreases labour supply.
- *Income*: Income is demand inducing in the other personal services sector. On the right-hand side we assume a high income per capita in general (high level, small differences in distribution). On the left-hand side we assume a low income per capita (low level, large differences in distribution).
- *Life style*: Major differences are present between life styles resulting in an individual setting promoting formal and paid services and life styles resulting in a social setting promoting informal services by family, friends and voluntary organisations. On the right-hand side we assume that the former will be present in the future, while on the left-hand side we assume that the latter is present.
- *Market segmentation*: An important difference exists between developments stimulating general services (on the left-hand side) and developments incurring dedicated services (on the right-hand side).

Overview and description of endogenous drivers

- *Labour market*: At the top of the scheme we assume that the labour market is flexible and is therefore able to quickly restore imbalances between demand and supply of labour, while at the bottom of the scheme we assume that the labour

market is inflexible. For the other personal services sector the tax system is crucial. At the top half of the figure we assume that flexible arrangements are possible which stimulate the development of formal services, while at the bottom inflexibility in the regulatory framework limits the development of formal services, thereby causing most of these services to be supplied in an informal manner. Flexible arrangements include price interventions such as grants given to demand or supply. It is, for instance, possible to use these grants to decrease the gap between labour supplied at the formal and black labour market.

- *Quality of institutions*: At the top of the scheme we assume a high quality institutional framework promoting the solution of problems, while at the bottom of the scheme the quality of institutions is low. Institutions are here defined narrowly as legal bodies supervising regulations.

10.3 The scenarios – detailed discussion

Based on the combination of endogenous and exogenous drivers we discriminate between four sector scenarios for the other services sector:

- Scenario I: Informal;
- Scenario II: Mix;
- Scenario III: Underground;
- Scenario IV: Professional.

I: *Informal*
In 'Informal' the demand for other personal services is relatively low as a result of low incomes of inhabitants. Basic services like hairdressing and undertaking are used, of course, but especially the more high quality services are less in demand. Many services are provided by informal suppliers within their own community (e.g. family support). The labour market is inflexible, decreasing the demand for formal services further as labour taxes are in many cases too high to make formal services profitable.
Therefore, many services are not professionalized and in some cases practiced on a 'self-taught' basis or without formal certificates and operate in the legal 'grey-zone'. This could especially apply to cleaning, housekeeping and child/elderly attendance. Networking within the community is an important means for marketing and even more important than formal marketing and advertisement. The budgetary constraints may also affect the quality of and expectations for informal (and formal) services. For specific users some possibilities are present to provide social services (e.g. for low income households with a bad health situation). Working hours of service workers could be quite flexible and people generally would rather tend to do-it-yourself practices.

Scenario II: *Mix*
In 'Mix' the level of formal service provision is increasing somewhat as regulation tries to formalise informal labour. However, the demand for low paid services is not compatible with this development. As the quality of institutions is high, authorities get hold on the informal market. This reduces informal services, but does not result in an equal rise in formal services.
Institutions and regulators try to control informal services leading to price increases. As a result, an increasing number of people refrain from making use of these services. This is,

however, dependent on the way the supply side is financed. It is possible to give grants to suppliers to decrease the gap between the costs of the formal and black labour market. This scenario depicts to some extent the current situation in some countries with existing formal regulations for many services (e.g. in childcare, elderly care, wellness services) and where regulators try to control the 'grey zones' of rather informal practices and undeclared work.

Scenario III: *Underground*
In 'Underground' a sharp increase in demand for other personal services is visible. Luxury services like physical wellbeing activities and beauty arrangement are demanded much more as disposable incomes rise. This demand is increased further by ageing, as more people require dedicated services. The industry changes to supply the required services from general to dedicated service delivery. Informal services are profiting more than formal services as a result of the high tax rates and inflexible institutions.
Customers expect rather high quality services. Since the regulatory framework is weak, many service providers are operating informally in a legal sense, but are actually running their business quite professionally. Networking and 'secret tips' are an important means of marketing. The competition is high and the service providers are mostly sufficiently qualified. Quality is an important factor, but the market is the determining factor rather than institutional controls.

Scenario IV: *Professional*
In 'Professional' the labour market is reorganised to accommodate the growing demand for other personal services (as a result of the developments already described in 'Underground'). Compared with 'Mix' more possibilities to regulate the supply of other personal services are available due to the high income demand. Innovative arrangements are implemented making it possible to formalize and professionalise personal services, while at the same time the effective tax rate is not too high. Informal services, however, remain available, though at a lower level. Although the institutional framework is quite flexible, the formal market for services it is not sufficiently developed to drive out all informal services.
The formal service sector is quite professionalised and maintains institutional quality control. Certifications and legal aspects (e.g. licensing) play an important role and are an important factor for gaining the customer's trust. At the same time informal services continue to exist, but they are generally of lower quality and sometimes non-certified, but also cheaper. The gap in costs between formal and black labour are dependent on the grants provided to the demand for social services, or their supply. Social services like elderly-care in the 'professionalization' scenario are provided by (certified) institutions, whereas in the 'informal' scenario on the other hand, these are rather conducted within the family, in the context of friend/community circles or through personal networks.

11 Job functions-towards a workable structure

In order to determine the quantitative and qualitative implications of the scenarios for jobs and skills, a workable job classification is needed. The occupational classification of the available sector data derived from the Eurostat Labour Force Survey (LFS) is used as a starting point (see Box 3). The advantage of using this classification is that developments in the past as observed in the LFS can help to foresee likely trends for the future. For example, it might be expected that future developments in new Member States

in some cases will follow similar paths as old Member States in the recent past. Moreover, where strong growth of certain job functions appeared in most recent years, one might have a reason to cautiously weigh and re-assess any further increases in future years, as the situation (markets and other factors) might have stabilised in the mean time. The share of job functions in total sector employment is not unimportant either; sizeable shares call for adequate attention. This does not imply that job functions with only very minor shares of the total should be ignored altogether. It might well be that occupations that have small shares now will face strong growth in the oncoming years, or are strategic and vital for growth of the sector as a whole, even if small in size.

However, the LFS job classification cannot be taken over one to one. First, the given LFS definitions of the job function groups are highly aggregated and cover therefore highly heterogeneous but not always comparable job functions. Reporting on this most aggregate level therefore would not be very illuminating. Second, some functions which may be strategic for the sector when looking at the future can be 'hidden' in a broader statistical category. This also includes 'new' emergent job functions. For both reasons some of the aggregated categories have been split up into separate job function categories, which have been given a more in-depth treatment. The opposite case, where certain job functions may be closely related, but do not fall within the same statistical LFS class, may also apply. Here it would be logical to combine them.

Box 3. The European Labour Force Survey

The European Union Labour Force Survey (LFS) is conducted in the 27 Member States of the European Union and two countries of the European Free Trade Association (EFTA) in accordance with Council Regulation (EEC) No. 577/98 of 9 March 1998. The data collection covers the years 1983 to 2006 and covers all industries and occupations. The national statistical institutes are responsible for selecting the sample, preparing the questionnaires, and conducting the direct interviews among households. The Labour Force Surveys are centrally processed by Eurostat, using the same concepts and definition, based on the International Labour Organisations guidelines and common classifications: (NACE (rev 1), ISCO-88 (COM), ISCED, NUTS).

Although the LFS can be used for comparative purposes, the relative small sample size (in 2002 the sample size was about 1.5 million of individuals, which represents 0.3% of the EU population) means that error margins can be high, especially when the industry itself is rather small.

Source: Eurostat (2008)

Third, in the trend analysis it was already observed that whereas in some countries employment shares of a particular (production) job function were extremely large, similar shares in other countries appeared extremely low, often with another closely related job function being much higher. A very likely explanation for this phenomenon is that in some countries workers are reported as job function x while in others they are reported as job function y, where basically similar tasks on the job are performed. By taking aggregates for these function types, this sort of reporting bias can be avoided. Fourth, the job functions that appear from statistical data analysis might not always be similar to what a person in or familiar with that sector would rank as the job functions that matter "in reality", i.e. from a work floor perspective. On the basis of discussions with experts and national sector skills studies, an attempt was made to provide a job classification that is both workable and recognisable by the sector in practice. This classification is shown as Table 11.1 below.

In order to establish a meaningful and appropriate classification, the existing LFS occupational classification for the sector was adapted by either aggregating and/or selecting further differentiating some professions out of the original LFS statistical classification. This exercise was based on four criteria:

- employment shares (aggregating);
- closely related job functions (aggregating);
- strategic role in sector (disaggregating by further selecting among the occupational groups identified in the statistical classification);
- emergent job functions not yet covered and/or brought fully to light by current statistics.

Table 11.1 Adaption of the original job classification

Classification in statistical data	*Adapted classification used in our analysis*	*Names in table*
Managers	Managers	Managers
Technicians	Technicians	Technicians
Clerks	Administrative support staff	Administrative support staff
Other personal service workers	Aggregation: Service workers	Service workers
Other service workers		
Craft and related trade workers		
Domestic helpers, cleaners, launderers	Domestic helpers, cleaners, launderers	Helpers & cleaners
Motor vehicle drivers. mobile plant operators	Other elementary occupations	Other functions
Other plant and machine operators		
Other elementary occupations		

The functions used in this analysis can be described as follows:

- The category managers contains top management, but also entrepreneurs and different management occupations, such as HRM, Finance and Production management.
- Technicians contain the technical staff, responsible for maintaining and repairing machinery and other equipment.
- Administrative support staff includes general administrative functions, such as bookkeeping, administrative support, secretaries.
- Service workers form the main share of the sector with 46% of total employment.
- Helpers & cleaners form a large share of the sector with 16% of total employment.
- Other functions is a broad category of several elementary occupations, which have all a very small share in total employment.

12 Implications of scenarios by job function - volume effects

Different futures will have different implications for jobs, both in quantitative and in qualitative terms. In this chapter the implications of the four scenarios in terms of volume effects for each of the identified job functions are assessed. Trends and developments of the recent past provide an important starting point in forming an idea about these future developments. This quantitative trend information has been combined with expert opinions of a core expert team and supplemented with insights from invited sector experts in a dedicated workshop to assess which volume effects would be likely to occur for which job functions. It should be emphasized that the referred expected changes are qualitative in nature, reflecting the outcome of expert judgements and expert discussion as well as desk research taking into account the results of other studies. The results of the following chapter should therefore be used as a supplement and an independent expert assessment in addition to other more formal analyses, e.g. based on mathematical and/or econometric modelling and simulation.

Table 12.1 presents possible changes in the quantity of workers in the specified job functions for each scenario. Each cell translates the impact of a particular scenario to possible future developments by job function. Developments in the recent past as described in tables 3.6 - 3.9 of part I are an important starting point in forming an idea about overall developments in the future. The expert team that filled in the table used this starting point and discussed and analysed in detail whether, in their opinion, the scenarios will lead to changing effects.

In the informal scenario, the volume levels stay the same for all functions. In a situation where tax incentives or subsidies are provided to legalize undeclared work the volume effect will become more positive.

As much more regulation is introduced in 'Mix', where income levels are relatively low, the accompanying price increase is expected to result in a generally lower demand for service workers, helpers & cleaners, technicians and other functions. This effect depends, of course, on the way in which governments tax and subsidise these types of work. Here, there are two possibilities: one is where no grants or subsidies are provided and normal taxes apply. The other is with subsidies, or lower taxes: this situation would render the volume effects more positive than shown in table 12.1.Volume effects for managers and administrative support staff are positive in 'Mix' as regulation generally requires more professionalization.

In 'Underground' the raising demand leads to positive volume effects for service workers, helpers & cleaners, technicians and other functions. As the sector is organised informally, the number of managers and administrative support staff is expected to stay unchanged.

All job functions are expected to increase when the market is more formally regulated as assumed in 'Professional'.

Table 12.1 Expected volume changes in job function structure, 2008-2020

	Informal	Mix	Underground	Professional
Managers	M	I	M	I+
Technicians	M	D	I	I+
Administrative support staff	M	I	M	I+
Service workers	M	D	I	I+
Helpers & cleaners	M	D	I	I+
Other functions	M	D	I	I+

Note: D=decrease, I=increase, I+= large increase, M=maintain.

13 Main emergent competences

13.1 Introduction

Determining emergent competences is at the very heart of this study. In order to identify the main emergent competences by occupational function, the Rodrigues (2007) methodology refers to three main competences: theoretical, technical and social competences. This distinction builds on the distinction between knowledge, skills and competences in the European Qualifications Framework (EQF) and the European Credit system for Vocational Education and Training (ECVET) (see Box 4 below). The term human capital broadly defined by the OECD as 'the knowledge, skills, competencies and attributes embodied in individuals that facilitate the creation of personal, social and economic well-being' (OECD, 2001:18) captures all three. The use of the term 'capital' leads one to think in terms of investments in education and training which are often necessary in order to acquire skills and knowledge. However, skills and knowledge can also be acquired through work experience, informal on-the-job learning and a variety of other means.

