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The role of qualifications in governing occupations and professions

Draft final report

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Foreword

Panteia/Research voor Beleid and Maastricht University are pleased to present this final report for the study on “The role of qualifications in governing occupations and professions”. This study is financed by Cedefop. The study aims to explore the role that qualifications play on the labour market as instruments of governance, and the way in which this role is changing.

In this report we present the complete results of the study which was carried out between September 2011 and August 2012, the overarching analysis and the answers to the research questions. In the course of the study, research was carried out at EU level and in a selection of ten countries and five sectors.

In **chapter 1** of this report, the aims and objectives of the study and the research questions are presented against the background of general topic of qualifications. On the basis of the desk study and literature research carried out in the initial phase of the research, the policy background on the use of qualifications in the European Union are presented in **chapters 2 and 3**.

The empirical results of the ten country cases and the sector case studies are presented in this report, firstly at country level in **chapter 4** and then sector by sector in **chapter 5**. This empirical information represents the core body of this report. Analysing this information, **chapter 6** presents the discussion of the key issues addressed by the research and aims to draw conclusions based on this discussion. The last chapter, **chapter 7**, finally completes the report by providing the answers to the research questions.

Panteia/Research voor Beleid and Maastricht University



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EXECUTIVE SUMMARY

Qualifications are commonly seen as one of the core instruments for governing and regulating the labour market. By being linked to the access to occupations and professions, qualifications define what a person needs to know and be able to do in order to carry out a certain activity on the labour market. As potential outcome of provisions for continuing professional development, qualifications provide the stepping stones for individual career paths. Various reasons, from health and safety to consumer protection and quality assurance, are given to justify the use of qualifications in the governance of occupations and professions. In addition to these public interest motivations, they might also be instrumentalised to defend private interests of professional groups and bodies.

Depending on the sector and occupation in question, national legislation, regulation or other kinds of agreements determine which qualifications are required for practice in which occupations. Traditionally, governments dedicate the responsibility for defining the regulatory function of qualifications to centralised competent bodies, supported by social partners and professional associations. Through delegation and cooperation, trust in the value ('currency') of qualifications is fostered. However, Cedefop has noted that the direct regulation of occupations and professions through qualifications seems to be diminishing, being replaced by a weaker and more fluid relationship between qualifications and the labour market. Some aspects that might give rise to this development are:

- The emergence of new awarding bodies at sector and international level, challenging the traditional gate-keeper role of national governments;
- Rapid technological and economic change, requiring a constant modernisation of qualifications and occupations;
- The growing importance of transversal skills, emphasising cross-sectoral and intra-occupational competences and challenging the one-to-one relationship between qualifications and occupations;
- The emergence of new occupations and the constant redefinition of existing occupations and professions, again challenging the direct relationship between occupations and professions;
- Growing resistance towards the legal or administrative regulation of the economy in general and of the relationship between qualifications and occupations specifically.

In order to understand the way in which the relationship between qualifications and the labour market is changing, Cedefop has commissioned Panteia/Research voor Beleid and the University of Maastricht to carry out a study on the role of qualifications in governing the access to and practice within occupations and occupations. This study also aims to contribute to the European Commission's work on ESCO, the European multilingual taxonomy of Skills, Competences, qualifications and Occupations.¹ Within the framework of this study, the situation in ten European countries and

¹ ESCO will help to describe qualifications in terms of learning outcomes in line with the European Qualifications Framework (EQF) and the National Qualifications Frameworks (NQFs) which are being developed in all EU countries.

five sectors was examined to come to an overarching view of the current state of affairs.

Objectives and definitions

The objectives of the study were the following:

- To study in-depth how qualifications are used to govern access to and practice in occupations and professions;
- To examine how the use of qualifications for regulation purposes varies between sectors and countries;
- To examine how public policies influence and challenge the use of qualifications for regulatory purposes;
- To analyse the role and influence of economic and technological change on the use of qualifications for regulation purposes

To achieve these objectives, the study aimed to answer the following research questions:

- Which models of governance of professions and occupations can be identified in the different countries and sectors and how can these be described in terms of principles and practical applications? Can we identify regulation typologies according to countries (north-south, newer and older Member States) and sectors?
- How are qualifications influencing the access to and practice in occupations and professions? Which administrative and legal instruments and structures support these practices and what is the role of different stakeholders? To what extent do these arrangements have an impact on benefits and salaries?
- Is the use of qualifications for regulating access to and practice in occupations and professions increasing or decreasing? To which extent will over- and under- qualification influence the use of regulations in the labour market?
- How do public policies influence and challenge the use of qualifications for regulatory purposes? Which is the role played by European internal market as well as education and training policies (for example through Directive 2005/36 on Recognition of professional qualifications and the EQF)?
- How are technological and scientific developments influencing the use of qualifications for regulations?
- How will the constant redefinition of occupational and professional content and requirements influence the use of qualifications for regulation and governance?
- Which are the consequences of the growing importance of transversal skills and competences in the relationship between occupations and qualifications?
- Are international bodies (organisations as well as companies) influencing the regulatory role of qualifications?
- Which political and ideological issues are raised in relation to these regulation and governance issues?

In addressing the objectives and research questions, the study adopted a broad approach regarding definitions and key concepts. The core terms of the study were therefore defined as follows:

- Qualifications are seen as “a formal outcome of an assessment and validation process which is obtained when a competent body determines that an individual has

achieved learning outcomes to a given standard”¹, hereby including all kinds of diplomas, licenses and certificates

- Occupations and professions are defined as “a job or grouping of jobs involving similar content in terms of tasks and which require similar types of skills and competences”², whereby the distinction between the two cannot be clearly drawn, being connected to intangible aspects such as professional identity, status but also educational level and experience.
- Finally, we distinguish between different kinds of labour market instruments, including regulation as an overarching term and licensing, certification, registration and accreditation as different forms, distinguished by their strictness (mandatory or not), level of detail in terms of competence requirements and the public or private nature of the governance framework.

Scope and methodological approach

Based on these definitions, the study took an empirical inductive approach to understand how qualifications are used in different countries and sectors to govern the labour market. In order to answer the research questions, a large body of qualitative information was collected for the purposes of this study. To start with, the research team carried out extensive desk research in order to locate the study firmly within previous research carried out on the topic of qualification. This desk research provided the conceptual basis on which the further analysis is based.

Following the desk research, case studies of ten EU countries were carried out in order to collect empirical data on the current state of affairs. Following specified formats for data collection and interviews, the research team collected information on the general regulatory context of the country in question and on the situation in a selection of three sectors per country, focusing on three specific occupations per sector. Across the countries, five sectors were studied in detail. The selection of sectors, occupations and countries studied is presented in the table below.

Table 0.1 Selection of sectors, occupations and countries

Sector	Occupations	Countries
Health and social work	General Practitioner Clinical Nurse Social Worker	Belgium-Flanders, Germany, France, Lithuania, the Netherlands, Sweden
Electricity, water, gas and waste	Plumber Heavy Press Worker Welder	Germany, Greece, Lithuania, the Netherlands, Spain, UK-England
Chemicals, rubber and plastic	Pharmaceutical and toiletry products machine operator Chemical engineering technician	Belgium-Flanders, Greece, Slovenia, Spain, Sweden, UK-England

¹ Defined by the European Commission in the recommendation on a European qualifications framework for life-long learning, 2008

² Adapted from Skillsbase – Labour market information Database.

Sector	Occupations	Countries
	Welder	
Transport and logistics	Heavy Truck driver Air traffic controller Ship's engineer	Belgium-Flanders, Greece, France, the Netherlands, Slovenia, UK-England
Sports	Ski instructor Fitness instructor Referee	Germany, France, Lithuania, Slovenia, Spain, Sweden

In all these countries and sectors, intensive desk research and interviews with stakeholders were carried out in order to get a good picture of the governance framework at national and sectoral level determining the content and role of qualifications on the labour market.

Key findings

The study presents a picture of the regulatory framework at national level in the ten countries examined, as well delving into the actual situation at sectoral level on the basis of the exemplary occupations and professions. Hereby, the common trends between countries and sectors as well as the differences are identified, whereby efforts are made to point towards factors explaining these differences and commonalities.

Regarding the general regulatory context of the countries examined, it can be stated that countries differ strongly regarding the general intensity of labour market regulation and the role of social partners in the governance framework. Thus, the UK is known as imposing little binding public regulation on labour market actors, whereas in Greece the intensity of regulation is strong. In Lithuania, structures of social dialogue are weak and social partner influence in policy making processes is low, whereas the system in the Netherlands is based almost entirely on corporatist structures, just like Sweden, with clearly defined division of labour and a high degree of social dialogue between the State on the one hand and the social partners on the other.

Countries also display similarities however. Thus, in all countries examined, overarching qualifications frameworks have been set up, sometimes as a result of the implementation of the European Qualifications Framework. In addition, most countries are displaying an increasing focus on the labour market relevance of qualifications, using learning outcomes to describe the content of qualifications in relation to occupations and professions. In this context, the feedback loop between labour market and education is increasingly supported, through the use of occupational profiles as the basis of qualifications portfolios and school curricula. Finally, several countries are undergoing reform processes, especially Greece, Slovenia and Spain, aiming to align their qualifications systems more with labour market needs and to reduce the intensity of labour market regulation.

While these general characteristics at national level are important to understand the regulatory traditions, the research suggests that in many cases, the characteristics of the regulation at sectoral/occupational level does not correspond to the national picture. In fact, the study clearly shows that sectoral factors such as the nature of the

work, sectoral traditions and organisational structures are better predictors of the regulatory situation in a sector than are national differences. Acknowledging some differences between the countries, the sectors covered in this study can thus be characterised from an overarching perspective across the different countries.

Thus, the sector of health and social work, studied by looking at the professions of general practitioner, clinical nurse and social worker, is characterized by the following aspects which apply more or less to all the countries examined:

- Strong regulation at macro (national and EU) level, determining qualification requirements for entry into the profession, categorised as licensing systems;
- Comparatively strong systems of continuing professional development (CPD), enshrined in legal and professional obligations for practicing professionals;
- Considerations of patient safety and quality of services prevailing in all countries as a motivation for regulation;
- Strong role for sectoral organizations, e.g. medical orders and professional associations, in the management and administration of national licensing systems and CPD systems;
- Strongest framework applying to doctors, regulation of social workers more lenient;
- Some changes in qualifications and task reallocation taking place, but no deregulation or decreasing importance of qualifications.

Secondly, the factor of electricity, gas, water and waste, which is not always defined in this way at country level, was examined by looking at the occupations of plumber, heavy press worker and welder. Based on the information collected at country level, we define the following aspects as key characteristics of the sector:

- Relatively low intensity of regulation regarding labour market entry, as no binding qualifications requirements are stipulated;
- High importance of general regulation, e.g. regarding occupational safety and health, in determining access to the labour market, as liability plays a role in determining the importance paid to qualifications;
- General qualifications framework applies, with specific qualifications existing for the occupations examined, albeit with some different definitions and unclear delimitation between occupations (overlap);
- Strong role of sectoral organisations in both regulation and qualification management;
- Pragmatic use of qualifications at micro level;
- Welding sector excels in sectoral initiative by having developed international qualification and training infrastructure.

The chemicals, rubber and plastic sector in which we examined the regulatory framework pertaining to the occupations of pharmaceutical and toiletry products machine operator, chemical engineering technician and, again, welder, displays the following characteristics:

- Relatively unclear pattern of regulation and educational provision, no unitary model of governance;
- Only weakly regulated by means of licensing systems, overarching national regulatory and educational frameworks determine content and role of qualifications;
- Due to high knowledge-intensity of the work in the sector, qualifications highly important with regard to the labour market nonetheless;
- CPD playing important role due to need for further specialization

- Again, welding sector stands out due to strong sectoral framework, this time applicable to plastic (polythene) welding.

In contrast to this sector, the transport and logistics sector, examined by looking at the occupations of heavy truck driver, air traffic controller and ship's engineer, displays very strong sectoral characteristics, determined by the following aspects:

- Strong regulatory framework, defined through European or international legislation;
- Strict licensing requirements for entry into the occupations, including demands on practical training and experience as well as additional criteria such as age and health;
- Strict requirements regarding continuing professional development of occupational practitioners;
- Strong role of sectoral organizations in implementing the regulatory framework, under the auspices of national authorities, in some cases entirely separate from public VET structure;
- Little room for national and sectoral actors to influence or change the international framework of regulation;
- Strong trust in qualifications at micro level, motivated by enforcement and concern for safety and security;
- All occupations are subject to change triggered by legislative and technological developments which is addressed by means of continuing professional development.

Finally, the last sector examined is the sports sector, entailing the exemplary occupations of ski instructor, fitness instructor and referee. The sports sector is in many ways an emerging sector, as its level of organisation is often only starting to be developed. As a result, the sector does not display a unified picture, though the following aspects can be identified across countries and occupations:

- On the one hand still formalising procedures and structures (i.c. fitness instructor), on the other entirely governed by sectoral organizations themselves (i.c. referee);
- Education largely left to private actors, as public systems are only starting to provide courses
- Safety concerns and international competition leading to strict entry requirements for ski instructors;
- Opportunities for sectoral actors to develop own initiatives, including international ones, such as the European Health and Fitness Association has done;
- Increasing trend of official qualifications available to employees and trainees;
- Possible deficit of compliance with regulation (national and sectoral) at micro level.

Discussion

Systems of governance

Based on the empirical information collected, the study draws some overarching conclusions on the role of qualifications in the governance of occupations and professions. The overall conclusions that sectoral factors trump national factors when explaining differences in the regulatory framework governing a specific occupation or activity has already been mentioned. Departing from this conclusion, we furthermore identify four general systems of governance:

- Traditional sector-based licensing;

- International sector-based licensing
- Generic national governance
- Independent sectoral governance

The first model, traditional sector-based licensing, can be found in the health care sector of most countries. It is characterised by strict entry requirements into the labour market, backed up by official registration of professionals and demands placed on the continuing education and training of active employees. The requirements are in line with European legislation on qualification requirements, but the system is organised at a national level and professional organisations are involved in the management and implementation of the system and have done so traditionally in the context of sectoral self-management. At micro level, the compliance is high, backed up by professional internalisation of the licensing system on the one hand and enforcement on the other hand.

The second model, international sector-based licensing, is based on similar principles as the first model, but lifts these to an international level. It is for example applied to occupations in the transport sector. In this system, international agreements determine the demands that are placed upon occupational practitioners in the sector, again regarding initial and continuing education, possibly registration but also physical fitness or age restrictions. Since these are international agreements, they also specify the way in which they need to be implemented at national level through institutional arrangements, which are set up in addition to existing national structures (e.g. VET systems). The core objective of international sector-based licensing is to create a minimum level of service quality in the sector, motivated by considerations of safety and security.

The third model, generic national governance, is an umbrella term for models in which no specific regulation applies to the occupation or sector in question, but the general national VET system provides education which mirrors the occupations in the sector. National differences are most pronounced in this system, since the outcome depends on the qualifications structure and the way the labour market is organised. Such a situation is for example found in the sector of electricity, water, gas and waste. As national governments do not see a necessity to regulate entry to and practice in a specific occupation, market mechanisms step in to determine whether trainees decide to follow a specific educational route and enter the labour market well-qualified or whether more empirical manners of occupational learning and on-the-job training are preferred by employers and employees. The importance of formal education is determined by the quality and trust in the educational system, the economic situation and the resulting supply and demand of labour.

Finally, the model of independent sectoral governance can develop in a sector which is indeed usually governed by a generic national system with low intensity regulation. In this case, sectoral actors have decided to take initiative to set up an additional, international system of training, backed up by national institutional structures in order to increase the overall quality of occupational practice in the sector. Independent private structures of training and certification are set up which are coordinated across the participating countries. The welding occupation is a key example of this model. As national public and international private structures co-exist in an environment of low regulatory intensity, employers and employees can choose for themselves which training routes they prefer.

Developments and changes

While these systems of governance allow us to categorise sectors or countries, they do not yet say anything about the developments and changes taking place in the use of qualifications. The central question in this regard is whether qualifications are losing importance due to changes in society, economy and the labour market. Regarding this question, this study confirms the general trend of an increasing labour market focus of qualification governance. One of the aspects that are of central importance in this regard is the varying involvement of labour market actors in the governance systems. Employer associations and professional groups are involved in both the design and management of qualifications on the one hand and in the set-up and implementation of labour market regulation structures on the other hand. By drawing up occupational profiles and formulating corresponding learning outcomes, labour market actors can contribute actively to connecting qualifications to occupational practice. Furthermore, their involvement increases the acceptance of regulatory requirements, embedded in systems of self-governance and collective bargaining.

At the same time, the input of educational institutions and reliable quality assurance and certification bodies remains of importance for upholding the value of qualifications. Even in the case of independent systems of self-governance, e.g. in the UK or in the welding occupation, these aspects continue to play an important role. As these systems are even more dependent on the value attributed to the qualifications by the end users, the quality and public image of the structures supporting them are of even greater significance. The fact that these alternative systems continue to be based on qualification structures confirms the continued relevance of qualifications in labour market governance.

While the labour market orientation of qualifications can be confirmed, their diminishing use of qualifications as an instrument of governance and their decreasing importance for employees in the workplace are not supported by the information collected for this study. Despite a general trend in several countries of the policy debate supporting deregulation of occupations and professions, the cases examined in the study do not show strong signs of decreasing levels of deregulation. In a number of countries fundamental reform projects are currently under way, for example Greece, Slovenia and Germany. While the general direction of these reform projects points towards a deregulation of occupational entry and practice, it is not clear what the actual outcome will be. Especially in Greece, it seems that the central objective of policy reform is rather a clarification and cleaning up of the existing regulatory system than a purposeful reduction of regulation, though the removal of clearly unnecessary regulations is definitely a part of the process. In Slovenia, too, there is discussion as to the need for “better” rather than “less” regulation. Sweden is characterised by a liberal approach. In fact, the Swedish constitution lays down the principle of freedom to pursue a certain profession and/or to engage in an economic activity and holds that prescriptions and limitations to this right can only be set where this is necessary to protect a public interest. Only some 30 professions are considered '*skyddade yrken/reglerade yrken*' and are subject to legislation regulating entry. In Germany, the system of recognition of foreign qualifications has recently been changed entirely, trying to open up the German labour market to qualified employees from countries outside of Germany and outside of the European Economic Area.

Importantly, even where the use of qualifications for regulatory purposes is diminishing, this does not automatically lead to a less important role of qualifications. As has been demonstrated, the importance of qualifications as actual proof of competence which can be used on the labour market is not dependent on the level of regulation, but on the level of trust in the qualifications structure and the connected educational provision. Private initiatives aiming at the improvement of service provision through systems of registration and certification can also take the place of official licensing, which in the end might lead to the same amount of occupational restrictions as in the case of government licensing. In addition, in some sectors and occupations there has been a move from national to more international regulation. These developments therefore raise the question what we actually mean by deregulation and what the alternative to regulation can be.

Another development that is thought to put pressure on the role of qualifications is the influence of technological and scientific change on the content of occupations and professions. However, this study does not confirm the picture that technological and scientific developments are changing occupations to an unprecedented extent. Thus, technological change has always been an important factor influencing occupational practice and the current rate of change does not exceed earlier experiences. Actors at all levels, from the national to the sectoral level and including actual employers and employees, are thus used to integrating new technologies and scientific practices into both the governance frameworks and the daily practice at the work place. Importantly, due to the feedback loop between labour market and education, qualifications can continue being used as a strong and flexible tool despite technological and scientific developments which may lead to changes in the occupations and professions. Furthermore, frameworks of continuing professional development ensure that practitioners keep up to date with new professional practices and technologies.

Finally, the growing importance of so-called transversal skills, e.g. the ability to learn, cultural awareness or creativity, may diminish the significance of specific qualifications linked to occupations. However, both at policy level and at the level of the end users of qualifications, it appears that the emphasis on transversal skills comes as an addition to and not in place of the traditional emphasis on specific skills. The same is true for curricula, where transversal skills are added to specific skills as targets of learning. In addition to general formulations of transversal skills, occupational profiles and qualifications portfolios are filled with detailed, technical descriptions of the core activities of the occupational practitioner. For these core activities and the skills connected to them appear to remain the most important factors that shape a qualification and that decide whether an individual is fit to carry out a specific task or not. This suggests that the labour market relevance of transversal skills is not appreciated to the same extent by labour market actors themselves as it is emphasised by policy makers, or alternatively it suggests that the efforts to provide transversal skills training are paying off, as labour market actors do not see this as a significant problem. While transversal skills are a core part of public educational provision and enshrined in qualifications formats, specific skills connected to the occupation in question remain at the core of the system.

Conclusion: the role of qualifications

The main role of qualifications is that of an instrument of communication, signalling a person's knowledge, skills and competences in a particular field and with regard to

a specific occupation. Thus, by showing a qualification, a person can prove to an employer or a customer that he or she is able to carry out the specific activities that are needed for the task. By setting up functional qualification systems linked to trusted educational structures in which labour market relevance is guaranteed by using instruments such as occupational profiles set up by social partners, countries can facilitate the processes which lead to a good balance of qualitative and quantitative supply and demand of labour.

In addition to this general system, qualifications are used as regulatory instruments. In a number of occupations, strict entry requirements are set to determine that only people who have acquired the specific qualification (including diplomas, certificates, licenses) may work in this occupation. In these cases, qualifications are seen as necessary, though not always sufficient criteria for employers' selection of employees at micro level and therefore do determine a minimum level of competence of all occupational practitioners. Where the license to practice is also connected to obligations with respect to continuing professional development, the qualifications connected to this aspect of the training can also play the role of ensuring the continued relevance of the skills present in the work force.

Qualifications can only fulfill this role on the labour market if the institutional structure supporting them elicits trust amongst the end users. In some situations, qualifications are trusted to such an extent that the labour market actors actively support strong licensing systems, as they see these systems as providing the basis for a strong professional environment. In situations where the strict regulation is combined with weak institutional structures, qualifications might be seen as legally necessary, but practically irrelevant and requirements may be disregarded after all. In situations where the trust in qualifications is high however, strict licensing is not even necessary for micro level actors to acknowledge the importance of qualifications for assuring the quality of staff and services.

Overall it can be said that there is no alternative to the use of qualifications in the specific role they play in translating occupational activities into learning outcomes and the other way around. Two reservations should however be added to this conclusions. Firstly, the role of qualifications as instruments of governance in contributing to the qualitative and quantitative balance of supply and demand in occupations and professions can, in all the different governance systems, only be of practical relevance when it is embedded in trusted institutional structures and used in conjunction with other instruments such as occupational profiles, learning outcomes and qualifications frameworks. Secondly, although qualifications can be identified as crucial practical linking pins between the different actors and essential conceptual connectors between educational and labour market, this does not mean that policy makers, social partner organisations or educational institutes actually classify them as such. Such a purposeful use of qualifications is possible, however not a necessary requirement for them to fulfill the role as communication vessel after all.

Key messages

- ➔ Evidence shows that qualifications remain of crucial importance in linking labour market and education, both as an instrument of governance and as actual currency on the ground.
- ➔ Qualifications can hereby be used both as entry requirements and as tools supporting continuing professional development and career progression of individuals.
- ➔ The labour market dimension of qualifications is becoming increasingly important, as countries and sectors are working on fine-tuning the feedback loop between work and education through the use of qualifications.
- ➔ In the countries, sectors and occupations examined in the context of this study, it has been shown that the nature of an occupation or profession and the characteristics of the sector determine to a great extent the role ascribed to qualifications, more so than the national context.
- ➔ While countries and sectors differ in their approach towards qualifications and labour market governance, no perfect model can be identified, as all approaches have specific issues they tackle better than other, but are also risking negative side effects.
- ➔ We can identify four different models of governance in using qualifications as regulatory instruments:
 - Traditional sector-based licensing;
 - International sector-based licensing
 - Generic national governance
 - Independent sectoral governance
- ➔ The responsibility for the governance of qualifications systems is shared between public and private actors, including trade unions, industry associations and companies which leads to more ownership amongst private actors, greater acceptance of the regulatory framework and higher trust in qualifications.
- ➔ Evidence shows nearly all systems of governance, actors from different levels (sectoral, national, European, international) interact in designing, planning and implementing labour market regulation.
- ➔ Despite technological and scientific changes impacting on occupations and professions, qualifications retain their relevance by being adaptable and flexible. This has always been the case and actors are used to reacting to change.
- ➔ While transversal skills are of importance especially in the lower-skilled segment of the labour market, the core skills defining an occupation also form the core of qualifications.
- ➔ In some countries a trend of deregulation can be identified, but it is unclear whether this trend will really lead to less regulation, or rather a clearer frame-

work of existing regulation.

→ The value and importance attributed to a qualification by actors on the labour market (i.e. employers and employees) depends on the one hand on the strictness of the regulation and the level of enforcement, but on the other hand on the trust in the educational system and the strength of institutional structures. Strict regulation and enforcement does not necessarily lead to a higher value of qualifications.

1 Introduction to the study

1.1 Introduction

Qualifications are commonly seen as one of the core instruments for governing and regulating the labour market. By being linked to the access to occupations and professions, qualifications define what a person needs to know and be able to do in order to carry out a certain activity on the labour market. As potential outcome of provisions for continuing professional development, qualifications provide the stepping stones for individual career paths. Various reasons, from health and safety to consumer protection and quality assurance, are given to justify the use of qualifications in the governance of occupations and professions. In addition to these public interest motivations, they might also be instrumentalised to defend private interests of professional groups and bodies.

Depending on the sector and occupation in question, national legislation, regulation or other kinds of agreements determine which qualifications are required for practice in which occupations. Traditionally, governments dedicate the responsibility for defining the regulatory function of qualifications to centralised competent bodies, supported by social partners and professional associations. Through delegation and cooperation, trust in the value ('currency') of qualifications is fostered. However, Cedefop has noted that the direct regulation of occupations and professions through qualifications seems to be diminishing, being replaced by a weaker and more fluid relationship between qualifications and the labour market. Some aspects that might give rise to this development are:

- The emergence of new awarding bodies at sector and international level, challenging the traditional gate-keeper role of national governments;
- Rapid technological and economic change, requiring a constant modernisation of qualifications and occupations;
- The growing importance of transversal skills, emphasising cross-sectoral and intra-occupational competences and challenging the one-to-one relationship between qualifications and occupations;
- The emergence of new occupations and the constant redefinition of existing occupations and professions, again challenging the direct relationship between occupations and professions;
- Growing resistance towards the legal or administrative regulation of the economy in general and of the relationship between qualifications and occupations specifically.

In order to understand the way in which the relationship between qualifications and the labour market is changing, Cedefop has commissioned Panteia/Research voor Beleid and the University of Maastricht to carry out a study on the role of qualifications in governing the access to and practice within occupations and professions. This study also aims to contribute to the European Commission's work on ESCO, the

European multilingual taxonomy of Skills, Competences, qualifications and Occupations.¹ Within the framework of this study, the situation in ten European countries and five sectors was examined to come to an overarching view of the current state of affairs.

1.2 Purpose of the study and research questions

1.2.1 Aim of the study

Building on the research carried out in previous studies, this study has the following aims and objectives:

- To study in-depth how qualifications are used to govern access to and practice in occupations and professions;
- To examine how the use of qualifications for regulation purposes varies between sectors and countries;
- To examine how public policies influence and challenge the use of qualifications for regulatory purposes;
- To analyse the role and influence of economic and technological change on the use of qualifications for regulation purposes

1.2.2 Research questions

To achieve these aims and objectives, the following research questions need to be answered:

- Which models of governance of professions and occupations can be identified in the different countries and sectors and how can these be described in terms of principles and practical applications? Can we identify regulation typologies according to countries (north-south, newer and older Member States) and sectors?
- How are qualifications influencing the access to and practice in occupations and professions? Which administrative and legal instruments and structures support these practices and what is the role of different stakeholders? To what extent do these arrangements have an impact on benefits and salaries?
- Is the use of qualifications for regulating access to and practice in occupations and professions increasing or decreasing? To which extent will over- and under-qualification influence the use of regulations in the labour market?
- How do public policies influence and challenge the use of qualifications for regulatory purposes? Which is the role played by European internal market as well as education and training policies (for example through Directive 2005/36 on Recognition of professional qualifications and the EQF)?

¹ ESCO will help to describe qualifications in terms of learning outcomes in line with the European Qualifications Framework (EQF) and the National Qualifications Frameworks (NQFs) which are being developed in all EU countries.

- How are technological and scientific developments influencing the use of qualifications for regulations?
- How will the constant redefinition of occupational and professional content and requirements influence the use of qualifications for regulation and governance?
- Which are the consequences of the growing importance of transversal skills and competences in the relationship between occupations and qualifications?
- Are international bodies (organisations as well as companies) influencing the regulatory role of qualifications?
- Which political and ideological issues are raised in relation to these regulation and governance issues?

1.3 Methodology used

In order to answer the research questions, a large body of qualitative information was collected for the purposes of this study. To start with, the research team carried out extensive desk research in order to locate the study firmly within previous research carried out on the topic of qualification. This desk research provided the conceptual basis on which the further analysis is based. Chapters 2 and 3 of this final report are based on this desk research.

Following the desk research, case studies of ten EU countries were carried out in order to collect empirical data on the current state of affairs. Following specified formats for data collection and interviews, the research team collected information on the general regulatory context of the country in question and on the situation in a selection of three sectors per country, focusing on three specific occupations per sector. Across the countries, five sectors were studied in detail. The selection of sectors, occupations and countries studied is presented in the table below

Table 1.1 Selection of sectors, occupations and countries

Sector	Occupations	Countries
Health and social work	General Practitioner Clinical Nurse Social Worker	Belgium-Flanders, Germany, France, Lithuania, the Netherlands, Sweden
Electricity, water, gas and waste	Plumber Heavy Press Worker Welder	Germany, Greece, Lithuania, the Netherlands, Spain, UK-England
Chemicals, rubber and plastic	Pharmaceutical and toiletry products machine operator Chemical engineering technician Welder	Belgium-Flanders, Greece, Slovenia, Spain, Sweden, UK-England
Transport and lo-	Heavy Truck driver	Belgium-Flanders, Greece,

Sector	Occupations	Countries
logistics	Air traffic controller Ship's engineer	France, the Netherlands, Slovenia, UK-England
Sports	Ski instructor Fitness instructor Referee	Germany, France, Lithuania, Slovenia, Spain, Sweden

The formats included questions on the national context in which sectoral labour markets are governed, and the specific policies and strategies that are implemented in the three sectors selected for study in the country concerned.

The country case studies focused on gathering data on the following levels:

- National context (*per country*)
- Macro level (national authorities etc.) (*per sector*)
- Meso level (social partners) (*per sector*)
- Micro level (employees, employers) (*per sector*)
- Conclusions (*per country*)

The following data collection activities were carried out at national level:

(1) Intensive **desk research** on selected sectors and occupations. Through the desk research, the relevant organisations for interviews were also identified.

(2) **Interviews** (face-to-face and by telephone) with key stakeholders on national level and on sector/occupational level. Respondent organisations were:

- National ministries of education
- National bodies of VET and labour market coordination
- Employers' and employees' organisations in the specific sectors
- Qualification and VET bodies connected to the specific sectors
- Professional organisations of the selected occupations

For the interviews, the research questions as included in the country report format (see **Annex 1**) as well as an interview checklist were used as a framework for discussion. Separate checklists were developed for the interviews on national as well as on sectoral level. However, national researchers were free to add their own questions where relevant.

(3) Based on the desk research and interviews the research team drew up ten country reports, including three sectoral sections per report. While technical information on the regulation of specific occupations was important, even more crucial information on the way in which this regulation is carried out in the different countries and sectors and the motivation behind specific choices, was included. The country studies provide a comprehensive overview of the situation in the country examined. Where research questions were not answered, an explanation of the absence of data was given.

Literature or data sources were specified in footnotes. The names and details of respondents were also recorded in the country study.

After completion of the country studies, the research team organised a brainstorm meeting with all the country researchers present in order to come to a clearer focus on the most important issues that play a role in the different countries. The results of this meeting were used as input for this final report.

1.4 Definitions and key concepts

Defining the key concepts of the study is not an easy task, since the different conceptualizations of the key terms lie at the core of the research. A large number of terms connected to qualifications are used in different countries in different ways, and sometimes even in different ways within the same country. In order to be clear and consistent in our own analysis, we make a choice of which terms to use for which concepts within the context of this study. However, we also provide a short discussion of the different ways that specific concepts are treated in different situations. The starting point for our choice of definition is hereby not the label that is used in different countries but the concept behind the label that we need to describe.

Qualification

A *qualification* is defined by the European Commission as “a formal outcome of an assessment and validation process which is obtained when a competent body determines that an individual has achieved learning outcomes to a given standard”¹. A qualification according to this definition is awarded by means of a *certificate*, *diploma* or other *record of qualification*. We apply this definition of a qualification to this study, and thereby chose to adopt a broad approach to the concept of qualification. The term can hereby apply to all kinds of attestation of competence at all levels, from initial to continuing education, and covering both entire courses of learning as well as partial or modularised outcomes.

“A qualification” is distinctly different from the concept of “qualification” that is adopted in different countries, referring to a person being competent to carry out a certain activity, in that it firstly refers to a tangible formal document and not to a person’s state of being, and secondly refers to the “formal outcome” and thus not to the process of *becoming* qualified. Only defined in this way a qualification can be seen as a regulatory instrument.

Furthermore, in some countries a qualification is distinctly connected to the formal educational system. In these countries, the term is only used for a proof of formal

¹ Defined by the European Commission in the recommendation on a European qualifications framework for lifelong learning, 2008.

learning which also signals a specific level of education within the official, often state-financed, educational structure and thereby also allows the holder of that qualification to enter the educational system at that specific level. Learning structures outside of the public system, for example sectoral initiatives or company-led structures are excluded from that definition, since they are not formally integrated in the overall educational structure. As the question of how the formal education system interacts with other, self-regulated structures of education is one of the recurring questions in this study, we choose to include also those diploma's that are awarded by private actors within independent structures in our definition of a qualification.

Occupations and professions

Occupations are defined as “a job or grouping of jobs involving similar content in terms of tasks and which require similar types of skills and competences”.¹ In this most basic sense of the term, occupations are the equivalent of professions and in fact, an occupation can also be a profession. For professions can also be described using the same words. However, in common usage, the term “profession” refers to a specific kind of occupation, one that distinguishes itself through a supposedly higher degree of specialisation, professional training and professional identity. Directive 2005/36 EC defines a “regulated profession” as a professional activity or group of professional activities, access to which, the pursuit of which, or one of the modes of pursuit of which is subject, directly or indirectly, by virtue of legislative, regulatory or administrative provisions to the possession of specific professional qualifications”.²

However, the degree of regulation or entry requirement cannot be used as a distinguishing feature, since occupations can certainly also be subject to regulatory provisions without necessarily being referred to as a profession. While it is indeed the case that most so-called professions are subject to regulatory requirements, the use of the term “profession” is more of a social construct than a clear definitional distinction. This is made even more obvious by the fact that some European language do not distinguish between occupations and professions at all. The difference between an occupation and a profession is therefore not always absolutely clear and in some countries non-existent.

It therefore seems advisable not to ascribe too much importance to the distinction between the terms occupation and professions. I may however be supposed that practitioners of a profession, where the term is used, have gone through a period of specialised training, often embedded in higher education structures, that they are part of a strong professional group of practitioners and that they often attach a strong identity to their work. Socio-economic status and class distinction are thus also historically embedded in the definition.

¹ Adapted from Skillsbase – Labour market information Database.

² Directive 2005/36 EC of the European Parliament and of the Council of 7 September 2005 on the recognition of professional qualifications.

In the UK, the use of the term profession is strongly connected to the tradition of the so-called “liberal” or “learned” professions, which originally included only the professions of medicine, divinity and law. In this context, “the profession” can also refer to the entire group of practitioners active in the professional field. Following the same route, we will in this report only speak of professions where the sector of health care and social work is concerned. In the other sectors, we do not make a distinction between an occupation and a profession, using “occupation” as a generally applicable umbrella term.¹

Regulation, licensing, certification, accreditation, registration

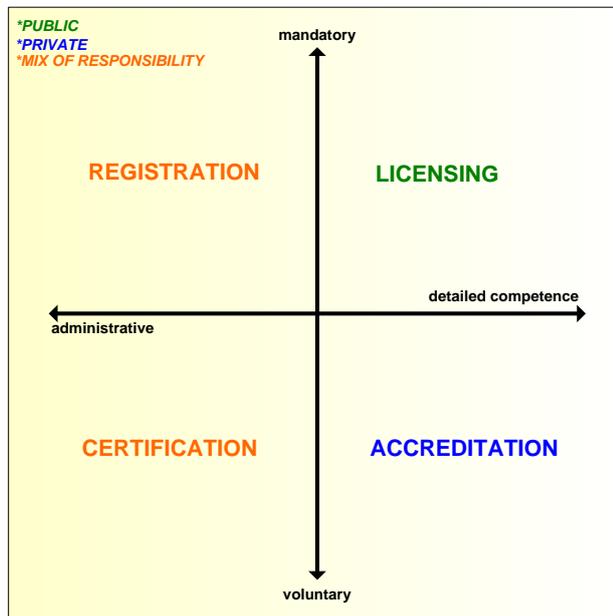
The starting point of this study is the hypothesis that qualifications, in whatever form, are used as policy instruments to govern occupations and professions. First and foremost, we are therefore looking for relevant pieces and practices of regulation which have an impact on the way that people enter and practice in specific occupations. “Regulation” hereby refers to all “actions taken on behalf of governments in the public interest to steer events and behaviour, rather than to provide or distribute goods or services”.

However, it is not only the government managing occupations. Professional organisations, economic sectors and companies themselves can influence the way that occupational practitioners enter and advance in their occupation. A lot of different terms are used for these practices, ranging from licensing to registration to approbation and certification. Some of these are more mandatory and exclusive; others are based on voluntary commitments and market-based mechanisms. Some of them are based on public regulation, others on private actors, mostly however on both. Finally, some of them specify detailed competence conditions, whereas others have a more administrative nature. By using these three dimensions as defining axes, we can make a sound choice of distinguishing concepts, according to the figure below. We hereby use the terms of *licensing*, *certification*, *accreditation* and *registration* as they have been applied in a recent study in the United Kingdom.²

¹ In accordance with the key activities of Cedefop, this study will focus especially, though not exclusively, on qualifications and occupations related to VET.

² UKCES (2011), A Review of Occupational Regulation and its Impact, Evidence Report 40, October 2011.

Figure 1.1 Regulation and governance instruments



Source: based on UKCES (2011), adapted by the authors

Building on this two-dimensional model, we use the following definitions, based on the work of UKCES:

- **Licensing** refers to situations in which it is unlawful to carry out a specified range of activities for pay, i.e. an occupation or profession, without first having obtained a qualification which ensures that the practitioner meets the prescribed standards of competence.
- **Certification** refers to situations in which there are no restrictions on the right to practice in an occupation, but job holders may voluntarily apply to be certified as competent by a state appointed regulatory body.
- **Registration:** This refers to situations in which it is unlawful to practice without having first registered one's name and address with the appropriate regulatory body. Registration thus provides some form of legal barrier to entry, but an explicit skill standard is not provided.
- **Accreditation:** This term refers to situations in which an individual may apply to be accredited as competent by a recognised professional body or industry association. Accreditation is distinct from certification in that the criteria governing accreditation and the procedures regarding enforcement are entirely the responsibility of the accrediting body rather than the state.¹

Though in the empirical work, we will also encounter other terms, these should usually fit within the framework provided above. Once again, we try to look at the concept behind the terms rather than the label used, consequently applying our own categorisation. It is important to state that we are hereby looking at these terms in a labour

¹ UKCES (2011), A Review of Occupational Regulation and its Impact, Evidence Report 40, October 2011.

market context and not in the context of the qualification process. This is especially of importance in relation to the term ‘certification’ which is described in the context of qualifications in the following chapter. We thus need to be aware of the context within which we use these terms.

These definitions provide a framework within which this report has been written. However, it is important to realise that the study aims to look at changes and developments, and these changes might take place outside of the scope of closed definitions or the definitions might be changing themselves. Especially regarding the definition of “qualifications”, this is definitely the case. As has already been mentioned, qualifications have developed from being mainly the outcome of initial education granting access to the labour market, to instruments accompanying every step in individuals’ professional careers. A much greater part of learning is taking place in and around employment, which also means that qualifications are becoming less formalised. This is the reason for taking a broad definition as a starting point, in order to guarantee that the developments and changes that are taking place fall within the scope of the study. The same applied to the other definitions where we are always looking for new developments in the ways in which specific instruments, practices and situations are conceptualised.

The next chapter will present the conceptual basis of the study, including the conceptual context of previous research within which this study takes place.

2 Conceptual basis

The information in this chapter provides the background against which this study was carried out. By setting out clearly what is known in the literature, we can specify our research focus to guide our analysis. Thus, we firstly describe the results of recent Cedefop research on how qualifications are conceptualized and given form and how this process is changing. We then move on to a discussion of the way in which qualifications are used, on the basis of an economic theory of qualifications. This helps us situate the study within the research that has gone before.

2.1 How qualifications are shaped

To start with, it is important that we look at the way in which qualifications themselves are understood and described in current research on the topic. We base our discussion of this mainly on previous Cedefop research. Hereby, the process of qualification is of great importance. A qualification connects different societal domains and societal actors with one another and hereby fulfils a cohesive and structuring function. In order to fulfill this function however, a qualification needs to meet different conditions of the qualification process, without which it cannot have the impact desired. This qualification process is made up of five elements: learning, assessment, validation, certification and recognition.¹ At each stage, different actors are involved, moving from the world of education to the world of work. The process is described in the table below:

Table 2.1 Qualification process

<i>Stage</i>	<i>Description</i>	<i>Actors</i>
Learning	An individual needs to acquire skills, competences and knowledge in a controlled learning environment or in a workplace.	Learners, teachers
Assessment	Independent, firm criteria need to be used in order to judge an individual's learning outcomes.	Learners, teachers, independent educational experts
Validation	The assessment needs to be controlled and made generally recognisable through transparent quality assurance mechanisms, based on common recognisable standards.	Public quality assurance institutions, educational institutions
Certification	The learning process the individual learner has undergone as well as the learning outcomes the learner has achieved are officially documented in a record of qualification, usually a certificate issued by a public institution.	Learners, public/private certification bodies

¹ Based on Cedefop (2010): *Changing qualifications: a review of qualification policies and practices*.

<i>Stage</i>	<i>Description</i>	<i>Actors</i>
Recogni- tion	Finally, the (record of) qualification needs to be recognised by external actors, for example on the labour market or in further education, as a consequence of which the qualified individual gains further access and/or privileges not available without the qualification.	Learners/employees, employers, education institutions

Source: Cedefop (2010)¹

In the most abstract sense and in line with the definition presented in the preceding chapter, a qualification therefore signals the outcome of some kind of learning of an individual which has been independently assessed within a validated and quality assured process and furthermore been documented in the form of a certificate. When a qualification is recognized, it can be judged to have fulfilled its function.

The qualification enables its holder to prove competences, skills and experience and it gives the recipient, e.g. the employer, a trusted basis on which to judge the qualified person's labour market value. This means that a qualification is not seen as a *characteristic* of a person in the sense of competence, but it is seen as the tangible outcome of a qualification process, for example in the form of a diploma. This distinction can lead to confusion within the European policy discourse on the topic, as a consequence of linguistic ambiguities. In this sense, qualifications represent a kind of currency that is accepted within what has been called a "zone of mutual trust".² This is only possible because the qualification adheres to all of the five elements of the qualification proves.

In order to elicit trust, qualifications need to be **transparent**, **coherent** and **reliable**. In addition, changes in the labour market and in education are also placing demands on qualifications to be **flexible**. Finally, if they are actually used as practical instruments on the labour market, they can be judged to be **relevant**. According to previous research, qualifications themselves and the way they are used are changing. In the following, we describe these changes, signaling the importance of the developments for the current study.

2.1.1 Transparency

Transparency is an aspect of qualifications that comes back in all the parts of the qualification cycle. It is important since it not only reinforces the trust of the users of a qualifications but it also increases the usability of qualifications. In a transparent qualification system, a learner wishing to acquire a qualification knows precisely what is required to achieve the qualification and where it can be used; an employer looking at the qualification of a candidate knows exactly what the qualification signals. Transparency is thus essential for determining the currency of a qualification.

¹ Cedefop (2010): *Changing qualifications: a review of qualification policies and practices*.

² Ibid.

Two Cedefop research studies focus on the topic of transparency, in the context of the use of *learning outcomes*.¹

Learning outcomes are defined as “statements of what a learner knows, understands and is able to do on completion of a learning process”.² They aim to define more clearly what the result of a given unit of learning is. Thus, they exist at the interface of qualifications and education and it cannot be said clearly where they originate. If qualifications are defined in terms of learning outcomes, this means that the training preceding the qualification needs to be geared towards achieving the outcomes. If the curricula of education are designed by means of learning outcomes, this means that qualifications will reflect these definitions. In any case, learning outcomes approaches are a development away from a focus on the *input* of education, e.g. on the duration of having followed a particular level of education, to the *output* of education, i.e. what the learner can do as a result of the learning process. They are seen as a useful tool to encompass more ambiguous concepts such as competences or learning objectives.³

The use of learning outcomes is especially significant in the context of the still growing importance of lifelong learning. With people entering and re-entering education at various stages in their life, educational systems, especially in the area of VET, can become complex and confusing to outsiders. The role of work-based training is increasing, but the connection between companies and educational institutions can lead to complications. Furthermore, the content and relative meaning of specific courses of learning are not always clear to participants. Learning outcomes can help focus the attention on the experience of the learner and thus move away from a supply-centered approach, thereby contributing to the transparency of the process.⁴

Research shows that learning outcomes are used in different European countries to streamline curricula within vocational education and training. However, there are great differences in the understanding and use of the concept of learning outcomes between the different countries. The general idea is that by using learning outcomes for curricula the link between VET and the labour market can be strengthened. On the one hand curricula are becoming ‘enriched’ by broadening the scope of activities and stakeholders covered. On the other hand, learning outcomes are making curricula more flexible, since the input side decreases in importance, opening the way to modularization of education courses and different teaching methods. Teachers and trainers are thereby getting more freedom to experiment with new, learner-centered methodologies, though in practice these changes are only slowly taking place.⁵

As the use of learning outcomes makes curricula and education and training provision more transparent, it has also contributed to the debate on skills and competences. This concerns different aspects of learning outcomes. Firstly, the transversality of compe-

¹ Cedefop (2009): The shift to learning outcomes: Policies and practices in Europe; Cedefop (2010): Learning outcomes approaches in VET curricula: A comparative analysis of nine European countries.

² EQF definition.

³ Cedefop (2009): The shift to learning outcomes: Policies and practices in Europe.

⁴ Ibid.

