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The concept of internationalisation and the inevitability of mobility of highly skilled employees

What can the nuclear energy sector in Europe learn from it?

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THE CONCEPT OF INTERNATIONALISATION AND THE INEVITABILITY OF MOBILITY OF HIGHLY SKILLED EMPLOYEES

What can the nuclear energy sector in Europe learn from it?

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2 List of abbreviations

CHEPS - Centre for Higher education Policy Studies

ECTS - European Credit Transfer System

ECVET - European Credit system for Vocational Education and Training

EHEA - European Higher education Area

ENIC - European Network of Information Centres in the European Region

ERA-MORE - European Research Area MObile REsearchers

EU - European Union

HRST - Human resources in science and technology

NARIC - National Academic Recognition Information Centres in the European Union

NSF - National Science Foundation

NUFFIC - Netherlands organisation for international cooperation in higher education

OECD - Organisation for Economic Co-operation and Development

Open Doors - Institute of International Education

R&D - Research and Development

SCHE - Sub-Committee for Higher education of European Commission

SOLVIT - is an on-line problem solving network in which EU Member States work together to solve without legal proceedings problems caused by the misapplication of Internal Market law by public authorities

UNESCO - United Nations Educational, Scientific and Cultural Organization

VET - Vocational Education and Training

3 Introduction

"Alongside sustained growth in foreign direct investment (FDI), in trade and in the internationalisation of research and development (R&D), mobility of human resources in science and technology (HRST) has become a central aspect of globalisation" [1].

The international mobility of highly skilled professionals is not a new phenomenon - cosmopolitan values have always been part of various institutional operations. Nevertheless the concept of internationalization, as we know it today, developed primarily in the last thirty years on the basis of globalization. Internationalization became increasingly important, if not a core component of the various institutions throughout the world. In the past, international activities were almost synonymous with the mobility of students and scholars, or as Kerr calls them "wandering scholars," (lat. peregrinationes academicae) [2].

After the World War II, international co-operation was initially focused on humanitarian objectives and solidarity between countries, which was later reflected in the increased mobility of students from the South (the developing countries) to the North (the developed countries) [15].

Only after the fall of the Berlin wall and with the intensification of the globalization processes, the concept of internationalization developed. The later resulted in:

- an increased mobility of students, higher education staff, and highly skilled professionals,
- development of an increased number of courses, programmes and qualifications that focus in comparative and international issues,
- development of an increased number of activities related to the internationalization of research and development (R&D),
- development of new international networks and consortia and
- the creation of new regional and national government policies and programmes that support higher education-related mobility and other internationalization initiatives [3].

In Europe, countries have been faced with profound social, political, economic and technological change especially since the beginning of the nineties. These changes

were due to globalization of capital, production, trade and services, and Europeanization[1].

Moreover, the global knowledge society and the tendency to create a single European Higher education Area (EHEA) dictate necessity for a highly educated, flexible, creative and entrepreneurial workforce with a strong motivation for learning, understanding different cultures and ability to operate in an international environment.

In addition to traditional skills, which are the basis for the conception of general education, there is a need to develop new competencies, allowing each individual to function effectively in both domestic and international environment.

It is recognized that only social cohesion, intercultural dialogue and international cooperation can enable organizations to successfully face the challenges and risks brought by technological development, globalization and European integration processes. The internationalisation of research and development (R&D) and mobility of human resources in science and technology has therefore become a central aspect of globalisation [1].

Nevertheless, the concept of internationalization is still a phenomenon that raises several questions that relate to its meaning, rationales, approaches and strategies and its implications which are unavoidable for national and individual realities (human resource development).

The basic purpose of this report is therefore to present the:

- concept of internationalization,
- rationales for its introduction,
- threats linked to the internationalization of activities,
- recent trends of mobility of highly skilled professionals, students and higher education staff,
- recognition practices in selected European countries.

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[1] Europeanization is "an incremental process of re-orienting the direction and shape of politics to the extent that EC political and economic dynamics become part of the organizational logic of national politics and policy making" [4].

In addition, the report also tries to find answers to the following questions:

1) **What are the rationales for the mobility of the highly skilled professionals?**
2) **What are the benefits/threats of mobility of the highly skilled professionals?**
3) **How to encourage mobility of the highly skilled professionals?**

Chapters 2 presents some definitions used in this report, chapter 3 looks at internationalization as a response to globalization, especially in Europe, and more precisely in the higher education area, chapter 4 is focusing on the rationales for and threats linked to internationalization, chapter 5 elaborates more on the trends in "inflow" and "outflow" of highly skilled professionals, international students and higher education staff, and chapter 6 is trying to answer the question How to encourage the mobility of the highly skilled professionals. Chapter 7 is listing the conclusions and some recommendations designed for the high education area, which could be, with modifications, applied also in sectors outside this area.

4 Definitions

Internationalization: understood as a process at different levels (global, institutional and individual level) that integrates an international dimension into all institutional operations [6]. Modes of internationalization related to the research and development (R&D) are:

- study[2]/placement[3] mobility,
- joint research projects,
- international conferences or seminars,
- publication of articles,
- international agreements,
- exchange programmes for researchers,
- international research partners and
- other international activities [6].

In addition, Koser and Salt [5] offer four modes of skilled migration:

1) staff movement within internal labour markets,
2) corporate staff moving from more peripheral location for training purposes,
3) self-employed, entrepreneurial migration,
4) movement within newly evolving indigenous transnational companies with ownership based in newly industrializing state.

Highly skilled professionals: professionals with tertiary education trained in an engineering or technology-related or other professional discipline (e.g. business, project management, etc), and with the ability to migrate in order to utilize his/her expertise for work purposes.

Human resource development: a technical process of developing the knowledge and skills of human resources, as well as, as a personal process, where staff on the basis of openness and interaction with others, develop a common, emotional and intuitive understanding, which sometimes even lead to changes in traditional assumptions and beliefs.

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[2] Allows student to study in a foreign country.
[3] Allows students to gain practical experience in a foreign country.

In the last decade, European higher education institutions have been faced with many challenges and decisive movements which gave rise to profound changes in their performance. These challenges were the following:

1) the **process of globalization**, which is the most powerful reason for the changing environment of higher education,

2) the tendency towards a common **European Higher education Area** (Bologna Declaration),

3) **the Lisbon strategy** and

4) **changes in the funding of higher education institutions**.

The next section of this report looks more closely into these challenges and their links to the concept of internationalization.

5 Internationalization as a response to globalization

Accelerating globalization of world trade also raised additional challenges in higher education. Five elements of globalization that affect the operation and the international dimension of higher education and training are shown in table 1. These changes affect all aspects of higher education, including the process of teaching and curricula, the mobility of students and higher education staff, international development and research projects and human resource development.

Table 1: Implications of globalization to the internationalization of higher education and training

Elements of globalization	Impact on higher education	Implication on the international dimension of higher education and training
Knowledge society Increasing importance attached to the production and use of knowledge as a wealth creator for nations	Growing emphasis on continuing education, lifelong learning, and continual professional development is creating unmet demand for higher education. Need to develop new skills and knowledge is resulting in new types of programmes and qualifications. Role of universities in research and knowledge production is changing and becoming more commercialized.	New types of private and public providers (private media companies, networks of public and private institutions, corporate universities, and multinational companies) are delivering education and training programmes across borders. Programmes are more responsive to market demand. Specialized training programmes are being developed for niche markets and professional development purposes and distributed worldwide. Students, professors, education and training programmes, research, providers, and projects are increasingly mobile, physically and virtually.
New developments in information and communication technologies and systems	New delivery methods, especially on-line and satellite-based methods, are being used for domestic and cross-border education.	Innovative international delivery methods, such as e-learning, franchises, and satellite campuses, require more attention to accreditation of programmes and providers and recognition of qualifications.
Market economy Growth in number and influence of market based economies around the world	Higher education and training are increasingly commercialized and commodified at the domestic and international levels.	New concerns are arising about the appropriateness of curriculum and teaching materials in different cultures and countries and the potential for homogenization, as well as new opportunities for hybridization.
Trade liberalization New international and regional trade agreements developed to decrease barriers to trade	The import and export of educational services and products have increased as barriers have been removed.	More emphasis is being placed on commercially oriented export and import of education programmes, and less on international development projects.
Governance Creation of new international and regional governance structures and	The role of national level education actors, both government and nongovernment, is changing.	New international and regional frameworks are being considered to complement national and regional policies and

systems	New regulatory and policy frameworks are being considered at all levels.	practices, especially in the areas of quality assurance, accreditation, credit transfer, recognition of qualifications, and mobility of students.