In the actual identification of future competences, the EQF/ECVET definitions are used as indicative. It is noted that the difference between competences and skills is not always clear-cut, for instance where 'soft skills' come into play. A similar comment holds for what determines job or occupational qualifications.[12] Partly because of these identification issues, adequate measurement of competences, knowledge and skills is notoriously difficult. In some of the literature, the problem of skills measurement is sometimes avoided by using indicators (proxies) focusing on qualifications (high-level, intermediate-level, low-level) as well as occupations.

For the purpose of identifying *future* skill needs such approach will not deliver useful results. Instead it is the knowledge and skills behind that need to be identified.

[12] 'Qualification' denotes the requirements for an individual to enter or progress within an occupation. It also denotes an official record (certificate, diploma) of achievement which recognises successful completion of education or training, or satisfactory performance in a test or examination. The concept of qualification varies from one country to another. It may express the ability – formally defined in work contracts or collective agreements – to perform a certain job or meet the requirements of the workplace. A qualification may give rise to a number of rights and prerogatives which determine the individual's position within the hierarchy of his/her occupational context. (Tessaring, 2004: 235).

Rather than producing a full and exhaustive list of all competences for each job function, the key focus in this chapter is on identifying and describing key and critical competences for the future. The description will be focused but also general enough to be meaningful across countries. A slight extension of the original Rodrigues methodology is that together with the identification of critical skills and knowledge needs, a differentiation by scenario is made. Skills and knowledge needs are operationalised as expected key changes in specific skills and knowledge categories by occupation.

Box 4. Definition of competences, skills and knowledge in EQF and ECVET

Several definitions of knowledge, competences and skills are nationally as well as internationally under discussion. Moreover, Member States of the European Union still have different approaches in defining these terms. The European Union has set up a joint process to co-ordinate the different existing terminologies and to find a common basis. Aims of this process are for example to strengthen the mobility of the labour force within the European Union and to facilitate sectoral developments. In the following reference is made to the definition used by the European Qualification Framework (EQF) and the European Credit System on Vocational Education and Training (ECVET).
The EQF links national qualification systems and tries to make vocational training and lifelong learning more transparent and understandable. Therefore a common terminology was developed. The following descriptors are taken from the EQF (European Commission, 2008e; see also European Commission, 2008f):

- *Knowledge* refers to the outcome of the accumulation of information through learning. Knowledge is the body of facts, principles, theories and practices that is related to a field of work or study. In the context of the European Qualifications Framework, knowledge is described as theoretical and/or factual;
- *Skills* refers to the ability to apply knowledge and use know-how to complete tasks and solve problems. In the context of the European Qualifications Framework, skills are described as cognitive (involving the use of logical, intuitive and creative thinking) or practical (involving manual dexterity and the use of methods, materials, tools and instruments);
- *Competence* refers to the proven ability to use knowledge, skills and personal, social and/ or methodological abilities, in work or study situations and in professional and personal development. In the context of the European Qualifications Framework, competence is described in terms of responsibility and autonomy;
- *Qualification* refers to a formal outcome of an assessment and validation process which is obtained hen a competent body determines that an individual has achieved learning outcomes to given standards;
- *Learning outcomes* refer to statements of what a learner knows, understands and is able to do on completion of a learning process, which are defined in terms of knowledge, skills and competence.

Box 5. Skills needs, skills shortages and skills gaps defined

- *Emergent skills needs* are defined here as the change in skills that is needed to adequately fulfil a certain job function in the future. Addressing emergent skills is needed in order to avoid skills shortages and/or skills gaps in the future.
- *Skills shortages* exist where there is a genuine lack of adequately skilled individuals available in the accessible labour market. A skill shortage arises when an employer has a vacancy that is hard-to-fill because applicants lack the necessary skills, qualifications or experience.
- *Skills gaps* arise where an employee does not fully meet the skills requirements for a specific job function but is nevertheless hired. This skills gap needs to be closed through training. Skills gaps can arise where new entrants to the labour market are hired and although apparently trained and qualified for occupations still lack some of the skills required.

Throughout this report the term *competences* is defined as the "proven ability to use knowledge, skills and personal, social and/or methodological abilities, in work or study situations and in professional and personal development." (see Box 4 for definitions). In the practical elaboration of competence needs hereafter the focus is predominantly on knowledge and skills needs, with a further distinction to what is usually described as 'soft skills' such as team working skills, and planning and organising. Note that the 'personal, social and/or methodological abilities' included in the definition of competences (see Box 5) come very close to what is generally understood as 'soft skills'.

A number of different skills categories have been taken into account, including social skills, problem solving skills, (self) management skills, skills related to entrepreneurship, as well as knowledge requirements (sometimes labelled as 'hard skills'). Table 13.1 provides an overview of the different skills and knowledge categories taken into consideration. Literacy and numeracy skills are not specifically mentioned in the tables. In practice these skills cannot be taken for granted. However, they are a prerequisite rather than an emerging skill to participate in the workforce especially in highly regulated and science-based sectors such as chemicals.

For each job function key future skills and knowledge needs were identified. This was done in a workshop with a number of invited sector experts, and validated in two subsequent workshops, including the step 10 final workshop; the results therefore remain based on joint expert opinion. The analysis in Part I and the data tables formed a 'levelling' starting point for each of the discussants. Key 'new' competences were thus identified for various job functions.

The emergent future competences – defined as skills and knowledge needs - are identified and clustered together with similar ones in a concise overview table per job function (see next sections 13.2 to 13.11). Only *substantive key changes* in skills and knowledge needs are taken into account, which means that only part of the cells in the table is 'filled'. However, if a certain skill or knowledge type is highlighted in one scenario, but is not addressed in another, this does not mean that it is irrelevant. Rather it means that relative demand for this skill in the latter case will not increase within the time frame 2009-2020.

Table 13.1 Overview of skills and knowledge clustered by category

Knowledge (‘hard skills’)
• Legislative / regulatory knowledge (environmental / safety / labour / contracting); Language*; e-skills; Marketing skills; Technical knowledge; Product knowledge; Product development
Social Skills • Team working skills; Social perceptiveness (listening / understanding); Communication; Networking; Language*; Intercultural
Problem-solving Skills • Analytical skills; Interdisciplinary; Initiative, Multi-skilling; Creativity
Self management • Planning; Stress and time management; Flexibility; Multi-tasking
Management skills • Strategic & visionary; Coaching and team building; Change management; Project management; Process optimizing; Quality management; people skills crucial for collegial management style
Entrepreneurial skills • Supplier and customer relationship / understanding; Business understanding; Trend setting / trend spotting

13.2 Managers

Managers face different challenges in the four scenarios. In general, in the two scenarios with relatively low income growth challenges for managers are less severe than in those scenarios with high expected income growth. Of those, the 'Professional' scenario is the most demanding in terms of new skills required from managers as it combines a growing demand for services based on a combination of growing incomes, individual lifestyles, high quality demands from customers with a flexible regulatory framework – leading to new types of service provision and a more formalised organisation.

In the 'Underground' scenario a large share of services is provided in the form of undeclared work. Managers working in the formal sector need to deal with competition from the grey and black market segment and will be challenged to find ways to attract qualified personnel. The main challenge for managers is thus to deal with high quality demands from customers.

Some of the new management skills needed in the 'Professional' scenarios apply also to the 'Mix' scenario as more regulation requires a general formalisation of business (cf. table 13.2). However, income is low, lifestyles are community-based and the required services are of a more general nature. This means that the price quality ratio is less important compared with 'Professional' and 'Underground'. For managers this implies that in the "Mix' scenario competitive pressures are less intense than in the high-income scenarios.

In 'Mix' and 'Professional' new regulations apply. Rules and regulations deal specifically with working conditions, safety and environmental issues, the use of chemicals (e.g. in hairdressers) and formal requirements to be able to supply services, including financing mechanisms (e.g. vouchers). E-skills are thus to a greater degree required in the high income scenarios and in the scenarios where more competition is present between formal businesses. E-skills are necessary to attract enough customers and to convince customers of the price-quality ratio.

Managers generally need to deal with customers and workers with an increasingly different background. This is especially important in scenarios with more formal businesses and higher quality demands from customers. Therefore, intercultural and language skills become more important. Team working skills and networking are even more important in 'Mix' and 'Professional' as the expected growth of formal businesses will ask managers to organise their business at a higher quality level. In 'Underground' and 'Professional' customers will put more value to better communication and want their specific wishes to be taken care of. This demands more social perceptiveness and communication skills from managers in this sector.

In 'Underground' and 'Professional' customer demand is characterized by high quality. Customers want adequate and quick solutions if problems arise, demanding analytical and creativity skills from managers in order to react appropriately. The last type of skills is also required in 'Mix' as formalising businesses requires creativity from managers.

The other skills required are mainly needed in the 'Underground' and 'Professional' scenarios. High quality demands require better planning, flexibility and understanding customers. In 'Professional' the formal businesses become more important and businesses with better marketing, business development, change management have a better competitive position as they are able to react quickly and adequately to changing trends.

In the 'Informal' scenario, demand for services (especially of the up-market type) is relatively low and services are often provided by informal community-based suppliers with a generally small role for managers.

Table 13.2 Emerging skills and competences for managers, 2008-2020

Category	Skills and competences	Informal	Mix	Underground	Professional
Knowledge	Legislative/regulatory				
	e-skills				
	Technical				
Social	Team working skills				
	Social perceptiveness				
	Communication				
	Networking				
	Language				
	Intercultural				
Problem solving	Analytical skills				
	Interdisciplinary				
	Initiative				
	Multi-skilling				
	Creativity				
Self management	Planning				
	Stress and time				
	Flexibility				
	Multi-tasking				
Entre-preneurship	Understand customers				
	Business development				
	Marketing skills				
	Trend setting / spotting				
Management	Strategic and visionary				
	Coaching, teambuilding				
	Collegial style				
	Change management				
	Project management				
	Process optimizing				
	Quality management				
Total emerging skills and competences		0	7	11	19
Scenario characteristics:					
- Ageing		Certain	Certain	Certain	Certain
- Income		Low	Low	High	High
- Lifestyle changes		Community	Community	Individual	Individual
- Market segmentation		General	General	Dedicated	Dedicated
- Labour market		Inflexible	Flexible	Inflexible	Flexible
- Quality of institutions		Low	High	Low	High

Note: shaded area means that skills and competences are emerging relatively fast compared with other scenarios.

13.3 Technicians

The other services sector is a sector with a generally low potential for technological change as most services are of a personal nature, often provided by individuals, micro-enterprises or small companies, all of which have a low possibility to invest in new technology. This might change in the long run as robotics may come in as a major technology after 2020. However, between 2009 and 2020 it is not probably that this technology shows a high penetration rate. It is important to distinguish self-employed workers from those working for companies – the former require a broader range of (self) management entrepreneurship and e-skills.

All scenarios still require that technicians keep up with the ongoing technical developments in their field (cf. table 13.3) In 'Underground' and 'Professional' this is more important as quality demands from customers are increasing. E-skills also become important in all scenarios as technicians may use ICT as a problem solving tool, for information purposes and as a communication tool with their employers and customers (marketing new types of services and the possibility to deliver these services in novel ways). The importance of e-skills therefore increases in scenarios where demands from customers are higher ('Underground' and 'Professional') as well as in scenarios with more formal businesses ('Mix' and 'Professional').

In the 'Mix' and 'Professional' scenario, legislative and regulatory knowledge becomes generally more important. First, this will hold with respect to working conditions, health and safety and the use of chemicals. Second, this is important for technicians running their own business.

As lifestyle is becoming more individual, market segmentation is dedicated and customers have high incomes the services required from technicians are expected to increase not only in quantity, but also in qualitative terms. This development thus demands a better understanding of customers, more social perceptiveness and better communication from technicians. For the same reason, multi-skilling will become of special importance to technicians. Increasingly, technicians will be required to provide a *range* of services to complement their core skills.

Table 13.3 Emerging skills and competences for technicians, 2008-2020

Category	Skills and competences	Informal	Mix	Underground	Professional
Knowledge	Legislative/regulatory				
	e-skills				
	Technical				
Social	Team working skills				
	Social perceptiveness				
	Communication				
	Networking				
	Language				
	Intercultural				
Problem solving	Analytical skills				
	Interdisciplinary				
	Initiative				
	Multi-skilling				
	Creativity				
Self management	Planning				
	Stress and time				
	Flexibility				
	Multi-tasking				
Entre-preneurship	Understand customers				
	Business development				
	Marketing skills				
	Trend setting / spotting				
Management	Strategic and visionary				
	Coaching, teambuilding				
	Collegial style				
	Change management				
	Project management				
	Process optimizing				
	Quality management				
Total emerging skills and competences		2	3	7	8
Scenario characteristics:					
- Ageing		Certain	Certain	Certain	Certain
- Income		Low	Low	High	High
- Lifestyle changes		Community	Community	Individual	Individual
- Market segmentation		General	General	Dedicated	Dedicated
- Labour market		Inflexible	Flexible	Inflexible	Flexible
- Quality of institutions		Low	High	Low	High

Note: shaded area means that skills and competences are emerging relatively fast compared with other scenarios.