⁵ Cedefop (2010): Learning outcomes approaches in VET curricula: A comparative analysis of nine European countries.

tences is being emphasized, decoupling learning from a specific discipline or profession. Secondly, the complexity of competences is being recognized, as the definition of learning outcomes clarifies the interconnectedness of aspects such as knowledge, abilities and attitudes. Finally, the integration of these different aspects is given prominence, as it is for example not enough to equip a learner with just the knowledge, but not the abilities.¹ A qualification then has to reflect clearly what aspects of learning outcomes are represented by the award of the qualification and what this means for the competence of the holder. In this context, the recognition of informal and non-formal learning can also be promoted. Furthermore, interlinkages between occupations and qualifications, based on skills and competences can be found which may otherwise not become apparent. This is one of the driving forces behind efforts to come to a more unified approach to the definition of occupations, as represented by the European Skills, Competences and Occupations taxonomy (ESCO).²

The research on learning outcomes shows clearly how interconnected the field of qualifications, education and labour market are. Learning outcomes approaches aim to show more clearly what the results of learning are and therefore increase the transparency of education and training programmes. In so doing, they also clarify what exactly qualifications represent, determining the relative value of a particular qualifications. As a consequence, they make qualifications more relevant for labour market stakeholders by signaling clearly what the holder of a qualification can contribute to a company. It is no surprise that learning outcomes figure prominently in current efforts to set up a European and national qualification frameworks as these frameworks also aim to increase the transparency of the qualification systems. On top of that, these frameworks contribute to the coherence of qualifications systems and will therefore be discussed in the section below.

Regarding the use of learning outcomes, it remains to be seen whether they can really fulfill the role that is ascribed to them in making education and qualifications more transparent and relevant to the labour market. One of the questions might be whether employers trust the descriptors of learning outcomes and judge a person's competences on that basis, or whether they end up looking at the input side of learning after all. The use of these tools in different countries and sectors will be discussed further below in this report.

2.1.2 Coherence

Just as transparency contributes to the trust in qualifications, coherence of qualifications systems is required to determine the currency of qualifications and ascribe relative value to a particular qualification. Especially where not only the content but also the methods of education and validation of learning are changing, this presents a great challenge to qualifications systems, even more so in the context of internationalization and the broadening of the concept of a qualification.

¹ Ibid.

² See Commission website on the project:
<http://ec.europa.eu/social/main.jsp?langId=en&catId=89&newsId=852>

Traditionally, qualifications systems reflect the structure of the education systems of the country in question. In recent years, the development of qualifications frameworks, stimulated by the overarching European qualifications framework (EQF) are providing a new way of structuring qualifications systems in a coherent and internationally comparable way, also enabling private actors to reference their diplomas and qualifications to the overall structure. Cedefop monitors the implementation of national qualifications frameworks, which is relevant to most if not all current developments in the field of education.

The Commission has described the EQF as ‘an ambitious and far-reaching instrument which has implications for education and training systems, the labour market, industry and commerce and citizens’.¹ It constitutes a European reference framework, which is intended to act as a translation device to make qualifications more readable across Europe. This way, it intends to promote the mobility of the European labour force as well as to facilitate the lifelong learning of the European citizens. The EQF consists of 8 levels, based on learning outcomes.

The Member States were recommended to relate their national qualifications systems to the EQF by 2010, and to adopt measures so that by 2012 all qualifications certificates, diplomas and Europass documents² issued by the competent authorities from that date onwards contain a clear reference to the appropriate EQF level. This means that in principle, all European citizens obtaining some kind of qualification from that year onwards, will have on their diploma a reference to the EQF level of their particular education course. This will facilitate an employer to rank this individual’s qualifications, initially by comparing it to the EQF levels of the employers’ national education courses he is familiar with. The EQF project would however be truly successful if it would come to be the general framework of assessing the level of education courses, both nationally and internationally, in the same way that the European Credit Transfer System has grown from a translation device into the standard credit system also for national purposes.

The most recent Cedefop monitoring report of 2011 on the topic shows that EU member states are starting to implement their own national qualifications frameworks, after having spent the last years designing the frameworks and referencing them to the EQF. 28 countries are developing or have developed comprehensive NQFs covering all types of levels and qualifications. While the NQFs differ from one another, the report also speaks of convergence and mutual learning between the involved countries. The NQFs help compare qualifications across countries and thus make the European qualifications landscape more coherent. However, they can also have a systematising impact at national level. The monitoring report speaks of functions “ranging from frameworks with a strong regulatory function to frameworks of a purely descriptive character whose impact can only be of an indirect character”.³

¹ European Commission, *The European Qualifications Framework for Lifelong Learning (EQF)*, Luxembourg: Office for Official Publications of the European Communities, 2008, p. 4.

² Decision No 2241/2004/EC of the European Parliament and of the Council of 15 December 2004 on a single Community framework for the transparency of qualifications and competences (Europass) introduced a set of European instruments to be used by individuals to describe their qualifications and competences.

³ Cedefop (2011): *Development of National Qualification Frameworks in Europe*.

By allowing us to compare and rank specific qualifications, qualifications frameworks contribute to the coherence of the system. In the absence of a qualification structure, the ladder leading from one level of qualifications to the next would be non-existent and the movement from one sort of qualification (in one specific sector or discipline) to another sort of qualification (in another sector or discipline) would be impossible. Within the formal public educational sector, this coherence may be self-evident, it is still an essential element of a working qualifications system. Especially where new kinds of qualifications, courses and systems need to be integrated with the existing system, this structural coherence is of high importance, as it supports the common frame of reference that is needed for qualifications to have a value as a vessel of communication.

Interestingly, besides the EQF and the national qualifications frameworks, some economic sectors have also developed sectoral qualifications frameworks. Again, Cedefop has commissioned research in this area.¹ In these cases, similar mechanisms as in the case of national qualifications frameworks can be observed. The frameworks are an attempt to streamline the qualifications used in a given sector across borders, thereby bringing together the wide variety of qualifications that may be used by employers and employees. As a consequence of internationalisation, the coherence of the qualifications systems in given sectors has suffered, as new qualifications from different countries are entering the market. The sectoral frameworks are an attempt to recapture the coherence of the systems. It is even possible that these frameworks can be linked directly to the EQF in the future or to the NQFs, hereby making use of the developing infrastructure, but this has not been agreed on the policy level. Also in the context of this study, we will explore the way in which the sectoral frameworks interact with national frameworks and what relevance they have to labour market actors in practice.

The Cedefop study on sectoral qualifications emphasises that stakeholders from the world of work and the world of education come together in these efforts to develop their own tools to increase the coherence of the systems. This cooperation should guarantee the relevance of the qualifications for the labour market. However, there are also concerns about the transparency of the processes in these cases. National authorities especially are worried that the lack of transparency can decrease the value of the sectoral frameworks, as a lack of transparency can lead to a lack of trust.² Importantly, this can be seen as a more general question about qualifications frameworks. They may increase the coherence of national and international qualification systems, but if they differ so strongly between countries and sectors, will they still be trusted by the key stakeholders in education and business? This leads us to the point of reliability.

2.1.3 Reliability

Qualifications and qualifications systems not only need to be transparent and coherent if users on the side of education and labour market are supposed to understand them

¹ Cedefop (2010): *The relation between sectoral qualifications and the EQF*.

² Ibid.

and be able to ascribe meaning to them. They also need to be reliable in order to generate trust amongst stakeholders. Cedefop has focused on this aspect of reliability in the context of a study on the relationship between quality assurance and VET certification.¹ The study shows how countries differ in the ways that trust is created and maintained in a specific system of qualifications.

Quality assurance is of importance to all stages of the qualification process, but especially relates to the design and delivery of assessment, the design and delivery of validation and the design and delivery of recognition of a certification. The Cedefop research shows that the way in which quality assurance is organised and the stakeholders that are involved in the process differ considerably between countries. As the reliability of qualifications systems concerns all actors working with qualifications, the stakeholders involved in quality assurance processes can include anyone from government agencies, monitoring agencies, education providers, awarding bodies, employers and trade unions, and even individual learners and examiners. The roles ascribed to the different actors depend on the methods used in a given country.

The study identifies two essential dimensions that define the different models of quality assurance in different countries. On the one hand, countries use regulation and binding guidelines, on the other hand systems can be based on trust and autonomy of individual actors. This leads to three different models according to which the reliability of qualification systems is guaranteed: the prescriptive model, the cooperative model and the self-regulated model. Thus, in some countries, regulatory bodies construct strict rules for the quality assurance mechanisms regarding assessment, validation and certification. In other countries, education providers themselves are entirely responsible for the quality assurance of their assessment, validation and certification processes. In between these two, there exist models where providers cooperate with external agencies in order to come to a situation where self-regulation and prescription coexist.²

This variety in approaches is also of great interest to this current study, as it describes the different ways in which trust in qualifications can be fostered. It is by no means always the case that external top-down regulation is needed to guarantee the reliability of a qualifications system for the actors involved. In an environment where self-regulation is the norm, external interference might even disturb the equilibrium of autonomy and cooperation. It will be interesting to see how this applies to the role played by qualifications in determining the access to and practice in occupations and professions. Nonetheless, the Cedefop study on quality assurance also shows how the expanding role of the National Qualifications Frameworks have an impact on quality assurance mechanisms, leading in some cases to more centralisation and coherence, at least from a top-down perspective. These changes however do not always fit into the existing processes, which leads us to the final point, the need for flexibility of qualifications.

¹ Cedefop (2009): *The relationship between quality assurance and VET certification in EU Member States*.

² Ibid.

2.1.4 Flexibility and relevance

With the focus on flexibility we are getting closer to the central object of this study. For despite the importance of the reliability of qualifications and the coherence of qualifications systems, research shows that qualifications are subject to several pressures for change. As a consequence, qualifications are becoming more flexible. For only through flexibly responding to developments in education and on the labour market, they can retain their relevance to both domains.

Starting with the side of education, the move towards modularisation of education in the context of lifelong learning, and the establishment of credit systems has important implications for qualifications. Credit systems allow the creation of flexible learning paths, with multiple entry and exit points for learners, opening the door for continuous professional development. As the learners complete a certain unit of learning, they acquire credit which can help them get access to other paths of learning, or in the end even acquire a qualification. Credit systems exist in various shapes and stages of development and they constitute an important development in the context of flexibility of systems. Unlike qualifications frameworks, credit systems often exist locally as a mutual development between specific institutions or within one single institution. However, they can potentially be linked to qualification frameworks by streamlining learning outcomes and credit accumulation, further specifying the currency of qualifications.¹

It is interesting to see how a development such as the emergence of flexible learning paths through the use of credit systems has immediate consequences for the role of qualifications. As learners can transfer from one learning path to another or build their own pathways, this on the one hand undermines the role of qualifications as an 'entry ticket' into specific parts of the educational system. On the other hand, this development creates the space for qualifications to play an even greater structuring role, in acknowledging the equivalence of certain experiences of learning and learning outcomes and thereby increasing the relevance of the qualifications. Research shows that the creation of such frameworks does not only require a lot of administration and often prescriptive management, but also relies on high levels of trust between the actors involved. Thus, the flexibility it provides also has to be balanced out by the reliability of the institutional relationships at stake.²

In addition to responding to the changes in education structures, qualifications also have to be flexible with regard to labour market developments. Qualifications need to maintain the relevance of their meaning to labour market actors in order to protect their 'currency'. If qualifications are purely stuck in the educative structure, but do not correspond to labour market needs, they will not be used actively by employers and employees and therefore decrease in value. We can speak of a triangle of influence here whereby the labour market and education systems influence one another and qualification systems operate as a mediator between the two.

¹ Cedefop (2010): *Linking credit systems and qualifications frameworks: An international comparative analysis*.

² Ibid.

One way of supporting this responsiveness of qualifications to labour market means has been found in the definition of occupational and connected educational standards which are described in detail in the Cedefop publication “The dynamics of qualifications”.¹ Occupational standards systematically describe occupations with regard to the tasks and competences required for a successful practice thereof, guaranteeing the relevance of the skills and competences transferred by the course of learning. The standards can signal to the educational community what the desired learning outcomes for a specific occupation are, and also provide information to learners about the jobs they might be targeting. In this context, the Cedefop study identifies a *feedback-loop* between the worlds of education and work, whereby the stakeholders of both worlds interact with one another in the process of defining standards, directly or indirectly. It requires constant effort by the actors concerned to firstly define and then streamline the expectations and needs of the labour market, incorporate them in education and training and formalise them in qualifications. Most importantly, the feedback loop is inherently dynamic and changing, whereby “qualifications systems can be seen as a series of mechanisms or controls for translating basic standards into a means of ensuring qualified people of consistently high value to the labour market”.²

The research shows that there is a clear trend towards the definition of occupational standards, whereby some countries have made more progress than others. The use of learning outcomes is also an essential development in this context, as is the growing involvement of social partner organisations in the definition of standards and thereby in the shaping of qualifications.³ This development helps qualifications to flexibly respond to developments in the sphere of work, yet to maintain the level of trust of the key stakeholders at the same time through safeguarding the relevance of the content of the qualifications.

In this context of relevance and flexibility, the available evidence leads us to conclude that the occupational dimension of qualifications is becoming relatively more important. However, at the same time it seems that the use of qualifications in the labour market is actually decreasing. This points us to an intriguing tension which lies at the heart of this study. We will therefore now move on to discussing what is known about how qualifications are used in practice, both by governing bodies as well as micro-level actors. Hereby, we firstly discuss the function of qualifications in structuring the labour market, before moving on to an economic discussion of the use of regulation.

2.2 Qualifications and the labour market

We have seen that Cedefop has carried out extensive research on the way that qualifications are given shape, signaling the relevance of important changes in the conception of qualifications. Technical tools such as learning outcomes approaches, occupa-

¹ Cedefop (2009): *The dynamics of qualifications: defining and renewing occupational and educational standards*.

² Cedefop (2010): *Changing qualifications: A review of qualifications policies and practices*.

³ Cedefop (2009): *The dynamics of qualifications: defining and renewing occupational and educational standards*.

tional standards and qualification frameworks are contributing to efforts to maintain and possibly increase the transparency, coherence, reliability, flexibility and relevance of qualifications and qualifications systems. The internationalization of education and labour markets with its consequences on qualifications systems is hereby a recurring theme in both triggering and facilitating change. Importantly, the developments in the manner in which qualifications are *shaped* is of great importance to the manner in which they are *used*. While the research so far focuses on the influence of different tools on structuring qualifications, we will now turn our attention to the use of qualifications as tools to influence other areas.

Qualifications have a plethora of roles and meanings ascribed to them. The obvious purpose of qualifications is the documentation of outcomes, e.g. of skills or knowledge or competences. However, the practical role of qualifications can vary strongly. The recent Cedefop study on “Changing qualifications” identifies 40 different specific functions of qualifications, and there may still be more. Thus, qualifications can have societal roles in segmenting society into different groups on different levels. They can have individual roles by providing status to the holder of a qualification, but also in providing a sense of purpose and personal gain for learners and orientation for work and study. They can have economic roles in signaling levels of competence and skills in connection with the labour market. And they can play a role in policy making, as a tool to influence educational systems and labour market management. This study focuses on these economic functions of qualifications. In this section, we describe the role that qualifications play in structuring both the supply and the demand side of the labour market.

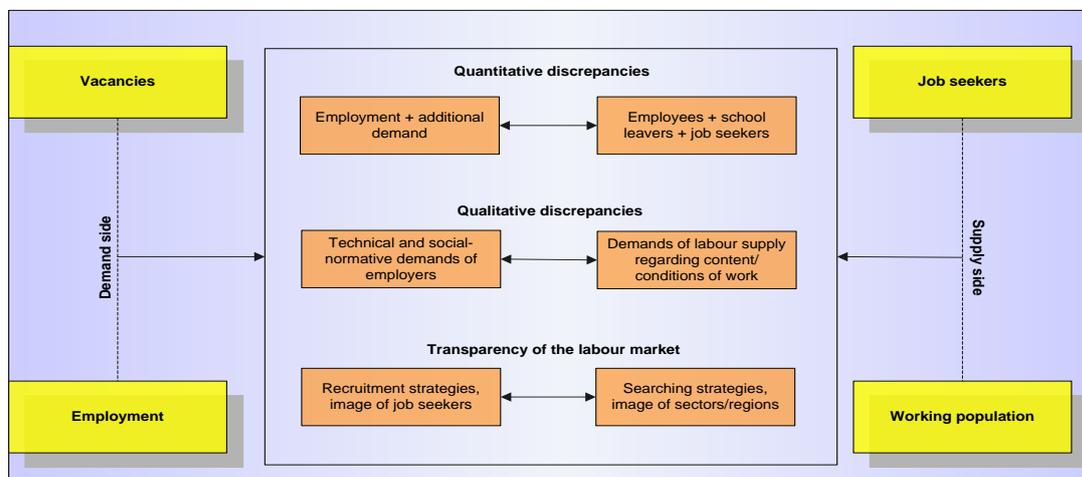
In a rapidly changing economy, the link between education and work is an essential challenge for European countries. Just as we have seen with qualifications systems, labour markets and education systems in different countries need to be transparent and coherent in order to make international mobility possible. Technological and scientific developments create a situation where not only those entering the labour market, but also those in steady employment, need to continually keep on learning in order to be able to carry out their work, introducing the need for flexibility in all areas.

Many countries are facing discrepancies between the labour market supply and demand. These can be quantitative discrepancies. This means that the number of vacancies that need to be filled does not correspond to the number of people entering the labour market. This can either mean that there is high unemployment or that there are labour shortages. There can also be qualitative discrepancies. In this case the vacancies that need to be filled cannot be filled by those people looking for a job. The sectors that are looking for workers cannot find people who have acquired the necessary skills and competences to work in specific occupations. On the other hand, sectors where there are no vacancies may actually have too many qualified workers. This can lead to unemployment, labour shortages in specific sectors, and an inefficient economy.¹

These dynamics are shown in the figure below.

¹ Based on: M. Cremers et al: *Regionale Arbeidsmarkt Informatie Limburg 2011*; Maastricht: Research voor Beleid, Etil.

Figure 2.1 Labour market discrepancies



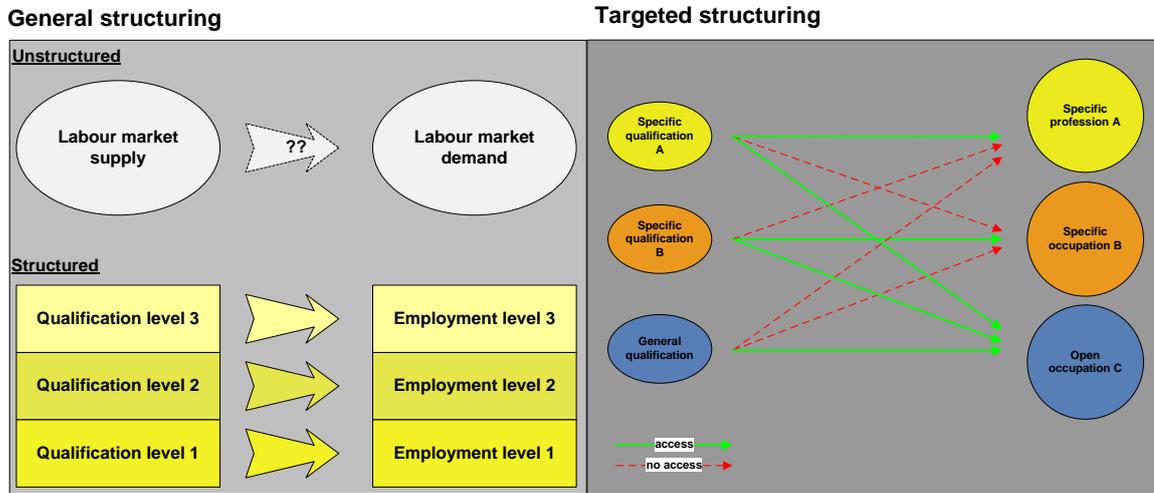
Source: Panteia/Research voor Beleid 2011

Because of the adverse effects these discrepancies can have, efforts to coordinate the supply and demand of labour are undertaken.¹ These need to lead to a more efficient and transparent labour market model. Existing at the interface of the worlds of education and work, qualifications play a crucial role in these efforts. An employer who is looking for employees needs to target his search. A labour market which has been structured along levels of qualification enables the employer to pre-select the pool of potential applicants. Job seekers need to be able to apply the same logic the other way around. Looking at the employment options available they can match their own level of qualification with the corresponding segment of the job market. Thus, a general framework of qualifications helps both employers and employees structure the otherwise overwhelming labour market. The demarcations can be flexible, but qualifications nonetheless divide the supply and demand into different segments.

However, a general framework of qualifications only specifies the levels of competence. In some cases, certain jobs require very specific skills and competences so that a general distribution of qualifications levels is insufficient. In these cases, employers only want applicants with the specific skills and job seekers only get access to the jobs if they have attained a specific qualification that is geared towards the job in question. In this context we speak of professions and occupations. Hereby, the qualifications lead not to a general segmentation of the labour market, but to an individual granting of access to specific (groups) of qualified applicants. Through the award and requirement of qualifications, targeted matching of labour market supply and demand takes place. The figure below demonstrates how qualifications, both general and specific, influence the structure of the labour market in different ways.

¹ M. Wieling and L. Borghans (2001): "Discrepancies between Supply and Demand and Adjustment Processes in the Labour Market"; *Labour*, Vol 15, No 1, pp. 33-56.

Figure 2.2 Two ways of labour market structuring



Source: Panteia/Research voor Beleid 2011

It is precisely this model that seems to be challenged in the last few years. Thus, the borders between qualifications and occupations have become much more fluid, as people are encouraged to move between occupations, add to their level of qualification and follow their own personal educational career. Moreover, qualifications do not only play a role as entry requirement but also during different career phases (ranging from qualifications attesting initial training, recruitment and selection, introduction, induction, in-service training and continuous professional development). The validation of in-service training or additional qualification requirements for the renewal of licences to practice also play a role in this regard. As the economy changes, demands on professions and occupations change as well, and so do the corresponding qualifications.

Importantly, labour markets themselves also change content-wise, as the developments in the economy have an effect on the skills needed to carry out certain occupations. Labour market developments can be identified by looking at six specific domains, the so-called PESTLE-analysis. The six dimensions are the **p**olitical, **e**conomic, **s**ocial, **t**echnological, **l**egal and **e**nvironmental dimension. This PESTLE-analysis is originally a business-study model that described a framework of relevant factors on macro-context level. It is mainly used for analysing the business environment of businesses to conduct external analyses of strengths and weaknesses of businesses and can aid organisations making strategies. The PESTLE-analysis can also be used for a contextual analysis of (sectoral) labour markets.¹ The table below shows what these dimensions entail.

¹ M. Cremers et al: *Regionale Arbeidsmarkt Informatie Limburg 2011*; Maastricht: Research voor Beleid, Etil

Table 2.2 PESTLE analysis, key factors

PESTLE factors	Issues relevant to this study
Political - Global, national, regional, local and community trends, changes, events etc.	Changes in national education and labour market policy, EU initiatives, Copenhagen and Bologna processes, distribution of influence between social partners and government, immigration policies etc.
Economic - World, national and local trends, changes, events etc	Increasing international competition, emerging economies, economic crisis, restructuring as a result of economic development
Social - Development in society – culture, behaviour, expectations, composition etc.	Demographic change and ageing of society, migration flows within EU and from third countries, social tensions etc
Technological: Developments: computer hardware, software, applications, other equipment, materials, products and processes etc	Mechanisation of industries leading to new demands on skills, new technologies such as nanotechnology raising new questions of health & safety and competence etc
Legal: World/ EU/ National legislation changes, prospects etc	Deregulation of economy, internal market rules, changes in occupational health and safety legislation, changes in environmental protection legislation
Environmental: Global/ EU/ national/ local issues, pressures, movements etc	Geographical effects on labour market supply and demand; increasing emphasis on sustainability, etc.

Source: Research voor Beleid 2011

Within the flagship initiative “New Skills for New Jobs” the European Union follows these developments very closely.¹ The initiative aims to modernise labour markets and empower people by developing their skills throughout the lifecycle with a view to increase labour participation and to improve the match between labour supply and demand, including through labour mobility. Hence, flexibility in the labour force and lifelong learning, lifelong upgrading of skills and competences are seen as essential in securing the welfare of Europe in the future.

Key words in the future labour market are flexibility and mobility. The 18 sectoral studies that underlie the agenda for new skills and jobs² emphasise the ability of workers in the sectors to adapt to confront contextual changes. Hence, a shift is noticeable from job security (workers are secure that they carry out a certain job) towards employment security (workers are secure that they are employed). The question is whether and how recognition structures are changing in such a way that recognition of professional qualifications throughout Europe can be guaranteed and at the same time a flexible labour market can be sustained, giving room for professions that have

¹ See the Sectoral Level Analysis reports: <http://ec.europa.eu/social/main.jsp?catId=784&langId=en>

² <http://ec.europa.eu/social/main.jsp?catId=784&langId=en>

no strictly defined educational pathway and competences obtained elsewhere throughout the working career and life.

It is within this framework of the use of qualifications as a structuring tool that within this study we are looking for the empirical role of qualifications in governing occupations and professions. The most recent Cedefop publication on the topic, “Changing qualifications”, raises important questions about this topic. On the one hand, the report states that “the function of qualifications as the principal means of securing progression on work or study has weakened with other factors becoming more prominent”.¹ This statement echoes development of deregulation and liberalisation of the economy, including the access to the labour market. At the same time however, the report describes how occupations can actually start to take control of qualifications and through qualifications influence the form and content of education and training.

This points to a shift that is taking place within the triangle of education, work and qualification, though it has to be seen to what extent this shift is indeed of practical significance. It appears that the dimension of the labour market is becoming more important, or at least that the dimensions of work and education are moving closer together. Thereby, the involvement of social partners in standardisation processes is growing. Qualifications frameworks, credit-based systems and smaller qualifications can be used to open up the access to the labour market while securing the skills supply and maintaining the coherence of the feedback loop between the economy and education. While on the one hand formal qualifications may decrease in importance in recruitment processes, on the other hand they are beginning to encapsulate precisely those aspects that are growing in importance, such as transversal skills and future potential of candidates. Finally, the international dimension of qualifications and of the European labour market, has without doubt an important impact on the dynamic between the two. As the report on changing qualification states, “qualifications, especially the large and popular ones, will now be bridges between countries in terms of the outcomes of significant parts of education and training”.²

At the same time, the researchers warn us to expect too much of qualifications in the context of labour market management, as the change that they identify is slow and by no means universal. When we come to the empirical part of this report, it will be important to elaborate on these signals and to see how labour market actors really conceptualise and actually make use of qualifications in the context of occupations. In this context it is important that we understand what the literature says about the general regulation of economic processes, including the access to occupations and professions. In the following chapter, we therefore delve into the economic theory of regulation in order to become aware of the underlying mechanisms and motives surrounding regulation.

¹ CEDFOP (2010): *Changing qualifications: A review of qualifications policies and practices*, p. 201.

² *Ibid.* p. 2010.

2.3 Regulating access to occupations and professions

As we have described in the section on the definitions used within this report, there are a lot of ways in which public and private actors can use qualifications to govern occupations. Some of these are more binding and connected to public regulation whereas others are more fluid and privately organised. The scientific literature on this topic mostly focuses on the more restrictive measures of regulation and the consequences this can have for specific aspects of the economic performance in particular occupations. In this section, we describe what is known about regulatory use of qualifications and its consequences for the functioning of the economy.

2.3.1 An economic perspective of qualifications

There is a vast economic literature on the need for professional regulation such as licensing (and the role of qualifications), conduct regulation, rules on ownership and form of business, and recommended or fixed prices. This literature starts from the perspective that regulatory intervention by the government can only be justified if the market system does not function well. In other words: regulation may help to deal with *market failures*.¹

In the context of occupations and professions, this implies that licensing is a potential remedy for specific market failures such as *information asymmetry between professionals and clients* which lead to a deterioration of service quality² and *negative externalities* (negative effects of low quality services on third parties or society).³ Restricting competition - by limiting entry into the market only to people with certain qualifications - may then be justified in order to ensure a reasonable quality level of products or services. However, economists generally stress that competition should not be restricted more than necessary by setting quality standards that are too high. Following up on this, they also argue that certification, as a voluntary measure, is superior to licensing, provided that it can deal sufficiently with the market failure at hand.⁴ This last point will be elaborated on below, as it is an important observation in the economic analysis of qualifications.

The economic theory just described – *the public interest approach to regulation* - assumes that regulators always strive to serve a public interest goal. In other words: it is assumed that governments, by correcting market failures (note that they may also have other goals related to distributive justice, fairness or paternalism), attempt to maximize social welfare.⁵ The private interest approach to regulation is more skeptical. It stresses the role of special interest groups in the formation and enforcement of

¹ Philipsen (2009), pp. 205-207.

² In economic language, information asymmetry leads to the problems of adverse selection and moral hazard.

³ Other potential economic justifications for regulatory intervention include undersupply of public goods and the presence of market power. The literature also suggests another argument for licensing, which is paternalistic rather than economic, namely that some people need to be guided by the state in making choices.

⁴ It should be noted that in some cases other regulatory instruments (e.g. regulation of advertising, mandatory provision of information, ownership rules) or liability rules may provide an additional or better solution. For a discussion of conduct and price regulation in the professions, see Philipsen (2003), chapter 2.

⁵ If these attempts at correcting market failures are unsuccessful, economists speak of “government failure”.

regulation. In a classic paper, Stigler argued that there is a market for regulation, with its own demand and supply characteristics.¹ The government represents the supply side, whereas industry (and other special interest groups) represents the demand side, which is mainly interested in protective regulation such as regulated prices, advertising restrictions and strict licensing requirements.² Moreover, from a private interest perspective it can be argued that politicians themselves are utility maximizers, and the private interests of politicians – just like those of special interest groups – do not always correspond to the interests of the public at large. For example, politicians are likely to strive for a maximisation of votes, budgets or prestige. This may give rise to inefficient regulation, especially when lobbying is concerned.³

The remainder of this section will apply this public interest and private interest approach of regulation to the more specific case of qualifications (licensing and certification).

The public interest approach applied to licensing

The economic argument for licensing (defined as a set of regulations that limit service provision to individuals who meet certain government-established criteria) suggests that the average quality level of services is raised by eliminating suppliers who are lowly educated. Licensing may therefore serve to solve problems of adverse selection,⁴ moral hazard (for example: demand generation by professionals) or negative externalities. The validity of this argument depends upon the relationship between the educational level of a practitioner and his or her cost of providing high quality.⁵ Shapiro shows that if the relationship between human capital and high quality is indeed positive and if suppliers can build reputations over time by providing high quality, consumer welfare can be enlarged by licensing.⁶ However, according to Shapiro's model this holds only if consumers value high quality significantly compared to the costs of providing quality for suppliers. Moreover, licensing will never lead to a situation where everyone benefits, because there will always be consumers who would rather have bought low quality services at a lower price.⁷

There is a risk that licensing incites this last group of consumers to substitute the relatively expensive licensed services by cheaper alternatives, do-it-yourself remedies⁸ or services offered on the black market. For example, Carroll and Gaston found that

¹ Stigler, G.J. (1971), 'The Theory of Economic Regulation', *Bell Journal of Economics and Management Science*, Vol. 2, 3-21.

² Stigler's theory has been termed the Chicago theory of regulation. Later contributions to this literature include Pelzman (1976), Becker (1983) and many others. See also Philipsen (2003), pp. 25-26.

³ This perspective is central in *public choice* theory. See e.g. Buchanan et al (1980).

⁴ Leland (1979), following Akerlof, argues that information asymmetry between practitioners and clients results in quality degradation. Without some form of regulatory intervention, such as licensing or certification, only the low quality providers would remain in the market.

⁵ Curran, 1993, p. 58. More specifically, Curran refers to *marginal costs*.

⁶ Shapiro, C. (1986), 'Investment, Moral Hazard and Occupational Licensing', *Review of Economic Studies*, Vol. 53, 843-862.

⁷ *Ibid.*, p. 856.

⁸ Carroll and Gaston (1981) found that stricter entry requirements for electricians, leading to lower per capita availability of electricians, are significantly associated with a rise in the rate of death from accidental electrocution.

stricter entry requirements for electricians in some US states, leading to lower per capita availability of electricians, were significantly associated with a rise in the rate of death from accidental electrocution.¹ Examples can also be found in the professions. Suppose that in the pharmaceutical profession more stringent educational requirements are introduced, which lead to a higher mark-up on the cost price of medicines in a pharmacy. Such an increase in educational requirements may be the result of a policy that aims at improving the advice given to patients by pharmacists. The higher price level of medicines in a pharmacy may cause some consumers to refrain from buying particular medicines or to look for substitutes at the drugstore, where they do not obtain medical information about interactions of this medicine with other medicines, but where the price is lower. In such cases it is doubtful whether licensing will enhance the overall quality level of services, or reduce it because of this substitution effect.

The private interest approach applied to licensing

There are other considerations that should be taken into account when discussing the pros and cons of licensing. Politicians, bureaucrats and incumbent professionals all derive benefits from the administrative requirements set out in licensing systems.² Moreover, it is clear that incumbent professionals benefit from a limitation of the number of new entrants.³ According to private interest theories of regulation it is therefore not surprising that professional associations actively promote and support licensing. The more conditions potential market entrants have to fulfill to gain their license, the higher the entry costs. If competition is restricted, service providers' earnings rise and consumers are left with fewer options and higher prices. Professional groups are likely to set quality standards too high from a social welfare point of view.⁴

It should be noted that licensing regimes can also be used to raise government revenues, particularly in developing countries. The fees payable in order to obtain a license, can be set at a level above that necessary to cover the costs of administering the licensing system. This is particularly common at the level of local governments, for example in some African countries.⁵ If used in this way, entry controls are mainly an instrument of taxation, although the mode of extracting revenue (i.e. using licensing rather than taxes) may seriously distort the economy.

Certification vs licensing

Taking into account that consumer preferences are heterogeneous, the advantage of certification (voluntary) over licensing (mandatory) is that consumers have a choice

¹ Carroll, S.L. and Gaston, R.J., (1981), 'Occupational Restrictions and the Quality of Service Received: Some Evidence', *Southern Economic Journal*, Vol. 47, 959-976.

² Ogus and Zhang (2005), pp. 138-141.

³ Friedman and Kuznets (1945); Stigler, 1971, pp. 5-6. Also Moore (1961) points to the fact that licensing can be used as an entry barrier.

⁴ Leland, H.E. (1979), 'Quacks, Lemons and Licensing: A Theory of Minimum Quality Standards', *Journal of Political Economy*, Vol. 87, 1328-1346; his analysis was extended by Shaked and Sutton (1981), who addressed the specific problem of the suppliers that are excluded from the primary market by licensing.

⁵ Devas and Kelly (2001), p. 383; Ogus and Zhang (2005), p. 138.

between certified and uncertified services. Certification serves as a signal of good quality, provided that consumers can actually recognize its value.¹ However, it has been pointed out that suppliers may be inclined to “overinvest” in education in order to signal high quality levels through certification.² Total consumer welfare may in these cases decrease if many consumers consider professionals overtrained and their services overpriced. Consumers should also be “smart enough” to make the right choice between certified and non-certified practitioners. If the damage caused by low-quality services is large or widespread (for example, a wrong diagnosis by a general practitioner in case of a contagious disease) certification would be less suitable than licensing.

The overall effect of licensing and certification depends on the heterogeneity of consumer preferences for quality, even if educational level (human capital) and quality are positively related. Licensing intervenes further in the market process than certification, but risk-averse consumers are better insured by it against possible harmful consequences of bad services. Drawbacks of licenses are that they can be used as entry barriers by interest groups and that they may incite consumers to substitute licensed services by alternative services.

Empirical evidence on the effects of licensing

It has been argued that testing the effects of licensing *empirically* is difficult.³ One of the main problems is finding good proxies for quality, in order to examine the effects of licensing on service quality. Also, researchers often use exam pass rates to proxy the strictness of licensing regimes, despite the fact that pass rates are not exogenous; they are influenced by the supply of potential market entrants. There may be other factors that impact the relationship between exam pass rates on the one hand and prices or earnings on the other, such as consumer demand for high quality⁴ and the ability of professional associations to lobby for protective regulation (which is positively related to earnings).⁵ Nevertheless, there is a rather large body of empirical literature that attempts to measure the effects of entry regulation on quality and fees. Cox and Foster have reviewed several of these studies.⁶ They conclude that ‘while a few studies indicate that higher quality levels may result from business practice restrictions, a majority of the studies finds quality to be unaffected by licensing or

¹ Dingwall and Fenn (1987), p. 55, argue that it is also important that consumers can determine which of the private organizations setting up certification systems they can trust. If this is impossible, the problem of information asymmetry is shifted rather than abolished.

² Shapiro, 1986, p. 855.

³ Svorny, S. (2000), ‘Licensing, Market Entry Regulation’, in Bouckaert, B. and G. De Geest (eds), *Encyclopedia of Law and Economics, Volume III: The Regulation of Contracts*, Cheltenham, UK and Northampton, MA, USA: Edward Elgar, pp. 296-328.

⁴ This effect has been empirically studied by Leffler (1978) and Donabedian (1991). The former examined the US market for physician services, concluding that licensing laws are most restrictive in states where consumer demand for quality would be expected to be relatively high. This suggests successful lobbying by consumers for stricter licensing regimes. The latter finds that Certified Public Accountants in the US face stricter licensing requirements in states where large businesses (who are assumed to demand high quality) are more concentrated.

⁵ Svorny (2000), pp. 309-310.

⁶ Cox, C. and S. Foster (1990), *The Costs and Benefits of Occupational Regulation*, Washington: Federal Trade Commission.

business practice restrictions associated with licensing.’ Kleiner and Kudrle use data on the dental health of incoming Air Force personnel to analyse the effects of varying licensing restrictions among U.S. states.¹ They find that tougher licensing raises prices and profits (measured by hourly earnings per dentist) while it does not improve overall dental health (measured by complaints to dental licensing boards and malpractice premiums). Svorny refers to some studies that have shown a positive relation between measures of licensing strictness and either costs, prices or earnings.² Others reject public interest theory in favour of private interest explanations in a study of professional licensing in the U.S. market for lawyers, using data on exam difficulty, candidate quality, exam results and lawyer salaries. It was found that professional licensing in this market leads to a total welfare loss of more than \$3 billion.³

In a recent study on regulatory restrictions in the EU market for pharmaceutical services, Volkerink et al (2007) find inter alia that educational requirements are positively correlated with quality in the form of service variety. However, requirements on registration, licensing and obligatory membership of a professional organisation (defined as additional practice requirements, examinations and annual costs) are found to be negatively correlated with service variety. Another finding of the study is that the productivity (defined as the efficiency of the dispensing of medicines, compared to the number of outlets as a proxy for capital used and the number of employees as a proxy for the amount of labour used) is negatively influenced by additional licensing procedures such as requirements on the location of pharmacies, limitations on ownership of pharmacies by non-pharmacists, barriers to entry for pharmacists from non-EU Member States and location requirements. In other words, strict additional licensing requirements (i.e. those that are not directly related to education and practical experience) in the pharmaceutical profession have a negative effect on the efficiency of drug distribution. Also allocative efficiency was found to be negatively influenced by these additional licensing requirements.⁴

Finally, Bortolotti and Fiorentina address entry restrictions and quality in the market for Italian accountants in the period 1980-1991.⁵ In that market the same service was provided by two distinct professions: the *Commercialisti* and the *Ragionieri*. These are two distinct types of accountants existing in Italy. However, only the *Commercialisti* were required by law to have a university degree. There were no further constraints in terms of freedom of settlement and no functional differences between the two professions. The authors’ empirical results indicate clearly that entry by the less-

¹ Kleiner, M.M. and R.T. Kudrle (2000), ‘Does Regulation Affect Economic Outcomes? The Case of Dentistry’, *Journal of Law and Economics*, Vol. 43, 547-582.

² Svorny (2000), p. 312. It concerns studies on, inter alia, insurance agents and brokers, real estate brokers, salesmen and plumbers, clinical lab personnel, and the construction industry.

³ Pagliero, M. (2005), ‘What is the Objective of Professional Licensing? Evidence from the US Market for Lawyers’, Job Market Paper, London: London Business School and Turin: University of Turin.

⁴ For details see Volkerink, De Bas, Van Gorp and Philipsen (2007), pp. 14-17 and 79-80. An ANOVA analysis was used whereby for each category of regulation EU countries were classified in two groups: those with a high and those with a low regulation index. It could then be determined whether there is a relation between the degree of regulation and the different performance indicators used by the authors for productivity, allocative efficiency and quality/product variety.

⁵ Bortolotti, B. and G. Fiorentini (1999), ‘Barriers to Entry and the Self-Regulating Professions: Evidence from the Market for Italian Accountants’, in Bortolotti, B. and G. Fiorentini (eds), *Organized Interests and Self-Regulation: An Economic Approach*, Oxford, UK: Oxford University Press, pp. 131-157.

qualified *Ragionieri* and other potential entrants reduced the profitability in the market for *Commercialisti*. An existing institutional barrier to entry, namely the professional examination administered to some extent by incumbent *Commercialisti*, was effective in preserving monopoly rents in the market. The authors conclude that “this result casts some doubts on the view that professional boards are benevolent institutions who strive to preserve high quality standards of active professionals”.

As the empirical information on the effects of licensing does not provide a clear picture, it shows us how important it is to study in-depth which actors use which tools in the licensing of occupations and professions, also looking at the objectives pursued by the actors involved. This is exactly what will be done in the following chapters; looking at the ways in which access to occupations and professions is governed using qualifications in ten different countries and five different sectors. Before we describe the empirical results at country and sector level, we will give a quick overview of the regulatory framework at European level.

3 Policy context: Regulation at EU level

Having described the conceptual background to the study, we can now move on to surveying the empirical information that is available. We hereby aim to present the available information on the way in which qualifications are used in the context of managing, influencing and regulating occupations and professions. While we are especially looking out for changes and developments in the way in which qualifications are used and treated, we also aim to show the differences between countries, sectors and occupations and the different mechanisms at work. In order to structure the way in which we present the information, we will begin at the most general level of EU-level regulation, and then move on to the activities at country and sector level. The EU level can hereby be seen as the umbrella under which all countries and sectors develop their separate activities.

3.1 The Professional Qualifications Directive

At the European level, access requirements for the labour market are seen from the perspective of the internal market, emphasizing the aspect of mobility. From an internal market perspective a national requirement to possess certain qualifications before one can exercise a certain occupation or profession is a major barrier to the free movement of persons, provided for in article 3 of the Treaty of the European Union (hereinafter TEU) and article 26 of the Treaty on the Functioning of the European Union (hereinafter TFEU). To that end the original EEC Treaty already contained a legal base for the Legislative Institutions in order to create secondary legislation on the mutual recognition of diplomas for those who sought to exercise their occupation or profession in another Member State.¹ The actions taken by the Legislative Institutions on the basis of what is now article 53 TFEU have evolved into Directive 2005/36/EC² which covers the mutual recognition of qualifications that give access to occupations and professions. The Directive forms part of the legislative context within which qualifications are used in member states. In this section an overview of the mechanism of the Directive will be given.

¹ See: S. Garben, *Higher Education Law*, Kluwer Law International, Alphen aan de Rijn, 2011, page 59.

² Directive 2005/36/EC [2005] OJ L 255/22.

3.1.1 History

As was described above, one of the most restrictive rules that can be maintained by Member States are those which refer/deal with/are concerned with professional qualifications. If a Member State has the right to decide that certain professions or occupations may only be exercised when a person possesses a diploma that was awarded in that Member State, it can be virtually impossible for people from other Member States to enter that profession or occupation. Exactly in this area, the legislative institutions employed their first efforts to create secondary legislation. This began in 1961 which saw the adoption of the Council General Programmes in order to abolish restrictions on the freedom of establishment.¹ Although no activity had been deployed for any liberal profession, the European Community did deploy some activities in the 1960's. In this period some 'transitional directives' were adopted that governed the recognition of professional experience in a number of sectors such as commerce, industry and small crafts industries. In the late 1990's, these 'transitional' directives were consolidated in Directive 99/42/EC², which in itself is now replaced by Directive 2005/36/EC.³

Subsequently, the Institutions of the European Community issued, between 1975 and 1985, a number of Directives which were meant to lay down minimum harmonisation of education and the mutual recognition of diplomas for certain regulated professions. These professions were: doctors⁴, nurses⁵, dentists⁶, veterinarians⁷, midwives⁸ and pharmacists.⁹ For architects a Directive was issued on the recognition of diplomas, yet no minimum harmonisation of education was laid down.¹⁰ It was completely impossible to create harmonisation measures for professional engineers and for lawyers. Through this so-called vertical approach the Institutions tried to liberalise the free movement in these regulated professions. In principle the approach had to be successful since adopting common standards for education would take the sting out of mutual recognition and open the professions to those who had not enjoyed the national qualification process previously. However, problems remained in that negotiating minimum educational standards (and mutual recognition) proved to be a cumbersome and

¹ OJ Spec. Ed., Second Series, IX.

² See: Schneider, H., and S. Claessens, *The Recognition of Diplomas and the Free Movement of Professionals in the European Union*, in: H. Scheider (ed.) *Migration, Integration and Citizenship: A Challenge for Europe's Future*, Volume I, Forum Maastricht, Maastricht, 2005, p. 136.

³ Directive 2005/36/EC [2005] OJ L 255/22.

⁴ Directive 75/362/EEC of 16 June 1975 (recognition) and Directive 75/363/EEC of 16 June 1975 (minimum standards), [1975] OJ L 167.

⁵ Directive 77/452/EEC of 27 June 1977 (recognition) and Directive 77/453/EEC of 27 June 1977 (minimum standards), [1977] OJ L 176.

⁶ Directive 78/686/EEC of 25 July 1978 (recognition) and Directive 78/687/EEC of 25 July 1978 (minimum standards), [1978] OJ L 233.

⁷ Directive 78/1026/EEC of 18 December 1978 (recognition) and Directive 78/1027/EEC of 18 December 1978 (minimum standards), [1978] OJ L 362.

⁸ Directive 80/154/EEC of 21 January 1980 (recognition) and Directive 80/155/EEC of 21 January 1980 (minimum standards), [1980] OJ L 33.

⁹ Directive 85/432/EEC of 16 September 1985 (recognition) and Directive 85/433/EEC of 16 September 1985 (minimum standards), [1985] OJ L 253.