Source: Knight [6]

5.1 Creation of a common European Higher Education Area

Higher education in Europe is facing a new environment as a result of globalization, intensified competition and increased commercialization. Establishing liaison and open European area of education and training has therefore become crucial for the future of Europe and its citizens. Only on the basis of a common European Higher education Area, will Europe be competitive enough to the rest of the world and enhance its intellectual, cultural, social, scientific and technological dimensions.

In the genesis of a common European higher education system, a number of documents developed, which can be divided into two parts. In the first set are the documents that were signed before the official start of the Bologna process. These are the Magna Charta Universitatum, Erfurt Declaration, the Lisbon Convention and the Sorbonne Declaration. In the second set are the Bologna Declaration, the Student Declaration of Gothenburg, Lisbon Strategy, Prague Communiqué, Graz Declaration and the Berlin Communiqué.

5.1.1 The Bologna Declaration

The Bologna process can be characterized as a joint effort of the European countries (more precisely, their Ministries of education), some governmental international education organizations, academic institutions and student organizations for coordinated cooperation and unification of views in addressing the challenges and open questions on key concepts, strategies and development policies of higher education in an environment marked by European integration.

The basic objective of the Bologna Declaration, which was signed in June 1999 by twenty-nine ministers of European countries, was to create a single European Higher education Area by 2010. With this declaration, the European countries have responded to societal needs, relating to higher education, and committed themselves that they will complete the necessary reform of their own higher education system so that these are mutually consistent and comparable. In this way the European system of higher

education will become internationally competitive, and the citizens of Europe will be able to acquire skills to face the challenges of the new millennium.

The declaration emphasizes also that, by being more involved in the global race for universities' influence, prestige and resources, the European Higher education Area will become more attractive to students from other parts of the world. The goals of this declaration are:

Table 2: Main goals of the Bologna Declaration

Creating a single system of comparable degrees	Creating a single system of readable and comparable degrees (diploma supplement form) with a view to facilitating the employment of European citizens and the international competitiveness of European higher education system.
Adoption of a system essentially based on two main periods (cycles), undergraduate and graduate	Access to the second period of study requires the successful completion of the first, which takes at least three years to conclude. The second period of study leading to the master and / or doctorate degree as is already implemented in many European countries .
Establish a European Credit Transfer System (ECTS) as a proper means of promoting the most widespread student mobility	Credits could also be acquired outside of higher education, including lifelong learning, provided they are recognized by universities that accept students.
Promotion of mobility	Promotion of mobility by overcoming obstacles that stand before the effective exercise of freedom of movement, particularly in: a) access to study opportunities for training and related services for students; b) the recognition and valorisation of periods of research, teaching and training in Europe when it comes to teachers, researchers and administrative staff, without prejudicing their statutory rights.
Promote European cooperation in quality assurance	Promote European cooperation in quality assurance, by developing comparable criteria and methodologies.
Promotion of the necessary European dimensions in higher education	Promotion of the necessary European dimensions in higher education, particularly to curricular development, inter-institutional cooperation, mobility planning and integrated programmes, study, training and research.

Source: The Bologna Declaration [7]

The European Action Scheme of the Mobility of University Students (ERASMUS), incorporated its for the first time by the European Commission in its Socrates programme in 1994, allows a short student exchange, transfer of European credits according to the European Credit Transfer System (ECTS), development of curricula, exchange of higher education staff and the internationalization of higher education institutions within the group of countries adopting the Bologna education system.

In 2007 the European Union started with the implementation of the Integrated Lifelong Learning Programme (2007 to 2013) which is fundamentally changing the implementation of the Leonardo da Vinci, Socrates and other sub-internationalization activities in order to further increase the mobility, partnership and portability in

education and training. The programme represents a key force behind the creation of a common European Higher education Area. It represents also a solid alliance between the countries of the European Union and the most appropriate way of making Europe the most competitive knowledge-based region of the world.

According to the European Commission's ERASMUS statistics[1] in the period from 1987/1988 to 2009/2010, 2.189.861 million European students had experience of short term study mobility and 88.553 European students had experience of short term placement mobility. In the same period 222.444 higher education staff had teaching assignments in a foreign country.

In graph 1 the student mobility statistic in the period from 2008 to 2010 is presented according to the destination of study. It is shown that higher education institutions in Spain, United Kingdom and Germany are the most desirable destination for study mobility.

Graph 1: Erasmus students by destinations of study from 2008 to 2010
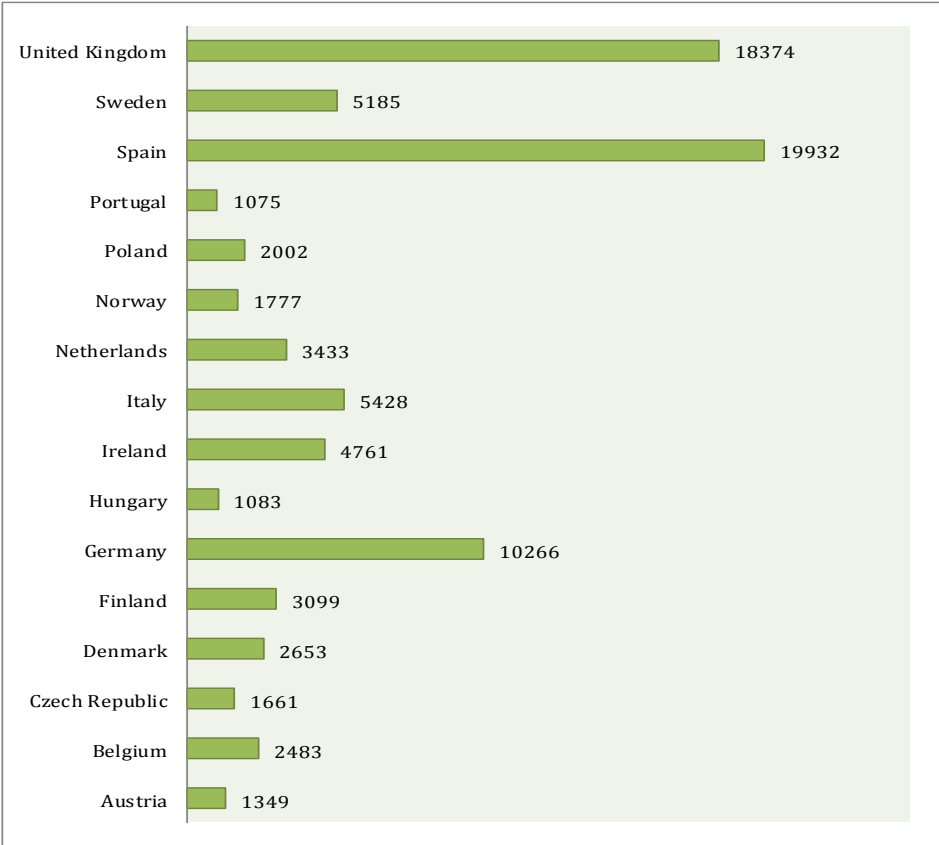
Source: Lifelong Learning Programme - European statistics [8] and self-elaboration

Similarly, the presented countries also sent their students to other universities in Europe, the only exception is the United Kingdom. On the basis of the calculated ratio between the "incoming" and "outgoing" mobility of students during the period from 2000/01 to 2008/09, it is observed that reciprocity does not exist: Many more students from other European countries decided to go in the United Kingdom as students from the United Kingdom decided to study at universities in other European countries. The reason for this could be the English language factor that leads to decision why students from the United Kingdom do not decide to study in other European countries.