13.4 Administrative support staff

For administrative support staff differences between scenarios are not expected to be substantial. New skills needed include e-skills in order to deal with internet-based payroll and administration systems, especially for small companies.
In the 'Professional' and 'Mix' scenario, administrative staff will most likely need to know about changing rules and regulations with regard to labour laws, health and safety in the workplace, tax regimes and financing mechanisms (e.g. vouchers).
In 'Underground' and 'Professional' quality demands from customers become more important requiring better understanding of customer needs, social perceptiveness, higher quality communication and quality management.
In 'Professional' planning skills become more important as customers do not like waiting time and waiting lists, while formal businesses might have a tendency for bureaucracy (cf. table 13.4).

Table 13.4 Emerging skills and competences administrative support staff, 2008-2020

Category	Skills and competences	Informal	Mix	Underground	Professional
Knowledge	Legislative/regulatory				
	e-skills				
	Technical				
Social	Team working skills				
	Social perceptiveness				
	Communication				
	Networking				
	Language				
	Intercultural				
Problem solving	Analytical skills				
	Interdisciplinary				
	Initiative				
	Multi-skilling				
	Creativity				
Self management	Planning				
	Stress and time				
	Flexibility				
	Multi-tasking				
Entre-preneurship	Understand customers				
	Business development				
	Marketing skills				
	Trend setting / spotting				
Management	Strategic and visionary				
	Coaching, teambuilding				
	Collegial style				
	Change management				
	Project management				
	Process optimizing				
	Quality management				
Total emerging skills and competences		1	2	5	7
Scenario characteristics: - Ageing - Income - Lifestyle changes - Market segmentation - Labour market - Quality of institutions		Certain Low Communit y General Inflexible Low	Certain Low Communit y General Flexible High	Certain High Individual Dedicated Inflexible Low	Certain High Individual Dedicated Flexible High

Note: shaded area means that skills and competences are emerging relatively fast compared with other scenarios.

13.5 Service workers

Service workers can be either skilled or low-skilled. Skilled service workers include employees providing specialist services for which a diploma or certificate is required or expected. These include hairdressers and beauticians and for example suppliers of specialised cleaning services. Demand for these specialist services will be highest in the high income growth scenarios.

E-skills are of key importance in all scenarios (cf. table 13.5) as these services are often provided by individuals or micro enterprises which can strongly benefit from the internet in the development of new services and better communication with (potential) customers. The internet also provides new ways of delivering services to customers.

Technical knowledge (again to provide innovative up-market services) is more important in the 'Underground' and 'Professional scenarios' as customers are expected to demand more high quality services.

In the 'Mix' and 'Professional' scenario, legislative and regulatory knowledge becomes more important as business is formalised. First, this is particularly important with respect to working conditions, health and safety and the use of chemicals. Second, this is also important for service workers who run their own business. Flexibility and multi-tasking are also important in the 'Professional" scenario.

In 'Underground' and 'Professional', several new skills emerge as a result of the growing demand for high-quality services. This demands that workers understand their customers better, have enough social perceptiveness towards them, know the cultural background of customers and invest in better communication. As customers increasingly ask for shorter waiting periods, creativity to solve problems and optimal planning are also required. Finally, better quality management is essential to enlarge the growth potential of businesses.

In the 'Professional' scenario, some skills are additionally required (compared to other scenarios) relating to service workers who set up their own business. In particular, business development and marketing skills are important to be developed, but also stress, time management and multi skilling will be demanded to a greater degree.

Table 13.5 Emerging skills and competences for service workers,2008-2020

Category	Skills and competences	Informal	Mix	Underground	Professional
Knowledge	Legislative/regulatory				
	e-skills				
	Technical				
Social	Team working skills				
	Social perceptiveness				
	Communication				
	Networking				
	Language				
	Intercultural				
Problem solving	Analytical skills				
	Interdisciplinary				
	Initiative				
	Multi-skilling				
	Creativity				
Self management	Planning				
	Stress and time				
	Flexibility				
	Multi-tasking				
Entre-preneurship	Understand customers				
	Business development				
	Marketing skills				
	Trend setting / spotting				
Management	Strategic and visionary				
	Coaching, teambuilding				
	Collegial style				
	Change management				
	Project management				
	Process optimizing				
	Quality management				
Total emerging skills and competences		0	2	9	17
Scenario characteristics:					
- Ageing		Certain	Certain	Certain	Certain
- Income		Low	Low	High	High
- Lifestyle changes		Community	Community	Individual	Individual
- Market segmentation		General	General	Dedicated	Dedicated
- Labour market		Inflexible	Flexible	Inflexible	Flexible
- Quality of institutions		Low	High	Low	High

Note: shaded area means that skills and competences are emerging relatively fast compared with other scenarios.

13.6 Helpers & cleaners

In general, low-skilled job functions, such as cleaners and dog-walkers, have little potential for upgrading and innovation. Services are often provided for an agreed time period (baby sitting for four hours) – with almost no possibility to improve labour productivity. Services very often come with a person and are provided at the employer's home – a situation in which trust is of vital importance In the 'Professional', 'Underground' and 'Mix' scenarios e-skills are needed but only for independent service providers in order to be able to advertise their services in an effective manner to reach potential customers. In the scenarios with more regulation, knowledge about labour laws, safety regulations and legal requirements for businesses become increasingly important (cf. table 13.6).

Apart from the 'Informal' scenario, many low-skilled functions are provided by migrants. Therefore, a key success factor for these employees will be the ability to speak the local language and to have basic intercultural skills in order to adapt to the specific working environment.

Employment chances for helpers and cleaners in scenarios with high quality demand get better when they provide high quality services (quality management), understand their customers, communicate better with them and provide several services in one package by themselves (multi-skilling) or associates (team working).

Table 13.6 Emerging skills and competences for helpers & cleaners, 2008-2020

Category	Skills and competences	Informal	Mix	Underground	Professional
Knowledge	Legislative/regulatory				
	e-skills				
	Technical				
Social	Team working skills				
	Social perceptiveness				
	Communication				
	Networking				
	Language				
	Intercultural				
Problem solving	Analytical skills				
	Interdisciplinary				
	Initiative				
	Multi-skilling				
	Creativity				
Self management	Planning				
	Stress and time				
	Flexibility				
	Multi-tasking				
Entre-preneurship	Understand customers				
	Business development				
	Marketing skills				
	Trend setting / spotting				
Management	Strategic and visionary				
	Coaching, teambuilding				
	Collegial style				
	Change management				
	Project management				
	Process optimizing				
	Quality management				
Total emerging skills and competences		0	3	5	9
Scenario characteristics:					
- Ageing		Certain	Certain	Certain	Certain
- Income		Low	Low	High	High
- Lifestyle changes		Community	Community	Individual	Individual
- Market segmentation		General	General	Dedicated	Dedicated
- Labour market		Inflexible	Flexible	Inflexible	Flexible
- Quality of institutions		Low	High	Low	High

Note: shaded area means that skills and competences are emerging relatively fast compared with other scenarios.

13.7 Other functions

The ‘other functions’ category contains a very mixed remainder of job functions including drivers and elementary occupations making it difficult to present a single skill development profile for this job function. ‘Other elementary occupations’ appear to be the most important in this category ‘other service functions’. Expectation is that the same skills development outline will apply. for other service functions as for helpers and cleaners

13.8 Summary volume effects and emergent competence needs

The quantitative and qualitative analyses undertaken in the paragraphs above are summarised in table 13.7. Volume changes are thereby taken from table 12.1. Total emerging skills and competences stem from tables 13.2-13.6 respectively. In short, table 13.7 demonstrates that the largest overall changes occur in the scenario ‘Professional’. With respect to job functions, managers and service workers are expected to undergo most changes in skills and competences, especially in the ‘Underground’ and ‘Professional’ scenarios.

Table 13.7 Summary of quantitative and qualitative effects, 2008-2020

	Scenario 'Informal'	
Job function	**Volume change**	**Change in skills and competences**
Managers	M	0
Technicians	M	2
Administrative support staff	M	1
Service workers	M	0
Helpers & cleaners	M	0

	Scenario 'Mix'	
Job function	**Volume change**	**Change in skills and competences**
Managers	I	8
Technicians[1]	D/I	3
Administrative support staff	I	2
Service workers[1]	D/I	2
Helpers & cleaners[1]	D/I	3

	Scenario 'Underground'	
Job function	**Volume change**	**Change in skills and competences**
Managers	M	11
Technicians	I	7
Administrative support staff	M	5
Service workers	I	9
Helpers & cleaners	I	5

	Scenario 'Professional'	
Job function	**Volume change**	**Change in skills and competences**
Managers	I+	20
Technicians	I+	8
Administrative support staff	I+	7
Service workers	I+	17
Helpers & cleaners	I+	9

Note: D=decrease, I=increase, I+=large increase, M=maintain. 1. D without grants, I with grants.

It is important to note that in the Other Services sector the share of undeclared work can be quite significant. The EU study about 'undeclared work in the European Union'[13] concluded that 19% of undeclared work is in household services, an additional 9% in personal services, 3% in retail services and 7% in repair services. Undeclared or underground work in these functions accumulates to almost 40%. Furthermore, the EU study reports that there is a relatively high percentage of workers that carried out undeclared work notably also in prosperous countries such as Denmark and the Netherlands. In these countries 18% (Denmark) and 13% (The Netherlands) of the respondents confirmed their undeclared activities (the percentages among EU members ranged between 1% (Cyprus) to 18% (Denmark)). A possible explanation may be that in countries with high tax systems undertaking undeclared work is more tempting.
A number of countries are experimenting with or implementing programs aimed pushing back undeclared work through subsidies of demand or supply side. Box 6 presents an example of recent experience in Belgium. With regard to volume effects it may be

Undeclared work in the European Union, Eurobarometer, report October 2007, European Commission, DG Employment and Social Affairs, Brussels (see also http://europe.eu.int).

important to distinguish between situations where such subsidy schemes have a significant impact on volumes and situations where such schemes are not in place.

Box 6 Expanded Use of Service Cheques in Belgium

In 2003 Belgium introduced a system of service cheques. These can be used by individuals and families to purchase "neighbourhood services" from a registered service cheque company at a reduced tax rate. Service cheque companies (SSCs) often employ workers from socially vulnerable groups to whom the system provides an opportunity to build social security entitlements. SSCs provide services such as cleaning, ironing, and shopping to families, one-person househsold and those in need of care. Government support is both to the buyers of the cheques and the employees of the SSCs.

The system has been very successful and is widely accepted socially. Until 2007 a total of 1720 SSCs had been established and the number was growing at an annual rate of 30%. By the end of 2007 around 450,000 Belgians, or 5.5% of the population was an active user. The system has also been very successful in the creation of new jobs: in 2007 the system employed more than 87,000 people or over 27,000 FTEs. Almost half of the employees were previously unemployed, and had low levels of education. Overwhelmingly (98%) the workforce is female and one-third is single or forms a one parent household.

The system has benefits for both employees and users. Employees have the possibility to work flexible hours, close to home, and the chance to build social security entitlements. Users come in two main groups, first, families for whom the system provides possibilities to better combine work and family related obligations, and second, the elderly who have access to support not otherwise available.

The success of the system comes at a price: its increased use and demands for expanded services puts a growing burden on the budget of the federal government. To address this problem, at least partially, a new law was introduced in 2009 that proposed to expand the existing system by creating an additional possibility to obtain service cheques. These are provided by employers to their employees and the costs are shared by employer, employee and the federal government. Under this arrangement the employee does not pay income tax on cheques obtained through his employer, and for the employer the cost involved in providing cheques is tax-deductible.

Sources:
Wetsvoorstel betreffende de toekenning van dienstencheques door werkgevers. (Proposal of Law concerning the provision of service cheques by employers). Belgian Parliament, 2 February 2009.

Peeters, Anneleen; Van Pelt, An; Valsamis, Daphné, Evaluatie van het stelsel van de dienstencheques voor buurtdiensten en –banen 2007. Eindrapport Idea Consult, 9 mei 2008 (Evaluation of the system of service cheques for neighbourhood services and jobs).

Part III.

Available Options to Address Future Skills and Knowledge Needs, Conclusions and Recommendations

Part III. Available Options to Address Future Skills and Knowledge Needs and Recommendations - Guide to the reader

In the final third part of this report, a range of main strategic options ('choices') is reviewed, including possible actions in education and training. The report concludes with a number of conclusions and recommendations for the sector (individual firms, sector organizations, others) and policy-makers at various levels, ranging from the EU to the local level. Part III reflects steps 7 (Main strategic choices), 8 (Main implications for education and training) and 9 (Main recommendations) of the common methodology. Its contents are as follows: Chapter 14 highlights the various strategic choices in response to future skills and knowledge needs. Chapter 15 focuses on specific implications for education and training. Chapter 16 concludes by providing a number of key recommendations and conclusions.