¹⁰ Directive 85/384/EEC of 10 June 1985 (recognition), [1985] OJ L 223.

an enormously time-consuming task that eventually proved impossible for certain professions, like for the profession of lawyer.¹

The Diploma Directive 89/48/EEC

A new approach was therefore laid down in Directive 89/48/EEC. That Directive did not emerge completely without warning. As early as 1974 the Council had expressed the will, in a non-binding resolution², to abolish the scheme of very detailed directives for all the different professions. According to the Council the future system should be based on more lenient criteria and the future directives should abstain, in as much as possible, from detailed requirements.³ In the early eighties this opinion was so well established within the Council that the adoption of the last two directives in the vertical harmonisation scheme, the aforementioned directives on pharmacists and architects, was a very long and difficult process.⁴

This line of reasoning was prolonged in 1984 when the European Council decided in Fontainebleau that a new, more general approach towards the recognition of higher-education diplomas was necessary, also because the admission of new Member States would inevitably lead to the alternation of existing and possible future directives in the vertical harmonisation scheme, which would be a time-consuming process.⁵ This view led to the adoption, on 21 December 1988, of Directive 89/48/EEC, providing for a general system for the recognition of higher-education diplomas awarded on completion of professional education and training of at least three years duration.

The Diploma Directive completely departed from the old system. The Directive started from the premise that qualifications giving access to a certain regulated profession, dubbed 'diploma' in the terminology of the Directive, would be mutually recognised. This meant that if a person was allowed to exercise a regulated profession in one Member State, they would consequently also be allowed to exercise the corresponding profession in any other Member State in the European Community. Only in circumstances where it was established that there was a considerable difference between the regulated profession of the Member State where a person obtained his qualifications and the profession in the Member State he sought to go to, the latter could require compensatory measures in order to cover for this difference.

¹ See further: Schneider, H., and S. Claessens, *The Recognition of Diplomas and the Free Movement of Professionals in the European Union*, in: H. Scheider (ed.) *Migration, Integration and Citizenship: A Challenge for Europe's Future*, Volume I, Forum Maastricht, Maastricht, 2005, pp.136-139.

² [1974] OJ C 98/1.

³ From: Craig, P. and G. de Burca, *EC Law, Text, Cases and Materials*, Oxford University Press Oxford, 1996, p. 726.

⁴ Pertek, J., *L'Europe des Diplomes et des Professions*, Bruylant, Bruxelles, (1994), p. 61.

⁵ See: Pertek, J., *L'Europe des Diplomes et des Professions*, Bruylant, Bruxelles, (1994), pp. 61-62 and Schneider, H., *Die Anerkennung von Diplomen in der Europäischen Gemeinschaft*, MAKLU, Antwerpen, 1995, p. 162.

The adoption of Directive 89/48/EEC was heralded as a great achievement at the time, but the developments in the recognition of diplomas did not stop with the Directive. A number of years after the adoption of Directive 89/48/EEC it became clear that it was the first of three Directives which would cover the recognition of professional qualifications. This system has been named ‘the General System’.

The General System Directive

1992 saw the adoption of a second General System Directive, 92/51/EC.¹ This Directive was aimed at creating a system for the recognition of qualifications for regulated professions that had qualification tracks of less than three years’ duration. It also covers vocational training certificates. The system of Directive 92/51/EC is identical to the system of Directive 89/48/EEC, described above. People who seek integration in a profession that is caught under Directive 92/51/EC benefit from the general rule of mutual recognition laid down in that Directive. Where substantial differences exist between qualifications concerned the host Member States may impose compensatory measures. A third General System Directive was adopted in 1999.² Directive 99/42/EC did not create new rules, but merely consolidated the transitional directives which had been issued in the 1960s. It was already established that these directives dealt with the recognition of professional experience in a variety of sectors such as commerce and industry.

A second consolidation operation was undertaken in 2001. Directive 2001/19/EC³ was adopted in the light of the SLIM (Simpler Legislation for the Internal Market) strategy. It affected the three General Systems Directives to a small extent (the *Vlassopoulou* ruling was incorporated in Directive 89/48/EEC among other smaller adaptations) but had a major impact on the systems of the vertical directives.

The Professional Qualifications Directive

A major adaptation to the diploma recognition system was achieved in 2005 when a completely new directive was adopted which replaced all the vertical directives and the three General System directives. Ever since the famous Lisbon summit, the European Commission had been preparing a new directive for the recognition of professional qualifications,⁴ an effort that was confirmed by the European Council in Stockholm: “*The Commission intends to present for the 2002 Spring Council [...] specific proposals for a more uniform, transparent, and flexible regime of recognition of qualifications and periods of study*”.⁵ Together with a number of policy documents on

¹ [1992] OJ L 209/25.

² Directive 99/42/EC, [1999] OJ L 201/77.

³ Directive 2001/19/EC [2001] OJ L 206/1

⁴ In the past Directive 89/48/EEC had already undergone a considerable overhaul in the context of the SLIM (Simpler Legislation in the Internal Market) initiative by Directive 2001/19/EC, that, among other amendments, saw the codification of the *Vlassopoulou*-doctrine in article 4 of Directive 89/48/EEC.

⁵ Conclusions of the Stockholm European Council, 23 and 24 March 2001, point 15.

the issue¹ the European Commission came forth with a proposal for a new Directive in 2002.² The main objective was to ‘create a clear, secure and quick system for the recognition of professional qualifications in the field of regulated professions’.³ In its proposal, the Commission seeks to achieve this simplification procedure by consolidating all the fifteen existing Directives (the three General System Directives and the twelve sectoral Directives) into one single directive covering all aspects of recognition of professional qualifications. Much of this consolidation and simplification will take place in the field of the twelve sectoral Directives. Additionally, there are some very important changes that take place in the scope of the application of the General Systems Directives.

The new Directive makes a number of changes to the system as it was laid down in Directive 89/48/EEC and the two other General System Directives. Firstly, the scope of the application of the new Directive is considerably broader than Directive 89/48/EEC and 92/51/EC. Every regulated profession or regulated professional activity that is not caught by Parts II and III of the new Directive (professions traditionally governed by the third General System Directive and the Sectoral Directives respectively) is now caught by Article 10 of the new Directive.

3.1.2 The functioning of the New Directive

The first thing that must be borne in mind while discussing the impact of Directive 2005/36/EC on the access to professions and occupations in Europe is the fact that the Directive (and its respective national implementations) only apply to restrictions that are imposed by the government, i.e. to those professions and occupations to which the access is regulated by means of legislation or regulation. In principle, the mechanism of the Directive is designed to take away barriers or restrictions that would hamper the full functioning of the internal market. The Directive is not designed to regulate the free market of supply and demand of members of professions and occupations throughout the European Union.⁴ This limitation is laid down in article 1 of the Directive.

The Directive implements a number of systems for the mutual recognition of qualifications in different situations. First of all there is the major distinction between the role the recognition of qualification plays with regard to the **provision of services** (title II) and the rules with regard to the **recognition of qualifications for regulated**

¹ High Level Task Force on Skills and Mobility, Final Report, 14 December 2001, page 20; Commission’s Action Plan for Skills and Mobility, point 15; Commission Communication on An Internal Market Strategy for Services, COM (2000) 888 and the Commissions White Paper on European Governance, COM(2001) 428.

² COM (2002) 119 final.

³ Explanatory Memorandum COM (2002)119, p. 3.

⁴ It must be mentioned that the European Court of Justice has awarded ‘horizontal direct effect’ to the Treaty articles on the free movement of persons, meaning that an individual can also invoke these articles in a legal dispute with another individual. This does in my opinion not mean that the Directive as such would be applicable in horizontal situations since its scope of application is limited to those professions and occupations that are regulated by the Member States.

professions and occupations where the person involved seeks to establish him/herself in another Member State (title III). The system for establishment is divided into three systems: the general system (chapter 1 of title III); the system for recognition of professional experience (chapter 2 of title III) and lastly the system for recognition on the basis of coordination of minimum training conditions (chapter 3 of title III). It must be mentioned here that the name of the title, ‘Freedom of Establishment’ is misleading in such a sense that the scope of the directive does not only cover self-employed activities but also activities that are exercised in an employed manner.¹ The different systems will be described in the following paragraphs.

Free movement of services

The basic rule of dealing with the problem of regulation of professions or certain professional activities with regard to service providers from other Member States is laid down in article 5 of the Directive. The article states that without prejudice to the exemptions made in article 6 and 7 of the Directive and without prejudice to other possibilities under EU law (mainly referring to exceptions laid down in the TFEU and additional exceptions accepted by the European Court of Justice) no restrictions may be imposed on the service provider for any reason that relates to professional qualifications if two conditions are fulfilled. First, the service provider must be legally established in a Member State where the service provider is entitled to pursue the same profession there. Secondly, in the event that the profession concerned is not regulated in the Member State from which the service provider comes (dubbed the Member State of establishment by the Directive) he must be able to show that he has pursued the profession in the Member State of establishment for at least 2 years during the previous 10 years. Article 5 states further that the rule is only applicable for activities performed in other Member States that are of an occasional and temporary nature. Additionally, the article states that when performing services in another Member State the service provider is subject to the professional rules of the host Member State.²

Articles 6, 7, 8 and 9 specify further the requirements and exemptions for migrating service providers and recipients of the services regarding administrative matters such as registrations and accounts.

Freedom of Establishment.³

It may be obvious that the system of taking away barriers imposed by Member State that relate to those people who exercise regulated professions and professional activity is more intricate compared to the one described above with regard to the exercise

¹ Article 2 Directive 2005/36/EC.

² In stark contrast with Directive 77/249/EEC on the provision of services by lawyers that introduces an intricate system of accumulation of both home and host Member State rules (the so-called *Kumulatzionsprinzip*).

³ As described above also activities exercised in an employed manner fall under this definition.

of the freedom to provide services in other Member States. The provision of occasional and temporary services in another Member State is much less intrusive for a national system of regulating one's professions and occupations than the (more or less) permanent establishment of a member of a regulated profession or occupation who has received his/her education and/or access to that profession or education in another Member State. In that respect the Directive provides for three different systems for recognising professional experience or qualifications obtained in other Member States. Besides the **general system**, that also provides as a safety net for professions that do not fall under the other two systems, the Directive provides for two pre-existing systems: **the recognition of professional experience** (that was established in the 1960's and consolidated in Directive 99/43/EC); and the **system of recognition based on minimum coordination of training standards** (the so called sectoral or vertical system that was established during the 1970's and 1980's).

The General System

Article 10 of the Directive describes the fact that in situations that are not covered by any of the other systems in Chapter II, the general system will apply. The underlying core of the general system is a list of levels of qualifications that will determine whether diploma recognition is available under the general system in a given situation. The different levels¹ are laid down in article 11 of the Directive and comprise the following:

- **attestation of competence** issued by a competent authority in the home Member State, attesting either that the holder has acquired general knowledge corresponding to primary or secondary education, or has undergone training not forming part of a certificate or diploma, or has taken a specific examination without previous training or has three years' professional experience;
- **certificate corresponding to training at secondary level** of a technical or professional nature or general in character, supplemented by a professional course;
- **diploma certifying successful completion of training at post-secondary level** of a duration of at least one year or professional training that is comparable in terms of responsibilities and functions;
- **diploma certifying successful completion of training at higher or university level** of a duration of **at least three years** and not exceeding four years;
- **diploma certifying successful completion of training at higher or university level** of a duration of **at least four years**.

Recognition of professional qualifications in a host Member State is dependent on the level of qualification that is required in the home Member State. According to Article 13 of the new Directive, recognition of professional qualifications is required when the level of qualification in the home Member State is equal to the level immediately prior to the level required in the host Member State. Articles 13 and 14 further clarify the requirements for recognition of professional qualifications. Article 13 begins with the general rule that professional qualifications from another Member State will be

¹ It may be duly noted that these levels do not correspond with the levels laid down in the EQF system.

recognised only if certain criteria are fulfilled. These criteria are that the person concerned is authorised to exercise the corresponding regulated profession in his home Member State and he must be able to prove this authorisation with evidence of professional qualification (or an attestation of competence) issued by the competent authority of the home Member State. In addition, the proof must also show that the qualification process in the home Member State is at least equivalent to the level (as identified in Article 11 of the Directive) directly prior to the level required in the host Member State.¹

The Directive also has the possibility for the host Member State to require **compensatory measures** from candidates who seek to be integrated in the regulated profession. The system of compensatory measures is laid down in Article 14 of the Directive. Member states may require compensatory measures where the training of the candidate is at least one year shorter than the training required in the host Member State, where the training enjoyed covers matters that are substantially different from the requirements in the host Member State or where the profession in the host State contains professional activities which do not exist in the corresponding profession of the home Member State. Candidates can choose between an aptitude test and an adaptation period. Importantly, Article 14 states that compensatory measures shall be applied with due regard to the principle of proportionality.²

The Directive also has another feature. Article 15 provides for a method whereby compensatory measures can be avoided. The Article provides for a form of self-regulation. If a certain regulated profession can come to a common platform (i.e. a set of criteria in order to counter substantial differences) for at least two thirds of the Member States (including all Member States that regulate the profession) such a common platform can be notified to the Commission. If a candidate then fulfils the criteria laid down in the common platform the Member State concerned shall not implement compensatory measures.

There is a last noteworthy element to the new system of mutual recognition of professional qualifications. Unlike Directive 89/48/EEC, Directive 2005/36/EC has a specific reference to **language requirements**. Article 53 states: “*Persons benefiting from the recognition of professional qualifications shall have a knowledge of languages necessary for practising the profession in the host Member State.*”³ This is a very strict reference to language restrictions that leaves, potentially, enormous leeway for

¹ The second paragraph of Article 13 also provides for a recognition procedure for those people who have pursued a profession that is regulated in the host Member State but not in the home Member State. This exception will not be explored further since the profession of lawyer is regulated in all the Member States of the European Union.

² This paragraph is intriguing as it seeks to implement the Vlassopoulou-doctrine, that was also implemented in the old Directive (at least after adaptation by the SLIM-Directive) but this is the first time it is formulated as part of the proportionality principle. It would be interesting to know whether the proportionality principle applies in full to the application of compensatory measures, or only as far as the Vlassopoulou-principle. The explanatory memorandum does not offer any clarity in this matter. Moreover, and perhaps more seriously, there seems to be an inadvertent mistake with regard to the application of the Vlassopoulou-principle to compensate for time differences between the professional qualifications in the host and home Member States.

³ Art. 53 Directive 2005/36/EC.

Member States to impose language requirements. The Commission, in its explanatory memorandum to the original proposal, made a specific reference to the principle of proportionality.¹ Time will tell how stringently Member States will adhere to this requirement, which could ultimately be a considerable hindrance to the free movement of professionals. It will not affect the situation of lawyers however, since language proficiency was already implicitly part of their integration since the aptitude tests are both in written form and orally, conducted in the language of the host Member State.

Recognition of professional experience

The second system with regard to establishment in the Directive deals with the **recognition of professional experience** mainly with regard to occupations in the area of industry and crafts. Article 16 of the Directive prescribes a system of automatic recognition of the professional experience of one of the professional activities mentioned in annex IV of the directive for the purposes of allowing the candidate in question access to the occupation or allowing the candidate in question to pursue that occupation in the host Member State. Automatic recognition is dependent on fulfilment of the criteria laid down in articles 17, 18 and 19 of the Directive. Annex IV to the Directive contains three lists of occupations mainly centred on industry and crafts. The three articles in the Directive correspond with each of the three lists in the annex.

Article 17 states that experience in one of the occupations mentioned in list I, II and III of annex IV will be automatically recognised if it fulfils one of the specified conditions regarding a specific combination of consecutive years of experience and training. This can vary from a requirement of 6 consecutive years of experience to 2 consecutive years of experience, dependent on the list of occupations and the level of experience. The requirements refer to both experience in a self-employed fashion or in a managing position as well as to experience in an employed position. For those members of professions or occupations caught by this system (i.e. those mentioned in Annex IV) but who do not fulfil, for the respective lists, the criteria of article 17, 18 or 19, but who still want to gain access to or pursue such a profession or occupation in another Member State, the general system of Chapter 1 of Title III of the Directive is applicable.

Recognition on the basis of minimum coordination of training

Finally, Chapter 3 of Title III governs the recognition of professional qualifications for a certain number of professions based on a **minimum coordination of the training** leading up to these professions. These professions are the professions that were subject to the vertical system (or sectoral system) that was used during the 1970's and 1980's. These professions are the profession of doctor, nurse, veterinary surgeons, midwives, pharmacists and architects. This system makes up for a considerable part of the total length of the Directive (which including annexes amounts to 121 pages)

¹ COM (2002) 119 def.

but the majority of that length is devoted to the regulation of the minimum coordination of training, not so much to the actual recognition, which is laid down in article 21 of the Directive.

The basic system of article 21 is a system of automatic recognition. The article states that if a person who is entitled to practice under one of the professional titles mentioned in Annex V of the Directive and who satisfy the minimum training conditions for each of the professions respectively will be automatically recognised in other Member States for the purposes of access to and pursuit of the profession. The article specifies a number of situations based on different classifications in the Annex V, but the result is automatic recognition. Members of these professions who do not fulfil the minimum training requirements (or who cannot benefit from so-called acquired rights) will fall under the general system of Chapter 1 of Title III.

Conclusion

Research has shown that the implementation of the Professional Qualifications Directive has significant impact on the educational systems, labour market governance and qualification structures in Member States.¹ The fact that certain qualifications generating in other qualifications systems have to be recognised, is of great significance for the coherence of national frameworks. Even more importantly, the Directive, as a firm context variable, structures the policy processes at national level. As aspects such as recognition of experience are firmly integrated into the international labour market governance structure, this can lead to pressures on national systems to adjust to the international environment. In addition, the Professional Qualifications Directive signifies a division between different kinds of occupations and professions, namely the occupations included in the annex IV, the professions subject to the minimum coordination of training and the occupations and professions not specifically included in the Directive at all.

While the Directive can be seen as a ‘firm’ measure determining the European context for the governance of occupations and professions, the EQF represents a softer approach to international harmonization. Nonetheless, its role in determining the European dimension of qualifications is growing also on national level, as has been described in chapter 2. As a consequence, it is important to understand how the ‘firm’ Directive and the ‘soft’ EQF relate to each other.

3.2 The relationship with the EQF

As explained before, the EQF constitutes a European reference framework, which is intended to act as a translation device to make qualifications more readable across Europe. This way, it intends to promote the mobility of the European labour force as

¹ GHK (2011): Study evaluating the Professional Qualifications Directive against recent educational reforms in EU Member States; London: GHK

well as to facilitate the lifelong learning of the European citizens. The EQF consists of 8 levels, based on learning outcomes.

Most importantly, the EQF must be seen in the context of Chapter I (General System) of Title III of Directive 2005/36/EC. As has just been described, a member state is only allowed to require a compensation mechanism when the matters covered by a migrant's education and training or the period in which the education and training were followed, differ substantially from those covered by the diploma required in the host Member State. It follows that the definition of substantial difference has become paramount when defining equivalence. As a result, at the end of the recognition process, a certificate of equivalence can be delivered even if the qualification held by the migrant has a lower level than the national qualification. The EQF is helpful in this regard since it further specifies what may count as a substantial difference.

These standards constrain significantly the reasons that may be given to justify a refusal of citizen from another Member State for practicing a specific occupation or profession. It should be noted however that under the EQF, the personal curriculum of the migrant (professional experience, ongoing training, seminars etc.) is not taken into consideration.¹ It is only the level and content of the qualification which is relevant for the purposes of classification in one of the EQF levels. Under Directive 2005/36/EC on the other hand, the national competent authorities have the obligation, when going through the process of recognition, to take into account the personal curricula of the migrant. It follows that the certificate of equivalence delivered under Directive 2005/36/EC in effect attests that a professional of another Member State has a level equivalent to a host Member State professional whereas the EQF only gives indication on the level of the qualifications. The certificate of equivalence delivered under Directive 2005/36/EC is thus a very useful tool for employers as it provides more information about the professional himself.

It is therefore important to underline that the scope of Directive 2005/36/EC and of the EQF differ in that the EQF is not a tool granting rights to migrants for recognition of their qualifications acquired in one Member State with a view to exercising a regulated profession in another Member State. In such a case, only Directive 2005/36/EC imposes legally binding obligations on Member States' authorities. Nevertheless, both instruments aim to achieve greater mobility of persons and services in the European Union by ranking qualifications into reference levels, hereby also exerting direct and indirect pressure on national qualification systems. In this context it should be noted that the Directive only refers to five levels while the EQF concerns eight reference levels. This might lead to confusion and unnecessary complication with regard to the ranking of qualifications.

The implementation of the European Qualifications Framework (EQF) is entering a crucial phase. Most countries are making significant progress in developing national qualifications frameworks covering all levels and types of education and training, and

¹ http://ec.europa.eu/internal_market/qualifications/docs/eqf_en.pdf

in referencing their frameworks to the EQF. Many states have published comprehensive reports referring their national qualifications frameworks to the EQF. This is linked to a broader use of learning outcomes to define and describe qualifications and to the validation of non-formal and informal learning. The voluntary nature of the EQF framework, however, has also led to informational gaps. The uneven nature of national reporting between Member States leaves knowledge of the level of progress made across the EU in implementing the EQF limited.

One of the key differences between the EQF and the Professional Qualifications Directive is however the emphasis the EQF places on learning outcomes whereas the Directive is still based on input descriptors. A recent study on the evaluation of the Professional Qualifications Directive showed that it is still too early to state which perspective is preferred by national stakeholders, though there was a slight preference for the system used by the EQF.¹ Of course, the EQF and the Directive have different key objectives, but the way in which the vision embedded in these policy processes influence and compete with each other will be of importance for the future policy development also at national level.

¹ GHK, Revised Final Report - Study evaluating the Professional Qualifications Directive against recent educational reforms in EU Member States, 2011

4 A typology of countries and systems

In this chapter, we present the national context that influences the way that qualifications are used and shaped in the countries under discussion. The context is shaped by factors such as the intensity of occupational legislation across the economy, the general governance approach to labour market management and the shape and use of qualification structures and related tools. Before presenting the results of our own research in the ten selected countries, in the section below we first look at existing research on how the different countries compare to one another in terms of regulatory strictness and manner of regulation. We then move on to discussing the ways of regulation of labour market entry identified in the ten countries on the one hand and their approach to the governance of labour market supply on the other hand, touching issues such as qualification requirements, qualification frameworks, VET structures and the feedback loop between education and the labour market.

4.1 Previous research on regulatory characteristics

Some studies have attempted to measure the degree of regulation (including qualifications) in professional services markets in various European countries. Although these studies did not deal specifically with any of our selected professions or occupations, some general impressions regarding the degree of regulation in different countries can be deduced from these studies.

The regulation index

In January 2003 an independent study carried out by the Institute for Advanced Studies (IAS) in Vienna was published. This study was commissioned by the European Commission (Directorate General for Competition), which at the time started an extensive investigation into the effects of regulation on competition and quality of services in – what it called - the “liberal professions”.¹ The IAS study includes *inter alia* a schematic overview of the regulation in the then 15 EU Member States for lawyers, notaries, accountants (including tax advisors), architects, engineers and pharmacists. For each of these professions IAS presents an overview of rules restricting the entry into the market and rules affecting market conduct. The former of these categories is particularly relevant in the context of our research on qualifications, as it includes:²

- licensing (defined here as number of exclusive and shared exclusive tasks)
- educational requirements (here including duration of study, duration of compulsory practice, number of exams, and number of entry routes)
- quotas / economic needs test.

¹ [Http://ec.europa.eu/comm/competition/sectors/professional_services/overview_en.html](http://ec.europa.eu/comm/competition/sectors/professional_services/overview_en.html).

² Paterson, Fink & Ogus *et al.* (2003), p. 30.

IAS computes a so-called ‘regulation index’ for each profession and for each Member State¹, which indicates the degree of regulation, with a value between 0 and 12. In order to compute the index, weights are assigned to each form of regulation. For instance, concerning market entry regulation the authors assign a relatively low weight to quota compared to educational requirements and licensing. Despite the inherently subjective process of assigning weights to different forms of regulation, the IAS regulation indices may provide at the very least a reasonable indication of the *level* of regulation in EU Member States circa 2003.

Table 3.1 presents the entry regulation indices calculated by the IAS for the countries selected for this report (to the extent that they were part of the EU15), and excluding conduct regulation. The value of this index lies between 0 (no regulation) and 6 (maximum score). It should be noted that self-regulation is hardly included in these calculations, partly due to the time pressure under which the IAS report was written, but also to the fact that full information on self-regulation is often difficult to obtain.²

Table 4.1 Entry regulation index

	Accountants					
	(Auditors	Lawyers	Notaries	Pharmacists	Architects	Engineers
Belgium	3.9	2.5	4.0	3.6	2.4	0.0
France	4.0	3.9	5.3	3.8	2.2	0.0
Germany	3.6	3.7	5.5	1.6	1.8	3.7
Greece	3.6	3.5	5.2	4.4	n.a.	n.a.
Netherlands	3.1	2.1	3.6	1.2	0.0	1.5
Spain	1.9	3.4	4.6	3.6	3.2	3.2
Sweden	2.4	2.0	-	6.0	0.0	0.0
UK	2.7	2.9	-	2.7	0.0	0.0

Source: IAS 2003

The level of professional regulation appears to differ widely from country to country. IAS presents – for each profession - a list of most and least regulated countries. Countries that in 2003 were regulated the most, that is, those having a high regulation index for all or most professions, are **Austria, Germany, Italy** and **Luxembourg** (and possibly **Greece**). The middle group comprises **Belgium, France, Spain** and **Portugal**. The lowest regulation indices were found for **Denmark, Finland, Ireland**, the **Netherlands, Sweden** (except for pharmacists: all pharmacies were at the time still owned by the government) and the **United Kingdom**. Additionally, IAS observes that most rules can be found in the pharmaceutical profession, while architects and engineers are relatively unregulated. Accounting services and legal services comprise

¹ Information is not complete as far as Greece and Portugal are concerned.

² See the analysis of the IAS study in Philipsen (2007).

the middle category, although concerning legal services it should be noted that notaries are very heavily regulated compared to lawyers.¹

The example of pharmacy

In a study for DG Internal Market and Services on regulatory restrictions in the field of pharmacies, ECORYS² follows the IAS strategy of calculating regulation indices. However, the ECORYS study involves the EU25 and considers community pharmacists only, making it a narrower but also much more detailed study than the IAS report. The measure of Education used by the authors includes the following categories of regulation: total duration of education and compulsory practice, continuous training and numerus fixus requirements. The authors calculate a separate measure of Licensing and Registration, which includes nationality, residence and language requirements, costs per year, and examination and diploma requirements. Also the Scope of the professional monopoly (i.e. does it include OTC drugs) is taken into account separately.³

The authors find that Ireland has the highest score for Education, because the duration of the education is long (6 years) and only a relatively small number of students can study pharmacy each year. Germany has the highest score for Licensing and Registration, because of its relatively strict requirements for obtaining a licence and becoming a member of the professional association. In this category *inter alia* Belgium, the Netherlands and Spain have very low scores.

Focusing on the scores given by ECORYS to our selected group of countries, table 3.2 presents the results (on a scale of 0 to 25) for structure regulation. This category of structure regulation consists of the above-mentioned rules regarding Education, Licensing and Registration, and Scope of the monopoly, but also include Operating restrictions and Differentiation. Numbers relate to the year 2006.⁴

Table 4.2 Structure of regulation in pharmacy

<i>Country</i>	<i>Score</i>
Greece	15.3
Slovak Republic	14.9
Germany	13.3
France	13.3
Spain	12.7
Lithuania	12.2
Sweden	11.2
UK	6.8

¹ Paterson, Fink & Ogus *et al.* (2003), chapter 3.

² Volkerink, De Bas, Van Gorp and Philipsen (2007).

³ Volkerink, De Bas, Van Gorp and Philipsen (2007)., pp. 51-52.

⁴ Volkerink, De Bas, Van Gorp and Philipsen (2007)., pp. 63-71.

Belgium	6.7
Netherlands	4.8

Source: Ecorys 2007

It can be seen that Germany and Greece are once again scoring comparatively high in this index while Belgium, earlier in the middle group of countries, scores considerably lower. The low regulation approach in Sweden, the United Kingdom and the Netherlands is confirmed by this index. Nonetheless, these two very specific examples of research at country level do not allow us yet to categorise the countries in specific clusters. It also remains to be seen whether the country can be seen as the determining factor for the strictness of regulation or whether the sector, or even the specific occupation, might be of higher relevance. In the section below, we start describing the regulatory context in the selected countries based on our own data.

4.2 Regulation of labour market entry: qualification requirements, certification and licensing

To start with, it is useful to assess the general approach countries take when it comes to regulating entry to occupations and professions. The central question that needs to be answered is whether in a given country it is usually necessary for an individual to have acquire some form of qualification before being allowed to practice a specific occupation in the labour market. We are hereby talking about the official framework and therefore about the legal necessity of the possession of a diploma, certificate or license and not about the practical relevance thereof. We will firstly present the different types of qualification-related regulation encountered in the different countries and then move onto comparing the general intensity of regulatory requirements.

4.2.1 Types of regulation and their origins

When looking at the different national contexts identified in the different countries, it can be stated that direct regulation of occupations is more an exception than a rule. This is to say that in most countries, the majority of occupations are not subject to legally stipulated requirements. Nonetheless, labour market entry can be managed in different ways and by use of different instruments, and direct entry requirements are only one of them. As we will see at the sectoral level, just as common as direct regulation are industry-imposed standards or public regulation which have an indirect influence on the labour market.

Starting with the **direct regulation**, we see that there is no country which has one centralised approach to the regulation of occupations and professions. In most cases, where occupations are regulated by the national government, this is done by the departments or ministries that are concerned with the economic sector in question, for example the ministry of health for health care professions or the ministry of agriculture for occupations in the agricultural sector. This is for example the case in Bel-

gium, in France and in the Netherlands. In these cases it is seen as necessary from the policy field in question to determine who can practice in an occupation and how this occupation should be carried out. The legislation is then specifically targeted at the occupation or economic sector, for example the Dutch Law on private security firms and detective agencies.

Belgium: In Belgium, there is no list that covers all regulated professions in the broad sense, meaning all professions for which one needs to dispose of certain qualifications before one is able to practise the profession. The Belgian 1958 ‘Vestigingswet’ determines for certain professions that one needs to dispose of certain professional qualifications before one can practise the profession as a self-employed person. The Act therefore deals with regulated professions in the narrow sense. Between 1960 and 1993, 42 professions were regulated by this Act of law.¹ Since 1 September 2007 there are only 26 regulated professional activities.

We can in these cases speak of a **thematic, content-driven approach** to occupational regulation rather than of a harmonized or unified system. By thematic and content-driven we describe the fact that this regulation is triggered by practical issues arising from the content of the occupational practice and not from a general desire to regulate the access or practice in the occupation. This specific feature of direct regulation has its implications for the international recognition of qualifications. As different ministries are responsible for the legislation regulating labour market entry for an occupation, the same ministries are also responsible for taking care of the inclusion of workers from other EU Member States in the restricted areas of work. Thus, in Belgium for example, as in several other countries, there are several different authorities responsible for the recognition of foreign qualifications under Directive 2005/36/EC. At the same time, working according to the directive has for example in the Netherlands led to the creation of one unified list of regulated professions and occupations which has for the first time led to an overarching view of the direct regulation of labour market entry.

Netherlands: Regarding the regulation of the access to occupations and professions, the situation in the Netherlands is characterised by a liberal approach. As a result of the corporatist nature of labour market governance, there are relatively few occupations or professions which are subject to specific entry regulation, meaning that either the occupation or the professional title is protected by means of qualification requirements. At the same time however, the national government does issue regulation which impacts on particular occupations, both in terms of access as well as practice.

Sweden: Whereas the general requirements for access to a profession in terms of the relevant qualifications, and the institutes who may issue them, are set out at the central level,² the setting of more specific requirements, the determination whether a

¹ http://www.belgium.be/nl/economie/onderneming/gereguleerde_beropen/

² See Articles 10ff of the *Högskoleverket* and in particular: *Högskoleförordning* SFS 1993:100, appendix 2.

person fulfils the relevant requirements for access to a particular profession and the monitoring of their activities is decentralised to governmental agencies. Examples are *Socialstyrelsen* (The National Board for Health and Welfare), which fulfils these tasks for those professions related to healthcare¹, *Jordbruksverket* (Swedish Board of Agriculture) regarding veterinarians and other animal health professions² and *Kammerkollegiet* as regards authorised translators.³

At the same time, legislation can have a regulatory impact on labour market entry and activities in a more **indirect** way. We are then talking about situations where regulation in a generic policy field, for example occupational safety and health or environmental legislation, has repercussions for the manner in which particular activities are carried out. We can find examples of this kind of regulation in all countries, for example in Spain, where only the more risky activities are subject to regulation, or even at European level, where the work with F gases is reserved for practitioners with the right qualification. Again, most countries display some examples of this kind of legislation which we will also encounter at sectoral level.

Spain: While qualifications, VET degrees and certificates are substantially regulated, most occupations and professions within the VET framework do not require such degrees or certificates as an access condition. Whether these certificates are used by employers will depend on several criteria such as the economic scenario or the specific sector/occupation. However, there are certain activities for which the regulatory framework requires professional authorizations or licenses. This is indeed very common with occupations which involve risky activities with serious implications for the safety and health of the people or the environment.

While the paths leading to the regulation may be different, in both cases the result of the regulation efforts can be described as **licensing** requirements in the broad sense covered by our definition. After all, in all of these cases occupational practitioners are required by law to possess a certain qualification, ranging from complex educational diplomas to specific practical certificates of competence. Certificates of competence are hereby often more specific to the occupation in question, as full-fledged educational diplomas may include broader learning outcomes including basic and transversal skills, but both qualifications carry with it the legal authority to practice the occupation or profession in question.

Finally, this leads us to the mechanisms of **self-regulation** which can also be identified in most countries. In these cases, the state does not issue binding legislation, but lets professional associations and social partners manage the labour market entry within a specific framework. This can for example refer to the mandatory registration of professionals within a professional registry which can but does not necessarily in-

¹ See the *Socialstyrelsens* regulations: *Socialstyrelsens föreskrifter om erkännande av yrkeskvalifikationer inom hälso- och sjukvården*, SOSFS 2007:23.

² See *Statens jordbruksverks föreskrifter och allmänna råd om behörigheter för djurhjälsopersonal* SJVFS 2009:83.

³ See *Förordning om auktorisation av tolkar och översättare* SFS 1985:613.

clude requirements concerning qualifications. Another more open alternative is accreditation whereby practitioners can choose to subscribe to the rules and requirements of a professional organisation in return for a widely accepted accreditation paper. These practices are seen in both traditionally liberal systems such as the UK where the central government is hesitant to impose strict entry requirements and in corporatist systems such as France where sectoral social partners make their voice heard.

UK: Although recently, the UK has witnessed a steady growth in the number of occupations that require a licence to practice, the preferred approach towards licensing remains one of voluntarism and industry imposed training standards. In this, the role of the state largely remains one of providing legitimacy to professional bodies and interfering only in cases where malpractice is deemed to pose extremely high risks for the public.

Germany: In Germany there are approximately 350 professions that require vocational education. Most of them are not fully regulated professions by law but have to fulfill certain requirements of the relevant professional chambers. There are three main groups of professions which can be differentiated: handicrafts, industrial-technical and commercial professions and thirdly, professions in the agricultural sector. As a result, also only the specific organizations and authorities to the respective groups or professions are responsible for the recognition of qualifications.

In most countries, the **motivation for regulation** of occupation of any kind is similar. The most commonly cited reason for restricting entry to an occupation or profession are those of occupational safety and health and consumer or patient protection, upholding the quality of services. Public safety and environmental protection can also play a role. At the same time, incidents can lead to stricter regulation; thus, the financial crisis has led to calls for a tighter regulation of financial services in a number of countries (e.g. UK and the Netherlands). Notable is the motivation noted in Lithuania where the setting of entry requirements for some occupations is officially justified with the goal of raising the prestige of the occupation in question and creating a professional name, in this case in relation to social workers. In other countries, the self-regulation of occupations can be motivated by similar considerations, whereby an occupational group shares the desire to apply structure to its practice and create a level playing field for practitioners.

The Netherlands: The main reasons for regulating a profession or occupation are:

- protection of patients
- guaranteeing law and order
- protection of consumers
- safety and health considerations
- minimising environmental impact.

As may be expected, the countries examined in this study **combine** all of the different kinds of regulation and management described above. As we will see below, it depends on the sector and the activities in question which approach is adopted. Thus it

is hard to come to a general typology of countries regarding the preferred type of regulation. However we can see that some aspects play a more important role in some countries than in others. In Spain for example, direct regulation is said to be rare. However, professional organisations play an important role in regulating access which has an impact on the openness of the labour market. A similar situation exists in Greece, though the system is in constant flux at the moment and cannot be categorised due to ongoing reform projects. In Belgium, ministries issue both direct and indirect regulation, but there is no centralised approach to the management of occupational entry. Lithuania displays a very liberal approach, with a combination of weak social partners and little state interference regarding the regulation of occupations. France can be seen as a corporatist system, with shared economic management by state actors and social partners, organised on a sectoral basis. The Netherlands fall into the same category, as some direct and some indirect regulation is issued, but the system is essentially based on sectoral self-management. Finally, in the United Kingdom, the preferred approach is based on voluntarism and self-regulation, though examples of direct regulation also exist.

Greece: The regulation of professional qualifications in Greece is rather complicated and can be best described as centralized, where the government constructs strict rules for quality assurance mechanisms regarding the assessment, validation and certification. A complicated system requiring a multiplicity of licenses to enter into the professional sphere, to exercise a profession, and to professionally advance to the next degree was in place. The system can however also be described as *laissez-faire* to a certain extent, where educational providers are entirely responsible for the quality assurances of their assessment, validation and certification processes. Then again, their choices are restricted by international or European regulations and specifications.

4.2.2 Intensity of regulation: practical relevance of regulation and licensing

However, the type of regulation that is applied does not necessarily explain the **intensity** of the regulation. Although a system of state-sanctioned self-regulation appears less restrictive than a system of direct top-down regulation, the level of intensity can be just as high in a voluntary system as in a state-led system as professional groups might even be more eager to regulate a particular occupation than the state would be. At sectoral level we will see how countries compare with regard to the regulation intensity of the specific occupations. It is also interesting to see however how the general regulatory framework can be characterised in terms of intensity and whether we can already identify differences between the countries.

Countries that describe themselves as taking a **low-intensity approach** to occupational regulation are what we can call the more liberal countries, for example Lithuania, the Netherlands, Sweden and the United Kingdom. However, only in Lithuania does the low-intensity approach feed through to the social partners level, meaning that neither the state nor social partners are very active in the field of occupational

regulation. However, where regulation does exist, it can be very intensive and strict, also in the implementation, precisely due to the lack of social partners which might otherwise act as ‘gatekeepers’ against state intervention. In both the UK and the Netherlands, the regulation is left to social partners, associated with differing degrees of mandatory force. The Netherlands and Sweden can hereby be characterised more readily as a corporatist system whereby there is an elaborate structure of social dialogue. The UK can be seen as an industry-led system where self-regulation is applied where necessary.

The Netherlands: regarding the level of direct regulation of access to or practice in occupations, we can conclude that this regulation is kept to a minimum. Where it exists, it often stems from international obligations or supranational legislation, for example in the case of the transport occupations. Interestingly, the international requirements often seem to go more in the direction of licensing than of qualification requirements.

Sweden: the Swedish constitution lays down the principle of freedom to pursue a certain profession and/or to engage in an economic activity and holds that prescriptions and limitations to this right can only be set where this is necessary to protect a public interest.¹ It follows that access to most professions is not conditional on particular entry requirements and that this is thus left to individual employers to decide²; only some 30 professions are considered '*skyddade yrken/reglerade yrken*' and are subject to legislation regulating entry.³ The relevant legislation may have its origins in *riksdagen* (the Swedish parliament), but may also be an implementation of relevant EU or international law. The relevant rules may also be set out by an Order from the relevant governmental department.⁴ A list of regulated professions can be obtained at the *Högskoleverket*.⁵

Other countries come from a background which is characterised by **higher intensity** regulation. France is an example of this approach whereby the labour market in general is highly regulated and employees enjoy a high protection of their position. Collective bargaining, overseen by the state and carried out by sectoral social partner, lies at the core of this high intensity approach to regulation. Belgium seems to fit the

¹ Article 17, Chapter 2 of *Kungörelse om beslutad ny regeringsform* SFS 1974:152.

² National Report regarding the Bologna Process Implementation 2009-2012 – Sweden, p. 15 available at: <http://www.ehea.info/Uploads/National%20reports/Sweden%20Rep%20and%20Annex.pdf> .

³ Memorandum of the Ministry for Education and Research (*Utbildningsdepartementet*) of 9 January 2008 in response to the Bologna Working Group on employability, p. 2, available at: http://www.ond.vlaanderen.be/hogeronderwijs/bologna/actionlines/documents/Employability_Sweden.pdf . See further Högskoleverket, National Qualifications Framework Reg.nr 12-5202-10, p. 13-14.

⁴ See M. Saarinen, *Bedömning av kompetens i olika nordiska länder*, appendix to Recognition Problems in the Nordic Countries: Nordic ENIC/NARIC 's reported problems, NORRIC 2004, p. 17. As an example, see the Förordning om verksamhet inom djurens hälso- och sjukvård (Order regarding activities within the animal health- and sickcare) SFS 2009:1386 which originates from *Jordbruksdepartementet* (the Agricultural Ministry).

⁵ Swedish National Agency for Higher Education; <http://www.hsv.se/qualificationsrecognition/regulatedprofessions.4.28afa2dc11bdcdc557480002186.html> last visited 19.07.2012.

same category, though the resulting intensity of regulation is estimated as lower than in the case of France, though still in a medium category. Spain and Greece finally are difficult to categorise. Both of the countries are often seen as highly regulated, especially by observers from other countries. However, both systems are undergoing profound changes which, especially in the case of Greece, make it difficult to give a general impression of the intensity of regulation. The same is true for Slovenia where several new policies regarding professional qualifications have been introduced, though none of them have yet led to actual new legislation.

France: France is considered to be a country falling within the high category regarding the degree of regulation intensity. For most liberal professions, membership of a professional body is mandatory and exclusive rights are often reserved to these professionals (e.g. accountants). This means that for these professions there is some form of licensing and that certain professions have a monopoly to execute certain tasks.

We can state that at an overarching level, there are differences between countries regarding the intensity of the regulation. Two aspects are important in qualifying this statement. Firstly, these judgements of intensity are rather general impressions or characterisations than specific measurements. Importantly, they do not say anything about the intensity of regulation governing a specific area of industry or group of occupations, since the intensity might vary across the economy. Secondly, the intensity of regulation does not necessarily imply that this regulation is implemented in a strict way. Thus it is possible that a country has an intense framework of legal entry requirements for occupations, but that in practice these requirements are not applied or enforced. Conversely, it is possible that a country has little direct regulation, but that the occupational culture is one where qualifications are an absolute demand. We will see at sectoral level in what way national and sectoral entry requirements gain relevance in actual practice.

4.2.3 Developments in regulatory context at national level

Though the regulatory context at national level can be seen as a strong determinant of the openness of the labour market, it is nonetheless changing constantly. One of the assumptions underlying this research is that the importance of direct national level regulation is diminishing. Indeed, in some countries processes of **liberalisation** are taking place. We have already mentioned both Spain, Greece and Lithuania where labour market reforms are supposed to remove regulatory confusion and open up occupations to new groups of workers, though it is not clear whether this is actually leading to deregulation. Whereas in Spain these reforms are already being implemented, in Greece the system is presently undergoing intense changes. In the Netherlands, already quite a liberal system, the process of collating a list of regulated profession under Directive 2005/36/EC led to a reassessment of the necessity of some regulation, resulting in the removal of some entry requirements. In Belgium, the number of professions falling under the Law on establishments decreased significantly over the last years.

Spain: since recently there has been a trend of liberalization of professions in Spain, due to the implementation of the Directive 2006/123/EC, which has been incorporated by the Law 17/2009 and the Law 25/2009. These acts have had a relevant impact in the conditions for the exercise of certain occupations. Notably, the role of the professional associations in the regulation of the professions has been diminished and several authorizations that were previously requested for the exercise of certain occupations and/or activities are not required anymore.

Slovenia: Since the recent elections, new policies regarding the regulation of professions have been introduced. The focus of all these policies is to make professional recognition easier. This means that deregulation rather than regulation is preferred by the current government. Particularly in the sectors of craftsmanship, education and culture, an urgent need for less regulation has been identified. The main objective for this deregulation is to make it easier for people to integrate into the Slovenian labour market.

Nonetheless, there are also examples of **new regulation** being added to the present system. Interestingly, this was especially identified in the United Kingdom where recently some legal requirements were introduced in the gambling industry, in the security sector and in manufacturing. In the Netherlands, new requirements for financial service providers are being designed. This suggests that the trend towards liberalisation and removal of entry requirements is not a development that goes on until all requirements are removed. Conversely, countries seem to be constantly looking for the right equilibrium between regulation and openness. Moreover, increasingly steps are taken to regulating labour market entry at a European level or to standardising requirements across the EU.

UK: Recently some new additions are made to the list of licensed occupations in the UK. For instance, security guards (Private Security Industry Act 2001) and employees in the gambling industry (Gambling Act 2005). The Care Standards Act 2000 also introduced training requirements for social care workers in registered care homes, while a registration scheme has been brought in to cover estate agents (Consumers, Estate Agents and Redress Act 2007). Licensing for these occupation often involve codes of conduct and consumer protection. However, forms of regulation have also been introduced to cover occupations in the manufacturing sector, notably building and construction, where health and safety risks are high.

Furthermore, it is important to say that several member states are undergoing intensive changes at the moment, but that the direction and impact of these changes is not yet clear. This has made the research process rather complicated in these countries, as the country reports also testify. This was especially the case in countries, where the actual framework of labour market governance is being reformed, such as Greece, Slovenia and Lithuania.

Greece: At the time of preparation of the national report, Greece was struggling with the aftermath of the financial crisis. Due to the need to cut down on national expens-

es, the public sector has and still is undergoing an extensive restructuring. Ministries and public organizations were and are being merged and the whole state is in a constant flux. New legislation was enacted and in a short time repealed or amended with ministerial decisions. Presidential decrees and new laws relating to matters covered in this report are expected to be enacted soon, but have not and could have not been included. Developments in reality were coping to keep up with the pace of legal developments.

Lithuania: The Lithuanian regulatory system can be best described as being 'in flux'. The speed of recent reforms make it difficult to track recent changes in legislation concerning the labour market, professions and education.

A different kind change is taking place in Germany. There, the system of recognition of qualifications from other countries has been changed very strongly, especially for qualified employees from countries outside of the EEA. The objective of this legislative change is an opening up of the German labour market to this group of employees, as until now, only a very limited number of people who came to Germany with foreign professional and vocational qualifications were entitled to apply for qualification recognition.

Germany: The Directive 2005/36 and its predecessors apply only to EEA citizens. The new Federal Law greatly extends the right of assessment of qualifications gained abroad so far it concerns professions under the jurisdiction of the Federal Government and seeks to establish a national standardized procedure. The Länder are, however, responsible for the implementation of the law. They must therefore provide uniform implementation criteria for the responsible enforcement agencies. The precise consequences of this new procedure can only be judged when the system is functioning properly.