The most favourable destinations for higher education staff in the period from 2008 to 2010 were countries, such as: Spain, Italy and Romania.

Graph 2: ERASMUS higher education staff mobility by destinations of teaching assignments from 2008 to 2010
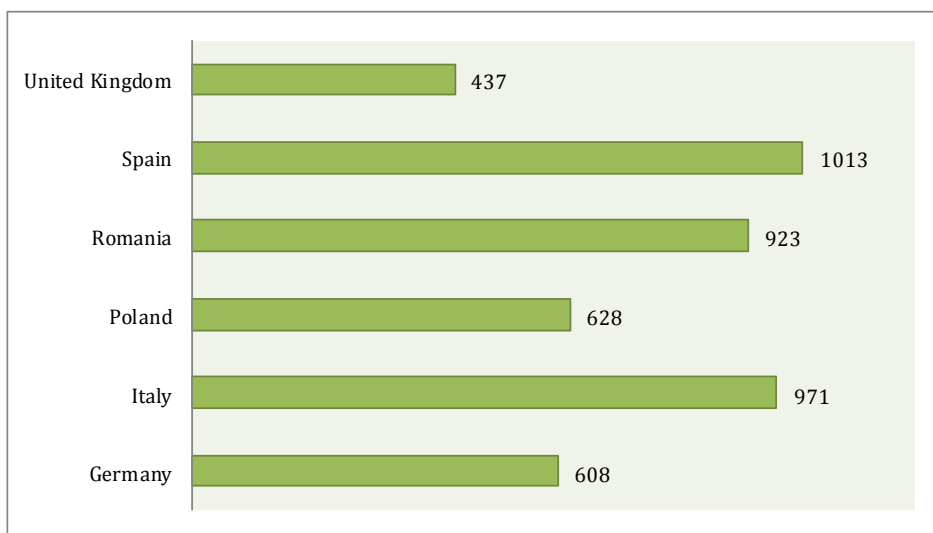
Source: Lifelong Learning Programme - European statistics [8] and self-elaboration

The ERASMUS programme is a driver for modernizing Europe's higher education systems and with 2.500.858 million of study/placement mobility of student and higher education staff in the period from 1987/1988 to 2009/2010 reached the status of social and cultural phenomenon. Thus, ERASMUS has been and remains a key factor in the internationalization and "Europeanization" of higher education systems in the European Union [9].

Regarding the mobility in vocational training the Leonardo da Vinci programme includes mobility initiatives enabling people to train in another country, and co-operate in projects to transfer or develop innovative practices, and networks focusing on topical

themes in the sector. The people able to benefit from the programme range from trainees in initial vocational training, to people who have already graduated, as well as vocational education and training (VET) professionals and anyone from organisations active in this field. Leonardo da Vinci enables organisations in the vocational education sector to work with partners from across Europe, exchange best practices, and increase their staff's expertise. It should make vocational education more attractive to young people and, by helping people to gain new skills, knowledge and qualifications, the programme also boosts the overall competitiveness of the European labour market European Commission statistics show that in the period from 2000 to 2011, Leonardo da Vinci financed 743.345 individuals with the aim to acquire expertise in a foreign country. Only in 2011, Leonardo da Vinci financed 75.864 individuals who went under this programme to another country. The most favourable destinations in 2011 were Germany, France, Netherlands and Turkey [10][4].

5.1.2 The Lisbon Strategy

The Bologna process in higher education achieves the purpose of the Lisbon Strategy, which aimed for the European Union to become by 2010 "the most competitive and dynamic knowledge-based economy in the world capable of sustainable economic growth with more and better jobs and greater social cohesion" [11]. In the new Europe of knowledge it is necessary to enable citizens to be able to learn and work together across Europe and that all can fully use their skills. Especially in higher education there are obstacles to mobility and the recognition of qualifications. The EU already acted to address both sets of obstacles, either through the European instruments (such as the ECTS or the university partnerships within the ERASMUS programme) and/or through the Bologna process. However, in many areas, there remains much work. Therefore, higher education institutions and other educational authorities are encouraged to develop more compatible systems of qualifications across Europe and arrive to a common understanding of what the minimum level of quality required for accreditation should be. The reason for this is that in this environment, the recognition system is faced with new challenges such as:

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[4] For more details see the success stories of the Leonardo da Vinci programme [13].

- "constantly changing educational systems,
- increasing diversity of "tailor-made" programmes at all educational levels,
- the increasing mobility not only of students and higher education staff but also the increasing mobility of institutions and programmes" [12].

5.2 Changes in the financing of the higher education

Changes in the financing of higher education are one of the key platforms for the internationalization of higher education. Increased student numbers and thus increased demand for educational services represent in terms of financing a large burden to the country. Decision on a new, integrated financing of higher education gives universities greater financial autonomy. However, it requires their greater responsibility. As a result, diversification, privatization and commercialization of higher education are occurring lately. Consequently, both public and private higher education institutions seek alternative sources of income. Sources of finance are usually various foundations and private corporations; income comes also from commercialization of research and from fees of domestic and foreign students and tuition of students who are enrolled in the study programmes conducted by an institution abroad. Looking ahead, we can expect that the number of courses provided by higher education institutions will be, due to potential funding, significantly increased. Therefore it is expected that the market for higher education services would be even more competitive in the future [6].

6 Rationales for internationalization and threats linked to it

According to OECD the knowledge-based society relies on highly qualified employees in all sectors of the economy and society. Today, countries have a greater need for highly skilled professionals who are able to access, understand and use knowledge for technological and economic development [3].

Despite the different rationales for mobility of higher education staff and skilled employees, the political, economic, socio-cultural and academic rationales for internationalization of higher education, developed by Knight and de Wit remain the overall framework of categories of rationales for internationalization [14]. Furthermore, de Wit writes about four main rationales for internationalization based of four different kinds of purposes [15]:

1) the socio-cultural purpose' rationales include support to national and cultural identity, enhancing understanding between cultures, citizenship development and development of the community and society,

2) the political purpose' rationales aim at strengthening of the foreign policy and national security, increasing support to experts, peace and mutual understanding and to the development of national and regional identity,

3) the economic purpose' rationales are directed towards economic growth and competitiveness, labour market and financial incentives; and

4) the academic purpose' rationales aim at the widening of academic horizons, strengthening of institutions, achievement of better profile and status, quality improvements, implementation of international academic standards and international research and teaching.

Table 3 summarizes the existing and emerging rationales of internationalization of higher education and more generally of organizations.

Table 3: Rationales driving internationalization

Rationales	Existing rationales	Rationales of emerging importance
Socio/cultural	National cultural identity Intercultural understanding Citizenship development Social and community	**National level** Development of human resources, strategic alliances, income generation, development commercial trade, nation building, institution building, social and cultural development
Political	Foreign policy National security Technical assistance Peace and mutual understanding National identity Regional identity	
Economic	Economic growth and competitiveness Labour market Financial incentives	**Institutional level** International branding, quality enhancement, international standards, income generation, student and staff development, strategic alliances, knowledge production
Academic	Extension of academic horizon Institution building Profile and status Enhancement of quality International academic standards International dimension to research and teaching	

Source: Knight [6].