14 Strategic choices to meet emergent skills and knowledge needs

14.1 Introduction

This chapter identifies the main strategic choices to meet the skills and knowledge needs identified (step 7). It provides a framework to pick and select the most relevant strategic choices – i.e. solutions to meet future skills and knowledge needs - available. Strategic choices refer and relate to the medium- and longer term, even though emerging skills needs in practice may also apply to the now and tomorrow. Essential in seeking appropriate solutions is to keep this longer time perspective in mind. Rather than focusing on one single solution, a set of linked strategic choices will in most cases be the best strategy to follow. Prioritising both in time (what first, where to follow up) and in allocation of resources (budgetary focus) followed by further fine-tuning is a clear necessity to guarantee that skills needs are targeted and solved. Skill needs can be identified at various levels, ranging from assessments at the national or even European sector level - which are by nature rather general - to more precise assessments at the regional and company level. Especially for large enterprises not only the identification of skills needs but also the search for adequate solutions will be an integral part of an overall longer-term business strategy. Some solutions will be found within the company itself, for instance by reorganising functions within or between plants, by offering (re)training trajectories and by active global sourcing of personnel. For SMEs and especially for micro-enterprises[14] such longer-term, more strategic human resource management often will be more difficult to organise and operationalise. It should be emphasized that at all possible levels identified different actors need to act to address skills needs and offer solutions and preferably also in close concert. These can be individual firms, organised interests at the sector level (employers and employees), but also others. Local, regional and national governments have also a important role to play. This chapter offers first of all a better insight in the 'menu' of possible strategic choices (section 14.2). It also provides for a framework that can identify skills needs at the appropriate level and helps to decide which should be the actual choices to be made (see section 14.3). This framework is subsequently applied to the other services sector (section 14.4).

14.2 Possible strategic choices

The possible strategic choices contained in this chapter refer to the strategic choices originally proposed by Rodrigues (2007: 42) as well as a number of other, additional choices. Whereas *strategic* choices mostly refer to the medium and longer term, most of the choices mentioned can also be implemented in the short run, to 'mend' existing skills shortages and/or skills gaps. Each of the solutions at hand differs in whether or not it can resolve direct skills shortages and/or gaps. A longer term horizon, however, means that there is possibility of adapting, steering and fine-tuning the available solutions towards a more optimal allocation of skills supply and demand. In view of the time horizon, the period up to 2020, the strategic choices and instruments with a more long-term impact especially need to be addressed. Identification of possible solutions obviously is not enough. Concrete initiatives, policy and strategic decisions need to be taken at all

[14] Defined as firms with less than 10 employees.

appropriate levels with each actor having a different responsibility and a different role to play.

Strategic choices to meet future skills needs need to be taken by a number of actors and at different levels (firm, local, regional, national, sectoral). For obvious reasons, firms are an important player in finding solutions for the skills needs – both in volume (skills shortages) and in matching any existing skills gaps. Companies avail of a number of options to meet their skills needs. These include:

A. Recruiting workers from other sectors
B. Recruiting workers from other Member States
C. Recruiting workers from non-Member States
D. Recruiting unemployed workers with or without re-training
E. Recruiting young people coming from the education system, with or without re-training (first job recruits)
F. Training employed workers
G. Changing the work organisation (including network collaboration and mergers)
H. Outsourcing and offshoring.

Sectoral organisations, educational institutions and governments also have a role to play. They will be the prime actors in addressing the following options:

I. Changing general and vocational education
J. Designing and offering new courses (continuing vocational education and training)
K. Providing information about jobs and (emerging) skills: career guidance; updating job profiles regularly.
L. Improve the image of the sector (joint action of companies together)
M. Stronger cooperation with the industry (internships, company visits for participants in education, image improvement).

A more detailed description of these strategic options can be found in annex III. Whether these strategic options are feasible and viable depends on a number of factors. In order to discuss and select from the available list of strategic options, one should first - as described in the introduction - know whether and when skills needs are indeed likely to arise, both in quantitative (number of job functions) and in qualitative terms (what knowledge and skills). An important question that needs to be addressed first is <u>at what level</u> and <u>to whom</u> the skills needs question applies. Obviously for an individual firm different information is required for identifying these needs and taking the right action than for a national ministry or a training institute.

The identification of possible strategic choices would in principle require extensive and detailed future analysis at the Member State and preferably also the regional level of skills and knowledge demand and supply patterns by job function and sub-sector, in a similar way and along the steps provided by the methodology of this study so far. The methodology and step-wise approach followed are applicable at the national and regional level of analysis. Ideally, these results should be complemented by the results of labour market model forecasts to corroborate results. Such an analysis would also need to include an assessment of the numbers and skills composition of currently being educated,

i.e. an assessment of all cohorts of primary, secondary and tertiary pupils and students (and their skills potential) currently in the educational system and arriving at the labour market in the oncoming years. It would need a thorough assessment of the current educational and training system itself, including the already decided changes herein for the oncoming years, to see whether the system as it is now in place is able to satisfy the prevailing and future new skills demands both in terms of numbers of new potential recruits and in terms of skills and knowledge.

14.3 Matching future skills and knowledge needs by making the right choices

In order to address the identified future skills and knowledge needs in an encompassing and timely manner, appropriate joint action is needed by all stakeholders, including the industry (firms, sector organisations and social partners), training and education institutes, intermediary organisations and, last but not least, government at all levels (EU, national, regional and local). Collaboration and co-operation between stakeholders will be needed, at all decision-making levels, in order to agree on and implement a package of feasible solutions. In order to prepare for this, timely, targeted and reliable information is essential.

This section presents a targeted short-cut strategic options decision tool to enable and support decision-makers in making the right (mix of) choices, supported by appropriate and reliable information on actual needs, possible choices and stakeholders to be involved. The strategic options decision tool is aimed to provide answers and solutions at the job function level and consists of a shortlist of a number of key questions - a concise menu of choice -, with answers providing decision-relevant information about the need and viability of available options. The questions need to be answered at the national, and where relevant at the regional level so as to map and identify the specific sector needs. The decision tool can also be used at the level of the firm. New job function information (e.g. new upcoming functions) can be added where thought relevant.

The key question list – consisting of six 'framing' questions, followed by option-specific questions - should be filled in for each job function. The 'framing' questions constitute a summary of main expected quantitative and qualitative skills needs developments. The filling in of the list should, however, only be done on the basis of an informed discussion between several stakeholders involved, representing together an informed body of knowledge on the various aspects at stake, including labour market developments and prospects at the sub-sector level, skill and knowledge requirements at job function level and developments in and make up/orientation of the educational and training system.

Key questions for identifying skills and knowledge needs

Question 1. Is the demand for workers expected to decrease or increase between now and 2020? (both related to market prospects and replacement demand due to ageing)

> If decreasing, there is probably less need for recruiting workers from other sectors and (non-) Member States and less need for recruiting unemployed.
>
> If increasing, analyse whether less radical options are enough to meet demand or whether options should be chosen like recruiting workers from other sectors and (non-) Member States and recruiting unemployed.

Question 2. Are the required qualitative skills expected to be rather stable between now and 2020?

> If there are not many changes in required skills and knowledge, there is probably no need to apply many strategic options. Please focus on the options that are most effective.

If many skills and knowledge categories are changing, there is probably a need to apply many strategic options. Create a package of strategic options to meet skill needs.

Question 3. Do SMEs and especially small companies (including micro enterprises) play a large role in the sector?

If yes, several options (like recruiting) are less viable for companies themselves as it is often difficult for small companies to organize this. If this is the case, sector organisations or intermediary organisation might play an important role in helping to match supply and demand. Another solution could be found in changing the work organisation. Through cooperation or mergers, for instance, the relevant scale can be increased which makes it easier to use these options. The same holds, more or less, for the organisation of training and re-training. Larger (associations of) companies have less difficulties to organise this and the need for support from other actors is lower.

Question 4. Are companies in general active on Member State level, EU level or global level?

Companies who are active on a larger regional level will have, in general, more opportunities to use the option of recruiting workers from other Member States (for companies active at the EU level) and the option recruiting workers from non-Member States (for companies active at the global level). The same holds for the option offshoring.

Question 5. Are workers in a job function in general low-educated?

If yes, training is less easy to implement as a viable option as difficulties arise in organising this, while the need for training might be even higher.

Question 6. Are workers in a job function in general old (i.e. older than the average age in the subsector and compared to other sectors)?

If yes, training is less easy to implement as a viable option as difficulties arise in organising this and less new knowledge endogenously enters the companies, while the need for training might be even higher.

Key questions for identifying suitable options and relevant acting stakeholders

The six questions form the first part of the short-cut approach. The second part discusses the viability of strategic options to tackle and solve emergent skills and knowledge needs for each of the job functions identified. It confronts the list of available strategic options with the analysis of quantitative and qualitative developments on headlines based on the preceding six questions. For each job function identified an assessment is made on whether the available strategic options are relevant or not, and who should be prime actors to change the current situation into a more favourable direction. If the strategic option is considered relevant, a “yes” is filled in, else a “no” is included. If the strategic option is dependent on specific characteristics of the sub-sector or components thereof, this is included in the table. For example, if recruiting workers from other Member States is only an option for large companies a “Yes, but only for large companies” will be included. Characteristics that are dealt with in the table are based on the six question analysis, representing:

- The change in volume (as a reference we include the most challenging scenario in terms of change required)
- The change in skills (as a reference we include the most difficult scenario, which is often the scenario with the largest change in skills and knowledge needs)
- Education level

- Age of the workforce
- Scale of the company and region the company is working in.

In principle, the following tables can be made scenario-dependent. In the descriptions below, the 'Professional' scenario has been taken as the point of reference as the most demanding and dynamic in terms of up-skilling, knowledge upgrading and change.

14.4 Managers

Changes in skills and competence needs for managers are particularly expected in the 'Professional' scenario (knowledge, social skills, see Table 13.2). A distinction needs to be made between self-employed managers of micro-enterprises and managers in charge of professional companies.

Several of the actions listed above seem to be viable options in order to meet emerging skill and competences gaps for this functional group. Specifically, recruitment of managers from other sectors appears to be a promising strategy that needs to be developed together by all stakeholders in order to be effective. Further, re-integration of (short-term) unemployed and young graduates could be an option in order to match future demands as long as companies invest in good learning trajectories. Recruitment from other member and non-member states is possible, but only for the largest companies. In general, for medium and larger sized work organizations, a broader scope on recruitment opportunities (including recruitment of managers from other countries) seems relevant in order to match future skills and competence needs.

Because the work in the sector assumes low specific knowledge it is likely managers can be recruited from other branches (non) member states and other education systems. For managers (and for other skilled functions, including technicians and specialised service workers) it is important to improve the image of this sector.
It should be noted that the majority of managerial jobs will be found in the larger SMEs, e.g. the larger chains of beauty saloons and fitness centres. It is not very likely that small enterprises allow for a separate management function. Usually owners of such companies need to be multi-functional.
In the management function a relatively high number of skills is to be developed. This requires appropriate attention in vocational educational and training programs. As the manger function requires a high-quality educational profile, extensive experience or recruitment from a broader perspective is needed. With respect to the specific skills required for the managerial function specific skills can be emphasized: sector specific knowledge, social and commercial skills.

Table 14.1 Strategic options managers

1. What is the maximum volume effect?	Increase
2. What is the maximum change in skills?	20
3. Do SME's play a large role?	Yes
4. Is the sector national/EU/global?	National
5. Is the workforce old?	Yes
6. Is the workforce low educated?	No, especially not in professional companies

Option	**Is this option viable?**	**Actors[1,2]**
A. Recruiting workers from other sectors	Yes	**C**,S,I
B. Recruiting workers from other Member States	Yes, difficult for smaller companies	**C**,S,G,I,U
C. Recruiting workers from Non-Member States	Yes, difficult for smaller companies	**C**,S,G,I,U
D. Recruiting unemployed with or without re-training	Yes, with good training / not for long-term unemployed	**C**,S,I,U
E. Recruiting young people from the education system	Yes, but need traineeship	**C**,E
F. Training and re-training employed workers	Yes	**C**,E
G. Changing work organisation	Yes	C,S,U
H. Outsourcing and offshoring	No	
I. Changing vocational education	No	
J. Designing and offering new courses	Yes	S,E,C,I
K. Providing information about emerging skills	Yes	**S**,E,I,U
L. Improve the image of the sector	Yes	**C**,S,I
M. Stronger cooperation between stakeholders	Yes	All

Notes: 1. C (company), S (sector organisations and chambers of commerce), E (education & training), G (governments), I (intermediary organisation, public or private), U (Labour unions). 2. Bold actors are the actors that should take the initiative.

14.5 Technicians

Generally, most of the below recruitment options are considered relevant for technicians, although recruitment from other countries is difficult for smaller companies. In particular, training and up-skilling (option F) is important for this functional group in order to keep up with new technologies and e-skills. Information of technical workers given by the respective branch organisations about new emergent skills is also very essential.

Adjusting recruitment strategies and curricula becomes specifically important in the 'Underground' and 'Professional' scenarios, where most volume and skill changes are expected.

Generally, limited specific knowledge is necessary in this sector. Still, after recruitment education and training will be of importance to upgrade work in the sector in order to meet quality standards, especially in the 'Professional' and 'Mix' scenarios.