Regarding the general governance structure at country level, the main conclusion we can draw is that it depends strongly on the sector and occupation in question which kind of governance model is applied. While we can of course identify trends and characteristics of different countries, these do not apply to the situation in every sector which will be described in chapter 5.

4.3 Governance of labour market supply: qualifications frameworks, VET structures and feedback loop

The regulation of labour market entry by means of qualifications requirements finds its counterpart in the framework governing the content, form and structure of the qualifications themselves. This structure is mostly closely connected to the structure of the educational and VET system. Its set-up and management is of crucial importance for the degree to which qualifications are seen as trusted, useful entities which can thereby fulfil a role on the labour market.

4.3.1 Division of responsibility between public and private actors

In most countries, qualifications are set in the framework of a general **qualifications structure**. In some countries this is called a catalogue (Spain), in others a structure (Netherlands), in still others a register (France) or simply a framework (UK). Whereas some countries have had system for categorising qualifications for a relatively long time, as is the case for example in the Netherlands, in other countries such a system is still being given form (for example Lithuania and Slovenia, in the context of the creation of NQFs referenced to the EQF). The development of national qualifications frameworks aligned to the European Qualifications Framework can hereby be a catalyst for the development or fine-tuning of such a structure.

France: the purpose of the national register of vocational certifications Répertoire national des certifications professionnelles (RNCP – national register of professional certifications) is to provide people and companies with up-to-date information about diplomas and qualification documents for professional purposes, together with the qualification certificates shown in the lists drawn up by the national joint employment committees in the various professional branches. It helps to facilitate job access, management of human resources and professional mobility. The certifications listed in the register are recognized throughout France. The entries in the national register concern only the certification as such

Lithuania: In recent years, Lithuania has developed the National Qualifications Framework adopted in 2011. It covers qualifications in primary general education, VET and higher education and uses learning outcomes for describing qualifications. Yet, the university sector is reported to be at a very early stage of using learning outcomes to describe qualifications. This is confirmed by respondents who note that the language of ‘learning outcomes’ has been establishing itself only slowly in Lithuanian higher education institutions. This is different with respect to VET institutions which traditionally have been more oriented towards learning outcomes and competences.

There are different actors involved in the management of the qualifications system, both public and private and national as well as regional, depending on the country and the VET system in question. A good example of a structure which is governed by **national actors** in both the public and private domain is the qualification structure of the Netherlands. In this structure, the national Ministry of Education, Culture and Science has commissioned the public foundation for the Cooperation of VET and the Labour Market (SBB) to set up and manage the qualification structure of the VET sector across all fields of the economy. There is a national standard model according to which qualifications and portfolios have to be written. The specific design of qualifications and underlying standards is carried out by sectoral institutions, the so-called Centres of Expertise. These centres also act at a national level, but based on sectoral expertise. The regional level only comes in where at the last step when VET schools decide on the curriculum design and on the selection of courses which can be provided in a particular region.

Another example is the case of Sweden where the development of relations between education institutes and labour market is emphasised on national level¹, with a particular reference in the *Högskolelag* (Higher Education Act) and the *Lag om yrkeshögskolan* (Law on higher vocational education) requiring education institutes to develop relations with the wider community.² As such, the State, the education institutes and the social partners exchange information and work closely together in order to manage supply and demand for particular professions.

In Spain, the qualification structure is based much more on a **regional distribution** of authority. The Autonomous Communities of Spain, the federal sub-states of the countries, have important powers also regarding the design and allocation of qualifications. As a consequence, there is no single unified national governance system for VET qualifications. At the same time, a national catalogue of qualifications (CNCP) exists which was created by the National Institute of Qualifications. In Germany, too, regional divisions of authority between different sub-states plays a role which can lead to a less homogenous system when compared to countries such as the Netherlands. Thus, education in general actually falls under the authority of the German *Länder*, with diversity in the content and extent of regulation as a result. The same is true for Belgium, where education and training is regulated and financed by the respective communities (Flemish, French or German speaking).

Germany: For many professions, such as e.g. architects, membership in a “Kammer” i.e. a chamber of architects is obligatory. However, these chambers are again frequently regulated at Länder level and hence largely differ with regard to their organizational structure.

Even more interesting is maybe the division between **public and private actors** in the management of a qualifications structure. In the Netherlands and the United Kingdom, private actors, in this case sectoral organisations, play an essential role in setting up and managing qualifications. The government plays in the Dutch case certainly a role in setting the framework and also controlling the work of the private actors; in the UK the responsibility of the so-called Sector Skills Councils is even greater, though the government also remains involved in approving qualifications. Whereas these systems can be seen as based on delegation, in France the structure is managed on the basis of cooperation between public and private actors. Thus, the National Register of Vocational Certifications (RNCP) is composed by public representatives of national ministries and regional authorities together with private partners from industry associations and occupational groups. Finally, in Germany, the professional groups play an important role in managing the public education and the qualification structure. Depending on the sector, the chambers of the handicrafts, the chambers of industry and commerce or the chamber of agriculture bear responsibility for the implementation of the regulatory framework.

¹ See the report of the working group from the Ministry of Education and Research: *Samverkan mellan skola och arbetsliv. Om möjligheterna med lärande i arbete* Ds 2000:62.

² See Article 2 *Högskolelag* SFS 1992:1434 and Article 6 *Lag om yrkeshögskolan* SFS 2009:128.

UK: vocational qualifications can be offered and developed by various organisations and awarding bodies. These training for these qualifications will receive public funding when these qualifications are designed by Awarding Bodies on the basis of NOS developed by the SSCs. The quality of education pathways is supervised by the quality assurance body Ofqual. There is no direct regulation from government on occupations via qualifications. This task is devolved to the sector skills councils.

Netherlands: One of the issues connected to the corporate tradition is the danger of sectoral segmentation of the labour market. As sectoral social partner organisations (industry federations and trade unions) are formally and informally responsible for the management of 'their' labour markets, including rules about access to occupations and supply of training places, it can be difficult to facilitate cross-sectoral mobility of qualified personnel. The occupational structures in the different sectors have grown over time and are not always compatible or even comparable with one another. There exists a tension between the growing need for flexible employees and the expectation of specific qualifications in the different sectors.

However, there are countries where private actors only have an **advisory role**, such as in the ministerial working groups in Spain, or in Slovenia where stakeholders from the private sector are consulted throughout the educational development process, but most initiatives and measures are taken by the central government. This has to do on the one hand with the institutional framework which has to allow social partners the space to exert influence, but also with the strength of social partners themselves, which might not be sufficient to make use of the available space.

Spain: The law recognizes the representative role of professional associations before the public administration and universities/educational centers. Professional associations do in fact participate in the setting of the curriculum corresponding to the courses related to the professions that they represent.

Lithuania: the role of social partners in Lithuania is rather modest: there is no tradition of strong involvement of trade unions, professional associations and employers' organizations. This has not least to do with Lithuania's historical legacy and strong labour market institutions are yet to emerge. With respect to access to specific professions, provisions formulated at the national level are, normally, the most important. The tradition of social dialogue and stakeholder involvement is slowly emerging, although its intensity clearly varies across sectors and stakeholders.

Greece: the setting of qualifications, entry requirements and practice requirements follows a top-down approach. Although the government maintains an open channel of dialogue with the federations of employers and employees in any given sector and occupation, the role of the latter two is however purely advisory in nature and is not binding.

In many countries, the unified qualifications structure is set up with a number of **objectives**, but first and foremost for making education and training and the results

thereof more clear and transparent for the stakeholders involved, from students to teachers to employers. It has both a structuring function as well as an informative role, signalling the position of a specific qualification within the entire structure. As has already been mentioned, in some cases the existence of the EQF is of essential importance. This is especially the case in countries where a new system is being set up, as for example in Greece. As the entire VET system has been undergoing essential reforms since 2003 and is as a result open to change. Unsurprisingly, a model such as the EQF can be taken as a standard against which the structure of the national system can be judged. Though in essence most of the qualifications structures are ‘maps’ of the educational landscape, the labour market function is increasingly emphasised.

4.3.2 The dimension of work and education

The distinction between a focus on the educational system or a focus on the occupational sphere is one of the key dimensions determining the role and relevance of qualifications on the labour market. One of the assumptions triggering this study is the idea that the labour market dimension of qualifications is becoming more important. There are two aspects to this dimension which we will explore in turn: firstly, it is important to see whether labour market actors are involved in the creation of qualifications. Secondly we need to examine whether instruments are used to increase the labour market relevance of qualifications. Together, these aspects give substance to the feedback loop between labour market and education.

With regard to the first aspect, the involvement of **labour market actors** in the management of the qualifications system, some forms of this involvement have already been mentioned in the context of the cooperation between public and private actors. Firstly however, it is interesting to note that in most countries it is the Ministry of Education (or varieties thereof) that is primarily responsible for the governance of qualifications. Only in the UK, the Department for Business, Innovation and Skills (BIS) is active in this field, as the Department for Education is only responsible for primary and secondary education. At government level, it is therefore unusual to treat qualifications from a business or even labour market perspective.

Regarding the involvement of private representatives from the field of labour market and work, the situation is different. Here, most countries have organised some kind of **involvement** of labour market actors, though there are still differences. Starting with the UK, it will not surprise that the Sector Skills Councils are not only labour market led, but even employer-led. More common is a social partner approach which also includes employees. Thus, in Belgium-Flanders, the Flanders Social and Economic Council (SERV) develops the profiles of occupations which serve as a basis for the qualifications. A similar situation exists in France, where representatives of social partners work together with national partners in managing the RNCP. The finest balance of representation is maybe struck in the Netherlands. There the central sectoral committees who decide on the content of qualification portfolios are made up of four educational representatives and the same number of labour market actors, of which

two represent the side of employers and two the side of employees. Thus, the influence is divided across two lines, that of education and work and that of employer and employee.

UK: In the last decade there is clearly a trend noticeable towards a more demand-led approach. Within in current Government policy for promoting economic growth (Plan for Growth and subsequent reviews), the Government has encouraged, and invested in, different partnerships of stakeholder representatives. The creation of SSCs and their umbrella organisation, UKCES is seen as the formation of a strategic partnership of major stakeholders to strengthen the employers' voice and ensure vocational qualifications are fit for purpose. The UK Commission for Employment and Skills is a non-Departmental Public Body providing strategic leadership on skills and employment issues in the four nations of the UK. Sector Skills Councils (SSCs) are independent, employer-led, UK-wide organisations.

Other systems provide **fewer opportunities** of labour market input. As said before, structures of social dialogue are still only emerging in Lithuania. This also applies to the governance of the qualification structure. Whereas the responsibility for the development of the structure has been transferred to the sectoral committees coordinated by the Qualifications and VET Development Centre which includes representatives from labour market actors, this has only been recently extended to higher education as well. Since in most sectors in Lithuania, higher education is more important than VET, the labour market input of social partners therefore still needs to be developed within this system. In Greece, efforts are being made to increase the labour market relevance of VET education, analyse the demands of the labour market and respond to them. However, the governance of the system is in the hands of public actors, divided along regional lines. And finally in Spain, social partners participate in ministerial working groups but the main responsibility for the qualification structure lies with the National Institute of Qualifications. We can therefore conclude that the involvement of labour market actors displays varying degrees, depending on the strength of social partners and the location of qualifications in the dimension of work and education.

Lithuania: generally, the Lithuanian education system has clearly been supply-led, characterized by very high popularity of higher education, high educational attainment levels and low inflows in VET institutions. In the public debate, therefore, the issue of 'over-education' is generally stressed, which, however, does not equally apply to all professions considered in this report.

Aside from the involvement of labour market actors, the presence of **demand-led instruments** is however possibly even more relevant to the question of whether a qualifications structure responds to labour market needs. In fact, in a country like Spain where social partners have a comparatively limited role, the catalogue of qualifications CNCP is certainly aligned with labour market needs as its first objective is "to adapt the vocational education and training to the requirements of the productive sys-

tem”.¹ The CNCP is based on 26 professional families and on learning-outcome oriented units of competence. These units of competence are in turn connected to educational actions and criteria for assessment. We can thus clearly see the direction of the qualification set-up which moves from the occupational practice to the classroom.

Spain: The Spanish Parliament established the basis of the system of national qualifications and of VET through the Organic Law 5/2002, which constitutes the main referent in the field. There are several reasons that justify the organization of a national qualifications framework. Notably the system aims at accommodating the training to the needs of the market, the adjustment between offer and demand of labor force, the improvement of the quality of the VET system and the increase in the demand of VET educational programs.

Lithuania: all in all, several mechanisms have emerged to attune education and work. In particular the currently operating ‘sectoral expert groups’ as tripartite structures coordinated by the Qualifications and VET Centre are worth mentioning in this regard. At the same time, it remains to be seen what the effects of recent reforms implemented or under way (e.g. apprenticeship) will be. There also seems to be scope for a more active involvement of employers.

Similar systems exist in Belgium, the Netherlands, Sweden and the UK. In Belgium, the most basic building block of the system are the Occupational Profiles, in the Netherlands they are defined as the Professional Competence Profiles, in the UK qualifications are based on National Occupational Standards. All of these documents describe in one way or another, the skills or competences needed to carry out the occupation, either as a starting practitioner or as an experienced employee, though the precise categories differ. In Sweden, for example, the categories used are knowledge and understanding, competence and skills, and finally judgment and approach. On the basis of these profiles, the desired learning outcomes can be defined and fed through to the educational side of the system. Moreover, the structure of occupational building blocks increases the transparency of the qualifications systems, as it enables people to compare the basis of their qualifications with regard to the activities that need to be carried out.

UK: Vocational qualifications are developed through awarding bodies which are entirely independent of Government but subject to regulation by the Government to assure quality². These vocational qualifications (National Vocational Qualifications: NVQ) are based on National Occupational Standards (NOS) for training. These NOS are developed by the Sector Skills Councils through a process of functional analysis. Standards are specified in the form of units, aggregated to meet qualification needs of specific occupations, which are identified by a parallel process of occupational mapping. Sector Skills Councils are required to take into account future labour market requirements.

¹ See http://www.educacion.gob.es/educa/incual/ice_catalogoWeb_ing.html

² Ofqual - <http://www.ofqual.gov.uk/>

The Netherlands: It is difficult to pass a clear judgment on whether we are talking about a demand-led system focused on the labour market or a supply-driven system focused on educational supply. As is often the case with this sort of corporatist system, we can speak of a compromise between the two domains. On the one hand, the qualification framework is essentially a tool for the educational community. On the other hand, the influence of labour market actors on the qualification framework is strong, as qualification dossiers are responding to labour market developments

Sweden: At political level, the learning outcomes approach is closely linked to the 'objective-based' governance in use since the early 1990s. While the term learning outcomes is not commonly used, the principles behind are well known and generally in place.

In some countries, targeted efforts are being employed to make education more labour market relevant. In addition to a labour market focused qualification system, in Sweden a new national agency for higher vocational education has been set up with the responsibility of administering a new strand of Swedish education and training, the so-called *Yrkeshöskolan*. This new strand is supposed offer an alternative to the traditional higher education sector by providing more labour-market focused education, with a combination of theoretical and practically oriented learning.

Whereas these kinds of instruments seem to be rather widely used, in some countries they have not been adopted. In Greece, for example, several efforts are that are being made to attune the qualifications structure to labour market demands, but the formal feedback loop has not been given shaped so far. In other countries, such as Germany, VET education is strongly embedded in the labour market by itself, as practical experience plays a central role in the dual system of training provision.

Germany: Vocational education in Germany is based on the so-called dual system. It is called dual because the training takes place at two locations – the students receive practical training in the chosen profession as trainees in companies where they learn the practical fundamentals while following specific and some general courses at school. In the dual system the trainees have a double role: they are both students and employees.

Greece: The governance system of qualifications in Greece is to date largely supply-driven. Attempts are being made however to link the system with the needs of the labor market. Important in this regard was the enactment of the National System Connecting Vocational Education and Training with Employment, which has currently been absorbed by the National Network of Life Long Learning. As the National Network of Life Long Learning has been put in place only recently, in 2010, it remains to be seen how it will take into consideration the demands of the labor market in practical terms.

In this context, the **research and information practices** that are in place at national level are of course significant. Both social partners and governments are often active

in exploring the demands of businesses and surpluses in supply. The Sector Skills Councils in the UK and the centres of expertise in the Netherlands for example conduct in-depth research into the needs of employers, both qualitatively and quantitatively. This information should then be used in decisions made about the educational provision within specific regions and sectors.

What is crucial however is how the **final step in the feedback loop**, the step from a qualification system to the curricula of VET schools and actual teaching is organised. In general, schools are required to follow the demands laid down in the qualifications systems and are thus bound to the occupational profiles. In some countries, schools work together with individual employers to set up their courses and curricula (Lithuania). Dutch VET schools are an interesting case in this regard, as they enjoy formal autonomy but are increasingly asked to justify their educational provision with recourse to labour market data. Regarding the content of their curricula however, they can develop their own approaches. In the UK, the role of private training providers together with independent awarding and examination bodies provides for an interesting structure. These aspects will have to be examined in more detail at a sectoral level.

Belgium: As for the Flemish speaking community, agreements ('covenants') between industry and education in the Flemish community are and were aiming to improve the quality in VET. They have been tools to enhance co-operation between these two partners: VET schools and industry. The focus has been on implementing new fields of study (making schools more responsive to the skill needs of industry), organize workplace training for VET students, and give financial support to schools so that they can update their infrastructure.

Sweden: As regards further (vocational) education there exists an obligation on all levels for educational institutes to develop relations with the wider community. In practice the extent of such relations vary widely: the upper secondary education schools work closely with local and regional employers, and *Skolverket* actively consults the national programme councils as regards curriculum content for the vocational programmes. Such cooperation also takes place, although less extensively, between the advanced/higher vocational institutes and the social partners/the labour market (as evidenced eg. in the profession of welder or ski instructor). In contrast, the higher education institutes (universities, *högskolor*) are less labour market oriented in nature and organise their curricula based on their own views, together with the supervision of *Högskoleverket* and within the framework set out by law (*Högskoleförordningen* – however the recent initiative in recasting the curriculum of medical studies may be a precursor for change in this regard with its emphasis on extensively involving stakeholders in its work). Overall, therefore, it is hard to qualify, in a general sense, the governance structure in the educational context in terms of 'demand-led' or 'supply-driven': rather it probably falls somewhere in between the two and varies depending on the sector and the educational level examined.

4.3.3 Developments in qualifications governance

So what does this tell us about the different approaches towards the governance of qualifications? At a general level, we can confirm that the set-up and management of qualification structures in several countries displays a clear move towards more use of **labour-market based instruments** and higher involvement of **private actors** such as employer organisations and trade unions. In some places such as Lithuania and Greece, this transition is currently taking place. Other countries such as the UK are used to a business centred approach, both in terms of instruments and actors involved. Mostly, a balance is being found between the areas of education and work. In some countries, the regional aspect plays an important role also in the general governance structure.

Greece: there is still a preference in Greece for public institutions providing education and training which is free of charge. As concerns accreditation of qualifications in non-formal and informal education, the system in place is again government centered and has not been awarded to external bodies. It is however not yet fully functional.

Netherlands: Regarding future developments, it does not look like the importance of qualifications is decreasing. As a result of demographic change, it is however expected that there will be shortages of qualified workers in several sectors whereas other sectors will have to shrink. This means that the qualification and re-qualification of workers will remain a very important issue. We can see that efforts are being made to align the provision of VET education more with these demands of the labour market, for example by testing the effectiveness of training courses.

Nearly all countries in our sample display some kind of **feedback loop** at governance level, with a general move towards an emphasis on labour market relevance of qualifications. Qualifications are – at this level – commonly perceived as an instrument for signalling or translating occupational aspects (skills, competences) to educational actors. In turn, at a micro level, they are supposed to also be relevant in signalling educational outcome to labour market actors. By looking closer at the situation in each of the five selected sectors, we will be able to say more about the practical use of qualifications in determining the entry and practice within occupations and professions.

5 Sectoral analysis

In this section we discuss the situation in the five different sectors that were examined in the country research. Per sector, the commonalities and differences between the countries are described regarding regulation of labour market entry, the governance of qualifications, the definitions of occupations and the relevance of qualifications at micro level. By comparing the situations in the different countries with one another, the key factors determining the role of qualifications can be identified and developments and changes can be explained. The table below shows which sectors have been examined in which countries and which occupations were selected as examples.

Sector	Occupations	Countries
Health and social work	General Practitioner Clinical Nurse Social Worker	Belgium-Flanders, Germany, France, Lithuania, the Netherlands, Sweden
Electricity, water, gas and waste	Plumber Heavy Press Worker Welder	Germany, Greece, Lithuania, the Netherlands, Spain, UK-England
Chemicals, rubber and plastic	Pharmaceutical and toiletry products machine operator Chemical engineering technician Welder	Belgium-Flanders, Greece, Slovenia, Spain, Sweden, UK-England
Transport and logistics	Heavy Truck driver Air traffic controller Ship's engineer	Belgium-Flanders, Greece, France, the Netherlands, Slovenia, UK-England
Sports	Ski instructor Fitness instructor Referee	Germany, France, Lithuania, Slovenia, Spain, Sweden

A word on the selection of the sectors and occupations is useful at this point. The selection of sectors was done by Cedefop on the basis of thematic preference. Regarding the selection of occupations within the sectors, there are several factors that have been taken into account in the selection of the occupations:

- A focus on VET: As described earlier, the focus of this study lies on VET. This consideration is translated into the selection, in the sense that most occupations selected are at middle-skilled level. Only a few are at higher education level.
- We have decided to select occupations requiring sector-specific skills and knowledge. In all sectors, there are also occupations that are more administrative or in another way supportive of nature. We have left these outside the scope of our selection because they would not actually give insight into the role of qualifica-

tions in a distinctive sector, as their practice is linked (or not) to qualifications that would apply to all sectors.

- However, we have also consciously decided to include the occupation of welder in two different sectors. Welding is a transversal activity that is carried out in a number of sectors. For example, welders can work in the building of gas networks (piping), and they might also work as plastic welders in the plastic industry. At the same time, the welding industry has set up an international set of qualifications which is implemented at country level. It is therefore interesting to see how this international structure relates to the different sectors and whether the sectoral aspect has an influence on this structure.
- The selection aims to reflect as best as possible the scope of the sector. Therefore, we have for example in the case of the health and social work sector, chosen both medical and social professions (the latter in the form of social workers).
- Lastly, the degree to which national legislation plays a role in the governance of occupations is purposefully different amongst the selected occupations. This affects the freedom of companies to decide upon their own practice concerning the position of qualifications. Although significant differences exist across the Member States, occupations that are likely to be nationally regulated are occupations which contain a hazardous element or which are health-related. The selected occupations doctors, machine operators and clinical nurses are examples of this category. Occupations that are included that are less likely to be nationally regulated are plumbers and fitness instructors.
- We have aimed to make the selection of occupations as specific as possible. Thus, we have decided not to use overall categories such as ‘engineers’ or ‘machine operator’ but to identify specific occupations such as forging press workers or pharmaceutical products machinery operator.

Nonetheless, our selection of occupations and professions does of course remain limited and cannot claim to represent the entire economy or even their own sectors. Exactly because of our focused selection of occupations, we are for example missing more highly qualified occupations, as well as generic qualifications occurring across sectors. Since we are adopting an inductive empirical approach, aiming to gain an in-depth understanding of the mechanisms and structures behind the topic of our research, we are however not aiming for a fully representative selection. This means that the conclusions we draw on the basis of the information collected can be seen as generally applicable, it is possible that we are missing specific structures or developments taking place in other occupations, sectors or countries.

We will come back to this issue when discussing the findings in the light of the issues addressed by this study (chapter 6). In the following, we present the empirical situation in every sector, paying attention to all the issues that are of relevance to the topic of the study.

5.1 Health and social work

The situation in the health and social work sector was examined in the countries Belgium-Flanders, Germany, France, Lithuania, the Netherlands and Sweden. The professions that were selected as cases were the general practitioner (GP), the clinical nurse and the social worker. In the following, we discuss the regulatory situation regarding these three professions within the six selected countries. Firstly however, we start by describing the general labour market context in the sector, as influenced by political, demographic, technological and economic developments.

5.1.1 Labour market context

In 2010, around 22 million people worked in the sector across the EU. The employment in the sector in the EU27 has been growing on average by 1,9% per year since 2000 until 2006. The growth in employment in Health and Social Work is in some countries not a recent trend. In the Netherlands, 3 times more employees were employed in Health and Social Work in 2006 than in 1970. One of the reasons for the growth of the sector is the growing life expectancy of EU citizens and therefore an increasing demand for care. The growth in life expectancy is combined with a decrease in the number of children born. In the long run this trend may put pressure on the financing of the sector as the dependency ratio is expected to increase in all EU countries. It seems that the financial challenge will be the highest in countries which already nowadays have Health and Social Work sectors with high levels of employment and contribution to GDP. Furthermore, all countries may face shortages in employment and skills.

The health care sector is strongly influenced by new technologies and innovative research. New technologies may have an impact on the life expectancy of patients, on ways of administering pain relief, the duration of care, choices between home and external care and on the prevention of diseases. Technological developments are therefore of large influence on the sector, although more on the health care than the social work. Trends in technological developments are:

- More and better operation technologies, screening possibilities and pharmaceuticals resulting in growing demand for advanced services. Some of these technologies increase the demand for the health care services while others are substitutes for labour (due to short and/or more effective care).
- ICT may ease the gathering of information about health and enable remote managing, investigating and monitoring of patients. ICT influences the transaction costs, resulting in faster and maybe less expensive health care.
- Genomics (monitoring and altering of human genes) may considerably increase the effectiveness of treatment or preventing of illnesses in the long run.
- Biotechnology and nanomedicine may become a substitute for surgeries.
- Next to the traditional focus on care, prevention is getting more attention in some countries. Experience shows that prevention may increase demand for the health care as a result of better awareness of health problems.

Many of the new technologies lead to an increase in medical costs. At the same time, a lot of treatments are becoming more standardised, turning into routine activities which do not have to be carried out by specialist doctors. This point will be elaborated further on in this report. Furthermore, the use of new technologies may result in differentiation (one task is divided in more tasks due to for example an invention of a new cure), delegation (a task is performed by another occupation due to for example change in regulations), transformation (the nature of the task changes over time) or addition of (new) tasks.¹

Health care and social services are currently organized on a national scale. As the quality of the care differs between countries, there is some international mobility both on the side of employees and patients. The mobility of medical personnel plays a larger role since the new member states joined EU. Medical personnel are often recruited also from third countries. This is a solution to the health professional skill shortages as recruiting abroad is quicker and cheaper than training. A study of the OECD shows that between 1985 and 2005 the number of doctors graduating on average declined in OECD countries. However, opposite trend can be seen in some countries. Migration of personnel may lead to shortages in the countries of origin. International mobility of professionals takes also place through networks that help to transfer expertise. Due to information technology the knowledge of the professionals becomes more mobile as they do not have to leave their home country to acquire and disperse new knowledge. Differences in national rules and regulations can however constitute a barrier to the mobility of personnel.

The mobility of the patients across borders may be the result of shortages (long waiting lists) in their home country or a better quality of care abroad. International mobility also plays role in treatment of rare diseases or in the application of new treatments. One per cent of total health care expenditure in the EU was spent on cross border care in 2006. Finally, also diagnostic services are becoming more international, especially in the more privatised markets. Due to the mobility of pensioners, some care providers start to provide services in the regions where pensioners are retiring. For example, Dutch providers have started offering services in Spain.

These developments may have a significant effect on the people working in sector. To keep up with the development in the sector in the context of ICT development, technical and e-skill needs for managerial tasks can be met by training and re-training on the job. For medical doctors, increasing training on the job may be needed. This is because they will encounter more ICT and new technologies while performing their jobs. Mastering the knowledge of these technologies may be essential. Also for health associate professionals it is essential to keep up with the rapidly growing technological innovations. It is possible that higher educated health associate professionals will be upgraded to specialists while their less educated colleagues will be downgraded to automated routine work. Again, training on the job and adaptation of educational curricula is required.

¹ European Commission 2009: Investing in the Future of Jobs and Skills. Scenarios, implications and options in anticipation of future skills and knowledge needs: Sector Report Health and Social Services.

In the case of nursing and midwifery, skills changes and a boost in demand is expected. Up-skilling seems necessary due to technological developments, as nurses are also likely to perform routine health treatments in the future. Training on the job and adaptation of educational curricula become essential to adapt to these changes. Furthermore, to meet growing demand, recruitment from abroad appears a possible option, bringing with it challenges of regulatory openness. Finally, social workers need to keep up with technological innovation and e-health development by means of training and re-training. Social skills and networking may become more important as the approach by health care providers and social services becomes more integrated. Electronic skills and the use of ICT and internet may become crucial in order to communicate with patients.¹

5.1.2 European level regulatory context

As the sector is a highly regulated one, there is a lot of information already available at EU level.

Doctors of medicine

Since 1997, 28.912 decisions were taken on recognition of professional qualifications of doctors of medicine for the purpose of permanent establishment within the EU Member States, EEA countries and Switzerland. This makes this profession number 3 on the list of mobile professions. In 2009 2.844 doctors moved from one member state to another.²

Section 2 of Chapter III of Title III of Directive 2005/36/EC provides for the automatic recognition of qualifications of doctors of medicine. Article 24 deals with basic medical training while Article 25 contains the requirements that need to be fulfilled with regard to specialist medical training. As opposed to access to the profession of architect, access to the profession of doctor is conditional upon the possession of a given qualification ensuring that the person concerned has undergone training which meets certain minimum conditions. Furthermore, to allow for the characteristics of the qualification system of doctors and the related *acquis communautaire* in the area of mutual recognition, the principle of automatic recognition of medical and dental specialities common to at least two Member States applies to all specialities recognized on the date of adoption of the Directive.

Qualifications held by doctors with basic training and by specialized doctors which are listed in Annex V points 5.1.1 and 5.1.2 respectively and which satisfy the minimum training conditions referred to in Articles 24 and 25 respectively should be au-

¹ European Commission 2009: Investing in the Future of Jobs and Skills. Scenarios, implications and options in anticipation of future skills and knowledge needs: Sector Report Health and Social Services

² http://ec.europa.eu/internal_market/qualifications/regprof/index.cfm?fuseaction=profession.show&profId=12401

tomatically recognized by all Member States. This encompasses that one needs to hold a qualification that is listed in Annex V and one needs to fulfil the requirements laid down in Article 24 or 25.

In general, the training of doctors of medicine with basic training comprises a total of at least six years of study or 5 500 hours of theoretical and practical training provided by, or under the supervision of, a university. This training should give these doctors adequate knowledge of the sciences on which medicine is based and a good understanding of the scientific methods, sufficient understanding of the structure, functions and behaviour of healthy and sick persons, adequate knowledge of clinical disciplines and practices and suitable clinical experience in hospitals.

Specialised doctors on the other hand need to have completed six years of study as part of a training programme which was referred to above (basic medical training) which needs to be followed by specialised courses during a minimum period as laid down in Annex V, point 5.1.3 (see article 25 (2)). As held in recital 20 and Article 26 (2) new medical specialities common to at least two fifths of the Member States may be included in Annex V, point 5.1.3 which includes a list of specialized titles that are in use in the Member States.

Furthermore, it is also possible to be admitted to specific training in general medicine (general practitioners) after one has successfully completed the basic training referred to in Article 24 (Article 28). This specific training is more practical and shall be of a duration of at least three years on a full-time level for those who obtained their qualifications from 1 January 2006 onwards. As held by Article 29, each Member State shall make the pursuit of the activities of a general practitioner in the framework of its national social security system contingent upon possession of professional qualifications referred to in Annex V, point 5.1.4.

Next to these possibilities, doctors with basic training and specialized doctors who do not fulfil the requirements of effective and lawful professional practice referred to in Article 23 and 27 should apply for recognition under the general system in Chapter I of Title III of the Directive.

Nurses

Just like the profession of doctor, the profession of nurse is a very mobile profession. It is even in second place when it comes to the number of decisions taken regarding the recognition of professional qualifications for the purpose of permanent establishment within the EU Member States, EEA countries and Switzerland.¹ Since 1997, 29.266 decisions were taken. In 2010 4.676 nurses moved to another state to practise their profession there on a permanent basis which was the highest number of all regulated professions. Most nurses move to the United Kingdom. It follows that recognition decisions and problems regarding this profession are highly relevant to determine

¹ See http://ec.europa.eu/internal_market/qualifications/regprof/index.cfm?fuseaction=stats.ranking

whether the system works optimal. In this way it should be determined why there is such a high level of free movement and whether differences in salaries might constitute a reason to move to another state or sometimes rather a reason to stay.

In principle, nurses responsible for general care also fall within the scope of Chapter III of Title III of Directive 2002/36/EC which encompasses that their qualifications should be recognized automatically. The Directive also contains specific rules. Contrary to specialized doctors, the additional qualifications of specialized nurses (e.g. psychiatric nurses) do not fall under the automatic system and have to be evaluated under the general system contained in Chapter I of Title III. It has to be verified whether there is also a high amount of movement regarding specialized nurses and whether the movement of regular nurses and specialized nurses is interrelated.

Social workers

Social workers belong to the general recognition system of Directive 2005/36/EC. This encompasses that there is no automatic recognition. It follows that the qualifications obtained by social workers will be divided in levels as far as the length of their education and training is concerned to determine whether and under which conditions recognition is possible. Of course, adaptation measures can be demanded in case of substantial differences or if the training obtained in the home state is at least 1 year shorter than the training in the home state. This is also possible when the profession covers more regulated activities in the host state.

Since 1997, 4.734 decisions were taken on recognition of professional qualifications for the purpose of permanent establishment within the EU Member States, EEA countries and Switzerland (10th place). In 2010, 612 decisions were taken (6th place).¹ According to the numbers that are available, in 2010, most social workers moved to the United Kingdom.² In this regard it should be noted however that not all Member States have communicated the number of recognition decisions yet.

5.1.3 Regulatory snapshot: commonalities and differences between six countries

Leaving the EU level behind, the sector is traditionally strongly regulated by governments. The reasons for this are both connected to the financing of the sector as well as to patient protection, as governments aim to decrease the costs and increase the quality and accessibility of the services. The demographic and technological developments confront the sector with challenges which may have implications for the regulation of the sector as well.

¹http://ec.europa.eu/internal_market/qualifications/regprof/index.cfm?fuseaction=profession.crossBorder&profId=1580

²http://ec.europa.eu/internal_market/qualifications/regprof/index.cfm?fuseaction=profession.crossBorder&profId=4030.

In all the countries covered by the research, **general practitioners** are subject to licensing structures. In general, GPs need an authorisation to practice which is linked to a medical diploma and subsequent registration. The practice of the profession is therefore limited to those who can rightfully use the title after having attained the authorisation. The registration is either organised by a public agency or by a sectoral body. In France and Belgium, GPs have to register with the medical Order which acts under the auspices of the state, based on qualification requirements and, in the French case, proficiency in the French language. In Germany, qualified GPs have to register with the local insurance doctor's association in order to be able to practice. In Lithuania, the State Health Care Accreditation Agency issues the licenses, on the basis of an assessment of the professional qualification. In Sweden, too, it is a public agency, namely the National Board of Health and Welfare which issues the licenses for doctors. In the Netherlands, doctors first have to register with the public BIG register in which all medical professionals are registered and then, when they have gained their specialisation as a GP, they need to register in the HVRC register which is managed by the profession itself. While we can definitely talk of licensing systems (the practice without a qualification is not allowed), the administrative procedures can be based on joint public-private systems.

As a result of the licensing system, in several cases the activities, tasks and responsibilities of GPs are stipulated by law. In the Netherlands, the BIG law defines activities that can only be performed by medical specialists, including GPs. The same is true for France and Belgium. In Lithuania, the tasks, competences, skills required of GPs are defined in a minister's decree on the profession, to great detail. In fact, according to country level respondents, the number of tasks described in this regulation is rather increasing than decreasing in Lithuania. In the Netherlands on the other hand, some responsibilities have been opened up to specialised nurses, for example the issuing of prescriptions.

Similar systems apply to the profession of **nurses** in the countries examined. They, too, are subject to licensing, in the form of registration linked to detailed qualification requirements. In Lithuania, nurses have to apply for a license in the same way as doctors, Dutch nurses also register in the BIG register, Belgian and French nurses have their qualifications checked by the regional medical boards. Interestingly, in both Belgium and the Netherlands, different levels of initial nursing education exist, but both lead to the same level of license. Again, the tasks and competences are defined by national level legislation. In France, an additional entry barrier is the fact that entering the education to become a nurse requires the passing of the concours which is a very direct way of limiting the number of students entering the profession every year.

Besides the strict licensing structures, another aspect of the regulation of these professions are the strong provisions for **continuing professional development** that can be found in the countries examined. Both GPs and nurses typically need to keep their qualifications updated in order to retain the mandatory license or registration. Thus GPs need to re-register with the HVRC in the Netherlands, Lithuanian nurses and doctors are legally required to "upgrade" their qualification every five years by fol-

lowing specified courses and training. Where professionals do not follow these obligations, or are accused of other forms of non-compliance with the regulation, the medical orders and licensing organisations often have deontological powers to impose sanctions on professionals.

In the case of nurses, even more important than the general CPD are qualifications that can be attained for **further specialisation and career progression**. Nurses with a general degree and license to practice can follow specialised training while they are already employed and hereby gain more authorities, for example in the area of intensive care, pediatrics, psychological health care and other areas. In both Belgium and the Netherlands, these specialisations can take place in hospital and are then recorded in the registration system, thereby feeding into the professional license of the individual nurse. In France, the specialisation is again subject to a limited entry regulated by a concours. A special case is finally the so-called Advanced Nurse Practitioner (ANP) in the Netherlands. This specialist title can be gained by following a Master's course, is also registered in the BIG register and gives its holder more advanced authority than a general nurse, as nurse practitioners are supposed to fill the gap in between highly specialised doctors and the more generally competent nurses. Connected to the title and therefore to the qualification of ANP are activities such as the issuing of prescriptions and carrying out standardised medical procedures.

The regulation of **social workers** is less uniform, though this does not mean that there is no regulation in place. In Germany, this profession is regulated at sub-state level and great variations exist throughout the country in the intensity and strictness of regulation. At the same time, national regulation also exist for the profession defined as 'state recognized social worker' which makes the situation still more confusing. In the Netherlands, despite the inclusion of a qualification for social workers in the national qualification structure and sectoral initiatives to formalise the profession, there are no legal entry requirements. In Belgium, the title of social worker is protected by law and the general tasks and competences connected to this title are also defined, suggesting a system of licensing; however, it is not necessary to carry the title to be able to carry out the activities. In France and Lithuania on the other hand, entry and practice in the profession is strictly licensed, as French social workers may only practice their profession after having registered and proven their possession of a qualification and 130 days of supervised work experience.

In Lithuania, the profession used to be open to anyone who had completed higher education, but this entry point has recently (in 2011) been narrowed to only include those with a higher education diploma in social work. In addition to this qualification requirement, social workers can acquire a so-called attestation by the Agency for Administering Social Care Institutions in which they can gain a specific category of qualification, e.g. senior social worker. This is however additional to their qualification and not mandatory for entry to the practice, though it becomes mandatory once a social worker is active in the profession. It therefore falls somewhere in between licensing and accreditation. The tasks and competences of Lithuanian social workers are defined in a ministerial decree.

5.1.4 Educational framework

As we have just seen, the professions in the health sector are subject to relatively strict licensing requirements which are connected to the qualifications attained by the professionals. As a consequence, the educational framework underlying this licensing system is maybe even more important than in weakly regulated sectors. Interestingly, the steps to become a health care professional are rather similar in the countries under examination in this study.

In all the countries concerned, in order **to become a GP**, students first undergo general medical training which usually takes around six (the Netherlands, France, Belgium). In Lithuania, this was recently reduced to five years. After this general medical training, students can choose to specialize in general medicine to become a GP. They will then spend another set number of years, usually three, of specialized training. In all countries, most of this specialized training is actually spent in the work place, i.e. a hospital or GP practice. While training GPs therefore already carry out tasks reserved to their profession in their time of training, they can only officially register and call themselves GPs when they have finished their specialized training. In several countries, for example France and the Netherlands, the number of specialization training place is limited, though the specialization of GP is usually the one with the highest number of available places.

Regarding the **education of nurses**, the picture is more varied, though again most countries have a system of general nursing education, topped with a structure for specialisation in specific fields. The general training is provided by general education institutes, at university level in France and at polytechnic or VET level in Belgium, the Netherlands and Germany. Interestingly, in both the Netherlands and Belgium two levels of general nursing education exist which do not have practical relevance with regard to the tasks and responsibilities that nurses can have in a hospital. In both cases, the levels do however make a difference in determining which follow-up qualifications a nurse can acquire, as a polytechnic qualification is needed to gain access to the higher levels of specialisation, such as the nurse practitioner. In this sense, the distinction between the two levels of qualification is a purely education-based model as it does not have labour market relevance.

However, in the Netherlands, this is going to change within an adapted qualification structure, whereby nurses will always be required to have polytechnic level education and a lower qualification of “carer” will be introduced. This was deemed necessary since the situation in hospitals where both levels carried out the same kinds of tasks, was seen as undesired by the nurses themselves, as it did not reflect their qualification levels. Thus, the professional practice gave rise to a different categorisation in the educational domain.

In fact the **specialisation of nurses** gives the educational framework the necessary flexibility to adapt to the different developments in the profession. In some countries (Lithuania, Netherlands), nurses can follow specialist training courses at work in hospital. This can lead to qualifications which are recorded in the professional license of

the nurse (Lithuania), or, in the case of the Netherlands, to a qualification which is only recognised by the hospital itself, but might also be recognised by other hospitals. Alternatively, there are more formalised specialisation paths, for example in France and Belgium. In France, nurses again need to pass an entrance exam (concours) to follow the specialised courses. In Belgium, nurses can follow university-based Master's or bachelor-after-bachelor courses in their chosen specialisation. In Sweden, there is some discussion about the system of nurse specialization, since it is argued that nurses do not have enough incentives to specialize. Thus, a specialization is not always necessary to practice in a specialized ward. Furthermore, specialization does not always lead to an increase in the salary level of the nurse or to a broadening of the authority and tasks of the individual employee.

The most intricate system of specialisation seems to exist in the Netherlands. In contrast to the in-hospital training courses already mentioned, the qualification of advanced nurse practitioner and additional specialised nursing qualifications are part of the formal qualification structure. In principle, only nurses educated at polytechnic level may follow the polytechnic master course to become a nurse practitioner or other polytechnic nursing specialisations. If nurses educated at VET level can show that they have the relevant expertise and experience, they can get recognition for this. These courses, too, have a dual structure and thus combine the teaching at a polytechnic institution with the practical teaching in the work place by an experienced practitioner. In contrast to the in-hospital training courses, polytechnic specialization courses are registered in the BIG medical register.

In contrast to these two health care professions, the **educational framework for social workers** is rather simple, though the level of qualifications differs between countries and institutions. Reflecting the general bias towards higher educations, Lithuanian social workers need to attain a higher education degree in social work or a degree in social sciences with additional courses in social work. In Belgium, university colleges provide qualifications in the field of social assistance and Master's courses in social work are available. In the Netherlands, both polytechnic as well as VET level qualifications in the area of social work are available whereby the lower level qualifications are targeted at social workers moving into careers in municipal administration. In France, a variety of social work education centres provide education leading to a social work qualification, including universities and regional institutes of social work. These institutions also provide courses for continuous professional development in different fields, aimed at updating knowledge or acquiring new skills.

We can therefore conclude that the educational frameworks applicable to the selected professions in this sector display more commonalities between the different countries than differences. The educational structure for both the GPs and for nurses is characterised by a strong foundation of basic training, underlying more intricate pathways of specialisation, especially in the case of nurses. The more specialised the professions get, the more work-related the training gets. The education of social workers is less complicated in this regard, as it is limited to basic training, at university or polytechnic level in most countries, which can however be “topped up” by continuing professional development. Through the link with the licensing systems described in the pre-

vious section, the qualifications linked to the different educational programmes in the sector in theory play an important role in defining the practice in the professions.

5.1.5 Governance systems in the sector: the role of sectoral organisations

The health care sector is the only sector in this study in which we speak of professions instead of occupations. This is the case since the discipline of medicine has traditionally been seen as one of the “learned professions”, implying a strong sense of professional identity. In fact, the term “the profession” is sometimes also used to describe the group of professionals in for example the medical area as a whole. One would therefore expect that the sector is characterized by a high degree of sectoral organization. At the same time, we have seen that the government is also comparatively active in the sector by regulating entry and specialization in the professions. It is therefore interesting to see which role the sectoral organizations have acquired influencing the professions next to government regulation.

Reflecting the strong tradition of the medical professions, the respective **Orders of medical practitioners** play, as has already been described, an important role in implementing the licensing systems in place in different countries. In both France and Belgium, the Orders are authorized to carry out the registration of professionals, thereby administering the entry into the profession. They also have deontological powers in upholding the quality of practitioners, as they can impose sanctions in cases where practitioners do not adhere to their codes of conduct, including the demands relating to continuing professional development. Sanctions can include reprimands, suspension to practice or even deletion from the list of professionals, implying a professional ban. In the Netherlands, the College of General Practice, Nursing Home Medicine and medical care for the mentally disabled (CHVG) is authorized to maintain HRVC register for GPs, which is a consequence of article 14 of the BIG law determining that specialist organizations may be the ones managing the specialist register. In Germany, the insurance doctors’ association (*Kassenärztliche Vereinigung*) organises the cooperation between doctors and health insurance companies and therefore also sees to the qualification of its members, i.e. all GPs working with health insurances. It is only in Lithuania that sectoral organizations do not play a role at all in implementing the national provisions pertaining to entry requirements for GPs.

In addition to the administrative role, professional organizations of GPs or medical practitioners also influence the education of professionals, both qualitatively and quantitatively. In Lithuania, professional organizations are involved in consultation processes targeting changes in the medical norms governing the competences of general practitioners. Also, the Lithuanian Medical Practitioner’s Association coordinates the applications for continuing professional training and courses, advising universities and practitioners on the topic. In the Netherlands, several sectoral organizations are included in organizing, financing and shaping the educational attainment of general practitioners. Thus all training GPs are formally employed by the sectoral organization SBOH which is in turn financed by the ministry of health. The training objectives

of general practitioners are defined by the Council for the GP training (CHO) which is actually organized by the Dutch GP society. Finally, the so-called capacity body, made up of professional representatives, health care insurances and educational institutes publishes estimations of the necessary supply of professionals, based on a projection of the demand in care and the supply in professionals. We can therefore speak of a clear case of public-private cooperation in the governance of the Dutch GP labour market.