The next section will focus primarily on rationales for internationalization at the national level. These are the development of human resources and strategic alliances.

6.1 Human resources development as a rationale for internationalization

"From Protagoras to Paracelsus, a travelling scholar is a historical phenomenon that extends from Sophists and Confucius" [16]. It is a fact that in the twentieth century the internationalization was further strengthened by the convergence of systems of higher education and programmes that promote mobility, a notable example of which is the ERASMUS programme in Europe. To this development contributed also the emergence of English as the dominant medium of learning.

According to OECD the importance of mobility stems from its **contribution to the creation and diffusion of knowledge**. Not only does it aid in the production and dissemination of codified knowledge, it is also an important means of transmitting tacit knowledge. In the broadest sense, **tacit knowledge** is any knowledge that cannot be codified and transmitted as information through documentation, academic papers, lectures, conferences or other communication channels. Such knowledge is more effectively transferred among individuals with a common social context and physical proximity [1].

Various authors note that international mobility affects both the **personal and professional development**.

Bracht and others [17], who studied the impacts of mobility within the ERASMUS programme, note that at the level of personal development, individuals show an **increased cross-cultural understanding and skills**, and, at the level of professional development, individuals improve their **foreign language skills, additional contacts** (international networking), the **possibilities of new research projects** and international experience to assist in subsequent applications of international projects.

As discussed in the previous sections, mobility and international placements are not only important for the higher education area, but the exchange of highly skilled professionals is also of crucial importance for the other science and technology organisations. Mobility gives to individuals an insight in the quality standards of foreign institutions, international networking opportunities, and possibilities of new research projects. All this enables the **flow of fresh ideas into practice**. Or as OECD notes: "(M)obile talent also acts as a vital complement to the **transfer of knowledge through flows of goods and capital across borders**" [3]. Thus, it is clear from the above said that the involvement in international activities can **strengthen the basic structure and institutional activities and enable initiatives that solely on the basis of local resources and expertise would not be possible** [15].

Regarding the link between mobility and the wider economy, OECD notes that the "**inflow of talent has positive effects** relating to knowledge flows, including the possibility of increased R&D and economic activity owing to the availability of additional skilled workers, improved knowledge flows and collaboration with sending countries, increased enrolments in graduate programmes and potential firm and job creation by immigrant entrepreneurs. **Mobility can help to link domestic firms to foreign knowledge, and to stimulate spillovers from foreign R&D to local R&D units and the economy at large**" [1].

6.2 Strategic Alliances between higher education institutions and between institutions of higher education and the economy as a rationale for internationalization

"Strategic alliances can be seen both as a driving rationale and as a means or instrument of internationalization. There has been a shift from alliances for cultural

purposes to those for economic purposes. This is especially true at the regional level, where countries are trying to achieve stronger economic and political integration with their neighbours by increasing their international education activities on a regional basis" [6]. For example, CHEPS notes that the ERASMUS partnerships between higher education institutions increase the participation in international projects. In addition, the partnerships also allow comparison between institutions, learning about different standards of quality, organising different joint research projects, and participation of higher education staff in the publication of periodicals [18].

According to OECD the relationship between mobility and innovation is less clear, although some evidence suggest that immigrants contribute strongly to patent applications and creation for technology firms [1].

For the future, de Wit [15] predicts that strategic partnerships in research, teaching and knowledge transfer between higher education institutions and between institutions of higher education and the economy beyond national borders will be the central part of their functioning. In addition, international and interdisciplinary cooperation is the key to solving global problems related to environment, health and crime. Last but not least, cooperation is not important only beyond national borders but also among higher education institutions, economy and industry at national level. "In contrast to the past when higher education was a part of social policy, it is nowadays increasingly regarded as a critical component of national and regional economic policy. Today, many countries have explicit metrics about university engagement with the economy; some, such as UK, have gone further and established dedicated government-funding streams based on such metrics. The most important policy question is no longer how to make universities work better with industry but what they can perform in regard to innovation and economic development, particularly at a local level. Research-intensive universities are different from teaching-focused institutions and today regions and nations see inputs from both types as important. Furthermore, universities in developing countries are quite different from universities in industrialized contexts; these are also are no longer expected to work in isolation, but are perceived to be interactive players who work closely not only with industry but with community and government" [19].

7 Threats linked to internationalization

Three main threats linked to internationalization are mentioned in this section:

1. "brain drain";
2. the changing demographics in the world and in Europe in particular: the aging of the population affecting the retirement of higher education and training staff coupled with the challenge of attracting young talent in certain sectors/industries as well as in higher education and training careers;
3. global competition for talent.

Notwithstanding the advantages and benefits posed by the international activities presented in the previous chapters, we should mention some negative factors and risks that arise in relation to the internationalization. The "dark side" of the concept is connected with brain drain. Due to poor working conditions, especially in third world countries, a large proportion of experts/professionals decide to migrate or work in foreign institutions. The inability to replace outgoing professionals has a negative impact on the capacity of institutions and the development of local economies. A weakened institutional capacity is also linked to low research productivity. OECD notes that, "in addition to economic incentives, such as opportunities for better pay and career advancement and access to better research funding, mobile talent also seeks higher quality research infrastructure, the opportunity to work with "star" scientists and more freedom to debate. Less amenable to potential government policy, but still important, are family or personal ties that draw talent to certain locations" [1].

The Europe 2020 strategy, adopted in 2010, already incorporates the need to adapt the policies and strategies to the new demographic reality. The later entails a relatively rapid aging of its population which arleady affects organizations around the EU [20]. For example, Enders and de Weert [21] for European countries recognize that a large number of higher education institutions are faced with the retirement of their staff. In addition, the academic job is to the younger generation no longer as attractive as it was decades ago. It seems that universities are becoming less competitive due to financial constraints and opportunities in the area of promotion. This represents a major

challenge for the redistribution of resources and employment policy involving for both the old and the young generation. In some areas it is particularly significant that the jobs started to be occupied by the former students who came from abroad, as well as by foreign researchers. In the Netherlands, for example, they have problems with obtaining young scientists for doctoral studies (same as in Sweden and Norway), and therefore endeavour to obtain foreign students (mostly from Central and Eastern Europe and Asia).

Perceived as a threat, or an opportunity, is the growing competition in the world for talented and skilled professionals as suggested in the very name of the OECD report named The Global Competition for Talent: Mobility of the Highly Skilled [1]. Because of an increasing emphasis on the knowledge economy, and the increased trade in services, countries are driven to place more importance on developing and recruiting human capital through for e.g. international education initiatives. There is also an "increased pressure for and interest in recruiting the brightest students and scholars from other countries in order to increase scientific, technological, and economic competitiveness"[6].

8 Trends in "inflow" and "outflow" of highly skilled professionals, international students and higher education staff

As far as the current data on the migration of highly skilled migrants is concerned, Bevc and others [22] indicate that the assessment of transnational mobility and migration of highly educated people (researchers, scientists) is difficult and incomplete. Nonetheless, on the international mobility of human resources in science and technology by the year 2008 OECD published a report titled: The Global Competition for Talent: Mobility of the Highly Skilled [1]. The data show that the majority of OECD countries are net beneficiaries (with more inflows than outflows). In particular, countries such as USA, Canada, Australia and France, have had a positive net inflow of highly educated migrants. However, more detailed image shows that New Zealand and Ireland experienced large outflows (in relative terms). In the absolute sense, the UK and Germany had the largest number of skilled immigrants, while Luxembourg, Norway and the Slovak Republic had the least of these immigrants. With regard to non-OECD countries, the largest net beneficiaries of highly skilled people are Asia, China and the Philippines.