Table 14.2 Strategic options technicians

1. What is the maximum volume effect?	Increase
2. What is the maximum change in skills?	8
3. Do SME's play a large role?	Yes
4. Is the sector national/EU/global?	National
5. Is the workforce old?	Yes
6. Is the workforce low educated?	No

Option	**Is this option viable?**	**Actors[1,2]**
A. Recruiting workers from other sectors	Yes	**C**, S, I
B. Recruiting workers from other Member States	Yes, difficult for smaller companies	**C**,S,G,I,U
C. Recruiting workers from Non-Member States	Yes, difficult for smaller companies	**C**,S,G,I,U
D. Recruiting unemployed with or without re-training	Yes, with retraining	**C**,S,I,U
E. Recruiting young people from the education system	Yes	**C**,E
F. Training and re-training employed workers	Yes, very important	**C**,E
G. Changing work organisation	Yes, mobile network technology	C,S,U
H. Outsourcing and offshoring	No	
I. Changing vocational education	E-skills and legislative knowledge	S,**E**
J. Designing and offering new courses	Yes	C,S.E,G
K. Providing information about emerging skills	Yes, essential	**S**,E,I,U
L. Improve the image of the sector	Yes	**C**,S,I,U
M. Stronger cooperation between stakeholders	Yes	All

Notes: 1. C (company), S (sector organisations and chambers of commerce, E (education & training), G (governments), I (intermediary organisation, public or private), U (Labour unions). 2. Bold actors are the actors that should take the initiative.

14.6 Administrative support staff

Many recruitment options are possible for administrative staff, although some of them are easier for larger companies (like recruitment from other countries.

For bookkeepers and other administrative support staff changes in (e-)skills and the use of new bookkeeping programmes require up-dating and training.

Information by the respective branch organisations about new emerging skill needs appears particularly important for workers and employers in order to keep up with rapid technological change and innovations that could enhance productivity, especially for smaller companies.

Particularly in SMEs the administrative function is carried out in an informal manner and often not in a very professional manner. Formalisation (using for example business associations) could help in the qualitative upgrading of the function. This applies especially to the Professional scenario. In the 'Informal' and 'Underground' scenario there is less demand for professional administrative support services needed.

Table 14.3 Strategic options administrative support staff

1. What is the maximum volume effect?	Increase
2. What is the maximum change in skills?	7
3. Do SME's play a large role?	Yes
4. Is the sector national/EU/global?	National
5. Is the workforce old?	Yes
6. Is the workforce low educated?	Yes

Option	**Is this option viable?**	**Actors[1,2]**
A. Recruiting workers from other sectors	Yes	**C**, S, I
B. Recruiting workers from other Member States	No	
C. Recruiting workers from Non-Member States	No	
D. Recruiting unemployed with or without re-training	Yes, with retraining	**C**,S,I,U
E. Recruiting young people from the education system	Yes	**C**,E
F. Training and re-training employed workers	Yes	**C**,E
G. Changing work organisation	Yes	C,U
H. Outsourcing and offshoring	Yes	
I. Changing vocational education	E-skills, legislative knowledge	S,**E**
J. Designing and offering new courses	Yes	S,E
K. Providing information about emerging skills	Yes	**S**,E,I,U
L. Improve the image of the sector	Yes	C,S, I, E
M. Stronger cooperation between stakeholders	Yes	All

Notes: 1. C (company), S (sector organisations and chambers of commerce, E (education & training), G (governments), I (intermediary organisation, public or private), U (Labour unions). 2. Bold actors are the actors that should take the initiative.

14.7 Service workers

Together with managers, service workers are expected to undergo most changes in skills and competences in the future. Almost all recruitment options are relevant for this function, although some of them are difficult for smaller companies.
Changes in (e)skills and sector specific knowledge are relevant. The content of courses should be tuned to the type of work done. For example, hairdressers need to be updated about health, safety, ergonomic and environmental issues.
Providing information about emerging skills in a variety of different wasy (option K) is important for skilled service workers. Any training modules would need to include information on both hard knowledge and social skills

Table 14.4 Strategic options service workers

1. What is the maximum volume effect?	Increase
2. What is the maximum change in skills?	17
3. Do SME's play a large role?	Yes
4. Is the sector national/EU/global?	National
5. Is the workforce old?	Yes
6. Is the workforce low educated?	Yes

Option	**Is this option viable?**	**Actors[1,2]**
A. Recruiting workers from other sectors	Yes	**C**,S,I
B. Recruiting workers from other Member States	Yes, but not for smaller companies	**C**,S,G,I,U
C. Recruiting workers from Non-Member States	Yes, but not for smaller companies	**C**,S,G,I,U
D. Recruiting unemployed with or without re-training	Yes	**C**,S,I,U
E. Recruiting young people from the education system	Yes	**C**,E
F. Training and re-training employed workers	Yes	**C**,E
G. Changing work organisation	Yes	C,U,S
H. Outsourcing and offshoring	Yes	C, U, S
I. Changing vocational education	E-skills and legislative knowledge	S,**E**
J. Designing and offering new courses	No	
K. Providing information about emerging skills	Yes	**S**,E,I,U
L. Improve the image of the sector	Yes	C.S,I
M. Stronger cooperation between stakeholders	Yes	All

Notes: 1. C (company), S (sector organisations and chambers of commerce), E (education & training), G (governments), I (intermediary organisation, public or private), U (labour unions). 2. Bold actors are the actors that should take the initiative.

14.8 Helpers & cleaners

Not all recruitment options appear relevant for this function. Especially, if the demand for helpers and cleaners is increasing under the 'Professional' scenario recruitment of helpers and cleaners from abroad and other sectors could be a viable option. Further, as a traditional job for lower-educated persons, re-integration of lower-educated, long-time unemployed into this sector could be comparatively easy and an interesting strategy to follow. Experiences in some countries such as Belgium (cf. Box 6) seem to indicate that policies to reduce undeclared work by lowering taxes or supporting users can be very effective in making the sector attractive for new workers. This functions attracts mainly unemployed, as those already employed are unlikely to switch to the sector due to sector image problems

Table 14.5 Strategic options helpers & cleaners

1. What is the maximum volume effect?	Increase
2. What is the maximum change in skills?	9
3. Do SME's play a large role?	Yes
4. Is the sector national/EU/global?	National
5. Is the workforce old?	No
6. Is the workforce low educated?	Yes

Option	**Is this option viable?**	**Actors[1,2]**
A. Recruiting workers from other sectors	Limited due to image problems	**C**, S,I
B. Recruiting workers from other Member States	Yes, difficult for smaller companies	**C**,S,G,I,U
C. Recruiting workers from Non-Member States	Yes, difficult for smaller companies	**C**,S,G,I,U
D. Recruiting unemployed with or without re-training	Yes	**C**,S, I,U
E. Recruiting young people from the education system	No, young people with diplomas find other opportunities	
F. Training and re-training employed workers	Not relevant	
G. Changing work organisation	Yes	C,U,S
H. Outsourcing and offshoring	No	
I. Changing vocational education	Limited E-skills legislative knowledge	S,**E**
J. Designing and offering new courses	No	
K. Providing information about emerging skills	Yes	**S**,E,I,U
L. Improve the image of the sector	Yes	S,G,I
M. Stronger cooperation between stakeholders	Yes	All

Notes: 1. C (company), S (sector organisations and chambers of commerce, E (education & training), G (governments), I (intermediary organisation, public or private), U (labour unions). 2. Bold actors are the actors that should take the initiative.

14.9 Scenario implications, future skills and knowledge needs and possible solutions: summary and main conclusions

Implications of the scenarios in terms of expected volume changes in employment (jobs), future skills and knowledge needs as well as ways to address and solve these needs (strategic choices) have all been analysed so far at the individual job function level. This section serves to summarise the main implications and solutions for each of the job functions presented in chapters 12, 13 and 14. It serves as a bridge to the next chapter where we shift from a micro perspective (job functions) to a meso (sector and policy) perspective.

Table 14.6 Summary of job volumes, skills changes, strategic choices and main players in anticipatory action by scenario

		Informal	Mix	Underground	Professional
Managers	1. Employment volume change	M	I	M	I+
	2. Skills changes counted	Count 0	Count 8	Count 11	Count 20
	3. Emerging skills needs		Knowledge,Social Skills	Social Skills, Self management,	Knowledge, Social Skills,.Self management, Entrepreneurship
	4. Most important solutions	Recruiting workers from other sectors, Training and re-training employed workers, Providing information about emerging skills, Improve the image of the sector	Recruiting workers from other sectors, Training and re-training employed workers, Providing information about emerging skills, Improve the image of the sector	Recruiting workers from other sectors, Training and re-training employed workers, Providing information about emerging skills, Improve the image of the sector	Recruiting workers from other sectors, Training and re-training employed workers, Providing information about emerging skills, Improve the image of the sector
	5. Most important actors	C,S,E	C,S,E	C,S,E	C,S,E
Technicians	1. Employment volume change	M	D	I	I+
	2. Skills changes counted	Count 2	Count 3	Count 7	Count 8
	3. Emerging skills needs	Knowledge	Knowledge	Knowledge, Social Skills	Knowledge, Social Skills
	4. Most important solutions	Recruiting workers from other sectors, Recruiting unemployed with or without re-training, recruiting young people from the education system, Outsorcing and offshoring, Improve the image of the sector	Recruiting workers from other sectors, Recruiting unemployed with or without re-training, recruiting young people from the education system, Outsorcing and offshoring, Improve the image of the sector	Recruiting workers from other sectors, Recruiting unemployed with or without re-training, recruiting young people from the education system, Outsorcing and offshoring, Improve the image of the sector	Recruiting workers from other sectors, Recruiting unemployed with or without re-training, recruiting young people from the education system, Outsorcing and offshoring, Improve the image of the sector
	5. Most important actors	C,S.E	C,S.E	C,S.E	C,S.E

Administrative support staff	1. Employment volume change	M	I	M	I+
	2. Skills changes counted	Count 1	Count 2	Count 5	Count 7
	3. Emerging skills needs	Knowledge	Knowledge	Knowledge, Social Skills	Knowledge, Social Skills
	4. Most important solutions	Recruiting workers from other sectors, Recruiting unemployed with or without re-training, Recruiting young people from the education system, Training and re-training employed workers, Outsourcing and offshoring, Providing information about emerging skills.	Recruiting workers from other sectors, Recruiting unemployed with or without re-training, Recruiting young people from the education system, Training and re-training employed workers, Outsourcing and offshoring, Providing information about emerging skills.	Recruiting workers from other sectors, Recruiting unemployed with or without re-training, Recruiting young people from the education system, Training and re-training employed workers, Outsourcing and offshoring, Providing information about emerging skills.	Recruiting workers from other sectors, Recruiting unemployed with or without re-training, Recruiting young people from the education system, Training and re-training employed workers, Outsourcing and offshoring, Providing information about emerging skills.
	5. Most important actors	C,S.E	C,S.E	C,S.E	C,S.E
		Informal	**Mix**	**Underground**	**Professional**
Service workers	1. Employment volume change	M	D	I	I+
	2. Skills changes counted	Count 0	Count 2	Count 9	Count 17
	3. Emerging skills needs	Knowledge	Knowledge	Knowledge, Social Skills	Knowledge, Social Skills, Entrepreneurship
	4. Most important solutions	Recruiting workers from other sectors, Recruiting unemployed with or without re-training, Recruiting young people from the education system, Training and re-training employed workers, Outsourcing and offshoring, Providing information about emerging skills, improve the	Recruiting workers from other sectors, Recruiting unemployed with or without re-training, Recruiting young people from the education system, Training and re-training employed workers, Outsourcing and offshoring, Providing information about emerging skills, improve the	Recruiting workers from other sectors, Recruiting unemployed with or without re-training, Recruiting young people from the education system, Training and re-training employed workers, Outsourcing and offshoring, Providing information about emerging skills, improve the image of the	Recruiting workers from other sectors, Recruiting unemployed with or without re-training, Recruiting young people from the education system, Training and re-training employed workers, Outsourcing and offshoring, Providing information about emerging skills, improve the image of the

		image of the sector	image of the sector	sector	sector
	5. Most important actors	C,S,I,E,U	C,S,I,E,U	C,S,I,E,U	C,S,I,E,U
Helpers and cleaners	1. Employment volume change	M	D	I	I+
	2. Skills changes counted	Count 0	Count 3	Count 5	Count 9
	3. Emerging skills needs		Knowledge, Social Skills	Social Skills	Knowledge, Social Skills
	4. Most important solutions	Recruiting workers from other sectors, Recruiting unemployed with or without re-training, Recruiting young people from the education system, Training and re-training employed workers, Providing information about emerging skills	Recruiting workers from other sectors, Recruiting unemployed with or without re-training, Recruiting young people from the education system, Training and re-training employed workers, Providing information about emerging skills	Recruiting workers from other sectors, Recruiting unemployed with or without re-training, Recruiting young people from the education system, Training and re-training employed workers, Providing information about emerging skills	Recruiting workers from other sectors, Recruiting unemployed with or without re-training, Recruiting young people from the education system, Training and re-training employed workers, Providing information about emerging skills
	5. Most important actors	C,S,G,E,	C,S,G,E,	C,S,G,E,	C,S,G,E,

=Companies; S=Sectoral organisations, U=trade Unions; E=Education and training institutes; G=Government (EU, Member State, regional, local)

15 Conclusions and recommendations for education and training

15.1 Introduction

This chapter presents the main conclusions and recommendations for education and training; chapter 16 presents the main other conclusions and recommendations. Whereas the earlier chapters very much take a micro perspective by focusing on job functions in terms of expected volume changes, skills and knowledge needs and ways to address and solve these needs (strategic choices), chapter 15 takes a *meso* or *sector* perspective. It addresses a number of issues, part of which coming already to the fore in earlier chapters, and part being 'new' issues although much related to those already raised. The conclusions and recommendations are mostly based on the results of the preceding chapters; they were discussed during the final workshop with social partners, the industry and other experts.