The administrative role played by the Orders of medical practitioners and other professional organizations is shaped different in the area of nursing. In the Netherlands, the Registration Commission for nursing specialists (RSV) is indeed authorized to maintain the registration of advanced nurse practitioners, but not of general nurses which are registered by the ministry itself. In other countries, professional nursing organizations do not play a direct role in managing the entry into the profession. The Order of nursing in France could theoretically play such a role, but has been in serious financial difficulties since the trade union of nurses decided to boycott the membership of the Order. It does have administrative powers, but it can be questioned to which degree it is able to execute these powers. The German care council does not play a managing role, but lobbies for the interests of nurses and carers.

Leaving the direct role of implementing the regulatory framework aside, professional organisations of nurses do play an active role in the shaping of the national regulation and in influencing educational provisions in the sector. The Dutch federation of nurses (V&VN) has for example recently updated the professional profile of nurses on which the qualification structure is based after the current distinction between different educational levels of general nurses led to confusion. The Belgian Federal Council of Nursing Practitioners also has a formal role in advising the minister in all nursing matters, specifically regarding the practice of the profession and the required professional qualifications.

Furthermore, the Dutch V&VN is setting up a sector-specific quality register for nurses and carers which will allow nurses to register not only their qualification status but also the amount and kind of continuing professional training they have completed and other relevant experience which cannot be registered in the official BIG register. At the moment, this quality register operates on a voluntary basis and could therefore be seen as a kind of **accreditation system**. However, the question has been raised whether this system should be given legal status, though stakeholders agree that a voluntary system that has sufficient scope can develop a level of effectiveness that equals that of regulatory measures. No similar initiatives were found in other countries.

It is no surprise that the situation is different in the case of social work. Without the formal structures in the other professions, the **social work sector** is more reliant on professional organizations defining their own role. In some countries, for example Lithuania and Belgium, professional organizations have an advisory function towards the ministry on matters related to the profession. In the Netherlands, this function is more formalized, as the association of social workers (NVMW) is represented in the

organization structure governing the qualification structure. Thus, the association participated in the discussions defining the content of qualification profiles in the sector, overseen by the centre of expertise in the health sector Calibris. In addition, the association has set up a professional code of conduct which registered members are obliged to follow.

5.1.6 The role of qualifications in practice: what happens at micro level?

The relatively strict regulation that exists in the sector of health and social work limits the way in which people can enter a profession and determines the way in which they can practice the profession to a certain extent. Judging from the information collected at country level, this situation is embraced by both professionals in the sector and employers, in all the countries examined. According to respondents this has to do with the fact that it is seen as highly important that competent staff is employed in hospitals and medical centres, due to the obvious risks associated with the tasks fulfilled by professionals in the sector. The situation is different with social workers, as the requirements are less strict in some countries. Nonetheless, it seems that qualifications play an important role in signalling the competence and skills of social workers as well.

In several countries, for example in the Netherlands and Belgium, a health inspectorate monitors the quality of health care provided by hospitals. In this context, the appropriate qualification levels of both GPs and nurses may also be checked, certainly where shortcomings in the quality of care are observed. However, this is not seen as a priority since it is generally seen as rather improbable that professionals, at least in the case of doctors, practice without a license. In Lithuania, this is pointed out in relation to the fact that unlicensed doctors would actually not even be able to carry out some of the basic tasks, such as issuing prescriptions, without a license. It appears that the strict entry requirements and stipulations regarding further training actually add to the trust that is given to qualifications as a trusted signal of competence and skills. This can for example be seen in France where the strict selection procedures underlying the education system lead to a situation in which a lot of value is attributed to the qualifications.

The actual situation on the work place also reinforces the use of qualifications to determine competence and skills. Even though doctors and nurses work in a multidisciplinary environment, the daily work processes necessitate a clear distinction between the different tasks these professionals have, in the sense that their work is characterised by a strong division of labour. This division of labour necessitates a high trust in colleague's competences, for example between nurses and doctors, and the qualifications provide a firm basis on which this trust can grow. At the same time, the equal treatment of different levels of nursing qualifications in Belgium and the Netherlands, whereby the level of the qualifications does not influence the tasks and authority of nurses at the work place, shows that the qualification only provides the basis of this trust. Aspects such as the attitude, learning skills and adaptability are in practice of more importance than the level of qualifications. Also, the fact that there

was initially substantial resistance of doctors against the reallocation of tasks and competences to the advanced nurse practitioners in the Netherlands reveals that the division of tasks can sometimes be based more on the hierarchical tradition of professionals than on the actual task division necessary.

As the qualification requirements for social workers are more lenient, it is possible that in some countries there are professionals active who do not have the suitable diploma. However, there is not clear information that allows us to judge how often this is the case and whether it has a strong impact on the quality of services provided. Because the sector of social work is projected to shrink rather than grow, employers can however be strict in their selection of personnel, and see the required qualification as the basic condition for new employees. The accreditation system that is in place in Lithuania can help social workers distinguish themselves. However, it might also lead to higher salary levels which may not be acceptable to employers. The new legal requirements for social workers in Lithuania are too recent to show effects, though it will be interesting what will happen to already practicing social workers who do not fulfill these new requirements.

While it is confirmed that technological and scientific developments play an important role at micro level, i.e. in hospitals and medical practices, respondents in all countries question whether these changes are of a qualitatively different nature than before. The medical professions have always been subject to changes and have become used to adapting to these changes. As a consequence of this adaptability, continuing professional development plays such an important role in the sector and contributes to the updating of knowledge and practices. In addition, the education and training underlying the qualifications in the sector include a strong practical element which increases professionals' trust in the qualifications. In a sense, the importance to have access to updated knowledge and skills even increases the status of qualified personnel, as it is believed that they have been exposed to new developments during their training period (initial and continuing). As a result, we cannot confirm the hypothesis that qualifications are losing importance due to technological, economic or political developments.

Nonetheless, it can be confirmed that changes are taking place in the definition of the professions, which mainly applies to the task allocation between different kinds and levels of nurses and between nurses and doctors. The case of the advanced nurse practitioner introduced in the Netherlands is an example of how the qualification system can lead to a new division of tasks in the work place. Also in other countries, the need to open up some medical tasks to nurses, or relocate responsibilities from doctors to nurses has been noted.

5.1.7 Conclusions: key factors making the difference

In conclusion, the situation in the sector of health and social work in the countries examined can be characterised by the following aspects, which apply more or less to all of the countries:

- Strong regulation at macro (national and EU) level, determining qualification requirements for entry into the profession, categorised as licensing systems
- Comparatively strong systems of continuing professional development, enshrined in legal and professional obligations
- Considerations of patient safety and quality of services prevailing in all countries as a motivation for regulation
- Strong role for sectoral organisations in the management and administration of national licensing systems and CPD systems
- Strongest framework applying to doctors, regulation of social workers more lenient
- Some changes in qualifications and task reallocation, but no deregulation or decreasing importance of qualifications

While these aspects can be found in all the countries examined, there are some exceptions and other aspects where countries differ in their approach, such as the following:

- In some countries (Lithuania, the Netherlands), public registers exist for the registration of professionals whereas in others, membership of the Order of medical professionals is mandatory for professionals (France, Belgium).
- In Lithuania, the minister determines skills and competence needs, in other countries (Netherlands, Belgium, France), the professional organisations play a much larger role in this process.
- In determining the entry into education and specialisation programmes, France makes extensive use of entry exams (concours) that do not exist in other countries
- Regarding the regulation of the profession of social workers, differences exist: in the Netherlands, no formal entry requirements have been set up, in Belgium the professional title is protected, in France and Lithuania both the entry and the practice of the profession are strictly regulated.
- The specialisation of nurses is carried out by the employers (hospitals) themselves in Lithuania, whereas in other countries (France and Belgium), the specialisation is more formalised within the education system.
- In the Netherlands, the profession of Advanced Nurse Practitioner has taken up a role in the professional field between doctors and nurses, a change which might also be introduced in other countries.

These commonalities and differences describe a situation which is clearly influenced by a strong sectoral dimension. However, national differences also play a role in determining the details of the governance and regulatory arrangements on the ground. Regarding the **sectoral factors** influencing the situation in the sector, the high risk and the connected responsibility of professionals related to the work give rise to a strong need for good education and training and the necessary regulation. Excellent health care is seen as an important public good in all countries concerned and a strong professional infrastructure can support the creation of a working system. Furthermore, the medical profession is traditionally a well-established professional group (hence “the profession”), which explains the trust invested by public authorities into the sectoral management of the regulatory structures. This applies less to the profession of social worker which explains the smaller role professional bodies play in this area. The medical world is very closely connected to the world of science and research,

leading to new treatment methods and medical technologies. This factor can serve as an explanation for the high importance attributed to CPD.

Despite these sectoral characteristics which apply to all countries examined, the situation differs with respect to some details. This can be explained by the following **national factors**. Firstly, the role of professional organisation does differ after all, as the government in Lithuania does not give social partners as much responsibility as in other countries. This has to do with the lacking tradition of social partnership in Lithuania which will also be seen in other sectors. The very formal educational entry procedures in France reflect the country's educational tradition in which, especially at higher level, entry exams play a more important role than in other countries. With regard to the profession of social workers, the Netherlands display their common approach of non-regulation, yet strong demands at micro level, whereas the strong regulation in France also confirms the general national trend. However, the regulation in Lithuania goes against the general picture of the regulatory tradition in the country.

In conclusion, we can state that the differences between the countries are mainly to be found in the details of the governance systems and the regulatory frameworks, stemming from the national governing traditions and the roles the different actors are able to play. At the same time, the general governance systems of the sector and the requirements set regarding entry and practice in the professions examined display a lot of similarities, so that the general picture of the sector in the different countries that emerges is the same, namely a sector with high level regulation, strong professional groups and an important role for qualifications in governing access to and practice in the professions.

5.2 Electricity, water, gas and waste

The situation in the sector electricity, water, gas and waste (EWGW) was examined in the following six countries: Germany, Greece, Lithuania, the Netherlands, Spain and UK-England. The analysis focused on the occupations of plumber, forging press worker and welder. In the following we present an overview of the information that was collected at country level.

5.2.1 Labour market context

Firstly, it is important to look at the labour market context within which the sector is governed. As almost all production of the sector is local, relocation does not play a major role in the sector. Restructuring of the sector is therefore mostly the result of changes in regulation. However, we can still identify certain trends taking place in the sector.

Thus, both European-level and national regulation have led to large investments to decrease **environmental impact** of the sector. Emissions from landfills, incineration plants and electricity plants have decreased. Simple landfilling of waste is in a higher

rate substituted by incineration, recycling and prevention (campaigns amongst the public aiming to decrease the amount of waste produced or propagating the sorting of waste). At the same time, costs of proceeding waste have risen significantly as a consequence of stricter regulation and application of more costly (but more environmentally friendly) methods of waste disposal. In addition, the importance of regulation pertaining to **health and safety** is only increasing, especially in the context of welding, but also in the plumbing occupation. Thus, the continued compliance with regulatory norms and, where applicable, certification and continued training are increasing in importance, as has already been described in relation to the certification of welders.

In the electricity sector, investments were made to improve the efficiency of existing **technologies**. Besides, investments in new electricity technologies were made, so more technologies became available at lower costs, decreasing the price of 'alternative sources' of energy. For example, the price of one kWh of wind energy in Denmark decreased from 50 eurocent in 1991 to 5-8 eurocents in 2007. As a consequence, the share of energy produced from alternative resources has risen, with completely new demands placed on the skills of the labour force.¹

Furthermore, new materials play an important role in the occupations studied. This relates to new, lighter and more flexible materials that are replacing steel as a core material in construction which is of importance to both plumbers and welders. Furthermore, the structure of enterprises is changing as the proportion of small enterprises is increasing whereby staff is also exchanged between enterprises, demanding more flexibility of employees. Also, **ICT** has been increasingly used in the sector especially in the billing process for gas, electricity and water. It was shown in 2002 that the electricity, gas, water and waste sector had one the highest share of ICT workers from 38 sectors investigated.²

As a result of these developments, electricity has become highly **capital intensive** instead of labour intensive. Only mining and railroads are capital intensive in a way that can be compared to electric utilities. It has been shown in the past that increased capital intensity is connected to a demand for skilled workers.³ As a result, higher capital intensity of the sector has led to a higher demand for skilled labour.

Availability and price of **resources** (for example oil, coal) needed by the sectors may have implications for the development of the sector. In recent years the price of the resources has been increasing. As a consequence, high prices or low availability of a

¹ Agnolucci, P. (2007): "Wind electricity in Denmark: A survey of policies, their effectiveness and factors motivating their introduction", *Renewable and Sustainable Energy Reviews* 11, pages 951-963.

² Mason, G., K. Robinson, J. Forth and M. O'Mahony (2002): "Industry-level estimates of ICT and non-ICT employment, qualifications and wages in the UK and USA, 1979-2000", National Institute of Economic and Social Research.

³ Yasar, M. and Morrison P. (2008): "Capital-skill complementarity, productivity and wages: Evidence from plant-level data for a developing country", *Labour Economics* 15: pg. 1 – 17.

given resource can lead to changes in the production processes, technologies used and the structure of the sector. This further influences the demand for skilled labour.¹

5.2.2 Regulatory snapshot: commonalities and differences between six countries

The first thing that needs to be noted regarding regulation of the sector electricity, water, gas and waste is the fact that this **sectoral delineation** which is commonly used at a European policy level, cannot always be found at national level. If we are looking at the situation in England for example, this sector would comprise of different sectors, including firstly building services engineering, secondly the sector science, engineering and manufacturing technologies and finally the metals, mechanical and electrical sectors. In the Netherlands, the selected occupations can be found in the so-called technology sector, but also in the construction and infrastructure sectors and the metals sector. This simply means that the institutional framework that is governing the sector is not necessarily aligned according to the field of electricity, water, gas and waste.

Furthermore, the profession of **forging press worker** proved not to be easy to find at country level. In fact, in the Netherlands no direct equivalent was found. In Greece, the forging press worker falls under the same category as the welder. In Lithuania, the occupation exists, but information and practical experience turned out to be very scarce. While in England and Spain some information could be found in relation to this occupation and related activities, the occupation remains marginal. Where possible, we will provide information that is available on this occupation, but the evidence base is greater for the cases of plumber and welder.

Overall, the sector is characterised by a **low level of regulation**. Despite the sometimes dangerous nature of the work and the health and safety implications of for example construction activities, in most countries there are few legal requirements for people practicing one of the selected professions. In England, the Netherlands, Spain and Lithuania, there is thus no national legislation on mandatory qualification standards of plumbers, forging press workers, and welders. The exception to the rule is Greece where entry to all three occupations is regulated by law. Practitioners need to acquire a professional license (*άρδεια ασκήσεως επαγγέλματος*) through passing a practical and theoretical exam carried out by the prefecture and providing evidence of their qualification and professional experience in the job. Where necessary, the requirement for professional experience can be substituted by specific VET training courses. However, the legislation in this area is being adapted which may impact on the entry requirements as well. In Germany, too, some regulation applies, as the occupation of plumbing is licensed. Falling under the regulation applicable to craftsmanship (*Handwerksordnung*), practitioners need to follow 3,5 years of vocational training before being able to practice as a plumber.

¹ European Commission 2009: Investing in the Future of Jobs and Skills. Scenarios, implications and options in anticipation of future skills and knowledge needs: Sector Report Electricity, Gas, Water and Waste

In several countries, there are also pieces of regulation that have an **indirect influence** on the occupations. The first kind is regulation governing specific activities which is however not attached to a particular occupation. In Spain, for example, there are several activities, such as the installation of gas heaters, which may only be carried out by people who are in possession of an official authorisation. These are granted by public authorities upon compliance with certain conditions, whereby qualifications can also play a crucial role. In Lithuania, there is specific legislation for welding activities in the energy sector which are governed by qualification requirements. These however only apply to the energy sector, not to welding in other sectors. In addition, legislation can be found on the handling of specific materials which can influence the practice of these professions. An example is the handling of so-called F gases (fluorinated greenhouse gases) which are commonly used in refrigeration. EU regulation determines that a specialised diploma is required for mechanics working with F gases. The result of this regulation is for example that plumber in the Netherlands may not work with refrigeration technology, as this activity is reserved to refrigeration mechanics.

In addition to this kind of specific indirect regulation, general legislation on **occupational safety and health** (OSH) seems to be of importance in governing the access to the sector. Even though there may be a lack of direct qualification requirements, the European OSH framework makes employers responsible for the health and safety of their employees. In several countries, the right level of qualification is hereby a crucial indication of the ability of an employee to carry out the work according to common safety standards. In Lithuania, sanctions can apply under OSH legislation when a person without the necessary qualifications is employed in the sector. In addition, especially where construction services are concerned, the potential liability of employers in the case of unsafe construction work can also be interpreted as indirect pressure to employ qualified staff, as was found in the Netherlands. Similarly, in England, the Building regulations 2005 determines that the person carrying out building works is responsible for complying with the regulation. This however, does not refer to qualification, but simply to safe practice.

5.2.3 Educational framework

The **education side** of the three occupations is shaped according to the general framework in the country under discussion. In Spain, this means that the education is highly regulated. By royal decree, professional certificates in the field of **plumbing** have been defined which specify the requirements for educational entry and the different professional families that a plumber may fall under. These relate to ‘installation and maintenance’ on the one hand and to ‘building and civil works’ on the other hand. A similar distinction is found in England where the qualification structure is shaped by the sector skills councils. Here, too, however, distinction is made between domestic plumbers and industrial/commercial plumbers. Interestingly, this distinction is not made in other parts of the UK which has led to calls for harmonisation. This distinction is not found in other countries in our selection. It may however be the case

that in the other countries, plumbing only encompasses the domestic plumbing or installation part of the profession, whereas the more industrial aspect falls under a different construction qualification. This is for example the case in the Netherlands. There, the plumbing qualification is furthermore adjacent to that of handyman entrepreneurs, whereby the plumber displays more technical specialisation and the handyman more all-round competences.

The educational framework of **forging press workers** could only specifically be found in Spain. Here, since a royal decree of 2011, a specific qualification for this occupation has been created. Interestingly, this has not yet led to the actual existence of an official VET degrees, courses or certificates. This suggests that national legislation precedes the creation of educational provision. In other countries, qualifications exist for example for machine and equipment operators (Lithuania) or for metal workers (Netherlands), but they do not specifically refer to forging press workers.

The situation regarding the occupation of **welder** is rather special in comparison. Here, too, the responsible actors have issued qualifications within the national qualification structures. Thus, in the Netherlands two levels of welding qualifications are included in the VET structure and in Spain, two professional certificates have been established by royal decree. In Greece, three levels of welding qualifications are provided. However, at the same time, the international welding sector has been active in harmonising standards and qualifications for decades, under the auspices of the European Welding Foundation (EWF). Within this system, 15 different types of welding qualifications have been set up, in accordance with four different levels. The EWF works with national welding institutes to harmonise standards across the different countries. To assist this harmonisation, international quality standards such as ISO 13731 are used. The objective is to include these sectoral standards in national standards. In England for example, the standards are included in the National occupational standards. Sectoral activities can thus be fed back into the national system.

While the educational frameworks for the three occupations are similar, we can state that there are also important differences, especially with regard to the plumbing occupation. The question whether a plumber is involved mainly in work for domestic clients rather than industrial building work and whether it should be seen as a specialised or an all-round occupation, are approached differently in different countries. With regard to welders it is interesting to see that despite the existence of the international welding qualifications, most countries have created specific public qualifications in the field of welding, whereby not all of these refer to the industry standards. The relationship between public and private standards is something we will come back to in the analysis part of this study.

5.2.4 Governance systems in the sector: the role of sectoral organisations

Regarding the shaping of qualifications, sectoral organisations play their **usual roles** in the sector, displaying the differences between the countries. In England, the social

skills council, representing the voice of employers, determine the content of the occupational standards. Similarly, in the Netherlands, social partners, representing both employers and employees, are represented in the centre of expertise Kenteq in order to shape the professional competence profiles of plumbers, welders and related professions. In Germany, regional chambers of handicrafts have a direct stake in the implementation of regulation. In Spain, the sectoral actors have more of an advisory role towards government actors, whereby both the welding as well as the plumbing federations are very active in this regard, with a weaker role for the organisations representing forging workshops. In Greece, too, the professional organisations play an important role as stakeholders advising and lobbying government, especially in the plumbing sector. In Lithuania on the other hand, the influence of social partners is being institutionalised, but still weak.

We can thus identify **two different patterns**: on the one hand sectoral actors have an autonomous stake in the process of shaping qualifications and entry requirements such as in England, Germany and the Netherlands; on the other hand sectoral organisations provide advice towards the macro level where the decisions are taken, such as in Spain, Greece and to a lesser extent in Lithuania. Interestingly however, this does not mean that the sectoral actors in the latter group are weaker than in the former group of countries. In fact, in both Spain and Greece, social partners are proactively lobbying government in favour of their occupational group. In Spain, the social partners are thus calling for a stricter and more coherent regulatory system across the country as a whole, whereas in Greece, the professional associations are demanding closer supervision and control of unlicensed and untrained workers. In the Netherlands and England, where the sectoral partners are involved at a more technical level, these issues do not come to the fore to the same extent.

In addition, in all countries, the situation in the welding sector can be seen as unusual. Due to the unusually high degree of international organisation, the sectoral organisations in this sector play a **larger and more autonomous role** than the organisations in other sectors. This is a result of the organisational infrastructure that has been set up in order to implement the international welding standards that have been developed under supervision of the European Welding Federation (EWF) and the International Institute for Welding (IIW). Within this framework, national welding federations act as Authorized National Boards (ANB) that can on their part authorise national Authorized Training Bodies providing the training of welders according to international standards. The national welding bodies, in their role of ANB, then provide the examination, qualification and certification of welders under this system. In this way, an entirely sector-based governance system has been established which exists next to, and intertwined with, the national VET and qualification structures.

As the regulation determining occupational entry and practice in the sector is, overall, relatively weak, sectoral organisations do not need to play a role in implementing such regulation, as is the case for example in the health sector. In this case, they do however develop other activities, filling the space which the weak intensity regulation has created. The international standards in the welding sector are one example of these kinds of activities, which would be difficult to implement in a high intensity

regulatory environment. Other examples are efforts of professional organisations in the Netherlands, this time in the plumbing and handyman sector, that aim at **voluntary quality assurance**, based on sectoral self-management. Thus, sectoral organisations have set up arbitration committees for their members which can be called upon in situations where a conflict between a practitioner, in this case a plumber, and a client occurs. The arbitration committee can help resolve this conflict by providing binding judgement. Though the involvement of an arbitration committee is a measure of last resort, the membership of a sectoral organisation hereby gains a distinctive status of some kind of accreditation, as it signals to the client that quality assurance mechanisms are in place. This can be seen as a market-based mechanism replacing the front-loaded approach of entry regulation with a back-loaded approach of self-management.

Overall, we can therefore distinguish **four different functions** of sectoral organisations in the sector:

- 1) social partners, professional organisations or sectoral federations play a technical role in determining the content of occupational standards and qualifications within the national qualification structure (England, Netherlands);
- 2) professional organisations play a role in advising government in the context of macro regulation, and lobby for the protection of their occupational group (Spain, Greece, Lithuania)
- 3) sectoral organisations implement international qualification standards, hereby organising their own process of training, examination, qualification and certification (welding sector)
- 4) sectoral organisations organise structures of voluntary quality assurance and self-management to provide more structure within the sector (Netherlands)

The role of sectoral actors can therefore be seen as very significant in the sector, as the institutional structures allow space for social partners to exert their influence. However, the example of Lithuania shows that the prerequisite for exerting influence is not only the institutional structure, but also simply the existence of strong sectoral organisation.

5.2.5 The role of qualifications in practice: what happens at micro level?

To remind ourselves, the regulatory context in the sector is characterised by low intensity regulation. With the exception of Greece, the countries in the selection do not set entry requirements for the occupations studied. Yet the occupations are defined in the qualifications frameworks and sectoral partners are involved in the governance of the content of the qualifications. So what does this regulatory context and the different systems of governance mean for the situation at micro level?

Regarding the **level of compliance** of employers and employees with the regulation in the sector, the country reports can only provide general indications. Nonetheless, they show up interesting issues, especially when comparing the situation in the different

countries. Thus, it seems that in Greece, the exception when it comes to entry requirements for the case of plumbers, the compliance with the regulation is rather weak, meaning that employers make use of unlicensed and unqualified staff or that unlicensed plumbers work as self-employed service providers. In the Netherlands, where no formal entry requirements exist, the available evidence points in the opposite direction. Despite the lack of entry requirements, employers place a strong emphasis on the qualification of their employees, as they are responsible for the health and safety of their employees and for the quality of the services provided. In this context, liability plays an important role as a motivation for employers to look out for the qualifications of their employees. Where in Greece the entry requirements are strict and in the Netherlands the occupation is open and unregulated, the outcome of this regulatory framework seems to be exactly the opposite.

The importance of quality of products and services in connection with OSH legislation, independent of formal entry requirements, can be confirmed in a number of countries. In this context, the **difficulty of the tasks performed** can play an important role as well. In Spain for example it seems to be the case that companies involved in general plumbing activities do not embrace qualifications to a high degree, leading to poor qualification levels in this area. However, companies carrying out specialised plumbing tasks do try to employ qualified staff. The same process can be observed in the Netherlands where the more all-round profession of handyman requires less formal qualification than the more specialised plumbers.

The main issue in this context is simply the question whether employers are in **need of skilled personnel**. If employers think that the required skills can be acquired on the job, they will not place much emphasis on the formal qualifications of their employees. Where this is not the case, they will want staff who have already acquired the necessary skills. Financial resources hereby also play a role. In Lithuania for example, employers often lack the **resources** to organise further training for their employees. In a situation where there is high unemployment, i.e. high labour supply, they are therefore likely to set high requirements for new employees. In countries like Greece where the VET system does not provide a high degree of practical training, this also means that employers place additional emphasis on aspects such as previous work experience.

This leads us to the question whether employers **trust and value** the existing qualifications. This seems to be very specific to the qualification in question and thus not tied to the system as a whole. Thus in Lithuania, there seems to be some dissatisfaction with the VET system for welders which leads employers to require additional qualifications or on-the-job training. Next to the VET qualification, also international welding certificates are available, but their relatively high costs do not always make them a viable alternative. In Spain, too, welders place more emphasis on practical experience rather than qualifications, though the development of new qualifications in the field may increase their value. A different situation exists in the case of Spanish forging press workers where the expectations placed on the newly developed qualifications seem to be high. In England, on the other hand, the qualifications in the sector are trusted by employers, as they are developed directly by employer representatives.

In the Netherlands, no issues regarding the trust in the specific qualifications have been reported either.

A final aspect is the micro level relevance of qualification in relation to changing demands on workers in the sector. The case of England is interesting in this regard, as there qualifications are seen as a **tool for continuous professional development** rather than for determining entry requirements. In the Netherlands, the qualifications are formulated in reasonably broad terms which makes them flexible to new demands. Aspects such as new OSH legislation or environmental regulation which has an impact on the occupations in the sector can thus be included in the initial qualifications. Practicing employees however need to update their knowledge through on the job training. In Greece, professional federations organise training for their occupations in order to update their knowledge for example of emerging green technologies. Whether this training has an element of qualification to it, is not clear.

In general, it can be said that qualifications certainly play an important role in the sector at micro level, despite the lack of strict entry requirements. The quality of goods and service in connection with consumer protection and the occupational safety and health of workers are the main drivers determining the relevance of qualifications. As we are talking about technical occupations active in for example construction projects, safety is a big concern of clients and employers. However, where qualifications are not seen as sufficient proof of competence, work experience is seen as an even more important factor. Moreover, in some cases employers employ unqualified staff in order to limit their expenses. This is mainly the case for activities that do not require complex technical knowledge and skills.

5.2.6 Conclusions: key factors making the difference

The situation in the sector EWGW, as examined focusing on the cases of plumber, welder and forging press worker, can be characterised by the following recurring themes:

- Relatively low intensity regulation regarding entry requirements
- High importance of general regulation, e.g. regarding occupational safety and health
- Existence of qualifications, albeit with some different definitions and unclear delineation between occupations (overlap)
- Strong role of sectoral organisations in both regulation and qualification management
- Pragmatic use of qualifications at micro level

Whereas these aspects are shared amongst most countries, there are some exceptions to the rule as well as aspects amongst which countries differ. These are the following:

- Greece and Germany are exceptions in setting entry requirements for occupations
- Welding sector excels in sectoral initiative by having developed international qualification and training infrastructure

- In some countries (Greece) sectoral organisations lobby for government restrictions whereas in others (England, Netherlands) they are involved in self-management
- In some countries (Greece) unqualified staff is employed despite regulation whereas in other qualifications are demanded in absence of regulation (Netherlands)
- Trust in qualification differs between countries (England, Netherlands high; Greece, Lithuania lower)

When looking at these differences and commonalities, the main question is whether sectoral factors determine the situation in the different occupations or whether national factors prevail. In the first case, the commonalities between countries should be stronger than the difference, in the second case the national exceptions should emerge stronger.

Regarding the **sectoral factors**, one thing to note is that with regard to specific regulation, the influence of European level licensing requirements is low in the occupations under discussion. This might stem from the fact that the sector is not inherently international, especially when compared to for example the transport sector. However, the importance attributed to occupational safety and health on the one hand and to quality of products and services on the other hand is an aspect that plays an important role in all the countries. This originates clearly in the nature of the work which is technical, physically demanding and needs to result in reliable building structures and products. In fact, in the welding sector this aspect of the work, i.e. the need for reliability in building processes, is cited as the main driving force behind establishing international quality assurance structures. It seems to be the case that in most countries (with the exception of Greece), the safety aspects are judged to be sufficiently covered by generic regulation and do not justify specific occupational or sector requirements.

With respect to **national factors**, the most important exception is the case of Greece, where the regulatory tradition seems to trump the sectoral distinction and leads to high regulation intensity. This may also be a result of the strength of Greek sectoral organisations as they lobby for protection of their trade, unlike for example the weak social partners in Lithuania. However, the sectoral actors in the Netherlands can also be seen as strong, but this has a different result in this case, which again can better be explained with the regulatory culture which emphasises market based solutions. The differences in the practical use of qualifications at micro level are also likely to be grounded in national circumstances, also connected to the trust in the qualifications system. This would suggest that the institutional trust in Greece is lower than for example in the Netherlands, where qualifications are valued more highly. Furthermore, the differing degrees of practical training within VET education in the different countries seem to have an effect on the relevance of qualifications, which seems to present a challenge in Lithuania.

Most importantly, these aspects cannot be seen in isolation, but the **interaction between the factors**, both national and international, can have the most decisive impact. One of the questions is for example whether the strong involvement of social part-

ners, e.g. in the Netherlands, but also in the welding sector, can be seen as a result of the space provided by the lack of regulation, or whether this lack of regulation is made possible due to the activities of sectoral actors. A similar question applies to Greece where it is difficult to say whether the strict regulation can be seen as a result of the lobbying of social partners, or whether conversely the strength of the social partners is based on the existence of strict legislation. Moving on to the micro level, it is interesting to see that a system of well-trusted qualifications in combination with a culture of strong safety and liability (Netherlands) leads to a higher practical use and relevance of qualification than a system of strict regulation combined with little trust in qualification and public authority (Greece). Finally, in situations where no entry requirements are set by the state, unsurprisingly it remains up to the employer to determine the relevance of qualifications in a pragmatic way. In that sense, a system focused on firm educational regulation but little labour market restrictions like in Spain seems to produce a similar outcome in the sector as a system based on business needs as exists in England.

These issues cannot be explored in sufficient depth by looking at the situation in just one sector. However, the dynamics and mechanisms that can be defined to play a role in the three occupations examined here can be useful in comparing the EWGW sector with other sectors whereby the stability of the influence of national factors also plays an important role. The comparative analysis will show whether the dynamics identified here can be confirmed in the other sectors and countries.

5.3 Chemicals, rubber and plastic

The situation in the sector chemicals, rubber and plastic (CRP) was examined in the following six countries: Belgium (Flanders), Greece, Slovenia, Spain, Sweden, United Kingdom (England). The analysis focused on the occupations of pharmaceutical and toiletry products machine operator, welder and chemical engineering technician. In the following we present an overview of the information that was collected at country level.

5.3.1 Labour market context

Firstly, it is important to look at the labour market context within which the sector is governed. There are certain trends taking place in the sector.

The chemical sector is a **knowledge based industry** which entails that a skilled workforce is an imperative for success of the sector. This is due to the fact that **safety and health risks** can constitute a major concern in the chemical industry. The proper qualification of certain professionals in the sector constitutes an essential element to ensure the safety of chemical procedures or of installations involving the use of dangerous elements such as gas. Consumer protection and the quality of products are important elements that may be affected by qualifications. In this regard it can be mentioned that to increase innovation, companies active in the chemical industry sector

and the rubber and plastic industry work together with universities and other knowledge institutions. However, as will be described below, not all professions in the sector are regulated and certain professions are only regulated in some Member States.

In general, the sector is confronted with **increasing competition** from Asia and the Middle East which leads to overproduction in the European industry and a decrease in jobs. The economic difficulties are also caused by the **growing prices of raw materials**. The sector therefore has to **save energy and labour costs**. Even though there may be less employment in Belgium, Spain and the UK, the production output in the sector of chemical industry, synthetic materials and life sciences is growing in Flanders and the UK. There is a high level of demand from other industrial sectors. During the last fifty years the demand for plastic has only increased. In the UK the productivity in the Chemicals Industry has increased by 69 % between 1999 and 2009 and a further growth is expected if workforce skills are improved. It is said that the chemical sector is resilient with regard to the economic crisis, increasing prices for raw materials and international competition. Due to reorganisations, mergers and acquisitions the companies in the sector report high levels of performance and efficient processes. In Spain on the other hand, the economic crisis caused a drop in the industrial production in the chemical sector which may be due to the fact that the Spanish economy is not based on the industrial sector. Even though the last decade has revealed a decrease in the production of pharmaceutical and toiletry products in Greece, followed by an increase in imports, there has been an increase of employment of chemical engineering technicians from 2002-2007 and despite the chemical industry slump that has come up since 2005, the prospects of employment remain positive, especially in the food and energy sectors. However employment percentages in the sector have in general increased at a 3% rate. This might be explained by the fact that the increase has taken place in non-producing jobs. Forecasts do not estimate a significant alteration in the reduction of the production trend.

In the UK, despite increased emphasis on upskilling the workforce, demographic change causes an increasingly older workforce (skills shortages) and a need to recruit more young people in the sector. In Flanders and Slovenia, there is often a **lack of skilled professionals** as well. This can be explained by the fact that an interest for engineering oriented study programs is not very strong due to relatively low salaries in comparison with other industries.

Due to the increasing competition from Asia and the Middle East, Belgian companies are becoming more active in these regions by moving the company or certain production lines to these countries. In most European countries, **changes in health and safety regulations**, together with **changes in environmental policies**, have resulted in additional process and monitoring requirements affecting the operating costs and, therefore, the competitiveness of the sector. Future environmental performance will continue to focus on reducing CO₂ emissions, energy and water usage.

The chemical sector is also very **export orientated**. For Flanders this is due to the Flemish harbours and its central place on the European market. Slovenia has always

relied on exports and its chemicals and pharmaceuticals industry still accounts for a hefty portion of the country's export mix with 72% of sales earned in foreign markets. Pharmaceuticals are the backbone of the export mix of the chemicals industry, tyres and inner tubes for vehicles come second followed by plastics. Exports are mainly conducted towards the new EU Member States, central and south-eastern Europe and CIS countries. Slovenia's leading chemical companies successfully compete on European and global markets. In 2006 this sector had an aggregate income of 4.3 billion euros, 72% of which were generated on foreign markets. 75 per cent of UK chemicals production is exported and activities are being refocused to higher added value consumer and speciality chemicals.

Shortages of technical and engineering skills such as technicians, fitters, operators and so on, remain a Europe-wide problem. To increase the attractiveness of the chemical sector, a culture needs to be developed in which innovative thinking at all levels from shop floor to senior management is key according to specialists in the sector. In Flanders there is an **increasing demand for sustainable products in the chemical sector**. In this way technological innovation to lower energy consumption or enhance capital intensity but also organizational innovation such as outsourcing non core activities to specialised subcontractors takes place. Even though in Greece, chemical engineering technicians are mainly occupied in small and medium enterprises (SMEs) active in the food industry, pharmaceuticals industry, petrochemical products, explosive materials, energy plants, biological cleaning, recycling, etc., it is predicted that to keep up with all these changes, basic chemical industry will more and more be dominated by large firms and smaller players will disappear (at least for Belgium but probably also for the other EU countries).

A lot of money is invested in research and development in the sector. For example, the different Belgian governments are focussing their policy at the development of a knowledge based economy, by a reduction of taxes for **research and development** and a tax reduction for patents. Successful R&D and a relatively long tradition of pharmaceuticals production, in conjunction with the construction of a number of new production facilities and commensurate distribution systems, single out Slovenia as one of the largest providers of pharmaceuticals in the broader region. In the UK, the pharmaceutical industry invests approximately £11.8 million every day in R&D and employs 27,000 of the total 72,000 people in R&D. Both sectoral standards as employee competences need to keep track with new and fast changing technological developments. However, research by the Association of the British Pharmaceutical Industry in 2008, on over 100 UK Pharmaceutical companies, has revealed that more than a third of companies (35 per cent) were expecting to reduce the level of investment in research and development over the next 12 months, currently standing at nearly £4 billion a year. For this reason it can be said that the pharmaceutical industry is under severe pressure in the UK. Recently, the government has addressed a very broad range of issues relating to clinical research, licensing, intellectual property rights, the science base and the domestic market framework.

A final trend that can be noticed is related to the pharmaceutical industry. In this regard it should be noted that medicinal products are essential needs and consumers

demand is not dependent upon the price. Due to the **ageing of the population**, the industry will have to supply more, but not all companies will be able to compete. Small companies may invest more in specialization but will often be taken over by the large actors due to the latter's marketing network. Since public perceptions of the industry are deteriorating, new product developments is a key driver in changing the face of the industry. A trend that is noticed is that more attention is paid to the consumer and that there is a shift from 'made for industry' to '**made for consumer**'. Consumers do not only demand stable and fair prices but often ask for support by the producer with regard to the further development of process and applications. Companies therefore need to respond fast to the demands of consumers. More attention also has to be paid to **sustainability**.

5.3.2 Regulatory snapshot: commonalities and differences between six countries

The tasks of professionals in the chemical and pharmaceutical industry are complex and very technical and require qualified personnel. For such reason the degree of competence of workers in this sector is generally high, although **not necessarily linked to official qualifications**.

With regard to **chemical engineering technicians**, in Flanders for example, technology can be studied at university level. Only those who have completed the education are allowed to use the title which entails that the title is protected. However, this does not encompass that the practise of the profession is only reserved to those holding the above-mentioned diploma (no licensing). It is also possible to complete adult education at the level of the third degree of secondary technical education in the field of chemical technology. A lot of practical experience is included.

In Spain, employees in the chemical sector are, generally speaking, highly qualified. This is particularly true with regard to technical industrial engineers and gas polyethylene welders, because, in order to access both occupations (or, at least, several activities within these occupations), it is necessary to have a degree or a certificate, which ensures a relatively high qualification profile. The closest equivalent to chemical engineering technicians in Spain is constituted by the technical industrial engineer with specialization on industrial chemistry. In Spain, the official degree in technical engineering is required for the exercise of many activities within the profession, so it can be said that the average level of qualifications is high. In recent times there has been a move towards a deregulation of the profession as well as to a decrease in the powers of official professional associations in the regulation of the profession –both linked to the implementation of the Directive 2006/123/EC in Spain. These has resulted in important lobby efforts by official professional associations and by chemical engineering technicians who widely oppose to these changes.

In Greece there is no exact equivalent occupation in the labour market for the profession of chemical engineering technician. This is mainly due to the fact that initial vocational training was and still is more general in nature. There are at least two occu-

pational profiles that can be classified under this title. The first one is called Technologist of Production of Chemical Industries or Process Industries and the second one, Technician of Production of Plastic Goods and Materials. Both occupational profiles fall under the 3116 ISCO-08 classification of chemical engineering technicians but the first one falls closer to the description of activities under ISCO-08 3116. The occupation is regulated at a national level as concerns qualifications in initial vocational training and as concerns access to the labour market. Although previously a professional license was needed in order to enter into the market and exercise the profession, due to recent – as of 2011- legal developments, chemical engineering technicians need only to announce that they will enter the market and provide evidence of their qualifications. Specialized qualifications are not provided however through central, government planned continuous vocational training. They are offered by the specific chemical plant industries employing the chemical engineering technicians. Knowledge is passed on empirically from one employ to another.

In England, there are no strict, governmental, restrictions for entering a profession of occupation. The chemical industry sector consists of several science-based industries covered by the Sector Skills Council Cogent: pharmaceuticals; petroleum; oil and gas; chemicals; nuclear industry; and polymer industry. In the UK, the national government does not have a strong say in regulation procedures for professions in the chemicals and pharmaceuticals industry. The Sector Skills Councils, as voice of the employers, when it comes to skills and qualifications, do provide standards and competence profiles for different occupations. The qualifications themselves are however provided by awarding bodies, which are supervised by Ofqual (the office of qualifications and examinations regulation). Concerning Chemical engineering technicians, the process technician in chemical industries is positioned at level 3 of the qualifications and credit framework. There are no entry requirements, but employers do take qualifications into account in their recruitment policies. In addition, Cogent (the Sector Skills Council for the Chemicals, Pharmaceuticals, Nuclear, Oil and Gas, Petroleum and Polymer Industries) developed a Gold standard for the process technician. The Gold Standard is a national framework for continuous professional development setting out the skills required for world class performance in key job roles in the process industries. It describes and maps the competencies required to do each job including a description of relevant technical competence, compliance competence, business improvement competence and functional and behavioural competence.

In Slovenia, there are a number of Universities, Research Institutions and Associations that are specialized on the chemical sector. However only some of them provide for courses that are related to the technology sector such as production technologies as a minor on mechanical engineering study program. Up to now, the strong industrial tendencies to develop the special course on Manufacturing Engineering has not been shown. Industry demands are directed more to educate skilful engineers that are acquainted with modern technologies. The reform of educational system is seen as a crucial factor in Slovenia's transition to a knowledge-based economy. In Sweden, chemical engineering education leads to degrees at two levels BSc in Engineering ("Högskoleingenjör") and MSc in Engineering ("Civilingenjör"). Both degrees are

professional degrees, and the qualifying word "Engineering" is reserved for these two degrees.

With regard to **welders**, it can be said that the profession is (almost) not regulated in Flanders. This encompasses that it is up to the employer to issue an authority to work. However a safety certificate is required for PE (Polyethylene welders). This is called the IKMO certificate (medical health). Approximately one third of the employers does not demand experience. One third demands for higher education (professional bachelor or masters degree). According to the Ministerial Decision of 14 September 2009, the title of 'plaatlasser' is regulated however (metal plate welder). Also 'pijplassers' (pipe welders) and 'hoeknaadlassers' can obtain a certificate of professional competence (see Decision of the Flemish Government of 1 Februari 2008). For other welding activities, employers often demand a technical secondary school diploma of the third degree of a bachelor degree. There is a lot of training on the job.

In Spain welders in the chemical sector have not been subject to major regulatory efforts. One of the most relevant occupations for welders outside the metal industry consist of the welding of polyethylene pipes, which are widely used in gas networks. The regulatory framework requires the use of polyethylene welders for gas installations; however, there is not an official definition of what a polyethylene welder is or what are the requisites for becoming a professional in the field. This has indeed prompted the rise of an industry self-regulatory regime that tries to fill such gap. Notably, the Asociación Española del Gas –SEDIGAS- has developed certificates aimed at the accreditation of competences of polyethylene welders in the gas industry. General deregulatory trends have not affected the occupation of polyethylene welders, which is still subject to the industry-based certificate regime. The preservation of a stricter regulatory system for this occupation is probably linked to the security concerns related to all activities where gas is involved. For polyethylene welders since for welding polyethylene gas pipes a certificate is required and therefore, in such specific occupation, the degree of qualification of welders is high.

In Greece, the occupation of welder in the chemicals, rubber and plastic sector does not exist. Welding activities are undertaken either by the occupation of welders when it comes to metal materials or by other professions/ occupations, such as plumbers, car technicians and others, when it comes to welding plastic and/or rubber. In Greece, welders are classified under 7212 pursuant to IOSC-08 and IOSC-88 and under 7320 pursuant to STEP 92.

As indicated above, in England, there are no strict, governmental, restrictions for entering a profession of occupation. This is mainly left to the decision of the employers. Various quality standards, however, express the necessity of a qualified and skilled work force (e.g. for welding assignments). For this reason, the sector itself does require employees to have, or to obtain the necessary qualifications in accordance with their own established guidelines and standards. These guidelines are skills based, focused on working in the sector. Issues, such as safety and health are mentioned, but additional transversal skills (reading, writing, ICT, etc.) are presupposed. For welders, the Welding Institute and the European Federation for Welding, Joining and Cut-

ting provide standards for different occupations related to welding; also in relation to plastic welding it developed training programmes. Cogent, developed the NOS for the occupations included in their footprint. In addition, Cogent developed Gold Standards for the sector. Plastic welding, although it involves different knowledge on materials and processes, it is considered welding and therefore procedures, NOS, qualifications and regulations are similar to the ones described in the sector electricity, water, gas and waste.

With regard to **pharmaceutical- and toiletry-products machine operators** in Flanders, a professional competence profile has been created for the profession ‘operator installations in the chemical or pharmaceutical industry’. This can be compared to the ISCO description. The profession is however not regulated by law.

In Spain, the occupation is embedded in the national system of qualifications as ‘Basic Operations in Chemical Plant’. The Royal Decree 178/2008 regulates a VET educational program that corresponds to such qualification. The Royal Decree 295/20042 does also set a professional certificate linked to the aforementioned qualification. The possession of a professional degree or certificate is however not required for the exercise of the profession. Safety and health training is essential for the adequate execution of the tasks associated with the occupation and it is highly encompassed by the curriculum of the courses of VET degrees/ certificates.

Under Greek Law there is no legislation specific to the occupation of machine operators in pharmaceutical and toiletry products. The production process of pharmaceutical, toiletry and other related products is controlled by national authorities.

In England Cogent also developed a Gold standard (title: Process Operator Pharmaceuticals) for continuous professional development in the occupation. Process operators work in a strictly controlled environment and need to follow a number of standard procedures and regulations. Pharmaceutical Process Operators need to accurately execute manufacturing processes and record process activity. The Gold Standard follows the same logic as for the Process Technician Chemicals.

It can be concluded that one does not need to hold a licence to practise one of the professions above. With regard to chemical engineering technicians, it should be noted however that access to the profession of technical industrial engineer is restricted in Spain. Even though in Spain there is a trend towards deregulation, most professionals are highly qualified. The pressure towards deregulation is also noticeable in Greece.