"One way for students to expand their knowledge of other societies and languages, and thus improve their prospects in globalised sectors of the labour market, such as multi-national corporations or research, is to study in tertiary education institutions in countries other than their own" [23]. Countries benefit from the inflow of students and scholars. Benefits also occur when domestic students study abroad and gain knowledge and experience in another country. The number of students enrolled outside their country of citizenship has risen sharply since 1995. Most enrol in the OECD area, especially in Australia, France, Germany, the United Kingdom and the United States.

Also higher education staff recruited from overseas is now a significant element of the university workforce in some countries and there is some evidence that their mobility is associated with highly skilled output. Mobility may lead to better international connections and collaborative research and overcome local constraints on research work.

The highly skilled labour market is also becoming increasingly international. Both private industry and higher education area seek foreign staff for their specific knowledge or abilities, their language skills and their knowledge of foreign markets [3].

Table 4 presents some figures related to the inflow and outflow of international students worldwide.
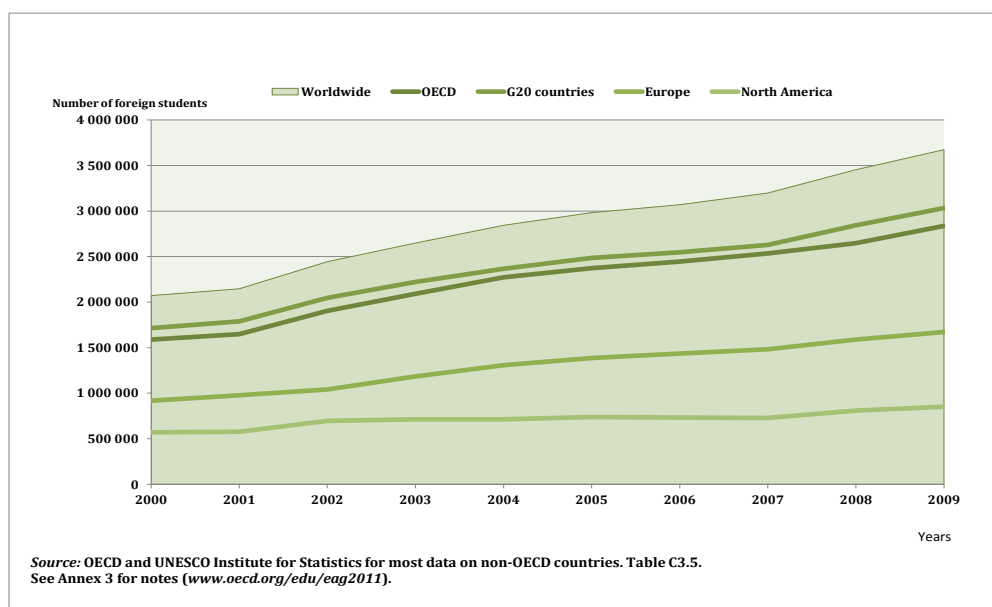
Table 4: "Inflow" and "outflow" of international students

1	In 2009, almost 3.7 million tertiary students were enrolled outside their country of citizenship.
2	In descending order, Australia, the United Kingdom, Austria, Switzerland and New Zealand have the highest percentages of international students among their tertiary enrolments.
3	In absolute terms, the largest numbers of international students are from China, India and Korea. Asian students represent 52% of foreign students enrolled worldwide.
4	The number of foreign students enrolled in the OECD area was nearly three times the number of citizens from an OECD country studying abroad in 2009. In the 21 European countries that are members of the OECD, there were 2.6 foreign students per each European citizen enrolled abroad.
5	Some 83% of all foreign students are enrolled in G20 countries, while 77% of all foreign students are enrolled in OECD countries. These proportions have remained stable during the past decade.

Source: OECD [23]

Graph 3 shows how the number of students enrolled in programmes outside their country of citizeship changed in the period from 2000 to 2009 and according to the region of destination.

Graph 3: Evolution by region of destination in the number of students enrolled outside their country of citizenship (2000 to 2009)

Source: **OECD and UNESCO Institute for Statistics for most data on non-OECD countries. Table C3.5.**
See Annex 3 for notes (*www.oecd.org/edu/eag2011*).

Source: OECD [23]

If we take a closer look on contemporary trends in "inflow" and "outflow" of international students and higher education staff at individual world continent, for Africa, America, Asia, Europe and Oceania the following trends can be observed:

8.1 Africa

South African higher education institutions have been faced with profound brain drain. Although there were a number of initiatives in order to curb the loss of higher education staff and experts, the higher education staff of the Republic of South Africa still decides for better-paid jobs in other African or foreign higher education institutions or in the business world. This in turn, according to Mapesela and Strydome [29], had a significant impact on the quality of teaching in the home country. Similarly, Jowi [30], who is convinced that the brain drain is a serious problem for the capacity of the African universities, predicted that the situation will be even worse in the coming years with "the emergence of new immigration policies of developed countries, aiming to attract highly qualified scientists from developing countries. Brain drain due to inadequate capacity to replace outgoing professionals had a negative impact on the capacity of African universities and the development of local economies, which will prove the continuing marginalization of Africa in the creation of knowledge at global level" [25].

8.2 United States

United States (U.S.) are the largest net recipient of international students. In 2008 the U.S. received 18% of all international students, followed by the United Kingdom (10%), Germany (7%), France (7%) and Australia (7%) [26]. Furthermore, Altbach and Teichler [32] argue that the U.S. has been for a model of mobility and exchanges since World War II and until the eighties, when some 35% of internationally mobile students went to study in the U.S. because of the high quality degree programmes in various fields, structured design of academic programmes, opportunity for immigration and academic career in the U.S., the possibility of prestigious scholarships (for some), superior marketing of U.S. institutions of higher education, the use of English as a medium for academic work, and the global impact of U.S.

8.3 Asia

Japan, "despite the fact that the language of instruction used is a less widely spoken language, a large number of international students is enrolling in Japan, 93.3% of those from Asia" [26]. Japan in 2008 with 4% of international students even held the eighth place (together with the Russian Federation). This could be attributed, among other things, to a governmental project "Plan of 100.000," which was meant to receive by 2000, 100.000 international students to study in Japan, which according to Huang [27] is a key component of the internationalization of Japanese higher education. Moreover, worth noting is a project is of the Japanese Ministry of Education, Culture, Sports, Science and Technology in 2008 under the title "Global 30", which aims to establish a number of universities that will focus in particular on the activities of internationalization. One of the key aims of the project is to attract by 2020 300.000 international students [28].

Korea has also a considerable increase in the proportion of international students in the 2000-2008 period. In 2000, South Korea enrolled 0.2% international students; in 2008 it had 1.2% of international students [26].

According to the OECD the opposite picture is seen in China. Between 2000 and 2008, the share of international students in China has declined to 0.50%. In 2008, China had also enrolled 1.5% of international students. There is a general trend that the larger number of Chinese students chooses to study in other countries, as international students choose to study at Chinese universities. The largest group of international students (17% of all international students) enrolled in OECD countries come from China. Perhaps this trend could be attributed to the universal use of English in the scientific literature, which in turn dictates the decision of students to choose the country where the educational programmes are carried out in English. International students are reflecting as well the attractiveness of specific educational systems, first because of academic reputation, sometimes because of subsequent migration opportunities. Therefore, it should be noted that most students from China study in countries such as Australia, Canada, France, Germany, Japan, South Korea, New Zealand, United Kingdom and United States which have the most developed schemes for immigration of international students [26].