The recommendations contained in this chapter should not be seen as fully exhaustive. They rather form the basis for further discussion and elaboration at various decision-making levels, ranging from the European Union and the Member State to the regional and local level. Industry itself – firms – have an important role to play, as do education and training institutes, social partners and the government (EU, national, regional and local). In most cases action should be taken jointly, by involving various actors, sometimes even at different levels. Collaboration and co-operation as buzzwords in today's economy are easily coined. Making collaboration work in practice is, however, a challenge which requires mutual understanding, compromise and perseverance.

15.2 Conclusions and recommendations for education and training

15.2.1 Educational systems

Different systems of Vocational Education and Training (VET), the combination of Initial and Continuing Vocational Education and Training (IVET and CVET), are implemented in the European Member States. Various characteristics of the VET-Systems have to be taken into consideration when discussing possible specific implications for education and training, particularly. In general, the VET-Systems can be grouped by the player who decides about the structure and content of VET. With this distinction three main types of VET Systems can be identified (i) liberal, (ii) state-controlled and (iii) corporatist (see Table 15.1).

Box 7. Vocational education and training– rich variety between Member States

A number of different systems in Vocational Education and Training (VET) as well as Initial and Continuing Vocational Education and Training (IVET and CVET) can be observed throughout the European Union. Various characteristics of these systems have to be taken into consideration when discussing possible specific implications for education and training. Existing VET-systems can be grouped into three main categories ('idealtypes'), (i) liberal, (ii) state-controlled and (iii) corporatist VET-systems, each having a different underlying rationale and distinguishing characteristics. Key in this distinction are those who decide about the structure and content of VET: business itself, the state or the state together with social partners (see Table below). The three VET-systems of Germany, France and the United Kingdom are of special importance as they can be taken as representative for each of the three 'idealtype' categorisations. They are evidence of the rich variations in existing VET systems and their implementation in Europe. The enterprise-based training system of Germany (the 'Dual System') is implemented by the social partners and the state. Next to this prevailing system other forms of VET exist. In France, a school-based training system is established and implemented by the state. Even though the full-time school-based training system competes to some extent with an upcoming apprenticeship training system, it is still the dominant form of vocational training in France. The system implemented in the UK, the national vocational qualification, is regulated and driven by market forces in several important segments. Although national vocational qualifications (NVQ) and general national vocational qualifications (GNVQ) are regulated at national level, the implementation of training is not yet regulated at national level. Commercial certification systems are still competing with national ones. Work-based, as well as full-time school-based training can be found. Special training schemes for unemployed, such as school-based schemes for unemployed youths or work social enterprises for long-term unemployed, are present in several European Member States. Besides these 'idealtypes' several mixed forms in Europe exist. In Spain, for example, one finds more informal forms of VET and in Central and East European countries the trend can be detected, that VET moves from a state centred model to a stronger corporatist model, while also business driven approaches exist in some sectors.

The three VET-Systems of Germany, France and the United Kingdom are of special importance as they are ideal types representing many variations of the VET implementations in Europe. The enterprise-based training system of Germany (the 'Dual System') is implemented by the social partners and the state. Next to this prevailing system other forms of VET exist. In France, a school-based training system is established and implemented by the state. Even though the full-time school-based training system competes to some extent with an upcoming apprenticeship training system, it is still the dominant form of vocational training in France. The system implemented in the UK, the national vocational qualification, is regulated and driven by market forces in several important segments. Although national vocational qualifications (NVQ) and general national vocational qualifications (GNVQ) are regulated at national level, the implementation of training is not yet regulated at national level. Commercial certification systems are still competing with national ones. Work-based, as well as full-time school-based training can be found. Special training schemes for unemployed, such as school-based schemes for unemployed youths or work social enterprises for long-term unemployed, are present in several European Member States.

Besides these ideal types several mixed forms in Europe exist. In Spain, for example, one finds more informal forms of VET and in Central and East European countries the trend can be detected, that VET moves from a state centred model to a stronger corporatist model, while also business driven approaches exist in some sectors.

Table 15.1 Three VET-models

	A. Liberal	B. State-controlled	C. Corporatist
Decision maker	Business (and individuals)	State	State and social partner organisations
Rational	Liberalistic competitive	Centralistic state-centred	Corporative – social consensus
Programmes	Business and individual	Education and citizen	Occupation
Content	Needs of business and individual, utility oriented, short term and specific	Politically determined, general knowledge, course-oriented, academic	Determined by social partners, occupation centred, traditions
Labour markets VET relates to	Internal (business) labour markets	Occupational and internal labour markets	Occupational labour markets
Strengths	Flexible, cheap for the state, close to the needs of production	Strong linkage to the education system, no lack of training places	Broad vocational educations with status equal to general education
Weaknesses	Under-investment in training and education	Weak linkage to the labour market	Inertia in the institutions
Representatives	United Kingdom, Ireland	France	Germany, Austria, Denmark
Trends	Stronger state involvement in certification and quality	"Dual system" emerging and stronger orientation on business needs	Internal labour markets Marketing of VET

Source: elaboration of Clematide (2005)

Implications

Expected future developments in the sector and important differences in how the various VET-Systems function in practice, call for a different set of measures in each of the Member States. However, four major implications can be identified that fit many of the Member States. These are:

1. Contents:
    a. Improve the information systems on skill needs and job opportunities;
    b. Collaborate with all relevant stakeholders;

c. Enhance flexibility;
d. Include multi-skilling/ multi-professionalism;
e. Supply special courses dedicated to sector characteristics;

2. Supply special courses for older workers;
3. Increase international and intersectoral acknowledgement of certificates and qualifications/ degrees;
4. Provide career guidance for labour market entrants.

Improve the information systems on skill needs and job opportunities

The information gap between existing and future education and training needs as well as education and training supply is still obvious. Consequently, a mismatch between actual VET supply and demand in quality as well as - to a lower extent - in quantity is observed for some occupational functions. Training providers are often not meeting the training needs and do not respond on emergent training needs in a sufficient way (especially regarding vocational training systems).

SME's often have difficulties in financing CVET and in finding suitable solutions to training leaves of their staff. Consequently, a major implication for education and training is the establishment of improved information systems on current and emergent skills needs and job opportunities. Information systems on the sectoral level as well as on the regional, the national and the European level assist in minimising information asymmetries in order to overcome skill gaps resulting from information deficits. Facilitating students by entering the labour market and finding a suitable occupation is just as important as assisting employees to find new job opportunities based on their existing skills or guiding them in finding the fitting vocational training course.

Collaborate with all relevant stakeholders

A close collaboration between all relevant stakeholders, such as companies, education and training organisations, social partner organisations, research institutions and public authorities, supports minimizing information deficits on current and emergent skills needs. This is for example important in scenario "Underground" and "Professional" as many volume and skill changes take place and all stakeholders have to work to gather to combat the growth of a black market in the other services sector. The old system has to adapt to the new situation and collaboration is an effective instrument to stimulate that in VET these changes are implemented. A stronger linkage between industry and education and training is recommended in full-time school-based VET-Systems (Koch and Reuling, 1998). In all countries, and in the new Member States in particular, co-operations are essential to improve the practical orientation in VET (Skjølstrup and Mayen, 2007). The 'Sector skills councils'[15] in the United Kingdom and the 'FreQueNz' research network[16] are examples of this kind of co-operation and are described below.

[15] www.sscalliance.org
[16] www.frequenz.net

The ‘Sector skill councils’ in UK are funded by the Department for Innovation, Universities and Skills and are part of the government’s skills strategy for the 21st century. The councils ensure that individuals gain the skills they need so that persons with fitting skills are available. Sector skills strategies are defined for each sector based on the analysis of present and future skills needs.

FreQueNz is a research network located in Germany and funded by public means. The network comprises scientific institutes, education and training organisations, social partner organisations, companies and public authorities and contributes to early identification of qualification needs. This network has conducted a number of evaluative research projects on human and ICT resources, staff qualifications, tests, career guidance for adults, computerised career guidance programmes, and beneficiaries of guidance services.

Enhance flexibility

Strengthening the information basis on skill demands and supply of training as well as career possibilities are the basis for an enhanced flexibility (and adaptability) of continuing vocational education and training. In our view, flexibility refers to the capability of the VET System to adapt effectively to new training needs in terms of quality and quantity. A flexible VET-System is required in particular in circumstances in which profound changes take place and job functions and occupational profiles are modified quickly (as is the case in the scenario “Professional”). In order to achieve more flexibility and to respond in-time with altering training contents and enhanced quantity a modularisation of education and training is recommended. Even if problems will occur in the modularisation of training in some IVET-Systems modular systems facilitate the building up of competences and ease the interaction between IVET and CVET Systems. Flexibility is also required for different forms of education and training. Flexible forms of blended learning contribute to enhanced participation of, in particular, SME employees in continuing vocational training (SMEs often face difficulties in releasing workers for training).

Blended learning is a mixture of different learning media, learning methods and forms supporting decentralised, self-directed and efficient learning more independently in time and space. In principle, blended learning combines face-to-face and group-based learning with up-to-date offline media and online e-learning forms, as for example digital learning modules on websites, video conferences, joint learning applications, newsgroups and blogs for interactive online learning. This is not only a possibility to reduce costs of further training and enhance flexibility to combine work with training, but it also has positive effects on skills which will be needed in the future. Because large parts of this training are self-directed and informal, the learner has to build up several competences, like self reflection, self motivation, strength of purposes and an effective information processing.

Prepare vocational educational schools for future demands

The stable or growing demand for the provision of 'Other Services' and the expected shortage of service providers calls for changes in the curriculum of vocational education institutions. Increasing productivity – though hard to achieve in this sector – calls for the introduction of innovative work practices. For this reason it is important to build a stronger co-operation between educational institutions, public authorities and work organisations to enhance the adaptability of educational programs and their focus on teaching innovative practices.

Promote re-training and up-skilling of skilled occupational functions

To ensure employability of (medium-level) service providers as well as of administrative staff in the sector up-skilling and re-training towards other occupations within the sector will be necessary. According to all scenarios, this will be a key challenge in the years to come. Hence, public employment service or communities should engage and support companies and individuals in their training efforts and prepare theses groups for the future.

Supply special courses dedicated to sector characteristics

For few job functions special courses are needed. Mainly for managers we expect that special courses would make a difference in this sector. The lack of available courses, the suitability of existing courses and the missing flexibility on offer are currently already pointed out in several studies. This is especially the case in the scenarios with many changes for the existing workforce as they have to operate in a changing environment. This asks for a different attitude and knowledge base. Especially in cases where firms are used to operate in a stable environment, the challenges of fast changes in environmental regulation and competition are demanding. SME's that are able to improve the skills of the workforce fast, have a competitive advantage. Education and training institutions can exploit this situation to provide dedicated courses.

Supply special courses for older workers

The workforce in most occupational functions is ageing. Education and training institutions should take this development into account for the design of their further training measures and develop specific courses. Older workers are able to learn, but they learn differently compared with younger workers. Older learners in some cases have more problems with theory-based, upfront teaching only focused on examinations. For older learners this kind of training is less effective, because they can not relate it to their practical knowledge. The practical application is often missing, and the passivity of the situation is not supporting mature learners. For mature workers learning is more effective if they can integrate practical experience in training. Practice based learning and improvement and reflection and self evaluation would all suit the older workers better than theory based learning.

Develop and increase the acknowledgement of certificates

Many workers in this sector are low-skilled and for many migrants it provides an entry point in the labour market. It provides the first opportunity to develop skills useful in further career steps. Certificates that recognize these skills should be developed and their acknowledgment improved. For many job functions international and sector mobility is an option to meet future skill needs. To increase the viability of this option, acknowledgement of certificates is helpful. This is also the case for in-house training as several of these training measures are not certified. This prevents a greater mobility of the workforce and hinders the matching of skill demand and supply because of a lack of skills transparency. Educational institutions that are able to provide broad accepted certificates increase their value added for students. However, they need often governments to build effective acknowledgement systems. Inclusive movements for educational harmonization that involve national governments are under way. One of the most significant is the Bologna process or Bologna accords. The purpose of these accords is to make academic degree standards more comparable throughout Europe. Further harmonization is certainly required.