Welding activities in the chemical sector are mainly not regulated. The specific profession is often not even known in the Member States under research. With regard to toiletry machine operator a professional degree is generally not required. For all professions training on the job is of main importance.

5.3.3 Educational framework

As indicated above, the chemical sector is knowledge-based. A skilled workforce is an imperative for success of the sector. For certain professions, a high competence level is demanded due to the complexity of production processes and there is a need for commercial skills combined with scientific knowledge. However, in most countries there is a shortage of skilled employees due to the ageing of the workforce but also due to lack of interest in the sector. We will therefore now look at the way in which education of workers is organised in the sector.

Generally speaking, the education side of the occupations is shaped according to the general framework in the country under discussion. With regard to chemical engineering technologists, in Flanders **chemical technology** can be studied at university level. A Master of Science in Chemical and Materials Engineering can be completed after having fulfilled the Bachelor education. Only those who have completed the education are allowed to use the title. A lot of practical experience is included.

In Spain, the education is highly regulated. Educational programs providing access to the profession of chemical engineering technician consist of a 3 year university degree which belongs to the general category of technical engineering. The degree of technical industrial engineering with specialization on industrial chemistry provides access and is required to exercise the profession. Technical engineers are thus in general highly qualified. However, the content of the university degrees does not always correspond to the needs of the market. Post-graduate specialization courses seem to be a very useful tool to address weaknesses in the content of the university degrees and which can help to adapt the education of the workers to the requirements of enterprises. The access from VET programs is also contemplated.

There are three ways for someone to be educated as a chemical engineering technician in Greece. As concerns studying at a public Apprenticeship Training School, one can upon completion of IVET gain 5 years of professional experience in the production unit of a chemical plant and participate in CVET programs or follow a training of a minimum of six months in order to gain specialized professional knowledge. Alternatively, after the completion of an EPAL/ EPAS/ OAED School program, one can receive a practitioner mechanics license (adeia praktikou mihanikou) and gain practical experience for 5 years working at the production unit of a chemical plant and enrich one's specialized knowledge either by participating in CVET programmes or by following a training programme of at least 6 months. Should one choose to study at an IEK, one should gain 3 years of professional experience, and either participate in CVET programs or a training program of 6 months.

It is mainly graduates of upper secondary vocational education and postsecondary non-tertiary education that are occupied as chemical engineering technicians. Pursuant to legal requirements operations of chemical plants need to be supervised by an engineer of tertiary education. Therefore, tertiary graduates of engineering schools usually occupy these higher positions, whereas graduates of secondary education work under their supervision. The need to constantly follow technological and scien-

tific developments in the sector, which means that chemical engineering technicians need to be suitably trained and to follow continuous vocational training.

In Slovenia, there are a number of Universities, Research Institutions and Associations that are specialized in the chemical sector. However only some of them provide courses that are related to the technology sector such as production technologies as a minor on mechanical engineering and related studies as automation and robotics on electrical engineering and interdisciplinary mechatronics study program. Up to now, the strong industrial tendencies to develop the special course on manufacturing engineering has not been shown. Industry demands are directed more to educate skilful engineers that are acquainted with modern technologies.

In Sweden, chemical engineering education leads to degrees at two levels: BSc in Engineering ("Högskoleingenjör") and MSc in Engineering ("Civilingenjör"). Both degrees are professional degrees, and the qualifying word "Engineering" is reserved for these two degrees. The two engineering degrees are not (yet) offered as consecutive degrees. However, BSc in Engineering may continue to an MSc in Engineering but this track does normally include some kind of bridging program. Students on programmes for MSc in Engineering can normally take a BSc after 180 ECTS. However, this 1st cycle degree will be a general degree and should not be confused with the professional BSc in Engineering qualification. The Swedish professional degree requires proficiency in the Swedish language. Some Higher Education Institutions (e.g., Chalmers) have made it more or less compulsory to pass a 1st cycle degree as a part of the MSc in Engineering education. Other HEIs offer a 1st cycle degree as an option only but put very little emphasis on them. With respect to the 3+2 system, the Swedish educational system is thus very clear in its' definition, but many MSc in Engineering graduates may not have a 1st cycle degree.

In England the process technician in chemical industries is positioned at level 3 of the QCF. There are no entry requirements, but employers do take qualifications into account in their recruitment policies. Concerning chemical engineering technician, the chemical and pharmaceutical industries have their own National Skills Academy for the process industries. This academy designs and delivers training for the sector through a network of quality assured providers. They work closely with Cogent and provide training against the industry endorsed Gold Standards. In relation to continuous professional development, the unitised system makes it possible to follow short programmes reaching towards an award or certificate without having to complete an entire 2-4 year programme (diploma). The National Vocational Qualifications, based on the sectors' national occupational standards include assessment procedures of skills and the identification of skills gaps.

With regard to **welding activities**, in Flanders the title of persons welding plastic is not protected. For welding activities in the chemical, rubber and plastics sector, employers often demand a technical secondary school diploma of the third degree of a bachelor degree. There is a lot of training on the job. A safety certificate is required for polyethylene welders (medical health). One third demands for higher education (professional bachelor or masters degree).

Unlike welders in the metal sector, who have received substantial attention in the VET qualifications/certificate's framework, welders in the chemical sector have not been subject to major regulatory efforts in Spain. Just as in Flanders, one of the most relevant occupations for welders outside the metal industry consists of the welding of polyethylene pipes, which are widely used in gas networks. The regulatory framework requires the use of polyethylene welders for gas installations. SEDEGAS provides certificates which certify competences for the development of more or less complex tasks in this regard. In order to get the certificate candidates shall study different contents and pass an exam. There are private entities that provide training to prepare the exam leading the certificate, although the attendance of such programs is not compulsory, as self study is possible. In order to be able to attend the exam the candidates shall comply with certain alternative criteria related to previous degrees/certificates. Polyethylene welders working on the gas sector shall be certified and, moreover, they shall have previous VET –or related- qualifications. Therefore, the workers in this specific occupation can be characterized as highly specialized.

As indicated above, in Greece the occupation of welder in the chemicals, rubber and plastic sector does not exist. Welding activities are undertaken either by the occupation of welders when it comes to metal materials or by other occupations, such as plumbers, car technicians and others, when it comes to welding plastic and/or rubber.

In England, there are no strict governmental restrictions for entering occupation in welding. Even though plastic welding involves different knowledge on materials and processes, it is considered welding and therefore the procedures, NOS, qualifications and regulations are similar to the ones described in the sector electricity, water, gas and waste. For welders, the Welding Institute and the European Welding Federation provide standards for different occupations related to welding; also in relation to plastic welding. Cogent developed the national occupational and gold standards for the occupation. So criteria to enter the profession are mainly left to the decision of the employers. Various quality standards, however, express the necessity of a qualified and skilled work force (e.g. for welding assignments).

For this reason, the sector itself does require employees to have, or to obtain the necessary qualifications in accordance with their own established guidelines and standards. These guidelines are skills based, focused on working in the sector. Issues such as safety and health are mentioned, but additional transversal skills (reading, writing, ICT, etc.) are presupposed. The provision of educational programmes and curricula by VET colleges and other providers are attuned to the National Occupation Standards. Through the involvement of employers in the development, review and refinement of these Standards, the supply is considerable aligned with the demands from the side of industry. Due to the fact that employers are the primary regulating factors when it comes to entering the professions, there is a trend of less unified regulating on qualifications. This does not necessarily mean less regulation on qualifications, but more tailor made qualifications for specific companies.

In Flanders there is no specific education that deals with **pharmaceutical and toiletry production operator** in Flanders. According to respondents, the government could invest more in bachelor and master education in plastic and rubber technologies.

In Spain, this occupation is embedded in the national system of qualifications as 'Basic Operations in Chemical Plant'. The Royal Decree 178/2008 regulates a VET educational program that corresponds to such a qualification. The Royal Decree 295/2004 also sets a professional certificate linked to the aforementioned qualification. The possession of a professional degree or certificate is however not required for the exercise of the profession. Safety and health training is essential for the adequate execution of the tasks associated with the occupation. The training programs that give access to the occupation of Pharmacy and Toiletry Production Machine Operator are those related to the VET medium level degree regulated by Royal Decree 178/2008 or to the professional certificate regulated by the Royal Decree 1970/2008.

The programs leading to degrees or certificates are taught in authorized centers. The degree program, which has a duration of around 2000 hours, includes both study and practical training. In order to have access to the education programs linked to the certificates it is necessary to pass a test or to be in possession of other certificates of the same level or of the same professional family. There are several professional activities that degree holders can develop after completion of the programs; these range from the operation of machinery for distillation, operation of machinery for water sanitization, operation of machines for the filtering of chemical substances, to mention a few. The chemical-pharmaceutical industry is very specialized and most operators working in the industry are highly experienced.

As indicated before, under Greek Law there is no legislation specific to the occupation of machine operators in pharmaceutical and toiletry products. There are many ways in order for someone to be qualified as a machine operator of pharmaceutical and toiletry products. For those wishing to qualify as specialized machine operator technicians (eidikevmenos tehnikos heiristis), the easiest way is after graduation from secondary education to enjoy practical experience of at least 36 months. Practical experience can be substituted by studies at a private IEK. Another possibility would be for graduates of compulsory secondary education to follow vocational training at an EPAL and then either continue their training at an IEK or to gain professional experience of at least 24 months and to complement this with vocational training. For those wishing to qualify as machine operator technicians supervising lines of production (tehnikos heiristis me idiotites eopti grammis) they can either be upper secondary education graduates or compulsory secondary education graduates. For upper-secondary education graduates there are two routes available. First, they can gain practical experience of at least 36 months and complement it with accredited vocational training. Second, they can graduate from an IEK and then acquire a 2-3 years professional experience. Graduates of compulsory secondary education need first to graduate from an EPAL. Then, they can either continue their training at an IEK and gain related professional experience ranging from 24-36 months or instead of attend-

ing an IEK, they can work for 3 years and complement this practical experience with accredited continuous vocational training.

A license to gain access to the exercise of the profession is not needed. In order to perform their tasks, machine operators receive general knowledge of Greek, Physics, Chemistry, Mathematics, English and Computer training. In addition they receive basic but also specialized professional knowledge, which is mainly acquired in practice. Additionally, they need to be critical and produce constructive ideas in order to resolve problems associated with the production process. In England, the Gold Standard follows the same logic as for the Process Technician Chemicals.

It can be **concluded** that in Belgium, Sweden Spain and Greece, the title of chemical engineering technicians is reserved to those holding the required qualifications. In England on the other hand, there are no entry requirements but the National Skills Academy provides training for the sector. Continuous professional development, makes it possible to follow short programmes reaching towards an award or certificate without having to complete an entire 2-4 year programme (diploma).

With regard to **welding activities** in the plastic and rubber sector, it can be said that the title is not protected in any of the countries under research and that the profession has not been subject to major regulatory efforts. In Flanders, the training mostly takes place on the job. However, for gas installations, the use of polyethylene welders is required in Spain. They have to obtain a SEDEGAS certificate. Polyethylene welders working on the gas sector shall thus be certified and, moreover, they shall have previous VET –or related- qualifications. Therefore, the workers in this specific occupation can be characterized as highly specialized. In Greece, the specific occupation does not exist and tasks will be performed by other professionals. In England, there are no strict, governmental, restrictions for entering a profession of occupation. Various quality standards express the necessity of a qualified and skilled work force. For this reason, the sector itself does require employees to have, or to obtain the necessary qualifications in accordance with their own established guidelines and standards.

In Flanders, there is no specific education that deals with **pharmaceutical and toilet-ry production operator**. The title is not protected by law. In Spain, the possession of a professional degree or certificate is also not required for the exercise of the profession. However, the chemical-pharmaceutical industry is very specialized and most operators working in the industry are highly experienced. The occupation is embedded in the national system of qualifications as ‘Basic Operations in Chemical Plant’. The Royal Decree 178/2008 regulates a VET educational program that corresponds to such qualification. In Greece a specific amount of **practical experience** is of great importance for those wishing to qualify as specialized machine operator technicians. A license to gain access to the exercise of the profession is not needed.

5.3.4 Governance systems in the sector: the role of sectoral organisations

With regard to the chemical industry, on the European scene, Cefic, the European Chemical Industry Council, is the voice of 29,000 large, medium and small chemical companies in Europe. It represents its members and interacts daily on their behalf with international and EU institutions, non-governmental organizations, the international media and other stakeholders.

National sectoral organisations play their usual roles in the sector, displaying the differences in the countries. In England, the Sector Skills Council (Cogent) plays an important role in the skills policy for the chemical and pharmaceuticals industries. As the voice of the employers, they design qualifications, work on attracting young people into the sector and conduct research to understand industry skills needs. The SSC is thus in charge of developing the national occupational standards. The SSC in addition provides labour market intelligence, conducts research on skills needs and gaps, develops flexible learning pathways and relate qualifications to national qualifications frameworks (and the EQF).

In Flanders, the sectoral actors have more of an advisory role towards government actors. The ‘paritair comité’ for the chemical industry has laid down employment conditions which also deal with the fact that 0.20% of the gross salaries of the employees should be invested in the ‘Fonds voor Vorming’ which aims to enhance the quality of the personnel. Most courses are however limited to communication and social skills, management and organisation, ICT and logistics. It follows that these associations are not mainly concerned with specific qualifications and have merely an advisory role.

In Spain, professional associations participate in the consultative bodies of different public administrations as well as in the conversations with the government with regard to the regulation of all the issues that affect their members, including education. With regard to chemical engineering technicians, professional associations play a role in the regulation. Due to the move towards deregulation and the decrease of powers of professional associations in the regulation of the profession, these associations (specifically the association of technical industrial engineers) have lobbied to oppose these changes. A major concern of these bodies in recent times concerns the homologation of the technical engineering degrees with the new Bologna-based engineering degrees, which would be useful for those technical engineers that wish to exercise their profession in other European countries. Another controversial issue where professional associations are exercising a very active lobbying activity concerns the progressive deregulation of the activity and, notably, the abolition of the requisite of compulsory membership in the professional associations as well as the elimination of the obligation of issuance of certificates by professional associations with respect to certain engineering works. The Royal Decree 1000/20104 has substantially reduced the cases in which such certificate –which was required since the year 1931 with respect to many professional engineering works- is necessary.

Sectoral organizations also cooperate with educational institutions. The regulatory framework concerning professional associations does indeed require their representation in consultative bodies of Spanish universities; this enables the former to actively participate in the design of the educational programs. This collaboration is indeed very useful to achieve a better coordination between the social and market requirements (identified by the professional associations) and the educational programs taught at universities. Moreover, professional associations themselves often provide their own specialization courses to their associates. The influence of professional associations with regard to the occupation of Pharmacy and Toiletry Production Machine Operators the degree of associationism is more reduced than in other occupations such as welding or plumbing. Sectoral organizations from the chemical-pharmaceutical industry exercise important lobby functions. However, their focus has rather traditionally been on issues related to the promotion of the economic interests of the industry and not so much on the use of qualifications in the sector. In Spain, welders in the chemical sector have not been subject to major regulatory efforts.

The most relevant occupations for welders outside the metal industry consist of the welding of polyethylene pipes; however there is not an official definition of what a polyethylene welder is or what are the requisites for becoming a professional in the field. This has indeed prompted the rise of an industry self-regulatory regime that tries to fill such gap. Notably, the Asociación Española del Gas – SEDIGAS - has developed certificates aimed at the accreditation of competences of polyethylene welders in the gas industry. General deregulatory trends have not affected the occupation of polyethylene welders, which is still subject to the industry-based certificate regime. The preservation of a stricter regulatory system for this occupation is probably linked to the security concerns related to activities where gas is involved. The study program corresponding to such certificate is developed by SEDIGAS itself; therefore, in this context, welding is an area where businesses' associations do exercise the core functions with regard to the definition of the content of welder's qualification requirements. This does indeed ensure that the certificates are highly adapted to the needs of the employers (which are the parties influencing their definition and update).

In Greece a variety of actors are involved in the occupation of chemical engineering technicians, such as the Technical Chamber of Greece (Tehniko Epimelitirio Ellados), Association of Greek Chemists (Enosi Ellinon Himikon), Panhellenic Association of Chemical Engineers (Panellinos Syllogos Himikon Mihanikon), Professional and Scientific Association for the Technological Training of Engineers (Epaggelmatiki kai Epistimoniki Enosi Tehnologikis Ekaidefisi Mihanikon) and others. Their bargaining power can be attested by the fact that under the new law concerning the simplification of procedures in order to exercise technical professions, engineers in general and chemical engineering technicians in particular are exempted from acquiring a license. Instead they need only to announce that they will be exercising their professional activities.

Sectoral organizations in the field are working together with the ministry of Education, LLL and Religious Affairs in order to update the occupation profile of chemical engineering technicians and to streamline it with Greek reality. Sectoral actors in the

field of chemical engineering technicians provide feedback to both national and micro level. They maintain an advisory role to the competent ministries by advancing the positions and promoting the interests of their individual members. Sectoral organizations in the field of machine operators are not as numerous as in other occupations. Sectoral organizations relating to the occupation of machine operators are active in the development of occupational profiles together with the ministry of Education, LLL and Religious Affairs. Technological and scientific developments demand the development and application of better initial and continuous vocational education and training in order to better equip the professionals active in the field. These sectoral organisations provide feedback and maintain an advisory role to the competent ministries.

We can thus conclude that we can identify **two different patterns**: on the one hand sectoral actors have an autonomous stake in the process of shaping qualifications and entry requirements such as in England and Spain (polyethylene welders). On the other hand sectoral organisations provide advice toward the macro level where decisions are taken, such as in Flanders, Spain, Greece and Sweden. This does not mean that these actors are weaker than in the former group of countries. This is particularly so for Spain and Greece (license exemption) where social partners are proactively lobbying the government in favour of their occupational group.

Sectoral organisations have no role to implement state regulation. They do fill the space however, see for example the Social Skills Council in England and SEDIGAS in Spain. Overall, we can therefore distinguish the following functions of sectoral organisations in the sector:

- Social partners, professional organisations or sectoral federations play a technical role in determining the content of occupational standards and qualifications within the national qualifications structure (England and Spain (polyethylene welders))
- Professional organisations play a role in advising government in the context of macro regulation, and lobby for the protection of their occupational groups (Flanders, Spain, Sweden)
- Self-managing social actors (SEDIGAS in Spain)

5.3.5 The role of qualifications in practice: what happens at micro level?

Since the occupations in the chemical and rubber sector are all subject to constant change, influenced by technological developments but also by the high competition from China and Eastern countries, further professional training is of course possible and often provided by employers within the occupations themselves. They can give for example instructions on using new technologies.

As indicated before, one does not need to hold a licence to practise one of the professions above. For some professions, Member States limit access to the profession to those holding the necessary diploma. However, the profession of welder in the rubber and plastic sector is in general not regulated. For welding activities, employers often

demand a technical secondary school diploma of the third degree of a bachelor degree. Furthermore, there is a lot of training on the job.

In Spain, enterprises may need to use the services of chemical engineering technicians for the development of particular tasks that statutorily require their intervention. In such cases enterprises shall necessarily hire qualified professionals with the official academic certificates. Employers perceive these degrees as a necessary but not necessarily sufficient condition for the exercise of the occupation; as explained above, the academic programs taught at universities do not always reflect the changing needs of the market and for such reason the training of employees through additional education constitutes a very useful tool to update their knowledge and complement the competences acquired during the university studies. Experience or specialization is also valued by employers. Although the provision of continuous formation by employers is not formally required it is sometimes provided. However, a research into the job offers published by pharmaceutical companies shows that a high number of employers in the sector do not embrace the use of qualifications in their hiring decisions. The degrees and or certificates by potential candidates do not constitute a crucial element in many of the analyzed positions –most did not even require it. Experience in the occupation seems to be the main element valued by employers in the sector. With regard to Spanish welders of polyethylene gas pipes, SEDEGAS has developed certificates aimed at accreditation of competences. Since this business association is composed of employers in the sector, it is to some extent ensured that the content of the programs is adapted to the needs of the businesses and that technological developments are swiftly introduced in the courses leading to the certificate. Since the program is set up by SEDEGAS as well, it is ensured that the certificates are highly adapted to the needs of the employers.

In Greece, enterprises providing work places to chemical engineering technicians include both qualified and unqualified personnel. However, since technological and scientific developments are increasingly strengthening the realization that highly qualified personnel should be employed, graduates should acquire experience and enrich their knowledge and training within the workplace. The education offered for chemical engineering technicians is general in nature and specialization has been taking place in the workplace where knowledge passes from one employee to the other. Due to the size and multiplicity of chemical plants needing chemical engineering technicians it is believed that specialization should not be provided within initial vocational training.

Employers comply with national requirements, as strict checks and controls are in place to ensure the quality and safety of the produces in the sectors where machine operators are employed. Enterprises employing chemical engineering technicians take it upon themselves to acquaint their technicians in the specificities of the specific sector of the industry. Since the occupation of chemical engineering technician does not exist in a pure form in the Greek labour market, it was not possible to use specialized personnel that was trained in the workplace on the peculiarities and specificities of the type of chemical industry he was employed for. This did not pose serious safety and health risks for the personnel, nor for the protection of consumers, due to the fact

that according to law, a licensed engineer of tertiary education is responsible for the well-functioning of production units in chemical plants. Efforts are being made in order to underline the importance of specialization, possibly through continuous vocational training programs. However, due to the small and medium size of industries employing chemical engineering technicians and the multiplicity of specializations associated with the occupation, it is believed that CVET and the ensuing specialization can be undertaken within the workplace. Qualifications in the field of machine operators are seen by employers as a legal requirement that needs to be abided with. They will assume a prominent place as soon as the educational programs of IVET and CVET are updated. Unfortunately, technological and scientific developments in the field of machine operators are not adequately reflected in the educational programs of CVET and IVET, nor in the qualifications of relevant personnel.

As has been discussed earlier, in England there are no strict, governmental, restrictions for entering a profession of occupation. This is mainly left to the decision of the employers. Various quality standards, however, express the necessity of a qualified and skilled work force (e.g. for welding assignments). For this reason, the sector itself does require employees to have, or to obtain the necessary qualifications in accordance with their own established guidelines and standards. These guidelines are skills based, focused on working in the sector. Issues, such as safety and health are mentioned, but additional transversal skills (reading, writing, ICT, etc.) are presupposed. The qualifications developed by the SSCs (voice of the employers and in charge of developing national occupational standards) are highly valued as tool for continuous professional development. In particular the unitised approach towards qualifications ensures that employers can train their work force efficiently and effectively in particular subjects. The final uptake of formal qualifications is not huge however. Employees are trained with unitised modules related to the qualifications, but this does not mean that the employees will finally obtain the qualification. After all, for employers it is not important that the employee has a paper stating that he/she has a qualification, what is more important is that the employee has the right and relevant skills to do the work (i.e. follow training courses demanded/ desired by the employer). It follows that in addition through the Gold Standard and the say Cogent has in developing qualifications, the input employers provide in determining the learning outcomes of educational provision is very considerable. In this regard it can be noted that the provision of educational programmes and curricula by VET colleges and other providers in the welding sector are attuned to the National Occupation Standards. Through the involvement of employers in the development, review and refinement of these Standards, the supply is considerable aligned with the demands from the side of industry. Furthermore, also the qualifications of process technicians in chemical industries are taken into account by employers in their recruitment policies. The apprenticeship framework will change the fact that skills are most important to some extent since these will lead to a formal qualification (to obtain public funding). The fact that sector is characterised by fast changing technologies has an impact on the way qualifications are used, i.e. not as entry requirement, but as a tool for continuous professional development. With regard to (university) graduates it has been expressed by employers that they lack soft skills, such as team work, communication and report writing skills. As mentioned, obtaining formal qualifications is not the main reason

for training in the work place. The main reason is that the work is carried out keeping in mind the right health and safety regulations and quality standards.

Even though on the one hand it does not always matter to employers too much whether an applicant has a formal VET qualification or whether he or she has only acquired a professional certificate, on the other hand the industry suffers from competition with China and the Eastern countries and needs to become more competitive through specialization. Even though there is some deregulation, it can be said that for this reason diplomas become more and more important.

5.3.6 Conclusions: key factors making the difference

The chemical sector is a knowledge based industry which entails that a skilled workforce is an imperative for success of the sector. In general, the sector is confronted with increasing competition from Asia and the Middle East which leads to overproduction in the European industry and a decrease in jobs. In most European countries, changes in health and safety regulations, together with changes in environmental policies, have resulted in additional process and monitoring requirements affecting the operating costs and, therefore, the competitiveness of the sector.

Despite increased emphasis on upskilling the workforce, demographic change causes an increasingly older workforce (skills shortages) and a need to recruit more young people in the sector. In Flanders, the UK and Slovenia, there is often a lack of skilled professionals. Shortages of technical and engineering skills such as technicians, fitters, operators and so on, remain a Europe-wide problem. In most states there is an increasing demand for sustainable products in the chemical sector. In this way technological innovation to lower energy consumption or enhance capital intensity but also organizational innovation such as outsourcing non core activities to specialised subcontractors takes place. A lot of money should be invested in research and development. Consumers do not only demand stable and sharp prices but often ask for support by the producer with regard to the further development of process and applications. Companies therefore need to respond fast to the demands of consumers. More attention has to be paid to sustainability.

One does not need to hold a licence to practise one of the professions in this sector. However for certain professions access to the profession is restricted in some countries. E.g. in Belgium, Sweden Spain and Greece, the title of chemical engineering technicians is reserved to those holding the required diploma / qualifications. In England on the other hand, there are no entry requirements but the National Skills Academy provides training for the sector. Even though in Spain there is a trend towards deregulation, most professionals are highly qualified. The trend towards deregulation is also noticeable in Greece. Welding activities in the chemical sector are mainly not regulated. The specific profession is often not even known in the Member States under research and training generally takes place on the job. There is an exception for polyethylene welders in Spain. With regard to toiletry machine operator a professional degree is generally not required. For all professions training on the job is of main

importance. In the states under research there is no specific education that deals with pharmaceutical and toiletry production operators. However, the chemical-pharmaceutical industry is very specialized and most operators working in the industry are highly experienced (certainly in Spain). In Greece a specific amount of practical experience is of great importance for those wishing to qualify as specialized machine operator technicians. A license to gain access to the exercise of the profession is not needed. In England, the Gold Standard follows the same logic as for the Process Technician Chemicals.

With regard to sectoral actors, two different patterns can be identified: on the one hand sectoral actors have an autonomous stake in the process of shaping qualifications and entry requirements such as in England and Spain (polyethylene welders). On the other hand sectoral organisations provide advice toward the macro level where decisions are taken, such as in Flanders, Spain, Greece and Sweden. This does not mean that these actors are weaker than in the former group of countries. This is particularly so for Spain and Greece (license exemption) where social partners are proactively lobbying the government in favour of their occupational group.

Sectoral organisations have no role to implement state regulation. They do fill the space however, see for example the Social Skills Council in England and SEDIGAS in Spain. Overall, we can therefore distinguish the following functions of sectoral organisations in the sector: social partners, professional organisations or sectoral federations play a technical role in determining the content of occupational standards and qualifications within the national qualifications structure (England and Spain (polyethylene welders)); professional organisations play a role in advising government in the context of macro regulation, and lobby for the protection of their occupational groups (Flanders, Spain, Sweden); self-managing social actors (SEDIGAS in Spain)

Even though on the one hand it does not always matter to employers too much whether an applicant has a formal VET qualification or whether he or she has only acquired a professional certificate, on the other hand the industry suffers from competition with China and the Eastern countries and needs to become more competitive through specialization. Even though there is some deregulation, it can be said that for this reason diplomas, but specifically lifelong learning and continuous professional development become more and more important.

5.4 Transport and logistics

The fourth sector we examine at country level is the sector transport and logistics. We examined this sector in Belgium-Flanders, Greece, France, the Netherlands, Slovenia, and UK-England. The occupations we looked at in detail were the heavy truck driver, the air traffic controller and the ship's engineer. In this section, we follow the same structure that has been applied to describing the previous sectors.

5.4.1 Labour market context

The transport sector is an important employer as in 2006 it employed around 9,6 million people and in 2009 already roughly 10,1 million. Four out of five workers employed in transport were employed in old member states. The average annual growth of the employment in the sector between 2000 and 2006 was 2%. Employment in the sector in the old member states grew more quickly (2,5%) than in the new member states (0,2%). Land transport and transport via pipelines in 2006 made up for 61% of all employees in the sector. In 2009 this percentage rose up to 62,5%. Supporting and auxiliary transport activities and activities of travel agencies were the second largest employer in the sector with approximately 31% of the sector's employees in both 2006 and 2009. Between the years 2000 and 2006, supporting and auxiliary transport activities and activities of travel agencies were the quickest growing subsector (5,9% average annual growth) in terms of employment. In contrast, air transport experienced in the same period an average annual decrease in employment of 0,2%.¹

European transport keeps growing steadily, but the growth varies among different **transport modes**. Road transport, which is the most important in terms of volume, keeps high rates of growth while rail and water transport show substantially slower growth. Between 1970 and 1998 the road transport sector almost tripled in size while rail transport almost stagnated. The reasons for this can be the shortage of transport capacity on the rail and the lack of quality and flexibility of transport over water. Road transport can have harmful effects on the environment and causes congestion of the European transport network. It also has implications on the working intensity which has been increasing due to growing traffic congestion. As every transport mode has its advantages and disadvantages, a suitable combination of these modes can maximize the advantages and minimize the disadvantages. Promising combinations seem to be road-rail, road-air and road-inland shipping.²

Full-truck-load transport and zero inventories (as few inventories possible) are used to minimize the costs. However, European companies start to use **new strategies**, such as 'just in time' delivery. They switch to less-than-truck-load as consumers require more on-time delivery with short lead time. Because of these changes transport-oriented companies are switching to logistics-oriented companies with a higher customer service level. An adaptable and flexible logistics system and networks represent an important area for innovation. Supporting technologies include automated driving control and virtual reality (digital plant planning). Training and learning opportunities which were lacking in the transport sector in several European countries are now more appealing for the employers as employees need to be trained to function effectively in new circumstances.

New technologies will have important consequences for the sector. The role of ICT and technologies such as GPS, navigation systems, driver augmentation (sleep detec-

¹ European Commission 2009: Investing in the Future of Jobs and Skills. Scenarios, implications and options in anticipation of future skills and knowledge needs: Sector Report Transport and Logistics

² Ibid.

tion device, intelligent sensors), etc. has been increasing over last decades. These developments have implications for the skills requirements and safety of employees. In some countries, fully automated subway systems are already in service. Fully automated cars are in development but it may take time until they will be introduced in the real life traffic. Due to its environmental impact, the transport sector is under pressure to become more **environmentally friendly**. This can be achieved thanks to the application of new technologies (filters, fuel-efficient trucks and cars), use of bio-fuels or by changing the transportation mode (for example more use of railways).

The development of the sector can be influenced by a number of **external factors** such as fuel prices and developments in international trade. In the case that the prices of fuel will rise, more efficient transportation means/modes may get a competitive advantage over traditional transportation means/modes. Furthermore, alternative energy resources may have implications for the sector. Last but not least, the sector is to a certain level dependent on the volume of international trade. Economic crisis or restrictions of international trade may decrease the volumes of international trade having negative impact on the sector.

Managers in rail transport will be required to acquire e-skills because the system will become more complex and most planning and managing activities will be computer based. As the road transport is dominated by SMEs, strategic and visionary skills as well as initiative-taking will be important for the managers in road transport.

Currently, job profile and operation modes of **pilots** are standardized and few changes in this respect are expected in future. As the technology is expected to become even more complex and computer based, additional technical and analytical skill can be required. Unlike in the case of pilots, the work of **ship officers** in high sea transport is more collegial and team-oriented. Though, as ships will become more technologically advanced, officers will have to master knowledge of new technologies and analytical abilities. If the economy grows and becomes more globalized, ship officers will encounter more international ship crews, worldwide customers and tourists. Ship officers will be required to be more skilled in communication, language and intercultural skills. In scenarios with increased regulation, ship officers are required more knowledge about (international) laws, regulations and environmental requirements.

As transport is increasingly shifting towards logistics and more complex solutions, technical and electronic skills will be of major importance for **logistics professionals**. Freight ports may operate automatically and humans will mostly perform ICT-related operations, planning and controlling tasks. Furthermore, as logistics is expected to become more complex, analytical skills will be a central capability for the profession. In the case of **road drivers** a distinction has to be made between passenger drivers (bus, taxi) and truck drivers. For the first category, social skills generally become more important. Truck drivers will be demanded to have a higher degree of stress and self management if the growth in road transport will continue. Planning, either done by humans or computer assistance will become a central element. Furthermore, new

technologies will ask for electronic skills and technical competencies.¹

5.4.2 Regulatory snapshot: commonalities and differences between six countries

Even though the transport and logistics sector is very diverse and we have aimed to reflect this diversity in our selection of occupations, the country research shows that all three occupations are subject to strict international regulation which is implemented in all the countries examined, through national systems of regulation and administration. Thus there are licensing structures in place connected to specific procedures of training and education for all the three occupation. However, all the occupations do follow their own regulatory framework.

Starting with the occupation of **heavy truck driver**, in all the countries examined it is unlawful to work as a truck driver without possessing a truck driver's license and a Driver Certificate of Professional Competence (Driver CPC). Furthermore, truck drivers are obliged to attend 35 hours of periodic professional training every five years to keep their CPC valid. This is in accordance with Directive 2003/59/EC of the European Parliament and of the Council of 15 July 2003 on the initial qualification and periodic training of drivers of certain road vehicles for the carriage of goods or passengers which brought the different member states in line regarding the expectations that were placed on the training of, amongst others, truck drivers.

This Directive has been implemented in the different national regulatory systems. In some countries, for example the Netherlands, similar systems were in place before the Directive was implemented, but these provisions have since been brought in line with the European requirements. The regulation also specifies what the content of the training for the CPC and the periodic training is supposed to be and thereby unifies the skills demand underlying the occupation. In Belgium and the Netherlands, additional truck drivers' qualifications also exist within the regular state-financed VET system that are broader and address more transversal skills than the training leading to the driver CPC. These qualifications are however not strictly necessary for the practice in the profession, as the legal requirements remain the same. This shows that the licensing system in place exists next to the regular education systems as the training is organised strictly focused on the legal requirements for the occupation.

The same is true for the licensing system for **air traffic controllers**. The entire aviation sector is subject to a high degree of regulation. Without an appropriate license, it is forbidden in all countries to carry out activities and services pertaining to civil aviation, including flight traffic control services. Again, an EU directive is implemented at national level, in this case Directive 2006/36/EC on a Community Air Traffic Controller Licence. Every country has assigned its own organisation to carry out the training of air traffic controllers, in many cases also the organisation that carries out the actual air traffic control and therefore trains its own future employees. Examples in-

¹ Ibid.

clude Belgocontrol in Belgium, Air Traffic Control the Netherlands and the National College of Civil Aviation in France. In Greece and the United Kingdom, different airports carry out their own programs, supervised by the responsible aviation authorities.

Linked to these licensing requirements for air traffic controllers are criteria governing the entry into the training, and therefore into the labour market. These are connected to the age, the health and the English language proficiency of trainees and practitioners. In most cases, trainees need to be at least 18 years old and actual practitioners of the occupation need to have reached the age of 21. In France, the minimum age for air traffic controllers is even as high as 26. Conversely, in the Netherlands, 26 years of age has actually been introduced as a maximum entry age into the training, as experience showed that the chances for success were quite low amongst trainees above that age. In all countries, trainees and practitioners need medical certificate set according to international specifications and a language certificate for English. Trainees usually require a learning license, issued by the supervising authority or a certification institute in order to start the training. Fully-trained air traffic controllers are required to follow continuing training, again according to internationally agreed standards.

The **ship's engineers**, finally, fall under yet another legal framework, namely that of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW) which is further enshrined in the EU legislative structure through Directive 2008/106/EC on the minimum level of training of seafarers. These international requirements are implemented through national legislation. According to the STCW, all employees on a ship, including engineers, have to be in possession of a maritime certificate of competence. Engineers need to have completed the necessary training and passed the exam according to STCW standards including the completion of an internship of at least half a year in the engine room of a ship. In the STCW, this requirement is defined in learning outcomes, but does not make reference to formal educational levels. There is often a national body that makes sure that training courses adhere to the STCW standards, for example the Merchant Navy Training Board in the UK.

In all three occupations, we can therefore speak of licensing systems that feed through to the national level via international agreements and legislation. National actors are involved in implementing the international agreements, but do not decide independently about how the system is shaped. Furthermore, not only training and education, but also other requirements such as age, health and experience are included in the framework. This set-up is clearly a result of the nature of work in the sector: it crosses boundaries and touches on a lot of safety and security issues, both for employees and for the general public. It is not possible to look at the labour market in this sector without considering broader regulation issues, especially regarding road/air/water traffic safety. It is therefore not surprising that the way that training is organized in the sector in many cases circumvents traditional educational structure. We will now turn to this educational framework and describe it in detail.

5.4.3 Educational framework

The educational framework for the occupations examined in this sector results directly from the legal framework, in that separate educational structures have been set up to satisfy the international demands.

Regarding **heavy truck drivers**, the training is closely connected to the general drivers' licensing system. Thus, drivers usually have to pass the general truck drivers' license test and on top of that take an exam to attain their certificate of professional competence. Depending on previous experience, the training can be adapted, so that in France for example, those drivers older than 21 and with a normal drivers' license can take shorter courses than those above that age and in possession of a normal drivers' license. The qualification as heavy truck driver, or driver of heavy and long vehicles, is a specialization that can be attained by drivers with a specific amount of experience in the driving of regular trucks.

As has already been mentioned, in Belgium and the Netherlands, it is also possible to gain a full-fledged VET qualification of truck driver which goes beyond the CPC and drivers' license which is strictly required to practice the occupation. The VET courses take longer and include the usual aspects of VET education in these countries, also paying attention to transversal skills such as numeracy and literacy and language skills. As they are publicly financed, they adhere to both the requirements of the national VET structures and to the international qualification conditions. Though following these courses does not lead to specific authorities or tasks when compared to the narrow licensing paths, trainees do attain a basic VET qualification and can therefore re-enter the VET system at the level at which they are qualified if they wish to do so, in contrast to those with the specific truck drivers' license and CPC.

The training of **air traffic controllers** is carried out by the employers themselves which are the national air navigation service providers, supervised by the nationally designated air navigation authorities. Some of these providers have set up their own air traffic schools, e.g. the Slovenian air navigation service provider Slovenia Control. In other countries, for example Greece and France, specific aviation schools exist which carry out the training such as the Hellenic Aviation Authority School and the National College of Civil Aviation (France). Entry requirements for the education differ between countries. Whereas in the Netherlands, anyone with higher secondary education and the appropriate medical fitness can apply for the training, in France and Greece the training for air traffic controllers is only open to those who have attained a university degree. In all countries, the entry to the training is subject to strict entry exams. Since the air traffic authorities need to finance the training of their future employees entirely or partly themselves, they are monitoring the success rates of their closely, leading to strict selection at the entry point.

The training itself is carried out according to the European agreements set out in Directive 2006/23/EC, consisting of the following units:

- initial training of air navigation services
- unit training of air navigation services

- further training
- training for providing practical instructions in one or several operational positions
- training of examiners
- training of assessors
- training of linguistic competence
- initial training of airfield information provider
- unit training of airfield information provider

As these units are determined by the international framework, the training providers have little room to change the way in which they organize their training. As a result, they develop curricula according to this framework which are certified by the aviation authority, ensuring that they fit into the internationally agreed system.

The educational framework for **ship's engineers** is probably closest to the regular VET structures on national level. Though complying with the STCW requirements, these standards are usually integrated into the national qualification structures. As an example, in the Dutch qualification structure a profile for this occupation is included which makes specific reference to the tasks, skills and competences required by the international agreements. This direct reference (the description is even kept in English language) to the STCW code shows the importance of the international legal requirements. Integrating them into the regular VET system also guarantees attention being paid to transversal skills and competences however.

The institutions providing the training and the certification arrangements connected to them are in many cases closely linked to the professional context of the training. Thus, there usually specialized nautical or maritime colleges that develop the curricula for training of ship's engineers. These are then controlled and certified by national maritime authorities. An example of such a sector-specific structure is the system in the UK where nautical colleges develop their own courses to meet the framework requirements and seek formal approval of them by the Merchant Navy Training Board (MNTB), while the mandatory sea time and task execution which need to form part of the training are checked by the Maritime and Coastguard Agency, an executive agency of the Department for Transport. Similar structures exist in Belgium where the Antwerp Maritime Academy carries out the training of ship's engineers according to a quality management system monitored by the Ministry of Mobility and Transport. In Greece, the Council of Maritime Education takes decisions on the curricula where by the voice of employers is strongly represented.

5.4.4 Governance systems in the sector: the role of sectoral organisations

The governance systems of occupations in the sector of transport and logistics are dominated by the demands placed upon countries by international agreements. As we have seen, national authorities only have limited opportunities to change the way in which the access and practice of the occupations is regulated, since they have to implement EU-level or international regulation. This would suggest that there is also lit-

tle room for sectoral organisations to exert their influence. Interestingly however, while not determining the content of regulation and legislation, sectoral organizations play a crucial role in implementing and carrying out the internationally agreed frameworks.

The most obvious case of the sectoral dimension of the governance frameworks is the case of air traffic control. According to the EU directive, member states have designated **air traffic service providers** that are responsible for carrying out the actual air traffic control, and for this purpose providing training for new air traffic controllers, such as the Dutch LVNL, the French DSNA, The Slovenian Slovenia Control, the British NATS and the Belgian Belgocontrol. Whereas in several countries, air traffic control used to be publicly managed, the service providers now are private or semi-private entities working under the auspices of the national aviation authority. While it is true that these sectoral organisations do not play a direct role in the policy-making process at national or European level, they are the key actors in the actual implementation of the policies. They design the curricula, finance and carry out the training, educate the trainers and organise the continuing professional training, all according to the European framework.

Finally and most importantly, they carry out the actual air traffic control, which means that they can also be seen as the only employers in the sector. Since the sub-sector of air navigation services is so tightly regulated and specialised at the same time, it can be seen as a self-sustaining system. Though service providers have to work within the regulatory framework, they can carry out direct labour market management, including recruitment and training, in a relatively clearly designated area. Through their close cooperation with national authorities they are sure to be informed about regulatory developments which they can reconcile with the lessons from the working reality on the ground. Furthermore, they can also influence the policy making process at national and supra-national level through the crucial role they play in the implementation of the framework. As an example of a joint initiative, several of the service providers are cooperating in the FABEC programme, working towards a common approach to air space control in Belgium, France, Germany, Luxembourg, the Netherlands and Switzerland.

Similarly, the **maritime world** can take recourse to its own institutions and sectoral organisations, however in a much less isolated space than that of the air traffic control. The STCW can be seen as an essentially sectoral regime, which is however implemented through national governments. Sectoral organisations exist on the side of education, in the form of maritime or nautical colleges and universities, and on the side of the labour market, in the form of employers' associations and professional organisations. Again, while these organisations may not play a role in setting out the overall framework which is agreed at the level of the International Maritime Organisations, they do play an important role in implementing the system at country level.

The most important actors in this regard are possibly the maritime colleges and universities. Specialised in the field, they have to transpose the international demands of the STCW into practical curricula which are then controlled again by the maritime au-

thorities in question as has already been described in the section above. In the UK, the Merchant Navy Training Board, a sectoral organisation that has existed since 1937, sees to a strong framework of education and training in the sector in close co-operation with nautical colleges and universities. However, in other countries, the maritime qualifications are more closely integrated into the VET system, combining the international framework with the national educational structure. Thus, the Dutch maritime colleges also participate in the qualification committees organised by the sectoral centre of expertise VTL, together with labour market representatives.

In some countries, such as Greece and Belgium, **ship owners' associations** play an additional role in the management of the labour market and the organisation of the training of ship's engineers and other maritime occupations. These are not only important as the future employers of trainees partaking in education, but also need to be involved, as the training of maritime personnel includes a mandatory period at sea. The Royal Belgian Shipowner's Association for example promotes the sector amongst trainees as an attractive sector in order to stimulate labour market supply. In Greece, the Association of Ship owners of Greece (*Enosi Efopliston Ellados*) is of utmost importance in the decisions taken by the Council of Maritime Education, regarding curricula and requirements for the training of maritime personnel, especially pertaining to the required time at sea for trainees. In times where the demand for labour market entrants is high, these requirements are relaxed and shortened; in times where demand is low, the requirements are increased in order to prevent an over-supply of new staff. Thus, a specific requirement such as the time spent at sea can be used as an effective regulatory instrument.

Regarding sectoral organisations in the world of **truck driving**, these are represented by the traditional sectoral social partners, meaning trade unions and employer organisations. Where full-fledged qualifications are provided within the public VET framework, as is the case in Belgium and in the Netherlands, these social partners play a role in the respective qualification committees that are set up to maintain and update the qualification and competence profiles. In Greece, social partners do not play a formal role, but have strong bargaining power in the area of truck driving. This point can be illustrated by the fact that heavy truck drivers have succeeded in protecting their occupation against new entrants by defending a *numerus clausus* system according to which licenses are limited and new entrants need to buy their license from an exiting practitioner.

We can thus conclude that despite the strict regulatory framework, sectoral organisations continue to play a role in all three occupations studied in this sector. This role can either consist in being responsible for the implementation of the framework or in lobbying and advisory activities at national at international level aiming to influence the framework. We will now move on to discussing the effect that the general framework has on the actual occupational practice in the work place.

5.4.5 The role of qualifications in practice: what happens at micro level?

Corresponding to the strict licensing requirements concerning labour market entry and continuing professional education, the general picture that emerges from the micro level is that the licensing framework is complied with and embraced by employers and employees. In the case of air traffic controllers, the system is so tightly organized by the employers themselves (i.e. the air traffic control services) that non-compliance is unheard of. Regarding the case of truck drivers, the requirements are very basic and easily attainable and in a labour market situation where a lot of drivers are available, employers are unlikely to take a gamble with unlicensed personnel. The same applies to the world of ship's engineers, where employers are closely involved in the training (initial and continuing) of their own employees and thereby embrace the international requirements. However, these are only general impressions described by respondents, as no representative research was carried out at micro level in the context of this study.

Compared to other sectors, the enforcement of the licensing regulation at micro level can also be seen as high. This has partly to do with general traffic controls, as a truck driver is more likely to be required to show his license on a regular basis than for example a social worker. In addition, specific enforcement procedures exist in the sector which are more extensive than in other sectors. In Greece, the coast guard and the port state control are not only allowed to board ships in Greek waters and check the certificates of competence of all employees on board the ship. They are also entitled to subject ship's engineers to on-the-spot practical testing of their knowledge and competences. In all countries, controls of national and international traffic police are cited as an important incentive for employers and employees to comply with the licensing requirements. Furthermore, the risk of accidents and the connected liability of employers may also play a role in the decision to employ qualified staff.