"The destinations of international students also highlight the attractiveness of specific education systems, whether because of their reputation or because of subsequent immigration opportunities. It is noteworthy, for example, that students from China are mostly in Australia, Canada, France, Germany, Japan, Korea, New Zealand, the United Kingdom and the United States, most of which have schemes to facilitate the immigration of international students. Similarly, students from India favour Australia, the United Kingdom and the United States. In fact, these three destinations attract 77% of Indian citizens enrolled abroad" [23].

8.4 Europe

Higher education institutions in France and Germany are considered to have the largest share of international students compared to other European countries and, interestingly, fewer international staff [29] "German and French languages are still the main medium of learning and communication in these two countries, from foreign scholars it is more or less expected to be fluent in the national language used in these two countries. Furthermore, the study subjects are rarely given in a foreign language. So, for individuals who do not speak the national language, opportunities to get jobs at universities in Germany or in France, are limited "[29].

In conjunction with the flow of international students OECD study notes that the largest number of international students (among European countries) go to study in United Kingdom(10%), France (7.3%), and Germany (7.3%). Furthermore, international students represent even 10% of students enrolled in higher education in European countries such as Austria, Switzerland and United Kingdom and even more than 20% of students enrolled in postgraduate study programmes in Austria, Belgium, Switzerland and United Kingdom. In Denmark, Finland, Germany, Sweden, Switzerland and Slovenia, 30% or more of international students are enrolled in degree programmes in science, engineering or agriculture. If we compare the number of international students in 2000 and in 2008, we can conclude that the number of international students doubled in countries like the Czech Republic, Finland, Greece, Ireland, Italy, Netherlands, Poland, Slovak Republic, Spain, Estonia and Slovenia [26].

High proportion of international students in European countries can be attributed to European integration, and the widespread use of English, German and French languages and national policies on tuition fees for international students (especially those arising from European countries). The English language is an important element in the decision of students to study abroad. Furthermore, an increasing number of institutions in countries where the official language is not English, offers courses and programmes in English in order to attract even greater numbers of international students. Another factor that affects the inflow of international students in European countries in recent years are national policies of scholarships for international students. "The fact that Finland, Iceland, Norway and Sweden have no tuition fees for international students and also conducted a large number of courses in English, explains the robust growth in the number of foreign students who were enrolled in these countries over the period 2000-2008" [26].

While European countries are participating in the joint process with the aim of creating a European Area of Higher education, there are no signs or similar movements, which could be related to the acquisition of control of academic staff and their careers. Some reforms have been introduced in various countries, targeted solely at solving national issues or at better positioning in the international scene such as the creation of harmonized academic labour market in Europe [29].

As regards the trend in employment of international staff in European universities, unfortunately, due to lack of statistics at the global level, we were unable to investigate what are the trends in this field. Nevertheless, these could be similar to the trends within the ERASMUS programme, which were already presented previously.

8.5 Oceania

Higher education institutions in Oceania have been highly successful in obtaining international students and international staff. OECD notes that Australia holds the fifth place regarding the number of international students. In 2008, 7% of all international students (from 3.3 million international students altogether) were registered in Australia. Notwithstanding the decline in international students in the period 2000-2008 for countries such as United States, Germany, United Kingdom, Belgium, France, South Africa, Sweden and China, the share of international students in Australia and

New Zealand over the same period saw an increase of 1%. This result can be connected with Australian Government programme (Briefings Skilled Migration programme) which encouraged international students to enter the Australian labour market. Moreover, the increase of international students in Australia and New Zealand could also be a result of the immigration policy, by allowing a temporary or permanent immigration for international students [26].

To conclude this section, Graph 4 depicts the distribution of international students by country of destination in 2009.

Graph 4: Distribution of foreign students in tertiary education, by country of destination (2009) (expressed in percentage of foreign tertiary students reported to the OECD who are enrolled in each country of destination)

1. Data relate to international students defined on the basis of their country of residence.
2. Year of reference 2008.
Source: OECD and UNESCO Institute for Statistics for most data on non-OECD destinations. Table C3.6, available on line. See Annex 3 for notes (*www.oecd.org/edu/eag2011*).
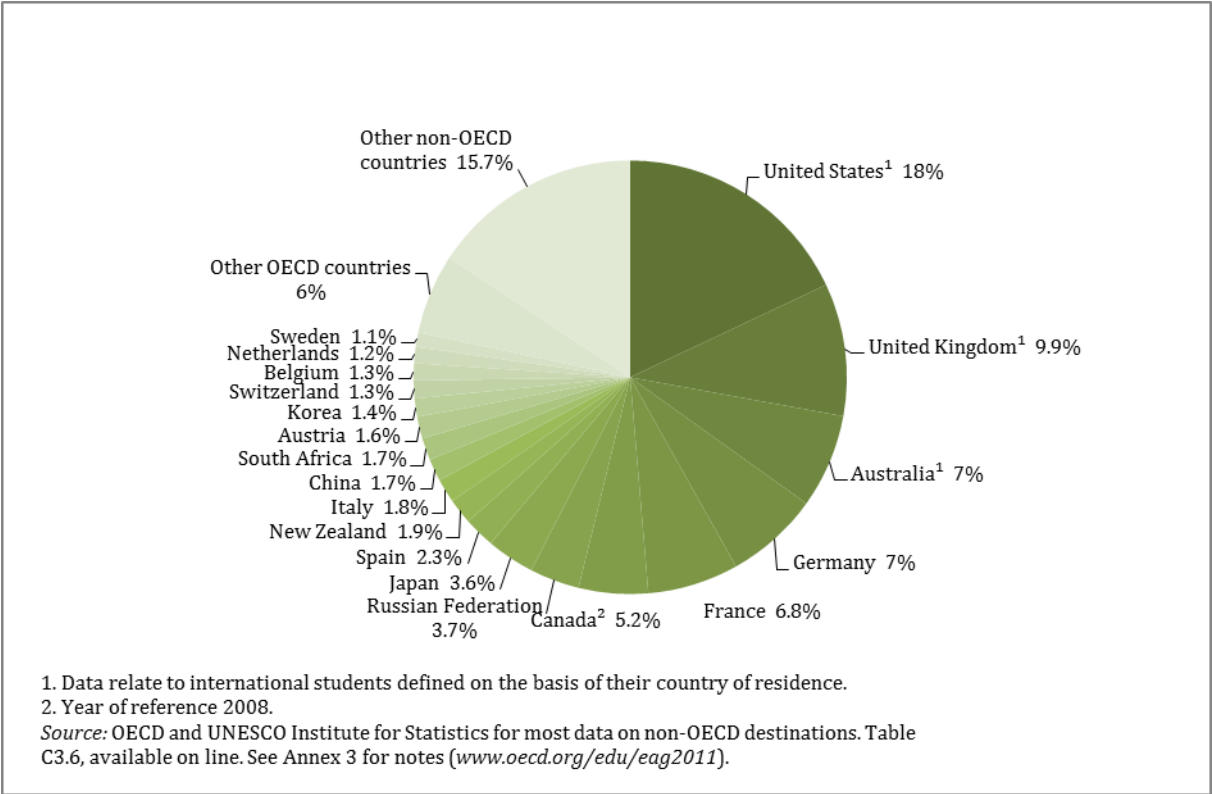
Source: OECD [23]

9 How to encourage mobility of the highly skilled professionals?

"Most OECD countries see it as important, in a context of retaining and attracting human resource in science and technology talent, to have policies to encourage and assist mobility. These range from economic incentives to encourage flows, immigration-oriented assistance, procedures for recognising foreign qualifications, social and cultural support, and support for research abroad. Each of these policy areas utilizes a range of mechanisms, including scholarships, fellowships, grants, facilitated procedures, institutional arrangements and service centres. Some countries focus on just a few policy mechanisms, while others offer something for everyone" [3].