Provide career guidance for labour market entrants

Regularly, persons equipped with required skills and qualifications are available, but do not apply for vacancies due to the lack of information of the labour market possibilities. Systems for the recognition of prior learning (RPL) support the determination to what extent people possess necessary competences for a new job. The integration of RPL in career guidance and targeted training bridges the gap of hidden competences especially for mature workers. Some Member States included this in their system. In Portugal, for instance, a National System of Recognising, Validating and Certifying Prior Learning (RVCC) is implemented through a network of centres. Adults, whether employed or unemployed, are offered a three-tiered service, namely information, counselling and complementary training, including the accreditation of competencies (OECD/European Communities, 2004, p. 31). Career guidance can be supported by user friendly online-tools, also for self guidance. An extraordinary example in this respect is the Polish multi-dimensional career information system called 'Counsellor 2000' in which information about educational and training pathways, and the relevant occupations they lead to, is linked to the personal profile of the client using an online-system.

16 Main other conclusions and recommendations

16.1 Introduction

This report concludes with a number of 'other' (i.e. going beyond eduction and training) conclusions and recommendations based on the results and insights gained during the course of this study. They include the results of an intensive two day workshop with various stakeholders and the European Commission during which the draft final results, including preliminary recommendations, were discussed. The conclusions and

recommendations apply to the sector at large (including individual firms, sector organisations, chambers of commerce, social partners), intermediary organisations, education and training institutes, as well as policy-makers (EU, Member States, regions).

The recommendations point into viable and useful directions rather than that they represent ready-made proposals for change. Reflection and debate, and finding creative answers to plausible futures in skills and jobs is, in the absence of a crystal ball, the way forward. The bandwidth between the expected developments in the most extreme scenarios is indicative for the degree of uncertainty by which the future should be approached. Solutions to future skills needs should therefore be flexible, smart and encompassing enough to address the differences between the various scenario outcomes, not knowing what real future will eventually emerge.

16.2 Main other recommendations

A number of tentative conclusions and recommendations can be made, based on the main findings of the previous chapters. These may apply to firms, sector organisations, chambers of commerce, intermediary organisations, education and training institutes as well as policy-makers at different levels – including the EU, the Member States and Member State regions. The conclusions and recommendations included in this stage of the project can by their very nature only be tentative, as the final workshop itself is a vital and crucial part of the methodology itself. The main function of this report is pre-structuring the workshop discussions and informing the participants about main trends and developments in the sector, looking backward as well as forward. This also includes the elaboration of credible and plausible future scenarios and their implications for skills and jobs. Especially the recommendations and conclusions part of this exercise should be a matter of intensive debate together with sectoral stakeholders and experts from various backgrounds, balancing the various arguments and coming up with workable and feasible recommendations for the medium and longer term. Even though the year 2020 may seem far off for most of us, the future will announce itself earlier than we tend to think.

General recommendations

One principal recommendation to meet existing and emerging skills needs is to intensify co-operation between relevant stakeholders of the sector. The challenge to overcome sectoral skill gaps and shortages will only be met sufficiently if industry, training providers, social partners, research and public authorities act in concert. This was demonstrated in section seven. Collaboration is not only required to meet skills needs, but also to support the development of sectoral learning strategies.
Cost sharing mechanisms between actors such as public authorities, companies and individuals need to be developed and lifelong learning throughout the life cycle should be promoted (LLL). Learning must be made more attractive to all, e.g. via tax incentives and a change in attitudes in order to integrate learning into all phases of the life-cycle. In addition, training and education systems in Member States need to be improved and become more modular based to cover knowledge shortages and up-skilling needs, as has already been stated in the above implications for education and training.

Lifelong learning is the key for companies as well as for individuals to keep up with competitiveness and to prevent less favourable scenarios. Social partners should develop joint programmes of lifelong learning in co-operation with public authorities and other relevant stakeholders such as training organisations and universities in order to up-grade skills of the workforce in the sector. Examples of good practices should be made available for all.

Specific recommendations

Different strategic options by job function were laid out in Chapter 6. Additional specific recommendations relate to the following:

Focus on change

In general, and in comparison with other sectors, we do not expect substantial changes in skills and competence needs in SME's in the 'other services' sector. Nevertheless, a continuous updating of practical know-how is required to keep up with innovations. This requires a variety of different training approaches, including on-the-job training and hands on-experience.

Furthermore, as functions in 'other services' are dominantly performed by women (apart from managerial functions) change may be focused on making the sector more interesting for men as well or to better adapt working conditions to female needs in order to further attract and keep women attracted to work in this sector.

Expand the possibilities for legalising undeclared work in this sector

Different EU countries are experimenting with a variety of measures to encourage demand and reduce the cost of supplying labour in this sector. These measures are potentially quite promising in particular to support the lower end of the market with basic services such as cleaning. Experience suggest that benefits accrue both to the providers of services (either employees or self-employed) and the users. Social benefits appear to be substantial by providing a formal source of income (and access to social services) to previously unemployed and those from minority groups.

It is important to derive lessons from the different European country schemes in order to enhance the benefits for as many people as possible, while limiting the budgetary requirement from government.

Intensify co-operation between relevant stakeholders

A main recommendation is to better meet emergent skills needs is to intensify co-operation between all relevant stakeholders in the sector, and especially between SME's, educational needs and local policy-makers. The challenge to overcome sectoral skill gaps and shortages will only be met sufficiently met if professional organisations, training providers, social partners and public authorities act in close concert, both at the national and the European level. Collaboration is needed on various aspects concerning the

matching of future skills demand and supply. This also includes supporting the development of sectoral learning strategies and the establishment of partnerships for innovation and job creation.

Co-operation for flexible sector specific training measures

In vocational education and training more attention should be paid to inter- and multidisciplinary studies as different technical skills need to be combined with the required non-technical skills. Even though a sound technical education still provides the basis, attention will have to be paid to enhance other abilities such as social, problem solving and self-management skills. Such elements should also be an integral part of apprenticeships, traineeship programs. The flexibility of training forms should be improved and the full participation of niche players and 'new' market entrants should be ensured. To reach these goals a strong commitment of the social partner organisations is necessary.

Annex I. Contributors to this study

This report appears in a series of 11 sector reports on the future jobs and skills commissioned by the European Commission and executed by a core consortium of TNO (Delft/Leiden, the Netherlands), SEOR Erasmus University (Rotterdam, the Netherlands) and ZSI - Zentrum für Soziale Innovation (Vienna, Austria). The consortium was led by Dr F.A. van der Zee (TNO Innovation Policy group; TNO Innovation & Environment).

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Annex III. Strategic options – a detailed description

A. Recruiting workers from other sectors

A possible solution to meet skill needs is to recruit workers from other sectors, which have and can provide the skills and knowledge needs of the sector and more specifically the firm. Whether or not this is a desirable option depends, amongst others, on the job function under consideration. For managers of large corporations it is quite usual to bring their general know-how to bear in different sectors. Also for business professionals (e.g. financial analysts, software engineers) sector specificities are of lesser importance. Sector mobility of low skilled workers is much more limited than the mobility of higher educated employees. The lesser the grade of sector specialisation of the occupational profile, the easier employees are able to change between sectors. In other cases recruiting workers from other sectors will need training of sector specific skills. In some cases it will also be possible for highly specialised workers to change sectors.

B. Recruiting workers from other Member States

Recruiting workers from other Member States could be in some cases a possibility to overcome skills problems. However, owing to language, cultural and other problems, including certain entrance barriers left to the Member States, mobility within the European Union is still underdeveloped. Border regions are attracting workers from other countries mainly because of wage advantages and in this way can succeed in solving their skills shortages and gaps. However, regions that face such outward migration (e.g. Poland, East Germany, Parts of Austria, Hungary, Czech Republic, Slovenia, Bulgaria) at the same time face serious problems in meeting their labour market demands. Some have responded by recruiting workers from non-Member States. Even if this might appear a temporary problem, from a longer term perspective, such developments could have serious consequences for the growth of the regional economy – in what might be termed a 'skills drain' (cf. 'brain drain").

C. Recruiting workers from non-Member States

Recruiting workers from non-Member States is not a zero-sum game for the European economy. Yet this strategic choice is as limited in its overall impact as the strategic choice that proposes to recruit workers from other Member States. On top of this, such recruitment is much more difficult that recruitment from within the EU. In all Member States significant barriers for entering the labour market for workers from outside the EU exist, even for temporary workers. To increase the influx of these workers by, e.g. increasing the immigration quota several political hurdles have to be mastered. Action can be taken here at Member State as well as at EU level, the recent 'blue card' proposal and negotiations serving as an example.

D. Recruiting unemployed workers with or without training

Recruiting unemployed workers without training is a strategic option, especially in case of skill shortages if there are not enough skilled workers to meet the employers demand). This option should in these cases be combined with adequate training. Unemployed workers might have various placement handicaps, especially skills deficits and poor levels of basic qualifications. Low educated groups are still representing the majority of the unemployed labour force, but also highly skilled workers like engineers could be threatened by unemployment.

E. Recruiting young people coming from the education system, with or without re-training

This strategic choice is always a possibility to overcome skill shortages as well as skill gaps. But demographic change should be taken into account too. While in the next few years, until around 2015, there will be a continuous inflow of students entering the labour market, a significant reduction is expected in 2020. In some EU regions there is already a need for young qualified and skilled workers and apprentices. Even where sectors may pay relatively high wages and offer stable carrier prospects, it is not easy to attract enough labour in critical occupational functions. While in the last years labour in business and finance professionals as well as administrative staff and customer services could be attracted the situation in technical occupations (engineers/technicians, construction workers, plant operators) is still critical. Hence, the recruiting of young people can only be successful, if this measure is supported with the other strategic options such as "Improving the image of the sector" and "Stronger cooperation within the industry". To be more precise, a stronger cooperation between schools, university, training organisations, career managers on the one hand and the industry on the other is needed. The principal aim should be to overcome the mismatch of requirements and wishes of individuals on the one hand and the economy on the other.

F. Training employed workers

In some cases training and re-training could also constitute a strategic choice to meet skill demands. In this case, the employee will be trained for a new working place or task. In general, re-training ends with a formal graduation or certificate. Re-training is an option if the work place or the occupational function is not needed any more. But re-training is only one option. Further education or further training, refresher training and updating courses, or advanced vocational qualification to adapt the workforce to emergent skills needs are also options, which should be taken into account. Re-training or further training of employees can encompass all levels of skills. Training and qualification could be done in-house and on the job as well as by an external education institution. It is more likely that less fundamental variations of up-skilling or re-training will be a strategic choice because re-training has to be regarded as a long term and quite expensive measure compared to the other vocational education forms.

G. Changing the work organization

Work organisation can be defined in different ways. First, it can be defined as a system of work organisation (e.g. Taylorims, Fordism and Post-Fordism) and second, as a form of division of labour and specialisation. In modern economies productivity is based on the division of labour which by definition implies also a division of skills. There are several instruments of work organisation to react on skill shortages and gaps. Thus, changes in the work organisation can help to overcome skill gaps. In general, work can be reorganised in the following possible ways:

- Group work: A group is a limited number of people who work together over a longer period with a frequent, direct interaction. A group is defined through the differentiation of roles and joint values. Groups are able to produce better results than single persons due to the combination of different competencies and experiences, the reduction of wrong decisions, stronger work motivation, the direct use of information, new insights and creativity and a better acceptance of decisions, just to mention a few of the many advantages. There are several kinds of group work, like project groups, quality groups and learning circles, as well as committees.
- Job rotation: Within this type of work organisation several people change their work places in a planned alteration. Job rotation enhances the overview of the different production processes, the understanding of different tasks and the feeling for group work. Additionally, monotony and dissatisfaction are reduced.
- Job enlargement: Extension of the scope of work through the combination of several structurally equal or similar tasks. It can produce similar effects as job rotation.
- Job enrichment: Extension of the scope of work through the combination of several structurally different tasks. The scope of decision making and self-control increases, as well as the quality and quantity of work. In general, up skilling of the employee is necessary, but this is also implemented on the job.

Under the influence of new technologies, like information and communication technologies, virtual forms of work organisation, which substitute hierarchies through a horizontal network co-ordination, are also possible. In this sense, mergers and acquisitions as well as project based business colloboration are also available options to change the work organisation. Both measures are strategic possibilities to get access to needed resources or to incorporate new skills. Modern (communication) technology can support the co-ordination and co-operation of labourers working at different places and in combining their respective strengths.

H. Outsourcing and offshoring

In public discussion the terms outsourcing and offshoring are mainly used together, yet it must be emphasised that they describe different technical approaches. While outsourcing means the transfer of management or day-to-day execution of business functions or processes (production, manufacturing, services) to an external service provider, offshoring describes the relocation of business functions or processes from one country to another. Both could be applied as a strategic choice on company level to meet skill needs, by integrating the knowledge, experience and competences of the other firm in the production process.

Outsourcing of personnel as a result of technological change and economic pressure was and still is an ongoing trend. Due to de-regulation and privatisation several tasks and with it skills and competences in the sector were outsourced and in some countries dislocated to other countries to increase labour productivity. Several occupational functions in the production chain have been outsourced nowadays. Skill gaps can be closed by hiring subcontractors with the needed knowledge and competences. If one considers this strategic option to meet skill needs, it has to be taken into account that for subcontracting firms, freelance or contractual workers continuing vocational training often plays a marginal role, because employees are all too often indispensible. One should also bear in mind that freelancers are not available at any time and in unlimited numbers. Outsourcing and offshoring is therefore a limited strategic option to overcome skill gaps. It seems to be more adequate to overcome skill shortages.