As a result of the necessity to carry an appropriate qualification and license, the qualifications in the sector are trusted by employers and professionals. Their function is however first and foremost that of an entry requirement, i.e. allowing the holder to practice the occupation. Through their license and therefore their authority to practice, the occupational practitioners are seen as able to carry out their tasks. License holders are also expected to follow continuing professional training which increases the general feeling that they are competent to practice. In that sense, the licenses reflect also the continuing skills of the practitioners.

Where additional VET qualifications exist on top of the legally binding requirements, such as the VET courses for truck drivers in the Netherlands and Belgium, these are seen as having additional value especially for the students, as they teach them more transversal skills, but also delve more deeply into topics such as customer relations. Employers may also appreciate these qualifications, but will not wait several years for their trainees to complete their training. In times of labour shortages, they will therefore rather make use of the regular certificates of competence and drivers' licenses. The CPD for truck drivers is seen as very effective also for employers, as it teaches

drivers to increase their fuel efficiency and therefore save costs for their employer. Regarding air traffic controllers, the employer is also the training institution in most cases, and training (initial and continuing) and work are therefore closely connected, as air navigation service providers have an obvious stake in their staff being well-trained.

Though the occupations in the transport sector are definitely subject to constant change, influenced by both technological and legislative development, this does not diminish the role of qualifications in the sector. As in other sectors and occupations, respondents do not classify the current pace of change as unprecedented or unique and most of the occupations in the sector have been in existence for a long time. Changes in skills demand, for example regarding new technology or soft skills relating to customer service, are integrated into the training systems and especially into the continuing training which is maintained for exactly this purpose. Legislative changes, which are enacted at an international level, for example regarding training requirements such as the amount of experience at sea for ship's engineers, are implemented in the national structures and thereby feed through to the micro level.

In conclusion, qualifications are seen as very important at micro level to avoid safety and health risks for the occupational practitioners and accidents for the general public. The strict licensing regime that is in place is therefore seen as justified by both employers and practitioners.

5.4.6 Conclusions: key factors making the difference

The situation in the transport and logistics sector, examined by making references to the occupations of heavy truck driver, air traffic controller and ship's engineer, can be characterised by the following recurring themes:

- Strong regulatory framework, defined through European or international legislation
- Strict licensing requirements for entry into the profession, including demands on practical training and experience and additional criteria such as age and health
- Strict requirements regarding continuing professional development of occupational practitioners
- Strong role of sectoral organizations in implementing the regulatory framework, under the auspices of national authorities, in some cases entirely separate from public VET structure
- Little room for national and sectoral actors to influence or change the international framework of regulation
- Strong trust in qualifications at micro level, motivated by enforcement and concern for safety and security
- All occupations are subject to change triggered by legislative and technological developments which is addressed by means of continuing professional development.

While most of these aspects apply to all the countries and occupations examined, there are some exceptions to these general trends, and also some aspects in which countries and occupations differ, such as the following:

- The occupation of air traffic is most tightly regulated and managed by elaborate regulatory infrastructure, whereas the profession of ship's engineer is more often integrated into the public VET structure
- Some countries (Belgium, the Netherlands) offer VET courses for truck drivers in addition to mandatory competence training
- The maritime sector is characterised by a strong role of sectoral educational institutes, in air navigation the employers (air navigation services) carry out the training themselves, for truck drivers regular driving schools play an important role.

When looking at these differences and commonalities, it appears obvious that there are more commonalities between the different countries than differences, as the nature of the sector prevails over the national differences. Nonetheless, it is interesting to look at which sectoral factors have an influence on the way that work and education are governed and which national factors lead to specific exceptions to the rule.

There are two **sectoral factors** that clearly determine the nature of regulation and governance of transport and logistics occupations. Firstly, the work in the sector is inherently international, as trucks, ships, planes and trains cross national borders and international air and sea space. Secondly, the work carries with it high risks of accidents which do not only affect the practitioners, but also the general public, as practitioners are part of general traffic. These two factors clearly lead to a situation where international agreements and regulation is desirable. As international agreements cannot always take into account national structure of education and training, it is also not surprising that separate structures are needed to organise the licensing of employees in the sector. Some occupations, such as the air traffic controller, carry such intensive responsibilities and risks with it, that an entirely self-sustaining infrastructure was deemed the most effective way to approach governance in the sector.

Due to the strong international regulation infrastructure, the **national factors** can only be of limited influence. Thus, it seems that the strong standing of trade unions in the Greek truck driving industry allows them to influence the national framework to a certain extent, in the same way that the Greek ship owners can put pressure on the licensing requirements. The national VET structures play a role in the maritime education and in additional qualifications for truck drivers, determining the possibilities that exist for future students, though not impacting on the underlying mandatory framework. Overall however, the structures and ways of dealing with the international sectoral framework are noticeably similar across the different countries and at all levels of the governance structure.

The sector can therefore serve as an example of a strong sectoral approach which trumps national differences in VET structures and regulatory tradition. It is interesting however that this sectoral approach is expressed in a strict international framework, which exists next to national educational and labour market structures and does not leave much room for national or sectoral actors to really influence the framework.

We can therefore speak of a top-down, labour market centred approach which determines the entry to and practice in occupations in the sector.

5.5 Sports

The last sector examined at country level is the sports. We examined this sector in France, Spain, Lithuania, Germany, Slovenia and Sweden. The occupations we looked at in detail were those of ski instructor, fitness instructor and referee. In this section, we follow the same structure that has been applied to describing the previous sectors.

5.5.1 Labour market context

Generally, in economic terms, the sport sector does not belong to the most economically significant sectors. For example, in France, the sport and leisure sector accounts for 1,4% and in Slovenia for 1% of the total retail value (2009). However, it is a sector with **positive growth** and, according to the European Commission's White Paper on Sport, a dynamic one whose macro-economic impact is often under-estimated. Moreover, besides its economic impact, sport is viewed to play a vital **societal role** by, inter alia, enhancing public health, fostering social integration and inclusion, promoting active citizenship etc.

Despite the positive growth tendencies in sport, the sector was to some extent affected by the recent crisis. For example, in some countries (e.g. Spain and Lithuania), spending on sports activities dropped in recent years. The same was noted with regard to the number of visitors in the Spanish skiing stations. In contrast, the crisis does not seem to have substantially affected the French sport sector. While it may be expected that the increased tendencies towards a **healthy life-style** have led to more health & fitness activities, some studies quoted by the country reports also note that there were no substantial shifts in attitudes towards sporting activities (e.g. Lithuania, while the Spanish report notes that people devote less time to fitness). However, among the people who do engage in sports, there seems to be a growing proportion of those who work out in sports clubs. This may have implications for the occupation of, for example, fitness instructors. With regard to winter sports and the occupation of ski instructors, **winter tourism** is an important factor. This is especially the case in France, which is among the world leaders in winter tourism. Employment in, for example, the French sports sector is on increase, as well as the number of professional diplomas awarded in the sports sector. The same (moderate increase in employment) was noted with regard to the Spanish sport sector.

Despite these generally noted tendencies, sport remains a sector the economic weight of which is hard to estimate due to the lack of comprehensive and reliable **statistics**. This is noted in the Commission's White Paper on Sport and also in some country reports. Probably the most comprehensive review of the sports governance systems in European countries from a comparative perspective remains the Vocasport 2003 re-

port. Although the report may have become out-dated to some extent, the following sections refer to it, where appropriate. With respect to **employment** in the sector, the Vocasport report shows that the number of people employed in the sector varies crucially in EU countries. The proportion of the active population whose main occupation is in the sports sector varies from 0,16 in Slovakia to 0,94 in the United Kingdom. In total, the sport sector is reported to account for 800 000 jobs in the EU-25. An Austrian study estimated much more generously that sport in the broader sense accounts for employment of 15 million people in the EU. While generally sports is dominated by part-time employment, this, again, varies across countries: among the studied countries, in France, Lithuania and in Spain, the proportion of full-time workers (72-85%) is considerably greater than of part-time workers.

5.5.2 Regulatory snapshot: commonalities and differences between six countries

The professions/occupations in the sports sector, generally, do not belong to the most highly regulated ones (when compared to, for example, the health and social care sector). Nonetheless, one is surprised to find out that, even though the occupations in question are often labelled as ‘not regulated’ in the respective countries, in many cases specific requirements to enter the respective occupations do apply. Again, the intensity of (state) regulation varies across countries and occupations covered, as follows below.

While the approaches to (regulating) **ski instructors** differ among the studied countries, in most of them specific qualification requirements apply with respect to practicing as ski instructor. Ski instructor is a regulated profession in Germany, conditional upon the possession of the respective qualification (Skilehrer). The situation is similar in France where, in order to practice as ski instructor, one must hold a state certificate of ‘sports teacher’ (‘brevet d’Etat d’educateur sportif’), issued by the National School of Ski and Alpinism. The qualification of ski instructor in France, however, seems to be part of a broader category of ‘sport teacher’; ski instructor may teach skiing and certain related disciplines. Interestingly, in Slovenia, whereas the profession of ski instructor is officially labelled as ‘not regulated’, according to the Slovenian Law on Sports a person must hold the respective professional qualification and a licence issued by the Ski Association in order to be able to work as ski instructor.

The approaches are slightly different in, for example, Spain and Lithuania. While in Spain there are no official regulatory requirements applicable to ski instructors, it seems that de facto a person does need a licence issued by the Skiing Federation in order to practice as official (licensed) ski instructor. In principle, however, a person may enter the labour market without having the respective licence. While it is noted that most Spanish ski instructors do hold the respective licence, some degree of ‘intrusion’ by non-qualified ski instructors was termed as problematic with regard to Spain. There are, however, official regulatory requirements with respect to access to different qualifying degrees in the area of winter sports. With regard to Lithuania, it

should first of all be noted that the profession of ski instructor has only marginal relevance as there are only a couple of places on the Lithuanian territory where skiing can and is being practiced. Therefore, there are also no official educational programmes leading to a qualification of ski instructor and practicing as ski instructor is not subject to the respective professional qualifications. However, according to the Lithuanian law on Sports, in order to perform ‘instructive activity in sports’ (including skiing instruction), a person needs to have higher education in the area of sports or a valid ‘permission’. Such permission is granted on the basis of the completion of a period of courses organised by education institutions. As will be noted below, almost all educational programmes in the area of sports which exist in Lithuania are higher education programmes. Most ski instructors working in Lithuania hold certificates from different international bodies and/or skiing schools.

With regard to **fitness instructors**, while no specific regulatory requirements apply in Spain, recent laws did introduce new degrees/certificates for fitness instructors and set stricter requirements for the access to the qualifying degrees. The Spanish report, therefore, noted tendencies towards rather increased regulation and more professionalisation. As noted above, the Lithuanian law on Sports requires a person to perform ‘instructive activity in sports’ to hold a higher education diploma in the area of sports or a ‘permission’ granted by the Department of Physical Education and Sports under the auspices of the Lithuanian Government.. **Regulatory reforms** in sports area are also planned in Lithuania as the current requirements as well as qualifications system in sports are considered inadequate. The Lithuanian Strategy on Sports, therefore, sets out to establish a general system of qualification requirements and attestation for sports professionals in order to ensure increased ‘**professionalisation**’ of sports personnel and high quality services. So far, however, little can be said about the precise contents of the planned reforms. In Germany, fitness instructors do not have to fulfill entry requirements or other criteria, though private initiatives exist to increase the quality of service provision in the occupation. In Slovenia, in order to become a fitness instructor, one needs to comply with the conditions laid down by the Fitness Association of Slovenia, which can probably best be described as a system of accreditation

The professions/occupations of ski and fitness instructor can be contrasted with the occupation of **sports referee**, which generally attracts much **less state intervention**. In other words, there is no general legislative framework concerning the qualifications which referees need to have. However, absence of state regulation does not mean absence of any qualification requirements. To the contrary, the lack of state intervention is well ‘compensated’ at the **meso level**, which is responsible for a web of quite detailed requirements with regard to sports referees, their training and qualifications. In other words, in the case of referees, it is the **sports federations** which are relatively free to determine the respective qualification requirements and the contents of the training. Such requirements, moreover, vary across sports in question, as further elaborated in section 4 (governance systems).

Moreover, the occupation of sport referees, in comparison with the other considered occupations, can be considered as rather ‘**atypical**’. For example, while the Lithuanian-

an Law on Sports does not create any specific conditions with regard to referees' qualifications, it provides that a referee may engage in individual activity upon signing of a contract with the respective sports organisation. Such contract is defined as an agreement between the referee and the sports organisation, in which the referee agrees to objectively supervise sports competitions in compliance with the rules of the respective sport and the sports organisation obliges itself to create conditions for a referee to objectively perform his tasks and to remunerate the services provided. The Spanish report also notes that in case of referees one cannot really talk of employers/employees and the French report stresses that any subordination of referees to their federations is forbidden. In this sense, in case of referees, one can indeed talk of rather service providers than employees.

The lower degree of state-formulated regulatory requirements may have several explanations. The occupations of **ski** and **fitness instructors** are directly related to people's health, safety and wellbeing and the costs of poor quality services may indeed be high ('non-monetary'). Therefore - to the extent that specific requirements for exercising these occupations do exist - the **common reasons** for such requirements not surprisingly include ensuring high quality services and hence the protection of consumers' health & safety. In other words, people who perform instructive activity in sports are expected and required to have knowledge on anatomy, physiology, muscles, possible traumas, safety (e.g. safety outside the normal tracks for ski instructors) etc. By imposing specific requirements for entering these occupations, the 'protection' objective and the aim of ensuring high quality services are hereby pursued. This is different with regard to **referees** who, due to the very nature of their activity, are required to have different knowledge and qualifications. The most important qualities of referees are considered mastering the 'rules of the game', their independence and, clearly, a certain degree of physical condition. The interest protected by specifying requirements for sports referees (first and foremost ensuring a 'fair play') is, however, different from those relating to ski and fitness instructors. The rules of the game, moreover, differ across sports and hence are left to the respective federations. This may explain the absence of state regulation with regard to referees (but vital interest of sports federations themselves). Therefore, it seems to be, inter alia, the **nature of the protected interest** which influences the intensity of state regulation and the degree to which the state delegates its 'gate-keeping' powers to sectoral organisations.

5.5.3 Educational framework

The educational provision in sports differs substantially among the studied countries and often represents a complex web of training offered by a number of public and private institutions.

In France, qualifications necessary to work as **ski instructor** can be obtained at the national school of ski and alpinism, part of the national school for mountain sports. The latter is a public body with an administrative character under the auspices of the minister in charge of sports; the training normally takes up 3 to 4 years. In Spain, the respective courses (at medium or superior degrees) are taught by authorized schools,

which may be both private or public. To become a ski instructor in Germany, trainees can take courses organized by the German ski instructor association. In order to participate, trainees need to have followed previous training, need a police record of good conduct, a certificate of first aid qualifications as well as a medical fitness certificate. The training of ski instructors includes both theoretical and practical training and tests, training in orientation; an important part is formed by OSH issues. Due to geographical conditions, in Lithuania there are no educational programmes leading to the qualification of (alpine) ski instructor.

In France, there are numerous programmes leading to a qualification enabling to work as **fitness instructor**, which generally take 2 to 4 years. In Spain, a number of programmes for fitness instructors were until now organised by a number of private institutions. However, as mentioned above, recent royal decrees (including decree 1518/2011) introduced new degrees (at level 3 of the VET scheme) and certificates in fitness training and set stricter requirements for the access to such degrees. It is, therefore, noted that authorised educational bodies are likely to start implementing new programmes leading to such official degrees. The Lithuanian qualifications system with regard to fitness instructors (and sports in general) is an interesting example or a certain ‘mismatch’ between educational provision and the labour market as currently there are about 20 higher education programmes in the area of sports organised by universities but only 1 running VET programme which educated persons for the sports sector. This programme leads to a qualification of an ‘organiser of sports club activity’, which somehow incorporates the activity of fitness instructor. Strikingly, however, there is no running study programme which would explicitly aim at educating fitness instructors. According to the available information, such programme has been developed in line with the standards of the European Health and Fitness Association (EHFA) and has been accredited by the Central YMCA Qualifications (this may, moreover, serve as an interesting example of ‘internationalisation’ or ‘Europeanisation’ of qualifications). This programme, however, has not yet started. This higher-education led system has been criticised in recent years and is viewed to represent a **clear case of discrepancy** between educational provision and the needs of the labour market. In other words, while the overwhelming majority of education programmes in the area of sports are ascribable to higher education, it is at the same time noted the labour market cannot truly absorb people such a high (ISCED 4-5) education level. It is also noted that there is actually a bigger need to educate people to work in sports clubs and fitness centres. Such need is not yet accommodated well by the existing education programmes in sports.

With regard to ski and fitness instructors, it should be noted that the importance of **general skills** is frequently stressed, as fitness instructors are not only expected to give physical instructions but also to give psychological guidance, to explain, motivate, communicate, encourage etc. While such skills seem to be addressed in the respective training programmes, it may well be that they will be given more attention in future. It is also noted that such skills are in the best interest of employers, interested in people continuing doing sports.

In addition to this, it is repeatedly noted in the studied documents that due to low earnings offered in the sector, particularly in the public sector, only a small proportion of sports professionals work according to their specialization acquired in higher education establishments, while many find employment in other sectors.

With respect to the training of **sports referees** it should again be mentioned that educational requirements for sports referees are to a great extent determined by the respective sports federations. Such training normally includes both theoretical ('rules of the game') and physical tests and may lead to acquiring different categories of the respective qualifications. Among the main skills which referees need to possess the country reports normally mention knowledge of the rules of the game, independence, good physical condition etc. Interestingly, since 2007, in France one can follow university education to obtain a diploma of 'Sport de Haut Niveau et Arbitrage', which enables referees to master new disciplines essential to their profession and to adapt to the demands of high-level sports. Such studies include, for example, communication aspects and marketing/sports economics.

5.5.4 Governance systems in the sector: the role of sectoral organisations

With regard to the governance systems in the sport sector, as a starting point, reference may again be made to the 2003 Vocasport report. The report has developed a comprehensive typology of the governance systems of sports in 25 European countries. According to the report, most of the EU-25 countries represent the type of '**bureaucratic configuration**', meaning that the state/public agencies play a crucial role in the governance of sports. In other words, systems representing the bureaucratic configuration are characterised by a relatively high degree of state intervention. Among the studied countries, France, Lithuania, Slovenia and Spain were considered to represent the bureaucratic model (although with regard to France the Vocasport report noted a strong tendency towards 'social configuration' with a greater role of social partners). Germany and Sweden were considered to represent the so-called '**missionary configuration**', in which the voluntary sports movement and federated sports organisations play a much greater role.

It seems that the role of sectoral organisations varies considerably among the studied professions/occupations. Here, again, a **broad distinction** can be drawn between the occupations of ski/fitness instructors and referees. While with regard to the former, sectoral organisations play a rather moderate (albeit important) role, with respect to referees sectoral organisations play a central, indeed vital, role.

There are numerous organisations in the area of **skiing**. Their role vary from popularizing alpine skiing (e.g. Lithuania), lobbying (France), participating in training, to issuing licenses (Spain, Slovenia) or playing an active advisory role to the public authorities in the process of preparing legislative initiatives (France). The occupation of fitness instructors seems to be the least powerful and organised. This remark has been made with regard to, for example, Spain and Lithuania, where **fitness instructors as-**

sociations do not seem to play any notable role. The **European Health and Fitness Association** (EHFA) is, however, also to be noted in this regard. The EHFA has established common standards and accreditation system of European education of fitness instructors and is developing a sectoral 8-level framework to be referenced to the EQF. Graduates of programmes developed in line with EFHA's standards may be included in the European Register of Exercise Professionals (EREPS), aimed at facilitating and fostering workforce mobility. The register is backed up by a system of quality assurance and accreditation of educational providers has been in existence since 2007. It can thus certainly be seen as a young system resembling the qualification and certification system that exists in the welding occupation.

5.5.5 The role of qualifications in practice: what happens at micro level?

Generally, the importance of qualifications in the studied occupations does not seem to be seriously questioned by most respondents and country reporters. Qualifications are seen as essential to ensure high quality services, especially when consumers' health and/or safety are at stake. This is the case with, for example, ski and fitness instructors, whose skills and knowledge regarding, inter alia, anatomy, OSH, possible traumas etc. are seen indispensable. With regard to referees, due to the very nature of their activity, respective qualifications are seen vital to ensure 'fair play'.

Nevertheless, despite this rather positive rhetoric, **possible lack of compliance** of employers with qualifications requirements or failure to employ qualified staff in general was a recurring concern in several country reports, as follows below. Before coming to this, however, it should be mentioned that the **micro level** turned out to be the most **difficult to research** for the country researchers. This is due to several reasons. First, this is related to the very nature of the subject, which concerns employers' compliance with qualifications' requirements, which is inherently difficult to research. Second, in order to draw firm conclusions as to employers' views and practices, a much broader (qualitative) interviewing would be necessary. This was not possible given the broad focus of the study. Third, any other reliable information concerning employers' behaviour and/or compliance is scarce, with a few exceptions of the available documents or studies which do explicitly address this issue (e.g. the Lithuanian Sports Strategy, which explicitly addresses the question of lack of compliance with the requirements for fitness instructors, or the Spanish report on Innovation sessions). This all makes it difficult to conclude at any level of generality whether and in how far qualifications are indeed a helpful tool for employers. Therefore, in the following, only tentative conclusions can be drawn which may point to some overarching issues or be indicative of broader tendencies.

Despite the generally claimed importance of qualifications, there are some indications that **lack of adequate qualifications/lack of compliance** of employers with the existing qualifications requirements may be an issue. In other words, employers sometimes fail to employ qualified staff. This was noted with regard to **fitness instructors** in Spain and in Lithuania and, to a lesser extent, ski instructors in Spain. The Spanish

report noted that a number of fitness centers do not embrace the use of official qualifications and a number of fitness instructors hence lack adequate training. The same ‘deficit of compliance’ with regard to fitness instructors was reported in the Lithuanian Strategy on Sports. It is hence noted that this results in poor quality services and hence may have detrimental effects on people’s health.

While several reasons were put forward as possible explanations for such a compliance deficit, they all boil down to the issue of competitive (dis)advantage and the role of qualifications as a marketing instrument. In other words, employers seem to be more interested in the qualifications in their employees when they can publicize them and attract consumers by doing so. That is why some employers widely publicise the high qualifications of their staff (e.g. on their websites) as hence use them as a marketing instrument. The extent to which this market mechanism will work in ensuring highly qualified staff will, however, clearly depend on the consumers’ interest in high quality services and their vigilance. This, again, may be seen in relation with the consumers’ interest in high quality services and their willingness to pay for them. However, due to certain information asymmetries it may sometimes be difficult for consumers to correctly assess the quality of services they receive. In other words, employers’ interest in high qualification of their staff will, inter alia, depend on the strength of market incentives to employ such staff. These and similar issues were, for example, raised in Spain and in Lithuania.

Again, for reasons of completeness, it should be mentioned that, due to the reasons mentioned above, not all country reports explicitly addressed the issue of employers’ compliance at the micro level. As a result, the above discussion needed to rely on the available information. It should also be stressed that, among the interviewed parties, no similar concerns relating to lack of adequate qualifications discussed above were expressed with regard to referees as sports federations have been reported to be very vigilant with respect to their qualifications.

While the above indicates that, in some cases, employers may hire under-qualified staff, there are also some factors which may also point rather to the opposite direction (high qualification requirements of employers). Such factors include, for example, high unemployment (especially in Spain and in Lithuania), which given high supply of labour enables employers to set high qualification requirements and/or (over)supply of qualified staff.

5.5.6 Conclusions: key factors making the difference

Generally, the importance of qualifications in governing access to and practice of occupations/professions in the sport sector does not seem to be diminishing. In contrast, qualifications remain the main currency in access to the covered professions as well as the main tool for regulating access to professions. While the importance of qualifications does not seem to be diminishing, it may well be noted that the number of qualifications in the sports sector seems to be on increase. This is, for example, illustrated by the introduction of a new study programme for referees in France (‘Sport de

Haut Niveau et Arbitrage’), introduction of new degrees and certificates in fitness instruction as well as the newly developed programme aimed at educating fitness instructors in Lithuania. This is especially welcome in the latter, where the case of ‘discrepancy’ between educational provision and the needs of the labour market can be considered as especially strong.

Where regulatory requirements with regard to the covered professions do exist, the main reason for such requirements include ensuring high quality services and protecting consumers’ health and safety. It is different with regard to sports referees, the qualifications of whom do not serve any (health) protection objectives but first and foremost serve to ensure ‘fair play’. An essential part of referees’ qualifications is, therefore, mastering the rules of the game which, moreover, vary across sport in question. This, as well as the nature of the protected interest may be among the explanations why the state has delegated the main regulatory functions with regard to sports referees to sports federations. This, however, does not necessarily imply regulation of lesser intensity as sports federations are very active and vigilant in setting the respective requirements regarding referees’ training and qualifications.

While sectoral organizations, especially sports federations, were held to play a central role with respect to sports referees, the situation is different when it comes to, for example, fitness instructors, which seem to be the least well-organised among the studied professions/occupations, at least on the national level. The European Health and Fitness Association represents an interesting example of ‘Europeanised’ qualifications standards for fitness instructors. Moreover, organisations uniting fitness instructors and ski instructors play an important advisory role, participate in training, lobby or be engaged in licensing activity.

Although in the general rhetoric the importance of qualifications is not questioned, lack of compliance on the micro level may well be an issue in some cases. This is well illustrated in case of fitness instructors (e.g. Spain, Lithuania), with regard to which the lack of the necessary qualifications was a recurring concern. With regard to fitness instructors, it was, for example, noted both with regard to Spain and Lithuania, that a number of employers (fitness clubs) fail to employ qualified staff. While some employers do tend to use qualifications as a marketing instrument, due to the absence of consumer pressure the market mechanism does not seem to ensure sufficient qualifications of fitness instructors.

While technological change does not seem to crucially influence the professions studied, there seems to be a greater focus on general skills, especially communication, skills of sports instructors. This was especially frequently noted with regard to fitness instructors, who are expected to possess inter-personal skills necessary to communicate, to explain, motivate, encourage etc. It may well be that such transversal skills will be paid more attention in the training of, for example, fitness instructors in future.

6 Discussion and cross-case analysis

Having presented the empirical information that has been collected for the purposes of this study, we will now turn to the discussion of this information in the light of the objectives of the study. We will not only analyse the presented information, but also aim to relate it to the broader issues that inspired this study. As has already been mentioned, we are basing this discussion mainly on the situation encountered in the selected sectors and occupations. Of course it is possible that in other sectors or occupations different structures, systems or developments exist. This does however not diminish the validity of the general conclusions drawn on the basis of the information collected for the purposes of this study. The mechanisms identified throughout the five sectors can thus be seen as generally applicable, as they are based on inductive empirical reasoning and do not require a formal claim to representativeness.

6.1 Governing systems and regulatory traditions

The discussion of the national and sectoral information has shown that it is not the case that every country has its own specific system of governance that is applied throughout the economy to all the occupations. The role of qualifications and the framework within which they are used, vary from sector to sector and even from occupation to occupation. Sectoral factors often seem to trump national factors where the sector has a strong specific identity and nature, leading to recognizable systems across different countries. Where an occupation is not seen as displaying unique sectoral characteristics, the national system prevails, leading to differences between countries. In this section, we discuss the different systems of governance we have encountered in order to determine the role that is ascribed to qualifications within these different systems.

To start with, it is useful to create some kind of cross-sectional overview of the information presented in the previous chapters. This can be done by using a table which synthesises the information. The most relevant aspects of the different systems relate to the following categories:

- Type of occupational regulation: licensing, accreditation, registration, certification
- Intensity of regulation: intense (+), average (+/-), lenient (-)
- Type of qualification (inc. diploma's, licenses, certificates): public qualification, separate private qualification
- Importance of CPD: mandatory, voluntary, non-existent

Though there will always be some ambiguity involved in using the different categories, on the basis of the information collected in the country studies we arrive at the following overview:

Occupation	Country	Type of regulation				Type of qualification		Type of CPD			Intensity of regulation
		Licensing	Accreditation	Registration	Certification	Public	Private/sectoral	Mandatory	Voluntary	Non-existent	
HEALTH and SOCIAL WORK											
GENERAL PRACTITIONER											
	BE	X	X			X		X			+
	DE	X	X			X		X			+
	FR	X	X			X		X			+
	LT	X		X		X		X			+
	NL	X		X		X		X			+
	SE	X		X		X		X			+
NURSE											
	BE	X		X		X		X			+
	DE	X		X		X					+
	FR	X		X		X		X			+
	LT	X		?		X	X	X			+
	NL	X		X		X	X	X			+
	SE	X		X		X					+
SOCIAL WORKER											
	BE		X			X					-/+
	DE					X					
	FR	X				X			X		+
	LT	X				X			X		+
	NL				X	X					-/+
	SE					X					
ELECTRICITY, WATER, GAS and WASTE											
PLUMBER											
	DE	X				X				X	-
	EL	X				X				X	+
	LT					X				X	-
	NL					X				X	-

Occupation	Country	Type of regulation				Type of qualification		Type of CPD			Intensity of regulation
		Licensing	Accreditation	Registration	Certification	Public	Private/sectoral	Mandatory	Voluntary	Non-existent	
	ES					X				X	+/-
	UK					X				X	-
FORGING PRESS WORKER¹											
WELDER											
	DE				X	X	X		X		-
	EL				X	X	X		X		-
	LT				X	X	X		X		-
	NL				X	X	X		X		-
	ES				X	X	X		X		-
	UK				X	X	X		X		-
CHEMICALS, RUBBER and PLASTIC											
PHARMACEUTICAL AND TOILETRY PRODUCTS MACHINE OPERATOR											
	BE	X				-	-				-
	EL	X				X	X		X		+/-
	SI										-
	ES	X				X					-
	SN	X									-
	UK					X		X			-
CHEMICAL ENGINEERING TECHNICIAN											
	BE					X					+/-
	EL					X	X	X			+/-
	SI					X					+/-
	ES	X				X					+/-
	SN					X					+/-
	UK					X	X		X		+/-

¹ The occupation of forging press worker could not be identified in the countries examined, with the exception of Spain, where very recently, a specific qualification has been created for this occupation.

Occupation	Country	Type of regulation				Type of qualification		Type of CPD			Intensity of regulation
		Licensing	Accreditation	Registration	Certification	Public	Private/sectoral	Mandatory	Voluntary	Non-existent	
WELDER											
	BE				X	X	X		X		-
	EL	-	-	-	-	-	-	-	-	-	-
	SI						X				-
	ES				X		X				-
	SN						X				-
	UK		X				X				-
TRANSPORT and LOGISTICS											
HEAVY TRUCK DRIVER											
	BE	X				X	X	X			+
	EL	X					X	X			+
	FR	X					X	X			+
	NL	X				X	X	X			+
	SI	X					X	X			+
	UK	X					X	X			+
AIR TRAFFIC CONTROLLER											
	BE	X					X	X			+
	EL	X					X	X			+
	FR	X					X	X			+
	NL	X					X	X			+
	SI	X					X	X			+
	UK	X					X	X			+
SHIP's ENGINEER											
	BE	X				X				X	+
	EL	X				X				X	+
	FR	X				X				X	+
	NL	X				X				X	+
	SI	X				X				X	+
	UK	X				X				X	+

Occupation	Country	Type of regulation				Type of qualification		Type of CPD			Intensity of regulation
		Licensing	Accreditation	Registration	Certification	Public	Private/sectoral	Mandatory	Voluntary	Non-existent	
SPORTS											
SKI INSTRUCTOR											
	DE	X									+
	FR	X	X			X					+
	LT	X				-	-				+/-
	SI		X								
	ES					X	X				-
	SN	X									+/-

Occupation	Country	Type of regulation				Type of qualification		Type of CPD			Intensity of regulation
		Licensing	Accreditation	Registration	Certification	Public	Private/sectoral	Mandatory	Voluntary	Non-existent	
FITNESS INSTRUCTOR											
	DE				X	X	X				-
	FR				X	X	X				-
	LT	X			X	X					+/-
	SI		X		X						-
	ES				X	X	X				+/-
	SN				X						-
REFEREE											
	DE		X				X	X			+/-
	FR		X			X	X				+/-
	LT		X				X				+/-
	SI		X				X				+/-
	ES		X				X				+/-
	SN		X				X				+/-

When looking at the table above, it becomes clear that regarding these criteria in the way that we have defined them, most of the occupations display similar characteristics across the different countries. The differences can be identified between occupations themselves, and also between sectors, but only very slightly between countries. This does not mean that there is no difference between the different countries examined however, as the previous chapters have shown. It shows that the differences between the countries are more subtle and pertaining to details than what can be displayed in the table above.

To see how the sectoral characteristics interact with the national governance regimes, it is nonetheless interesting to look at what this table can tell us. The most uniform sector that we see is clearly the sector of transport and logistics. This is also reflected in the sectoral analysis in the previous chapter. Tightly organised, dominated by licensing systems including demands on the continuing education of occupational practitioners, with separate training structures catering for the needs of the sector. As we have seen in the description of the sector, the national level is almost exclusively focused on the implementation of international agreements in this sector, explaining the similarity of the regulatory structure in the different countries.

This stands in stark contrast to the situation in the sector electricity, water, gas and waste. As the table shows, there is hardly any regulation in place determining the entry requirements and continuing training of people active in the occupations we examined. Furthermore, there seems to be considerable variety between occupations regarding the existence of sectoral structures, as the welders' occupation has set up its own privately organised training system. Different from the situation in the transport sector, this international sectoral system is however not implemented through regulation or international law, but purely industry-based and self-organised, existing next to the public VET infrastructure. Despite the similarity that for example both welders and air traffic controllers follow their own sectorally organised education paths, their regulatory environment could not be more different.

The pattern that emerges from the sector health and social care displays once again different characteristics. While the strictness of the licensing system in place resembles the situation in the transport sector, these are distinctly national systems which are however comparable across the different countries. This is reflected in the fact that the education is exclusively organised within the public education structure, where the manner in which for example doctors are trained is determined (and financed) by the national government in conjunction with national sectoral actors. Though recognition of professional qualifications is strictly organised by making recourse to the EU directive, national actors decide how the sector is governed. While the transport sector is characterised by a strong sectoral dimension which trumps the national dimension and is actually organised beyond national borders, and the EWGW sector is integrated in national systems with only sporadic interference of a sectoral framework (e.g. in welding), the health sector can be seen as displaying a strong sectoral tradition which is nationally grounded.

The chemicals, rubber and plastic sector on the other hand shows a relatively unclear pattern of regulation, educational provision and other aspects. This is however a reflection of the reality in the sector, since it is difficult to identify a clear model of governance or a trend of regulation across the different countries or the three occupations. Generally, the sector is only weakly regulated by means of licensing systems. However, since it is a highly knowledge-intensive sector and at least the two occupations of machine operator and chemical engineering technicians are located at the higher end of the educational spectrum, education in general and qualifications specifically are of high importance on the labour market. Due to the need for further specialisation, CPD also plays an important role in these occupations. Regarding specific welding techniques that are used in the sector with regard to polythene welding, the sectoral framework available in the welding occupation is again of strong significance. Generally speaking, we can say that the overarching national regulatory and educational frameworks determine how the education and labour market interact in this sector, as unique sectoral mechanisms could not be identified.

Finally, the sports sector is a very specific case and an exception in several ways. On the one hand it displays characteristics of an emerging sector which is still formalizing its procedures, especially for the occupation of fitness instructor. Referees on the other hand are entirely governed by the sectoral organizations themselves, in the context of which they are sometimes not even seen as actual employees. Only ski instructors are affected by 'regular' regulation, as safety concerns and international competition lead to entry restrictions. Furthermore, the education in the sector is largely left to private actors, as public education systems are only starting to provide courses in this sector. As some occupations represent a blank slate when it comes to regulation and governance, this provides opportunities for sectoral actors to develop their own initiatives, as the European Health and Fitness Association has done, mirroring initiatives in the welding occupation. In general, we can identify an increasing trend of official qualifications that are available to employees and trainees in the sector. It remains to be seen whether this development is picked up by public or by private actors.

6.2 Categorising systems of governance

Having described the differences between the countries and sectors, how can we categorise the different systems identified? And which aspects, or dimensions, determine whether a specific system falls into one category or the other?

The most distinctive systems of governance we have identified in the countries, sectors and occupations we have looked are the following:

- Medical profession: strong sectorally determined system of national regulation and management of both education and labour market
- Transport sector: strong sectorally determined system of international regulation and sectoral sub-structures of labour-market focused education

- EWGW, some parts of chemical industry and particular professions in other sectors: lenient system of low labour market regulation, public training provision and balance between labour market and education structures
- Welding occupation (to a lesser extent fitness instructor): strong international sectoral system of labour-market focused training provision, based on independent sectoral structures implemented in addition to national education systems

The differences between these systems lie in the manner in which access to the labour market is determined, including the actors and instruments involved in this process, the educational structures which are used in order to implement the system and the resulting situation for practitioners and employers, including the importance attributed to qualifications by these actors. Thus the example of the medical professions is characterised by a top-down manner of labour market regulation with strong sectoral actor involvement, using public education structures and leading to a situation where qualifications are highly important to professionals and employers in determining both entry to professions and career progression. The system applied in the transport sector is also characterised by a top-down approach, but organised at international level, implemented through sector-specific training structures, also however leading to a situation where qualifications are of high importance to practitioners and employers, especially regarding the entry into occupations. The third system can be seen as open with regard to labour market regulation, situated within the public education structure and the standard qualifications framework, including the balance of influence between labour market and educational actors enshrined within this framework, leading to a situation where the importance attributed to qualifications is dependent on contextual factors such as the economic situation, labour market supply and demand and consumer preferences. Finally, the structures identified in the welding sector can be characterised by international self-organisation of sectoral organisations, making use of sectoral training structures and leading to a situation where sectoral qualifications can be used by occupational practitioners as a distinguishing instrument on a competitive labour market. Whereas the welding occupation is highly organized in this way, similar systems can also develop in other sectors, such as the example of the European Health and Fitness Associations shows.

Based on these characteristics, we can describe these systems of governance using the following terms:

- 1) Traditional sector-based licensing
- 2) International sector-based licensing
- 3) Generic national governance
- 4) Independent sectoral governance

These categories can obviously not claim to be exhaustive and cover all possible constellations, as they originate only from the information collected in the countries, sectors and occupations examined in the context of this study. It is possible that other systems exist in sectors not covered by our research. However, regarding the objectives of this study, they not only show us the diversity of different approaches to edu-

cational labour market governance, but also show how this diversity feeds through to the use of qualifications by the different actors.

Moreover, the distinction between these four models of governance points us to an interesting conclusion regarding the level of governance that is involved. This study has been carried out based on a conceptual model distinguishing between the European policy context, national governance structures, sectoral initiatives and micro level implementation. What the classification shows us is that firstly there is an additional level on top of the European level, namely the international level going beyond Europe, and secondly, that these levels of governance are strongly intertwined and inter-related. All of the systems are thus based on some kind of multi-level governance implying a distribution of tasks and responsibilities across the different levels.

The first system of traditional sector-based licensing is thus based on national legislation, but also embedded in European framework regulation, and finally dependent on sectoral organizations. The international sector-based licensing has a strong European or international grounding, but is implemented in national sectoral structures. The general national governance, as implied by the name, is determined by national factors, but once again includes sectoral actors in the implementation. The independent sectoral governance finally is sectorally-based, but on an international level.

To conclude, both the sectoral aspect as well as the international or European influence are represented in nearly all of the systems of governance we have identified. This conclusion ties in well with current Cedefop work on the international dimension of qualifications. A recent Cedefop report on international qualifications shows that in a great number of sectors, we see the emergence of independent international qualifications, both sector- and company-based, with varying degrees of coverage (European, international, EEA) and differing purposes and characteristics.¹ These kinds of international qualifications have not been covered by this study, with the exception of the qualification system in the welding sector, but it shows that our conclusion pointing in the direction of a multi-level landscape in the world of qualification is a valid one.

We will turn to discussing the distribution of responsibility between different levels and actors further below in this chapter. First, we will focus our attention on the question of whether we can identify changes or developments in the role of qualifications in the context of the occupations we have examined.

6.3 Changes, developments and trends

In chapter 4, looking at qualification structures at national level, we identified a number of trends characterising the approach to qualifications and the labour market. Firstly, we state that we can identify a move towards more labour-market based in-

¹ Cedefop 2012: *International qualifications*

struments such as occupational profiles, a greater involvement of private actors such as industry associations and trade unions and finally an increasing emphasis placed on the feedback loop between labour market and education, both at policy level and in the actual management of the system. Furthermore, based on previous research, one of the initial hypotheses triggering this study is the general claim that qualifications are losing importance on the labour market, as deregulation, changing skills demands and more flexible ways of labour market management are increasingly setting the scene.

6.3.1 Educational and labour market dimension

Judging from the four categories identified in the previous section, we can confirm the labour market focus of regulatory systems and the role of qualifications in these systems. Interestingly, especially the licensing systems, both traditional and international, can be seen as very labour-market focused. Their main objective is not to structure the educational system in a specific way or to force people into education, they are clearly aimed at making sure that employees in these sectors dispose of the knowledge, skills and competences that are deemed essential for entry and practice in the occupations and professions. In the international regimes, this is even deemed important enough to set up separate training structures to cater for labour market needs. The same clearly applies to the independent sectoral system which can be seen as an industry-led effort to bring education and training as close to the labour market as possible.

The last system, namely the generic national system, shows a different dynamic. On the one hand, it could be said that it can be seen as an example of the decreasing value of qualifications, as there are no mandatory qualification requirements in place. However, the analysis shows that the absence of legal requirements does not automatically lead to a lower importance of qualifications at micro level. Furthermore, in this system (which can be seen as the basic system across different sectors), the new labour-market based instruments, from occupational profiles to learning outcomes, and the involvement of labour market actors in the feedback loop between public VET structures and the labour market display their real value. In a system that is left relatively open whereby educational and labour market actors can decide for themselves how to approach occupations and the related qualifications, the effective governance thereof can be seen as even more essential than in systems where legal obligations guarantee regulatory influence on the practice in occupations. It is therefore unsurprising that within these occupations we see social partners and educational institutes working together to make the public VET system serve both students and employers.

Regarding all systems identified, we can therefore confirm their strong labour market focus. Since our analysis does not have a strong temporal dimension, it is difficult to say for certain whether this labour market focus is a recent development. Judging from the policy debates focusing on the connection between labour market and education and the use of relatively new instruments such as learning outcomes and occupational profiles it can be concluded that the emphasis on the labour market relevance

of qualifications has increased in recent years. Not only in the licensing systems, but even in the more liberal generic systems, active labour market policies are furthermore increasingly aiming at influencing the quantitative side of education in order to connect it to labour market demands. Qualifications connected to specific training courses and to specific occupations at the same time hereby play a central role.

6.3.2 Regulation and deregulation

While the labour market orientation of qualifications can be confirmed, their diminishing use of qualifications as an instrument of governance and their decreasing importance for employees in the workplace are not supported by the information collected for this study. Regarding the supposedly receding use of qualifications as instruments of governance, this would point to a trend of deregulation. Surprisingly enough, in the research conducted for this study we did not identify any specific cases of actual deregulation in the sense that specific occupations or professions that were previously affected by qualification requirements have been opened up to unqualified staff. Firstly, regarding so-called liberal systems like the UK and the Netherlands, we see that the occupations that are traditionally highly regulated, i.e. in the health care and transport sector, display strict regulation in these countries as well. People wanting to practice as a doctor or to drive a commercial truck not only have to acquire the needed qualifications in these countries but also make sure they follow the proper routes for continuing professional development.

However, in other countries that are traditionally seen as highly regulated, i.e. Greece, Spain and Slovenia, the changes that are taking place do not always point towards a trend of deregulation. Whereas in Spain, some requirements for so-called authorisations, i.e. licenses, have been removed indeed, no large-scale change in the labour market system can be identified. Furthermore, the Spanish regulation is mainly focused on the educational provision, where the main policy instruments remain royal decrees. In Greece, the regulatory system is undergoing great change. Yet, according to the information collected at country level, this cannot unequivocally be described as a process of deregulation. Rather, the reform efforts are directed at clarifying the system and cleaning up superfluous legislation. The removal of regulation that is not only deemed superfluous but also currently not implemented properly in any case cannot be seen as actual deregulation or liberalisation. The direction of policy developments in Greece points towards constructing a more efficient and working system of regulation, which does not necessarily imply deregulation or liberalisation. The general situation in Slovenia does point to a strong drive to deregulate and liberalise the labour market, by abolishing entry requirements for certain occupations. Though it is the expressed ambition of the government to realise this reduction in regulation, professional groups and employers are arguing for “better” regulation instead of “less” regulation. It therefore needs to be seen what the effect of reforms will be in the end.

This raises the question of what we actually mean by deregulation. The problem is that it is not guaranteed that the regulatory intensity is reduced by the removal of reg-

ulation. This has to do with several factors. Firstly, there are examples of highly regulated systems which are actually over-regulated and are therefore not implemented in practice, as is the case in the Greek EWGW sector. By streamlining regulation, including the cutting of unnecessary provisions, the intensity of the regulatory pressure can actually increase. Secondly, it can also be the case that state regulation is replaced by social partner initiatives which are possibly not legally binding, but turn out to have the same status as binding legislation. CPD provisions in the medical sector in the Netherlands for example are originally voluntary, but the importance ascribed to these provisions by the entire sector (including health insurances) make it virtually mandatory. Similar situations exist where for example a professional title is protected, but carrying out the work itself is not regulated. While this would on paper look like a low intensity regulation, in reality the entry to such a profession will only be open to those holding the title as well.

These difficulties point to the fact that not only regulation, but also deregulation has to be implemented and is not always effective. Regarding the reform efforts in countries like Greece, Slovenia and Spain, it therefore needs to be monitored closely whether the changes in the regulation actually lead to a situation where the openness of the labour market increases to the extent desired.

6.3.3 Technological and societal change

Connected to the view that deregulation is diminishing the role of qualifications is the assumption that the practical use and relevance of qualifications is under pressure due to the unprecedented pace of technological and societal change. This assumption, too, should however be reconsidered in the light of the information collected in the different sector. In all of the occupations and professions examined, technological changes play an important role indeed and other developments are also impacting on the demands placed on occupations, such as increasing importance of environmental aspects, soft skills in relation to consumers and language skills. It is therefore certainly the case that the content of qualifications has to be adapted in order to fit the developing skills demands.