In this chapter we will focus on the procedures for recognising professional qualifications. Firstly, we will try to provide an overview of the recognition of professional qualifications procedures in selected European countries and secondly, provide the possible recommendations for solving the identified problems. Before we give any recommendations we have to look into the legal framework of recognition of professional qualifications procedures and to present contemporary practices.

9.1 Recognition of professional qualifications – present European "legal" framework

In order to solve the recognition problems in the European Union two documents are regarded as the main regulatory framework:

1. The Council of Europe/UNESCO Convention on the Recognition of Qualifications concerning Higher education in the European Region (Lisbon Recognition Convention, 1997)
2. European Union's Directive on the recognition of professional qualifications (EU's Directive on recognition of professional qualifications, 2005/36/EC).

With regard to recognition of professional qualifications we have to present also the European Credit system for Vocational Education and Training (ECVET).

9.1.1 Lisbon Recognition Convention

The Convention on the Recognition of Qualifications concerning Higher education in the European Region was developed by the Council of Europe and UNESCO and adopted by national representatives meeting in Lisbon on 8 - 11 April 1997. According to Divis [36] "the core of this Convention is to emphasize the principle of fair and transparent recognition procedures, and the acknowledgement of differences which should be accepted unless they are found to be substantial. The burden of proof has been laid upon the host country. Transparency regarding the criteria used and procedures followed are the backbone of the Convention. Each party must provide appropriate information on their education system, qualifications and institutions".

Among the main points of the Council of Europe/UNESCO Convention are the following:

Table 5: Main points of Lisbon Recognition Convention

1	Holders of qualifications issued in one country shall have adequate access to an assessment of these qualifications in another country.
2	No discrimination shall be made in this respect on any ground such as the applicant's gender, race, colour, disability, language, religion, political opinion, national, ethnic or social origin.
3	The responsibility to demonstrate that an application does not fulfil the relevant requirements lies with the body undertaking the assessment.
4	Each country shall recognise qualifications – whether for access to higher education, for periods of study or for higher education degrees – as similar to the corresponding qualifications in its own system unless it can show that there are substantial differences between its own qualifications and the qualifications for which recognition is sought.
5	Recognition of a higher education qualification issued in another country shall have one or more of the following consequences: - Access to further higher education studies, including relevant examinations and preparations for the doctorate, on the same conditions as candidates from the country in which recognition is sought; - The use of an academic title, subject to the laws and regulations of the country in which recognition is sought; - In addition, recognition may facilitate access to the labour market.
6	All countries shall develop procedures to assess whether refugees and displaced persons fulfil the relevant requirements for access to higher education or to employment activities, even in cases in which the qualifications cannot be proven through documentary evidence.
7	All countries shall provide information on the institutions and programmes they consider as belonging to their higher education systems.
8	All countries shall appoint a national information centre, one important task of which is to offer advice on the recognition of foreign qualifications to students, graduates, employers, higher education institutions and other interested parties or persons.
9	All countries shall encourage their higher education institutions to issue the Diploma Supplement to their students in order to facilitate recognition. The Diploma Supplement is an instrument developed jointly by the European Commission, the Council of Europe and UNESCO that aims to describe the qualification in an easily understandable way and relating it to the higher education system within which it was issued.

Source: Council of Europe [31]

"Mutual trust in each others' education system, as a result of growing mobility and the increase of information on the different systems, makes such a change of attitude possible. Although some signatory countries specifically underlined that this legal instrument should be seen purely in the framework of academic recognition, the Convention is also very useful for professional recognition. The reason, as pointed out already, is that in principle the methodology in academic recognition is no different from professional recognition as regards the evaluation of the educational component of the professional qualification. Of course, what is decisive in the end is the objective of the evaluation: further study or work. In the second case, the employer might have specific questions for the credential evaluator" [30].

9.1.2 EU's Directive on recognition of professional qualifications

"The Directive 2005/36/EC on recognition of professional qualifications was adopted on 7 September 2005. The main objectives of the Directive are to rationalise, simplify, and improve the rules for the recognition of professional qualifications. Thus, the Directive is intended to encourage the free movement of skilled labour around the European Union while acknowledging that standards and content of education differ between countries by seeking to establish some equivalence between those trained in the countries of the European Union. From an European citizens' perspective it means that an European citizen with a professional qualification from one Member State (MS) should be able to move and practise in another MS with relatively little friction. However MS have been late transposing the Directive. Three MS still have not fully implemented the Directive. Also Citizens' expectations contrast with reality. They do not expect problems with the recognition of their professional qualifications when they go to work in another MS. But in 30% of cases their applications for recognition were initially rejected. Also 15 % of the complaints received by SOLVIT, the EU problem-solving network, concern the recognition of professional qualifications. The majority of mobile workers (around 66%) fall under the so-called general system and do not benefit from automatic recognition. The European Commission is currently working on the preparations for the mandatory review of Directive 2005/36/EC in 2012" [32].

9.1.3 The European Credit system for Vocational Education and Training (ECVET)

While the European employees' initial vocational training period offers them the opportunity to acquire mobility experience at an early stage, the exchange of trainees within the borders of Europe in terms of quantitative flow remained relatively low till 2002. The EU's Council of Ministers of Education in Lisbon agreed in February 2002 on a systematic and structured cooperation in the field of education throughout the Union. It identified the common tasks, particularly the development of a European Credit System for Vocational Education and Training (ECVET) by using the approach of the European Credit Transfer and Accumulation System (ECTS) for student mobility within the Community, which has been running since 1989, first within the ERASMUS, now within the Socrates programme. The development of ECVET began in 2002 after the Copenhagen Process emphasised the need for a credit transfer system for VET. National governments and the European Parliament gave their final approval to the legislation in June 2009. Today 33 European countries are involved in its implementation.

ECVET aims to facilitate the validation, recognition and accumulation of work-related skills, knowledge and competences acquired during a stay in another country or in different situations. It should allow for acquirement of vocational qualifications . "ECVET aims for better compatibility between the different vocational education and training (VET) systems in place across Europe and their qualifications. By 2012, it should create a technical framework to describe qualifications in terms of units of learning outcomes, and it includes assessment, transfer, accumulation and recognition procedures. In ECVET, an individual's learning outcomes are assessed and validated in order to transfer credits from one qualification system to another or from one learning "pathway" to another. According to this approach, learners can accumulate the required learning outcomes for a given qualification over time, in different countries or in different situations. The system also gives the possibility to develop common references for VET qualifications and is fully compatible with the European Credit Transfer and Accumulation System (ECTS)" [33].