I. Changing vocational education

Changing vocational education has a long-term effect. It must be taken into account that changes will have a substantial impact in quality and quantity starting at the earliest within three years time after the changes. The process of changing initial vocational education in content or in structure takes itself several years. The process from defining the needs and problems to the implementation of a new curriculum involves several stakeholders from different expert levels like companies, social partner organisations, training institutes as well as representatives of national and regional education administration. These bargaining processes could take several years and are dependent of the VET-system of the European Member State. Hence, this strategic choice will only be drawn if major structural changes are expected.
Despite these facts, possible changes can be seen in a stronger modularisation of curricula of initial vocational training as well as in building up or strengthening interplant and interregional training infrastructure. The first option could in the long run help to overcome identified skill needs in a sound, flexible and a relatively quick way. The second option is amongst others a possibility to provide the latest high-value equipment for training quickly by sharing resources of several partners.

J. Designing and offering new courses (continuing vocational education and training)

Once it is clear that the current content of vocational training is not up to date and therefore does not address the demands, the development of new courses for continuing vocational education and training could be a strategic option with a short term impact (see also *M. Stronger cooperation between stakeholders)*.

K. Providing information about jobs and (emerging) skills

There is still a lack of transparency concerning current and emerging skill needs and job opportunities in different economic sectors. Information systems on regional, sectoral, national or European level could help to minimise information asymmetries and in that way overcome skill gaps resulting from information deficits. As a consequence, it could prove highly effective in helping students to enter the labour market and find a suitable

occupation, just as much as in assisting employees to find new job opportunities based on existing skills or guide them in finding the suitable vocational training course.
Career guidance impacts rather short term. Therefore, it can help to overcome the mismatch between the needs and interest of the individual and those of the prevailing economy. The basic assumption of this strategic choice is that there already exist people who are equipped with the required skills and qualifications, but, due to a lack of information about the labour market possibilities, do not apply for these jobs. Career guidance for students and employees can help to overcome this mismatch. In this respect there can be a clear connection to training. Systems for recognition of prior learning (RPL) can help to determine to what extent people possess necessary competences for a new job. Targeted training can bridge the gap for the failing competences.

L. Improving the image of the sector

Improving the image of the sector could be an easy and suitable measure especially to overcome skill and labour market shortages and attract new employees. Several instruments could be implemented by sector organisations in co-operation with different non sector actors like schools, career management organisations, training organisation, public employment services, and public administration. Instruments could be company visits for pupils, offering internships for pupils and enhanced public relation. Especially in sectors where framework conditions and occupational functions changed fundamentally, due to technological or organisational restructuring or low wage levels, this offers a possibility to overcome stereotypes as much as old fashioned views and to attract more labour. Moreover, this measure does not only provide a chance to overcome stereotypes in relation to the sector but also to some occupational functions. The effect of this strategic option is long-term. In consideration of the apprenticeship system, which can take up five to seven years (if the specialisation of high qualified jobs in the sector is taken into account) until the volume effect is reached, one must arrive at the conclusion that in some occupational functions it has to be initiated right now.

M. Stronger cooperation with the industry

A stronger co-operation between industry and training institutes on a regular basis is one possibility to meet the skill needs in the sector. In some sectors and countries training of employees does not seem to be in line with the industry's emerging needs. New training and teaching solutions are to be developed between the industry, sector representatives, education institutions and research centres, public bodies, etc. Information exchange and a stable cooperation between the relevant stakeholders could improve the matching of training needs and demands. In the long run it will enhance the efficiency of training output, strengthen the quality of training and maximize the individual potential. To build up this kind of cooperation takes time, but in the long run it might well be capable to provide accurate solutions for problems. Networks and partnerships between these stakeholders to forecast skill needs in the sectors also present a long term measure. They could help to define emergent skill needs. While knowledge about the development of skill supply is quite high, the knowledge about the development of skill demand in different sectors is still improvable. These kinds of networks can cooperatively detect the need for action and contribute to the development of recommendation of actions.

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Glossary

Apprenticeship. Systematic, long-term training alternating periods at the workplace and in an educational institution or training centre. The apprentice is contractually linked to the employer and receives remuneration (wage or allowance). The employer assumes responsibility for providing the trainee with training leading to a specific occupation. (Cedefop, 2004)

Competence. Competence refers to the proven ability to use knowledge, skills and personal, social and/ or methodological abilities, in work or study situations and in professional and personal development. In the context of the European Qualifications Framework, competence is described in terms of responsibility and autonomy;

Compulsory education. The minimal legal standards and duration of obligatory schooling. (ILO, 1998)

Concentration index. The concentration index assesses the relative contribution of a specific sector to the national economy compared to a greater entity, such as the EU, thereby correcting for the size of the country. In more general terms, the concentration index is a measure of comparative advantage, with changes over time revealing changes in the production structure of a country. An increase of the concentration index for a sector signifies relatively fast growth of that particular sector in the country concerned compared to the same sector in the EU. How does the concentration index work in practice? A few (hypothetical) examples: if sector x represents a 5% share of the German economy and a 5% share of the EU economy, the concentration index of sector x equals a 100. If sector x represents 5% of the German economy, but 10% of the EU economy, the concentration index of sector x is 50. If the same sector x represents 10% of the German economy and 5% of the EU economy, the concentration index of sector x is 200.

The concentration index concept can be applied using different indicators (variables). In our study we measure the concentration index using employment, value added and trade, in order to make a distinction between the relative performance of countries EU-wide. We distinguish between four country groupings, each signifying a different sector performance over time. If a sector in a country has a strong position (hence showing a concentration index higher than 100) and has experienced a clear index growth over the last years, the sector is defined as winning in that country. If the sector has a strong position, but experienced a decline of the concentration index, we say the sector is losing momentum. If the sector has a weak position, but gained in the past, we say that the sector in that country is upcoming. If the sector has a weak position and experienced a decline of the index, we say that the sector is retreating.

Employability. The degree of adaptability an individual demonstrates in finding and keeping a job, and updating occupational competences. (Cedefop, 2000)

European Credit system for Vocational Education and Training (ECVET). A device in which qualifications are expressed in units of learning outcomes to which credit points are attached, and which is combined with a procedure for validating learning outcomes. The aim of this system is to promote:

- mobility of people undertaking training;
- accumulation, transfer and validation and recognition of learning outcomes (either formal, non-formal or informal) acquired in different countries;
- implementation of lifelong learning;
- transparency of qualifications;
- mutual trust and cooperation between vocational training and education providers in Europe. (Cedefop)

European Qualification Framework for life-long learning (EQF). A reference tool for the description and comparison of qualifi cation levels in qualifi cations systems developed at national, international or sectoral level. (Cedefop)

Full-time Employment. Traditionally means a 'regular job'. Work that is about eight hours a day, five days a week and forty-eight weeks of the year with four weeks paid leave.

Informal learning. Learning resulting from daily activities related to work, family or leisure. It is not organised or structured in terms of objectives, time or learning support. Informal learning is in most cases unintentional from the learner's perspective. (Cedefop, 2008)

Interdisciplinary (multidisciplinary). Interdisciplinary refers to research or study that integrates concepts from different disciplines resulting in a synthesised or co-ordinated coherent whole. New disciplines have arisen as a result of such syntheses. For instance, quantum information processing amalgamates elements of quantum physics and computer science. Bioinformatics combines molecular biology with computer science. An interdisciplinary team is a team of people with training in different fields. Interdisciplinary teams are common in complex environments such as health care.

Job mobility. Any change of job, regardless of where the new job is located.

Knowledge. Knowledge refers to the outcome of the accumulation of information through learning. Knowledge is the body of facts, principles, theories and practices that is related to a field of work or study. In the context of the European Qualifications Framework, knowledge is described as theoretical and/or factual.

Knowledge society. A society whose processes and practices are based on the production, distribution and use of knowledge. (Cedefop, 2008)

Learning outcomes. Learning outcomes refer to statements of what a learner knows, understands and is able to do on completion of a learning process, which are defined in terms of knowledge, skills and competence.
Lifelong learning. All learning activity undertaken throughout life, with the aim of improving knowledge, skills/competences and/or qualifications for personal, social and/or professional reasons. (Cedefop, 2008)

Low, medium, high educated. See also under qualifications. The Labour Force Survey (LFS) collects data for a number of characteristics of employees, one being the level of education of an employee. The LFS is is based on the ISCED 1997 classification (International Standard Classification of Education).

- Low-educated encloses all levels up to the compulsory education (ISCED 1+2). ISCED 1: primary education or first stage of basic education. ISCED 2: lower secondary education or second stage of basic education.
- Medium-educated comprises all the post compulsory education not tertiary (ISCED 3+4). ISCED 3: (upper) secondary education. ISCED 4: post-secondary non tertiary education
- High-educated comprises all tertiary education including university education (ISCED 5+6). ISCED 5: first stage of tertiary education). ISCED 6: second stage of tertiary education (leading to an advanced research qualification).

Low, medium, high skilled. In general this classification refers to the skills required for a specific occupation that an employee currently holds. In existing taxonomies skills levels are usually proxied by educational attainment (see low, medium, high educated).

Mobility, see job mobility.

Multi-skilling. Multi-skilling refers to training an employee to cover a range of different jobs in one workplace. A multiskilled worker is an individual who possesses or acquires a range of skills and knowledge and applies them to work tasks that may fall outside the traditional boundaries of his or her original training. This does not necessarily mean that a worker obtains or possesses high-level skills in multiple technology areas. However, the worker can be an effective and productive contributor to the work output of several traditional training disciplines.

Multi-tasking. The ability of a person to perform more than one task at the same time.

Profession. An occupation which requires knowledge gained through academic study, such as law, medicine or teaching.

Qualification. Qualification refers to a formal outcome of an assessment and validation process which is obtained hen a competent body determines that an individual has achieved learning outcomes to given standards.

Qualifications, Comparability of -. The extent to which it is possible to establish equivalence between the level and content of qualifications (certificates, diplomas or titles) at sectoral, regional, national or international levels. (Cedefop, 2000)

Qualification, level of -. Low: at most lower secondary (ISCED 0-2); medium: upper secondary (ISCED 3-4); high: Tertiary (ISCED 5-6).
Qualification framework. An instrument for the development and classification of qualifications (e.g. at national or sectoral level) according to a set of criteria (e.g. using descriptors) applicable to specified levels of learning outcomes. (OECD, 2007)

Retraining. Training enabling individuals to acquire new skills giving access either to a new occupation or to new professional activities. (Cedefop, 2004)

Revealed Comparative Advantage (RCA). Relative comparative advantage compares the relative contribution of sector x to the comparative advantage of the national economy with other sectors. It is calculated as follows:

$$RCA = \tanh (\ln ((\text{Exports S} / \text{Imports S}) / (\text{Exports C} / \text{Imports C}))) \times 100$$

Interpretation: 0 = the comparative advantage of sector x equals the average of the comparative advantage of the entire national economy. Near -100: the sector contributes nothing to the comparative advantage of that country. Near + 100: the sector contributes strongly to the comparative advantage of the country.

The use and logic of the country groupings winning, losing momentum, upcoming and retreating in combination with revealed comparative advantage is similar to the concentration index (see above).

Skills. Skills refer to the ability to apply knowledge and use know-how to complete tasks and solve problems. In the context of the European Qualifications Framework, skills are described as cognitive (involving the use of logical, intuitive and creative thinking) or practical (involving manual dexterity and the use of methods, materials, tools and instruments).

Skills gaps. Skills gaps arise where an employee does not fully meet the skills requirements for a specific job function but is nevertheless hired. This skills gap needs to be closed through training. Skills gaps can arise where new entrants to the labour market are hired and although apparently trained and qualified for occupations still lack some of the skills required.

Skills needs, emergent -. Emergent skills needs are defined in this study as the change in skills that is needed to adequately fulfil a certain job function in the future. Addressing emergent skills is needed in order to avoid skills shortages and/or skills gaps in the future.

Skills shortages. Skills shortages exist where there is a genuine lack of adequately skilled individuals available in the accessible labour market. A skill shortage arises when an employer has a vacancy that is hard-to-fill because applicants lack the necessary skills, qualifications or experience.

Tertiary education. Tertiary education refers, in most settings to non-compulsory education provided via a specialist institution once secondary schooling is completed, usually labelled as a college, polytechnic or university (in English) with variants of these in other languages. Tertiary education may be delivered virtually or at a distance.

Trade balance. Exports minus imports.

Training. The development of skills or knowledge through instruction or practice; a kind of vocational learning such as an apprenticeship or traineeship which includes both formal education and on-the-job experience.

Unskilled work. Work which lacks specialist training or ability and generally involves simple manual operations which can be learned in a short time.

Up-skilling. Short-term targeted training typically provided following initial education or training, and aimed at supplementing, improving or updating knowledge, skills and/or competences acquired during previous training. (Cedefop, 2004)

Vocational Education and Training (VET). Education and training which aims to equip people with skills and competences that can be used on the labour market. (adapted from ETF, 1997).