However, again in all of the occupations and professions under discussion, these changes are generally not described as being of a different nature than what the sectors are used to. Medical doctors for example have always dealt with new methods of treatment, and plumbers, too, have incorporated new technologies into their practice. While in some occupations, these processes of adaptation are carried out empirically, in others the structures of qualifications governance are designed to accommodate exactly these kinds of changes. Regardless of the question of whether a qualification is mandatory for practice or not, employers simply expect most of their staff to have a qualification, as a necessary precondition for proving their ability to do the job in the occupations selected for research. There really needs to be profound change in the way that occupations are carried out or serious deficiencies in the qualifications themselves if micro level actors are to completely abandon the idea of qualifications.

Although in the sectors examined in the context of this study, no unprecedented pressure on qualifications through changes in the occupational definitions could be identified, it may be the case that in other sectors or occupations these pressures are taking place indeed. Especially where new sectors or occupations are emerging, it is possible that regulation systems do not apply to the new activities. But even this process has always existed and been tackled by governing systems. A difference could only be identified if the influx of new occupations and tasks were considerably greater than what used to be the case which is not possible to determine within the scope of this study. The occupations and professions that were examined in the sectors described above however nearly all have already been in existence for a long time. Respondents therefore reported some adaptations that were carried out in qualifications portfolio's, but only little fundamental changes were identified.

Some examples of new or changing occupations that fall within the scope of this study show that existing qualifications systems actually provide enough flexibility and permeability to adjust to changing demands. This can be seen in the context of the profession of advanced nurse practitioner in the Netherlands: as technological advances turn certain specialised medical procedures into routine activities, nursing staff becomes able to carry out these activities as well. At the same time, financial pressures on hospitals and shortages of specialised doctors lead to situation where some alleviation of the work load of doctors is seen as desirable in any case. As a result of this state of affairs, the new occupation of advanced nurse practitioner was introduced, linked to a specific qualification. In addition, a reallocation of tasks within the regulatory framework was carried out by changing the legislation determining the authorities of medical staff. Motivated by technological and societal developments, which led to a changing reality in the work place, the regulatory framework could thus be adjusted without a decrease in the relevance of qualifications.

From another point of view, the emergence of private sectoral arrangements such as in the welding sector and international licensing regimes, e.g. in the transport sector, could also be seen as a challenge to the status of traditional qualifications. In the first place, it is the sector itself that circumvents the traditional structures by developing its own specific training programmes and qualifications. Though the financing of the training has to be organised privately, the sector can hereby shape the system to entirely fit the demands of businesses, thereby not having to take into account public priorities on education and training. The international licensing systems on the other hand superimpose a system of regulation and, in some cases, institutionalised education in order to guarantee international harmonisation, thereby also diminishing the role of traditional qualifications.

In both of these cases the international dimension plays the most important role, not the change of occupational content. This is not surprising, since traditional qualifications are by definition enshrined within the national education systems. Of course, policy instruments such as the mutual recognition of qualifications through the Directive 2005/26/EC and the European Qualifications Framework are trying to address exactly this point, namely increasing the comparability and compatibility of different national qualifications systems. In the examples just described, we can see a move-

ment towards self-sustaining international frameworks that exist outside of the national structures and therefore take into account the international nature of the labour market by default.

6.3.4 Transversal skills and specific competences

This takes us to the final issue that needs to be discussed regarding the changes in use and utility of qualifications, namely the question of whether and how the growing policy emphasis on transversal skills within VET policies has an influence on the way in which qualifications are set up, described and used. In the descriptions of the sectoral information, the importance of transversal skills has repeatedly been mentioned in the context of diverse occupations. The transversal skills that are most frequently referred to are language skills, IT skills and so-called soft skills, which mostly relate to social skills in the context of customer service. Thus, truck drivers for example are expected to interact much more with clients than they used to do, which has increased the demand for these interpersonal skills. In some low-skilled jobs (not the occupations examined here), it has also been mentioned that general aspects such as an individual's attitude towards work and responsibility, are more important than specific skills attested by qualifications. Another aspect of the trend towards increasing emphasis on transversal skills is to be seen in the formulation of learning outcomes and occupational profiles which make reference to transversal competences such as cooperation, consultation and following instructions. Thus, at both micro and macro level, the trend towards recognizing the importance of transversal skills can be identified.

Nonetheless, this development is not challenging the role of qualifications, nor diminishing the value of specific skills. Regarding the first issue, it can be seen that in the description of qualifications, of learning outcomes and of occupational profiles, transversal terms are adding to, but not replacing existing specific descriptors. Thus, countries use general descriptors to cluster specific skills and competences but also define these more closely by using detailed and very specific terms. In fact, the occupational profiles underlying the occupations examined in this study are so detailed and elaborate, that a research exercise of bringing together these descriptions to compare their level of detail turned out to be far too laborious for the scope of this study. Once again, this may also be due to the specific selection of occupations which includes a number of technical and specialized cases (e.g. GP, welder, ship's engineer). Judging from this selection however, the specific task and competence description has not been replaced.

The same is true for the situation at the micro level. While employers and employees do recognize the value of transversal skills and generic competences, the core skills and competences that are specific to a given occupation remain the most important requirements determining a person's suitability for a job. It is not surprising that the international welding certificates and the international air traffic licenses are dominated by specific requirements, since these are frameworks developed specifically for the needs of the sectoral labour market. In these cases, the dilemma of a sectoral approach reveals itself, since individual sectors, and even more so individual employers,

are not interested in contributing to the general employability of their employees and trainees. Thus, it remains the case that the labour market practice continues to focus mainly and specifically on specialized skills and competences.

Looking at the different dimensions of change, we can therefore conclude that the reality on the ground is more complex than the policy discourse may sometimes suggest. The changes and developments that are taking place can be described as being located more in the periphery, or maybe the forefront, of the occupational landscape. The core of the labour market, which is possibly better represented by the selection of occupations and professions in this study, is not changing at an unprecedented pace. Furthermore, qualifications systems seem flexible enough to incorporate the changes that are taking place. Developments that might diminish the importance of qualifications, such as deregulation, technological and societal change and labour market flexibility do not appear to have a decisive impact on the way in which qualifications are used. On the contrary, efforts are being made to align qualifications increasingly with the developments taking place on the labour market in order to continue making use of their potential to connect the dimensions of work and education.

6.4 The role of qualifications: who does what?

If there is one thing that this study has shown it is that qualifications, defined in a broad sense as a “formal outcome of an assessment and validation process”, enjoy continued relevance in the domains of both education and the labour market and especially in their function as a bridge between the two. They are both used as instruments at the level of governance to connect educational outcomes with labour market demands and at the level of employers, employees, trainers and trainees as trusted and useful entities conveying knowledge, skills and competences. As the ways in which they are used differ between sectors and occupations, and sometimes between countries, we try to sum up our findings in the following section by describing with what objectives different actors make use of qualifications, which should finally give us an impression of what the outcome of the use of qualification is.

6.4.1 Communication: the use of qualifications as instruments of governance

In the countries, sectors and occupations examined, we have seen that qualifications, including diplomas, licenses and certificates, continue to be used to regulate the access to and practice in occupations and professions. In the system that we describe as traditional, sector-based licensing which has been identified in the health care sector, policy makers use qualifications to strictly determine the educational path, including practical experience, that a person has to have passed before he or she may enter the professional field. Linked to the qualifications is the authority to carry out specific activities, giving the qualifications a strong legal value. In addition, in these systems the education side of qualifications can also be used to directly influence labour market supply, as the number of training places is often limited. In the absence of qualifi-

cations, policy makers would lose control of the skills and competence of the professionals active in the sector and furthermore of the number of professionals offering services. Thus, qualifications clearly play an important role in structuring labour market entry and the quality of services in the sector.

The international sector-based licensing system displays the same dynamic as the one just described, as policy makers, this time at international level, set up occupation-specific qualifications specifically designed to guarantee a general level of competence of occupational practitioners across countries. Again, policy makers “fill” the qualifications with the necessary learning outcomes and enshrine them in the legal framework governing the entry to the occupation and continuing development of the practitioners. With the training structures also being strictly related to the sector and linked to occupational practice, the quantitative supply of qualified personnel can once again be influenced by means of the licensing system. Just as in a national system, the qualifications therefore play a central role in providing policy makers with a path of influence into the labour market dynamics.

The use of qualifications as instruments of governance is slightly different in systems that are less characterized by strict licensing, but focus more on generic national VET governance, i.e. systems where no specific legal requirements are set, but public qualifications are available for use by schools, trainees and employers. In these systems, policy makers are rather focused on creating the framework for educational institutions, social partners and micro level actors to contribute to a well-functioning system of labour market and education, where individual choices lead to a qualitative and quantitative balance between supply and demand. While qualifications are not used by policy makers to regulate the labour market side in this model, the institutional framework set up to sustain the qualifications base may be even more important than in more restrictive systems, as broad support and trust in the system based on a balance of interests are paramount for it to work.

The general British system, supported by government but entirely given shape by the Sectoral Skills Councils and the general Dutch qualifications structure show that government actors can take up different positions in these kinds of systems and display different degrees of activism. The role of qualifications is crucial in these systems, too, in the sense that they are the focal point of the different actors’ activities. Without qualifications, sectoral actors, educational institutions and government representatives would miss the common connector to link their priorities. This is not to say that all actors are constantly focusing on qualifications or on connecting the labour market and education systems. Educational actors might be completely focused on the set-up of curricula while labour market actors may be preoccupied with changing consumer or market demands. From a conceptual perspective and looking to identify the role of qualifications in these governance processes however, it becomes clear that this role is essential.

Regarding systems of international sectoral governance, the central actors change, as public bodies decrease in importance and sectoral actors take responsibility, but the role of qualifications and the governance dynamics remain the same. As sectoral ac-

tors identify a need or a desire to establish internationally valid systems of skill and competence recognition, they turn again to qualifications as the central instrument of trusted communication, backed up by a strong institutional framework. Multinational companies (which have not been covered by this study) follow the same route by setting up in-company qualifications schemes. It seems that also for additional, independent systems set up by private actors, qualifications are seen as an instrument of choice for allowing cross-national and cross-institutional coordination of professional content, despite the absence of licensing or mandatory training.

Overall it can be said that there is no alternative to the use of qualifications in the specific role they play in translating occupational activities into learning outcomes and the other way around. Two reservations should however be added to this conclusions. Firstly, the role of qualifications as instruments of governance in contributing to the qualitative and quantitative balance of supply and demand in occupations and professions can, in all the different governance systems, only be of practical relevance when it is embedded in trusted institutional structures and used in conjunction with other instruments such as occupational profiles, learning outcomes and qualifications frameworks. Secondly, although qualifications can be identified as crucial practical linking pins between the different actors and essential conceptual connectors between educational and labour market, this does not mean that policy makers, social partner organisations or educational institutes actually classify them as such. Such a purposeful use of qualifications is possible, however not a necessary requirement for them to fulfill the role as communication vessel after all.

6.4.2 Currency: the use of qualifications at micro level

Qualifications can only fulfill their function as effective instruments of governance if they can also play a relevant role at the level of students, teachers, employers and employees. There is a dynamic relationship between the governance system which determines whether micro level actors appreciate qualifications as relevant entities, and the micro level actors themselves who decide whether the intentions of the policy makers are realized. Thus, the difference regimes of regulation also have an impact on the way that qualifications are perceived by the people who actually use them. This has to do with the amount of trust they have in qualifications, the importance they attribute to the qualifications and the role they ascribe to the qualifications with respect to their occupation or profession. While this study has not focused in depth on the situation at micro level, some of the mechanisms that are of influence can be deduced from the information collected.

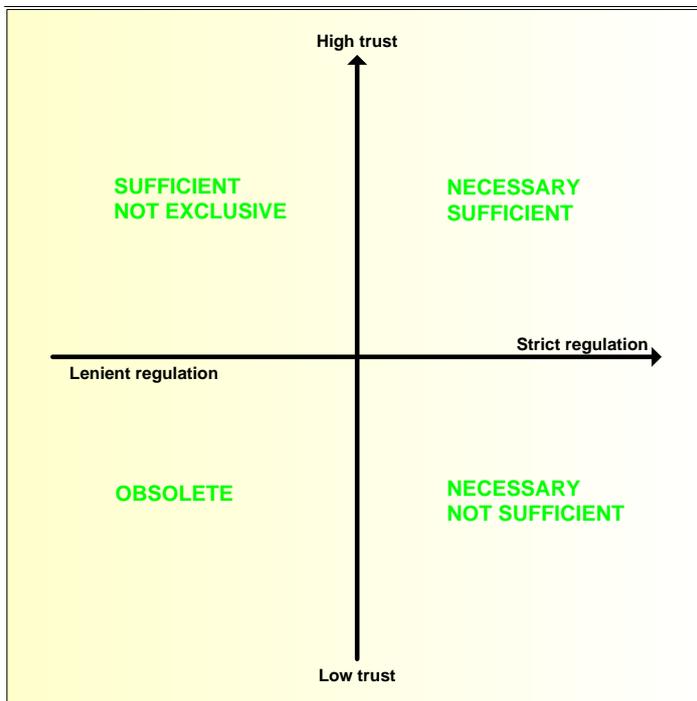
Regarding the trust ascribed to qualifications by the actors using them on the ground, this study has not found specific examples of a lack of trust or a change in the level of trust ascribed to qualifications. There are examples however of a general lack of trust in the educational system, for example in Lithuania regarding VET education, which clearly feeds through to a lack of trust in the qualifications originating within that system. Thus, the trust in the qualifications is simply a mirror of the trust in the education system behind it. Where trust is high, the way in which the qualifications are

shaped and the institutional framework supporting them seem to be decisive for the trust, including the involvement of labour market actors in this system. Conversely, the actual degree of regulation of occupations and the role played by the qualifications in this area are of less importance, as employers and employees in relatively unregulated occupations, e.g. plumbing, also acknowledge that a qualification signals competence and knowledge of the occupation.

The degree or intensity of regulation does however influence the importance ascribed to the qualifications in question. In the licensing systems in the health sector and in the transport sector it is seen as an absolute prerequisite to possess the required qualifications by people active in the sector. The licensing requirements are internalized by professionals and by employers, as strong institutional arrangements, including enforcement procedures, render occupational practice in the sectors virtually impossible. Occupations where the licensing requirements are less stringent, but strong qualifications do exist, qualifications are also attributed high importance, but more in the function of actually showing that the person in question has actually acquired the skills necessary to carry out the desired tasks. Ability to carry out the tasks may also be existent in persons who have not acquired the qualifications, but being able to show the concrete proof of a qualification means that the focus in discussions of aptness can be placed on other, additional competences not enshrined in the qualifications such as experience, attitude towards work and soft skills.

This leads us to the actual role assigned to qualifications by the end users at micro level with regard to the occupations and professions they practice. The main distinction that should hereby be applied is that between using qualifications as signaling of official permission to practice and using qualifications as proving aptness to carry out a specific task. In between these two aspects qualifications can communicate a variety of additional messages, including dedication to and loyalty with the occupation, profession and sector under discussion, a relevant background in the field and a trust in formalized educational provision. Where the trust in qualifications is high and the importance attributed to them as legal requirements as well, they can be seen as necessary and sufficient proofs of competence on the labour market. Where trust is high, but the regulatory importance is low, qualifications are regarded as sufficient signal of employability, though other records of ability, e.g. experience, may also be used by employees. Where trust is low, but legal demands are high (e.g. Greek plumbers), qualifications are seen as necessary, but other criteria are even more important and regulatory obligations may be ignored. Only where both trust in the qualification and the legal requirements are low, qualifications can be seen as obsolete, as is shown in the figure below.

Figure 6.1 The currency of qualifications



Source: Panteia 2012

6.4.3 Outcome: transparency, coherence, reliability, flexibility, relevance

Taking into account the way in which qualifications are used at both policy level and at the level of individual end users, there remains one question that needs to be answered: do the efforts lead to a situation in which qualifications can satisfy the demands that are placed upon them? Are they transparent, coherent, reliable, flexible and relevant?

Starting with the latter two of these criteria, flexibility and relevance, it has already been mentioned that in the occupations examined, only few examples could be found of qualifications which are not seen as relevant to the occupational practices, nor were there a lot of concerns about qualifications being too rigid to react to labour market developments. Even in the most restrictive systems, e.g. in the cases of general practitioners or air traffic controllers, the governance structures allow for sufficient flexibility, also through continuing professional development, to guarantee the relevance of the qualifications. In countries where the value attributed to VET education is low, overqualification can be an issue which leads to an unsatisfactory degree of relevance of higher education qualifications which are valued highly in an educational sense. This paradox can only be resolved by addressing the low status of VET education in general which should automatically increase the value of VET qualifications. In general however, in systems where the feedback loop between work and education is well established and promoted, these efforts appear to be paying off.

The same applies to the reliability of qualifications. In the sectors examined, well-established institutional arrangements promote the proper management of qualifications. The set-up and history of the independent sectoral governance system in the welding sector shows that continued attention to the coordination, cooperation and control of the organisations involved in implementing a qualifications system is key to creating trusted and reliable qualifications. In the UK, too, the most liberal of the systems examined, attention is paid to cross-cutting quality assurance and certification processes. Where this reliability is grounded in national institutional arrangements, the international interchangeability of qualifications can be difficult. Where it is enshrined in the international structure of the institutional set-up, the reliability of qualifications can cross national borders.

This leaves us with the last two outcomes, namely transparency and coherence, which are both characteristics that relate more to the general qualifications framework than to individual qualifications. It is difficult to come to a general conclusion regarding this aspect. Judging from the research at country level, it can be said that the coherence of the national qualifications system does vary, as some countries have very well-established qualifications structures whereas others have only started working out a comprehensive system in the context of the creation of an NQF. At the same time, most qualifications in the occupations studied are well-documented and no cases of confusion about learning paths at micro level have been found. Nonetheless, qualifications can be seen as a very complex policy field and there is always room for improvement regarding the coherence and clarity of the overall frameworks.

In this context, one last remark is however justified: whereas from a policy-makers point of view, comprehensive and coherent qualifications structures and occupational frameworks may be useful and desirable, the micro level view of these issues is slightly different. Thus, employers and employees are pragmatic in their view of qualifications and mainly look at the information that is relevant for them. This means that the relevance of a particular qualification for a specific occupation is certainly of importance to them, as is the relationship between qualifications and occupations that are similar to one another. Conversely, the equivalence of qualifications in one sector and occupations in another sector, or skills demands that are applicable to very different occupations, which are certainly of interest from a policy perspective, are not generally of relevance for the individual end users of qualifications. This is also implied in the fact that sectoral initiatives in the area of qualifications and occupations can work in relative isolation from overarching policy frameworks. A cross-sectoral, transversal vision of qualifications and occupations at micro level is therefore an exception rather than the rule.

7 Answering the research questions

Which models of governance of professions and occupations can be identified in the different countries and sectors and how can these be described in terms of principles and practical applications? Can we identify regulation typologies according to countries (north-south, newer and older Member States) and sectors?

The ways in which occupations and professions are governed differ between countries and sectors, and also within sectors. This study has look at three occupations and professions in the sectors health and social work, electricity water, gas and waste, transport and logistics, chemicals, rubber and pharmaceutical products and in the sports sector, in a variety of ten European countries. For all the fifteen occupations and professions selected, the requirements regarding entry to the labour market, practice of the occupations, continuing professional developments and indirect influences were examined. Furthermore, the different means of balancing out labour market supply and demand employed by policy makers were discussed.

The information collected at country and sector level suggests that sectoral characteristics trump national characteristics in determining the model of governance that is applied to occupations and professions. Nonetheless, the different factors interact and national exceptions do exist. The following four overarching models of governance were identified in the sectors and countries under examination:

- 1) Traditional sector-based licensing
- 2) International sector-based licensing
- 3) Generic national governance
- 4) Independent sectoral governance

The first model, traditional sector-based licensing, can be found in the health care sector of most countries. It is characterised by strict entry requirements into the labour market, backed up by official registration of professionals and demands placed on the continuing education and training of active employees. The requirements are in line with European legislation on qualification requirements, but the system is organised at a national level and professional organisations are involved in the management and implementation of the system and have done so traditionally in the context of sectoral self-management. At micro level, the compliance is high, backed up by professional internalisation of the licensing system on the one hand and enforcement on the other hand.

The second model, international sector-based licensing, is based on similar principles as the first model, but lifts these to an international level. It is for example applied to occupations in the transport sector. In this system, international agreements determine the demands that are placed upon occupational practitioners in the sector, again regarding initial and continuing education, possibly registration but also physical fitness or age restrictions. Since these are international agreements, they also specify

the way in which they need to be implemented at national level through institutional arrangements, which are set up in addition to existing national structures (e.g. VET systems). The core objective of international sector-based licensing is to create a minimum level of service quality in the sector, motivated by considerations of safety and security.

The third model, generic national governance, is an umbrella term for models in which no specific regulation applies to the occupation or sector in question, but the general national VET system provides education which mirrors the occupations in the sector. National differences are most pronounced in this system, since the outcome depends on the qualifications structure and the way the labour market is organised. Such a situation is for example found in the sector of electricity, water, gas and waste. As national governments do not see a necessity to regulate entry to and practice in a specific occupation, market mechanisms step in to determine whether trainees decide to follow a specific educational route and enter the labour market well-qualified or whether more empirical manners of occupational learning and on-the-job training are preferred by employers and employees. The importance of formal education is determined by the quality and trust in the educational system, the economic situation and the resulting supply and demand of labour.

Finally, the model of independent sectoral governance can develop in a sector which is indeed usually governed by a generic national system with low intensity regulation. In this case, sectoral actors have decided to take initiative to set up an additional, international system of training, backed up by national institutional structures in order to increase the overall quality of occupational practice in the sector. Independent private structures of training and certification are set up which are coordinated across the participating countries. The welding occupation is a key example of this model. As national public and international private structures co-exist in an environment of low regulatory intensity, employers and employees can choose for themselves which training routes they prefer.

Although these models of governance are mainly sectorally determined, countries have their own underlying structures within which these sectoral models can function. Thus, the southern European countries such as Greece and Spain, but also France are characterised by a higher degree of labour market regulation than the northern countries, e.g. the Netherlands and the UK. These countries in turn display more of a labour market focus in their qualifications structures, with a stronger role of social partners and industry associations in determining the content of education and training. Furthermore, several countries are undergoing fundamental processes of reform, which was seen especially in Greece, Slovenia, Spain and Germany which makes it difficult to categorise the different systems or define groups or typologies.

However, the sectors examined in this study display more similarities across the different countries than they do within a specific country, which suggests that the nature of the work in a specific sector significantly influences the model of regulation. Aspects such as the risk associated with the occupation, both for the person carrying out the work and for the general public, the resulting importance of quality of services

and the international dimension of the sector determine whether and how different actors try to influence labour market entry and occupational practice.

How are qualifications influencing the access to and practice in occupations and professions? Which administrative and legal instruments and structures support these practices and what is the role of different stakeholders? To what extent do these arrangements have an impact on benefits and salaries?

The main role of qualifications is that of an instrument of communication, signalling a person's knowledge, skills and competences in a particular field and with regard to a specific occupation. Thus, by showing a qualification, a person can prove to an employer or a customer that he or she is able to carry out the specific activities that are needed for the task. By setting up functional qualification systems linked to trusted educational structures in which labour market relevance is guaranteed by using instruments such as occupational profiles set up by social partners, countries can facilitate the processes which lead to a good balance of qualitative and quantitative supply and demand of labour.

In addition to this general system, qualifications are used as regulatory instruments. In a number of occupations, strict entry requirements are set to determine that only people who have acquired the specific qualification (including diplomas, certificates, licenses) may work in this occupation. In these cases, qualifications are seen as necessary, though not always sufficient criteria for employers selection employees at micro level and therefore do determine a minimum level of competence of all occupational practitioners. Where the license to practice is also connected to obligations with respect to continuing professional development, the qualifications connected to this aspect of the training can also play the role of ensuring the continued relevance of the skills present in the work force.

Qualifications can only fulfil this role on the labour market if the institutional structure supporting them elicits trust amongst the end users. In some situations, qualifications are trusted to such an extent that the labour market actors actively support strong licensing systems, as they see these systems as providing the basis for a strong professional environment. In situations where the strict regulation is combined with weak institutional structures, qualifications might be seen as legally necessary, but practically irrelevant and requirements may be disregarded after all. In situations where the trust in qualifications is high however, strict licensing is not even necessary for micro level actors to acknowledge the importance of qualifications for assuring the quality of staff and services.

It is thus not surprising that all the countries and sectors examined in this study display an increasing focus on ensuring the labour market relevance of qualifications. One of the aspects that are of central importance in this regard is the varying involvement of labour market actors in the governance systems. Employer associations and professional groups are involved in both the design and management of qualifications on the one hand and in the set-up and implementation of labour market regulation structures on the other hand. By drawing up occupational profiles and formulat-

ing corresponding learning outcomes, labour market actors can contribute actively to connecting qualifications to occupational practice. Furthermore, their involvement increases the acceptance of regulatory requirements, embedded in systems of self-governance and collective bargaining.

At the same time, the input of educational institutions and reliable quality assurance and certification bodies remains of importance for upholding the value of qualifications. Even in the case of independent systems of self-governance, e.g. in the UK or in the welding occupation, these aspects continue to play an important role. As these systems are even more dependent on the value attributed to the qualifications by the end users, the quality and public image of the structures supporting them are of even greater significance. The fact that these alternative systems continue to be based on qualification structures confirms the continued relevance of qualifications in labour market governance.

Although we cannot come to definite conclusions on the impact of qualifications structures on benefits and salaries on the basis of our research, it appears to be the case that qualifications are generally connected with a claim to higher remuneration by the holders of a qualification. Unqualified staff is generally seen as cheaper for employers and consumers which can be a motivation to disregard licensing obligations. Also, there are examples of cases where different levels of qualifications did not lead to differences in salary levels which was a reason for discontent amongst the professional group, in this case general nurses in the Netherlands. In fact, in this particular example, the discontent and confusion which was caused by the fact that the practical situation in the work place did not reflect the qualification structure, finally led to a change in the set-up of the underlying framework. It is therefore likely that there is a dynamic mechanism at play between the educational hierarchy reflected by qualifications and the occupational practice, which may include salaries and benefits, though more detailed research on this aspect would certainly be useful.

Is the use of qualifications for regulating access to and practice in occupations and professions increasing or decreasing? To which extent will over- and under-qualification influence the use of regulations in the labour market?

Despite a general trend in several countries of the policy debate supporting deregulation of occupations and professions, the cases examined in the study do not show strong signs of decreasing levels of deregulation. In a number of countries fundamental reform projects are currently under way, for example Greece, Slovenia and Germany. While the general direction of these reform projects points towards a deregulation of occupational entry and practice, it is not clear what the actual outcome will be. Especially in Greece, it seems that the central objective of policy reform is rather a clarification and cleaning up of the existing regulatory system than a purposeful reduction of regulation, though the removal of clearly unnecessary regulations is definitely a part of the process. In Slovenia, too, there is discussion as to the need for “better” rather than “less” regulation.

Importantly, even where the use of qualifications for regulatory purposes is diminishing, this does not automatically lead to a less important role of qualifications. As has been demonstrated, the importance of qualifications as actual proof of competence which can be used on the labour market is not dependent on the level of regulation, but on the level of trust in the qualifications structure and the connected educational provision. Private initiatives aiming at the improvement of service provision through systems of registration and certification can also take the place of official licensing, which in the end might lead to the same amount of occupational restrictions as in the case of government licensing. In addition, in some sectors and occupations there has been a move from national to more international regulation. In these cases, traditional national licensing systems are replaced by international agreements stipulating minimal requirements on the education and training of occupational practitioners. While these stipulations may be less comprehensive than the national provisions, they can also be of a more binding nature, backed up by enforcement procedures to guarantee international equality. These developments therefore raise the question what we actually mean by deregulation and what the alternative to regulation can be.

All countries under discussion are trying to address imbalances in the qualitative and quantitative supply and demand of labour, though the challenges are not always rooted in over- and underqualification. Using research, promotion campaigns and specific educational provisions, countries and sectors try to attract students to the training courses leading to qualifications that are needed by the labour market. Regarding underqualifications, several countries are faced with a growing group of unqualified citizens, which has triggered increasing efforts to provide basic qualifications. The emphasis is then on providing basic working skills, as employers at the lower end of the labour market value aspects such as attitude and punctuality more than specific qualifications. The issue of overqualification is mainly a challenge in Lithuania where there is a shortage of VET trained personnel. This policy reaction to this challenge is to foster the trust in the VET system and the qualifications it produces, as the current image of VET education seems to make people prefer academic education paths even though this is not reflected in labour market demand.

How do public policies influence and challenge the use of qualifications for regulatory purposes? Which is the role played by European internal market as well as education and training policies (for example through Directive 2005/36 on Recognition of professional qualifications and the EQF)?

On top of specific regulation aimed at influencing the access to and practice in occupations, public policies in the areas of occupational safety and health, consumer protection and the environment can lead to indirect entry requirements on the labour market. For example, environmental policies may determine that mechanics working with a particular kind of substance need specific training for this work. Occupational safety and health policies may require operators of specific machines to first undergo mandatory training to be able to assess the risks of their activities. As these policies do not aim at regulating an entire occupation but are motivated by a specific issue which is targeted, we call these policies indirect occupational regulation.

As has already been mentioned, a growing body of occupational legislation originates at international or EU level, including the indirect occupational regulation just described. In addition, European policy projects aimed at international mobility of occupational practitioners are also making their impact felt. The implementation of Directive 2005/36/EC on the recognition of professional qualifications has had the by-effect of inspiring countries to adopt a more structured approach towards occupational regulation. The need to compile a list of regulated professions was for several countries an incentive to have an overarching look at the labour market regulation for the first time. As this occupational regulation is often based in the topical ministries, e.g. the ministry of health or the ministry of transport, this overarching view was previously missing. By compiling a list of all regulation, countries were able to have a closer look at the necessity of the regulation in place which also led to some regulation being removed. Nonetheless, it remains a challenge to keep the inventory of occupational regulation updated and exact.

Furthermore, the development of the European Qualifications Framework is influencing national structures as well. Especially the setting up of National Qualifications Frameworks was an important step in some countries, as no equivalent of an overarching qualifications structures existed, for example in Slovenia or Lithuania. Thus, the creation of an NQF had a strong structuring influence on these countries' qualifications systems, as the available qualifications were brought in a clearer relationship to one another. Furthermore, the EQF process has contributed to firmly embedding the learning outcomes approach in all the countries, emphasising the connection between qualifications and occupations. It is no surprise that nearly all countries we examined in the course of this study possess some kind of learning-outcomes based qualifications structure, including occupational profiles and comparable qualifications formats. As countries are now also active with the process of referencing qualifications to these NQFs, the actors involved in the shaping of the NQFs are starting to compare their national definitions of qualifications and occupations with those in other countries. In addition, for independent qualification structures, e.g. in the welding sector, this process raises the challenge and the possibility of clarifying the relationship between the independent qualifications and those of the general public education system.

Thus, public policies both at national and at EU level have an indirect, but substantial influence on the way that qualifications and occupations are regulated. Especially the slow but steady adjustment processes brought about by EU policies are very interesting to observe. It remains to be seen what effect the existing policy projects like the EQF but also future projects such as ESCO will have on the common approach to occupational governance in EU Member States.

How are technological and scientific developments influencing the use of qualifications for regulations?

Advances in technology and scientific discoveries are constantly changing the way we work and the work we do. In all of the occupations examined in the context of this study, technological and scientific developments play an important role. Doctors have

to get used to new treatment methods, truck drivers need to learn how to use their tracking devices, plumbers are faced with new heating systems or other machinery. This change in the technological and scientific base of occupations may lead to entirely new skills needs, which in turn could mean that qualifications acquired before the introduction of major technological innovations lose their relevance. Furthermore, technological innovations may even lead to the creation of new occupations, as has clearly been the case with regard to information technology and new media. If qualifications systems, linked to education and training, do not adapt to the technological developments, e.g. by updating the learning outcomes, they might lose relevance as an instrument of governance overall.

However, in all the cases examined in this study, respondents do not confirm the picture that technological and scientific developments are changing occupations to an unprecedented extent. Thus, technological change has always been an important factor influencing occupational practice and the current rate of change does not exceed earlier experiences. Actors at all levels, from the national to the sectoral level and including actual employers and employees, are thus used to integrating new technologies and scientific practices into both the governance frameworks and the daily practice at the work place. Furthermore, qualification systems are becoming more and more linked to the labour market, as all countries examined in this study are working on improving the feedback loop between labour market and education through the use of qualifications which will be described in answer to the following question. As a consequence, qualifications can continue being used as a strong and flexible tool despite technological and scientific developments which may lead to changes in the occupations and professions.

How will the constant redefinition of occupational and professional content and requirements influence the use of qualifications for regulation and governance?

Not only technological and scientific, but also societal, political and environmental developments can lead to changes in the content and practice of occupations and professions, the way they are understood and defined. Again, the occupations and professions in the scope of this study have mostly been in existence for a long time and have not undergone fundamental changes in recent years. Nonetheless, even these occupations are adapting to new demands, and with them the qualifications have to change as well. This raises the questions whether qualifications can actually be used for regulation and governance if constant efforts are needed to even keep them reflecting occupational reality.

The key to answering this question lies in the tension that exists between the aspects of flexibility, relevance and reliability of qualifications. Qualifications need to be flexible enough in their set-up and content in order to remain relevant to labour market actors, by absorbing, mirroring and responding to changes in occupational practice and demands. It is not surprising that the feedback loop between labour market and education receives a lot of attention in all countries under examination, leading to a situation in which labour market actors and educational institutions are working together to constantly control and update the content of qualifications using instruments such

as occupational profiles which form the backbone of qualifications based on learning outcomes on the basis of which curricula are developed.

This feedback loop, backed up by a strong institutional framework, can ensure that qualifications keep up with the redefinition of occupational content. At the same time however, the qualifications also need to remain reliable in order to be effective as instruments of governance regulating the access to and practice in occupations and professions. Too many changes in too short a time can lead to a loss of credibility and trust in individual qualifications or the entire qualifications framework. We can therefore identify a trade-off between the adaptability of qualifications and their usefulness as regulatory instruments.

In practice, it seems that actors are able to tackle this issue satisfactorily in most cases. Regarding the occupations and professions examined in this study, no fundamental changes in the set-up of qualifications had to be carried out in order to accommodate occupational changes, as the changes either only concern details in the qualification profile or the qualifications are formulated in terms general enough to cover some changes in occupational practice. Only in some cases, more substantial changes in occupational practices and the division of tasks had to be accommodated by the qualifications system, e.g. in the health care sector. These cases show however that qualifications remain the preferred instrument used to solve these issues. The same applies to additional systems of governance, e.g. based on private regulation efforts employed by sectoral organisations.

While the above applies mainly to the use of qualifications as entry requirements, another aspect that is of relevance to this question is the use of continuing professional development (CPD). As occupational practices change, occupational practitioners who are already active in their occupation also need to adapt to the changing demands. Especially in occupations and professions associated with high risks and intensive changes, such as the medical professions, demands on continuing professional development are increasingly playing an important role. These demands are not always linked to formal qualifications, but are enshrined in registration and certification arrangements. Furthermore, CPD can play a role not only in keeping the knowledge of workers up to date, but also in allowing them to take further steps in their career. Thus, in a country like the United Kingdom, qualifications are just as important for employees looking for career progression in the context of CPD as for new entrants to the labour market.

Which are the consequences of the growing importance of transversal skills and competences in the relationship between occupations and qualifications?

As occupations and professions are changing due to technological and societal pressures, the adaptability of employees becomes more and more important. In addition, in times of economic change as a consequence of the economic crisis, combined with high levels of unemployment, a lot of importance is attributed to the ability of employees to change jobs and switch from one occupation to another and even in between sectors. Policy initiatives such as the European taxonomy of Skills, Compe-

tences and Occupations (ESCO) aim to clarify what the overlaps are between different occupations in terms of skills and which of these skills enable employees to move from one occupation to the next. In this context, the so-called transversal skills, e.g. social and civic competences, cultural awareness and “learning to learn”.

A look at the occupational profiles and qualifications portfolios of the occupations examined here confirms the fact that transversal skills are seen as important outcomes of educational provision. We also see some examples of policy efforts to merge different qualifications in order to reduce the number of qualifications and simplify the qualifications frameworks. However, both at policy level and at the level of the end users of qualifications, it appears that the emphasis on transversal skills comes as an addition to and not in place of the traditional emphasis on specific skills. In addition to general formulations of transversal skills, occupational profiles and qualifications portfolios are filled with detailed, technical descriptions of the core activities of the occupational practitioner. For these core activities and the skills connected to them appear to remain the most important factors that shape a qualification and that decide whether an individual is fit to carry out a specific task or not.

This result is reflected in the way in which sectoral organisations approach qualifications in the context of independent systems of governance or ad-hoc educational provisions which are set up to respond to a sudden shortage of labour. Thus the emphasis is clearly put on specific occupational skills and competences instead of transversal and basic skills. This suggests that the labour market relevance of transversal skills is not appreciated to the same extent by labour market actors themselves as it is emphasised by policy makers. While transversal skills are a core part of public educational provision and enshrined in qualifications formats, specific skills connected to the occupation in question remain at the core of the system.

Are international bodies (organisations as well as companies) influencing the regulatory role of qualifications?

International bodies, including EU institutions, international social partner organisations, sectoral bodies and companies, have a growing influence on the regulation of occupations and professions. Several examples of international governance of qualifications and occupations could be identified in this study, including in the transport sector and in the welding occupation. We can hereby distinguish between two different kinds of international structures: public structures of governance on the one hand and private initiatives of self-regulation on the other hand.

Regarding the first kind, it has already been mentioned that in some sectors and occupations, regulation is increasingly moving to a supranational level. This can relate to EU regulation or international conventions such as in the case of shipping occupations. In these cases regulation is agreed at the level of international bodies and then implemented by national governance structures. Regarding the second kind, we can see sectoral actors taking the initiative to set up international structures of qualifications and regulation. The European Welding Federation is an example of such an international organisation which sees to the management of the international structure

of welding qualifications and certification. Again, national institutional arrangements are set up to implement the agreements set up at international level, in addition to existing public structures of qualification, certification and education. Finally, some multinational companies have reportedly set up their own qualification schemes, though this did not apply to any of the occupations and professions in the scope of this study.

Importantly, these examples of international bodies stepping in to regulate occupations and professions show that also in these additional systems, qualifications play a major role in linking educational outcome to occupational practice. At the same time it appears that the qualifications that are set up in these systems are much more focused on the specific labour market demands and not so much on broader educational priorities. They are rather designed to guarantee a common international minimum of service provision than to improve the general educational standing of qualified staff, though we cannot draw any generalising conclusions on this topic. While the international efforts may provide alternatives to national regulatory system, it is however not the case that they threaten or undermine national efforts, as they are rather supporting and adding to these structures.

Which political and ideological issues are raised in relation to these regulation and governance issues?

Qualifications can be a useful instrument to govern access to and practice in occupations and professions. By restricting or opening up entry to the labour market by means of regulatory requirements and by installing CPD programmes to uphold the educational level of occupational practitioners, regulation can help to match the right people with the right jobs, on a sectoral, national or even international level. Furthermore, through the use of qualifications systems, the link between education and the labour market can be strengthened and educational provision can be made more efficient and effective. However, the use of qualifications for labour market governance is not an automatic process, and the choice to use qualifications in this context is influenced by a number of political and ideological issues.

The main question which has come up repeatedly in this report is the question whether and when the use of regulation is justified. Regulation can have a number of noble goals such as guarding health and safety, protecting consumers, guaranteeing fair competition and protecting the environment. When used and implemented correctly, it can help achieve these goals. It can also however have less desirable effects such as creating cumbersome bureaucratic procedures, pushing up prices of services and products, excluding individuals because of their educational background or nationality and leading to insufficient balances between labour market supply and demand. While some of these negative effects may be entirely undesirable, others may even be intended by specific actors, such as the exclusion of outsiders from the labour market competition.

It is therefore not easy to decide when regulation is necessary and justified, as both supporters and opponents of regulation can have valid arguments. Interestingly, from

the perspective of qualifications, we have seen that there are examples where less regulation actually increases the status of qualifications on the labour market, as strict qualification requirements may reduce qualifications to an 'entry ticket' and nothing more. At the same time, even the most ardent train passengers will not argue that there should be no control of the educational level of air traffic controllers. It remains a difficult balance that policy makers need to strike between taking responsibility through active regulation on the one hand and letting employers and employees, trainers and learners, service providers and consumers work it out for themselves.

This brings us to the role of social partners. Where the government does not regulate the labour market, social partners can step in. Furthermore, they might play an important role in advising and lobbying at national and international level. Not all countries make full use of the potential input of social partners however. Furthermore, it is not agreed whether their role is always benign. There are two different issues influencing the debate. The first one is the question of vested interests. Professional organisations may try to protect their professional sphere and exclude outsiders, both from other professions and from other countries. On the other hand, employer associations may lobby for absolute deregulation in order to increase their autonomy in employment decisions.

Clearly, social partners can play an important role in improving the feedback loop between education and the labour market by providing input for the set-up of qualifications and the content of educational programmes. In this context, the second issue comes into play however which relates to the professionalism and representation of social partner organizations. Thus not all countries have long traditions of trusted social partnership and industrial organization. If social partners, and trade unions especially, are not trusted by the professional group and can thus not live up to their claim of representation, it can be controversial to give them a strong formal role in the policy process. On the other hand, where social partnership is only starting to develop, this development can be supported by giving them a strong role after all. It depends on the policy debate in the country and sector in question what the most advisable route might be in this context.

The central topic of this study is the role that qualifications play on the labour market. In this context, the labour market relevance of qualifications is of central importance. We have repeatedly stated that qualifications systems are indeed becoming more labour market focused. In times of economic crisis and high systemic levels of unemployment in a number of EU member states, it is not surprising that also at European level there is a strong focus on employment and labour market policy. This study can be seen as contributing to this debate. Nonetheless, it is important to remember that this focus on employment can also go too far. While the labour market function of education as embodied by qualifications is essential, education also has other functions for individuals and society, for example contributing to the autonomy and active citizenship of learners. In the context of policy issues targeting the contribution of education to a dynamic development of labour markets, this dimension should not be forgotten.

We can therefore conclude that there are a number of political and ideological dimensions on which policy makers need to strike the right balance in relation to using qualifications in governing occupations and professions. There needs to be a balance between strict regulation and working market mechanisms, between government involvement and social partner self-regulation, and between the labour market function of qualifications and their role in the educational sphere. The right balance can change through time and differs between countries, sectors and occupations and can only be found through an active and open policy making process.

Annex 1 Glossary

Accreditation	This term refers to situations in which an individual may apply to be accredited as competent by a recognised professional body or industry association. Accreditation is distinct from certification in that the criteria governing accreditation and the procedures regarding enforcement are entirely the responsibility of the accrediting body rather than the state
Certification	Refers to situations in which there are no restrictions on the right to practice in an occupation, but job holders may voluntarily apply to be certified as competent by a state appointed regulatory body
Industry association	An organisation representing the interests of employers, companies and organisations in a specific sector, often based on membership structures and involved in social dialogue procedures.
Licensing	Refers to situations in which it is unlawful to carry out a specified range of activities for pay, i.e. an occupation or profession, without first having obtained a qualification which ensures that the practitioner meets the prescribed standards of competence
Occupation	Defined as “a job or grouping of jobs involving similar content in terms of tasks and which require similar types of skills and competences”. ¹ In this most basic sense of the term, occupations are the equivalent of professions and in fact, an occupation can also be a profession.
Profession	Same as occupation, but often distinguished by a higher sense of professional
Professional association	Organisation representing the interests of a specific professional group, often based on membership structures and run by professionals themselves.
Qualification	Defined by the European Commission as “a formal outcome of an assessment and validation process which is obtained when a competent body determines that an individual has achieved learning outcomes to a given standard” ² . A qualification according to this definition is awarded by means of a <i>certificate, diploma</i> or other <i>record of qualification</i> .
Registration	This refers to situations in which it is unlawful to practice without having first registered one’s name and address with the appropriate regulatory body. Registration thus provides some form of legal barrier to entry, but an explicit skill standard is not provided

¹ Adapted from Skillsbase – Labour market information Database.

² Defined by the European Commission in the recommendation on a European qualifications framework for lifelong learning, 2008.

Regulation	Refers to all “actions taken on behalf of governments in the public interest to steer events and behaviour, rather than to provide or distribute goods or services”.
Social partners	Organisations representing employers and employees, including trade unions, professional organisations, employers organisations and industry associations.

Annex 2 List of abbreviations

ANB	Authorised national boards
ANP	Advanced nurse practitioner
BIG	<i>Individuele beroepen in de gezondheidszorg</i> , Individual professions in health care
BIS	Department for Business, Innovation and Skills
Cedefop	European Centre for the Development of Vocational Training
Cefic	European Chemical Industry Council
CHVG	<i>College voor Huisartsgeneeskunde, Verpleeghuisgeneeskunde en medische zorg voor verstandelijk gehandicapten</i> , College of General Practice, Nursing Home Medicine and medical care for the mentally disabled
CNCP	<i>Catálogo Nacional de Cualificaciones Profesionales</i> , national catalogue of qualifications
CPC	Certificate of professional competence
CPD	Continuing professional development
CRP	Chemicals, rubber and plastic
CVET	Continuing vocational education and training
EEA	European Economic Area
EEC	European Economic Community
EHFA	European Health and Fitness Association
EQF	European Qualifications Framework
ESCO	European taxonomy of Skills, Competences and Occupations
EU	European Union
EWF	European Welding Federation
EWGW	Electricity, water, gas, waste
GDP	Gross national product
GP	General practitioner
HEI	Higher education institute
ICT	Information and communications technology
IIW	International institute of welding
ISCED	International Standard Classification of Education
ISCO	International Standard Classification of Occupations
IVET	Initial vocational education and training
LLL	Lifelong learning
MNTB	Merchant Navy Training Board
NOS	National occupational standard
NQF	National Qualifications Framework
NVQ	National Vocational Qualifications
OECD	Organisation for Economic Cooperation and Development
OSH	Occupational safety and health
PESTLE	Political, economic, social, technological, legal, environmental

R&D	Research and development
RNCP	<i>Répertoire national des certifications professionnelles</i> , national register of professional certificates
SBB	<i>Stichting Samenwerking Bedrijfsleven Beroepsonderwijs</i> , Foundation for the Cooperation of VET and the Labour Market
SEDIGAS	<i>Asociación Española del Gas</i> , Spanish gas association
SERV	<i>Sociaal-Economische Raad van Vlaanderen</i> , Flanders Social and Economic Council
SMEs	Small and medium enterprises
SSC	Sector skills council
STWC	International Convention on Standards of Training, Certification and Watchkeeping for Seafarers
TEU	Treaty of the European Union
TFEU	Treaty on the functioning of the European Union
UK	United Kingdom
UKCES	United Kingdom Commission for Employment and Skills
VET	Vocational Education and Training
V&VN	<i>Verzorgenden en verpleegkundigen Nederland</i> , Carers and nurses the Netherlands