9.2 Recognition of foreign qualifications in practice

According to Divis [30] "there are two types of international recognition of diplomas and qualifications, which require two types of credential evaluation: **academic recognition and professional recognition**. Firstly, **academic recognition** refers to recognition decisions that allow a person to pursue or continue a course of study or confer the right to use a national title or degree from the host country on the basis of a title or degree acquired in the country of origin. Secondly, **professional recognition** relates to the methodologies and procedures for evaluating credentials for work purposes and is a more intricate matter. The system of professional qualifications reflects both the national system of education and the organization of professions, industries and professionals themselves. In some countries, such as Germany and the Netherlands, most academic qualifications also serve as professional qualifications without additional requirements. In other countries, like the United Kingdom, professional qualifications are usually acquired upon completion of specific professional training that takes place outside and after university. Professional requirements can be set under national law, or by professional organizations. Academic recognition and professional recognition are different objectives, and may require different approaches and instruments. However, they do share a methodology for evaluating the educational component of the credential or qualification". Rauhvargers [34] proposed the following definitions of recognition:

Table 6: Definitions of recognition

Recognition of a higher education institution.	As a precondition to international recognition, an institution should first be recognised nationally. National systems for quality assurance are just emerging. Thus, when countries were asked to supply information on the nationally recognised institutions, compiling these lists could be a rather arbitrary procedure. The new types of higher education provision have changed the situation. Lists of nationally recognised institutions are often compiled on the basis of quality assessment, ranging from relatively 'soft' procedures to national accreditation.
Recognition of a higher education programme	National recognition of the institution does not automatically imply national recognition of all its programmes and qualifications. In a number of European countries, some programmes offered by recognised institutions may not lead to nationally recognised qualifications. In such cases, institutions often issue credentials 'in their own name' which usually have a different status from the 'national' qualifications. This makes recognition more difficult.
National recognition of an individual qualification	If both institution and programme are recognised nationally, the qualification awarded is also nationally recognised. It will also mean eligibility for jobs in non-regulated professions or jobs for which one must hold qualifications of a certain

	level.
Recognition of an individual qualification abroad	Ensuring that qualifications obtained in one part of the European Higher education Area are valid for further studies and employment in other parts of the Area is crucial for European cooperation and the goals of Bologna process. Taking into account the wide European diversity and the aim of cross-border mobility for both study and employment purposes, a formal acknowledgement of a foreign credential is not sufficient. Credential evaluators must also assess the foreign qualification with a view to finding the right path for further studies or employment in the host country.

Source: Rauhvargers [34]

9.3 Overview of the recognition of Professional qualifications in selected European countries

The debate within the European Union about highly skilled professionals and mobile workers began in earnest in February 2000. From divergent nationally focused efforts during the early 2000s, the European Union adopted a common approach to immigration policy by announcing in October 2007 a "blue card" system that would enable highly skilled professionals and foreign workers to enter and work in the European Union. The goal of the blue card system was to promote the European Union as a viable, competitive destination for international highly skilled professionals and workers, competing with other progressive systems in Australia, the United States and Canada.

Another encouragement for mobility of highly skilled professionals could also be the mutual recognition of professional qualifications.

Table 7 lists the institutions responsible for recognition of professional qualifications in selected countries. A research of incentives for mobility of highly skilled professionals was made in depth only for the following countries: Czech Republic, Finland, the Netherlands and United Kingdom.

Table 7: List of institutions responsible for recognition of professional qualifications

Country	Institution	Web site
Bulgaria	NACID	http://mail.nacid.bg/newdesign/en/index.php
Czech Republic	Ministry of Education, Youth and Sports	http://www.msmt.cz/international-cooperation-1/recognition-of-professional-qualifications-1
Finland	Finnish National Board of Education	http://www.oph.fi/recognition
France	CIEP	http://www.ciep.fr/enic-naricfr/comparabilite.php
Germany	ANABIN	http://www.anabin.de/
Italy	CIMEA	http://www.cimea.it/default.aspx?IDC=31
Hungary	Educational Authority	http://www.oh.gov.hu/hungarian-equivalence/recognition-of-foreign
Lithuania	SKVC	http://www.skvc.lt/en/content.asp?id=190
Netherlands	NUFFIC	http://www.nuffic.nl/international-

		organizations/services/professional-recognition/
Poland	Ministry of Science and Higher education	http://www.nauka.gov.pl/higher-education/recognition-of-foreign-qualifications/
Romania	CNRED	http://www.cnred.edu.ro/#Activitati
Slovenia	Ministry of Labour, Family and Social Affairs	http://www.mddsz.gov.si/en/areas_of_work/labour_market_and_employment/mutual_recognation_of_qualifications/#c7607
Slovak Republic	Institute of Information and Prognoses of Education	http://www.uips.sk/index.php?option=com_content&task=view&id=459&Itemid=1187
Sweden	Swedish National Agency for Higher education	http://www.hsv.se/qualificationsrecognition/regulatedprofessions.4.28afa2dc11bdcdc557480002186.html
United Kingdom	UK NCP	http://www.europeopen.org.uk/index.asp?page=1

Source: Own research related to internet web-sites of the mentioned organisations

In the next section, we more closely look at the recognition situation in these countries: Czech Republic, Finland, the Netherlands, and United Kingdom[5].

9.3.1 Czech Republic

Regarding the recognition of qualifications, the Czech Republic has, since 2000, operated a NARIC centre[6] that evaluates diplomas and other documentation on education gained abroad. The centre is part of the NARIC network co-ordinated by the European Commission. Besides assessment, the centre offers also information and consultations on the higher education system in the Czech Republic.

Regarding the social and cultural support, the Czech Republic hosts a mobility centre in Prague, which is a part of the European network of mobility centres (ERA-MORE), as well as eight regional cooperating points, that provide assistance with entry, living and working conditions for foreign researchers coming to work in the Czech Republic. This is complemented by a Researcher's Mobility Portal.[7] The Czech Republic also provides non-targeted support, via grants, to NGOs that provide language courses, and legal, social and cultural support to foreigners legally settled in the Czech Republic.

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[5] The content was summirized from OECD [1]

[6] www.naric.cz

[7] www.eracareers.cz

9.3.2 Finland

Regarding the recognition of qualifications, the Finnish National Board of Education[8] is responsible for the recognition and comparability of foreign qualifications for civil service posts and positions in Finland. It acts as the Finnish contact point for the European ENIC-NARIC network.

Regarding the social and cultural support, no targeted programme exists, but a large variety of community support is available, as well as support from higher education institutions. A large amount of information is available on the Researcher's Mobility Portal Finland.[9]

9.3.3 The Netherlands

Regarding the social and cultural support, the Netherlands participates in the European Network of Mobility Centres (ERA-MORE), which offers a national website of the European Researcher's Mobility Portal[10]. The Dutch Mobility Portal aims at providing mobile researchers intending to work and live in the Netherlands with updated, correct and easily accessible information concerning all matters related to their professional stay and daily lives. The Portal also aims at providing support staff, working at organisations hosting mobile researchers, with correct and easily accessible information in order for them to support the mobile researchers wishing to come and work at their organisation. There are three mobility centres in the Netherlands: the VSNU[11], representing the 14 Dutch universities, with expertise in taxation, pensions, social security and employment conditions; Nuffic[12], which deals with internationalisation of higher education and has expertise in immigration procedures and the new Dutch health care system, and Senter Novem[13], which is the National Contact Point for the Marie Curie programmes and has expertise in the Marie Curie programme, research funding in general, and social/cultural activities in the Netherlands.

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[8] www.oph.fi
[9] www.aka.fi
[10] www.eracareers.nl
[11] www.vsnu.nl
[12] www.nuffic.nl
[13] www.egl.nl

9.3.4 United Kingdom

Regarding the recognition of qualifications, the United Kingdom NARIC centre[14] provides information and advice about vocational, academic and professional skills and qualifications from abroad. It is part of the wider European network of recognition centres.

Regarding the social and cultural support, as part of the ERA-MORE network, the United Kingdom hosts Network United Kingdom – a mobility portal and helpdesk at national level[15], supported by 12 mobility centres located around the United Kingdom, aimed at removing the barriers to mobility.

9.4 Organization of professions, industries and professionals themselves within the EU with regard to the professional recognition practices

The practice of certain professions, such as accountants, architects, engineers, etc., can be a subject of having certain qualifications. The training requirements for obtaining these professional qualifications can more or less differ from country to country within the EU and may make the exercise of a certain profession in another Member State of the EU difficult or even impossible. The already mentioned Professional Qualifications Directive 2005/36/EC is precisely aimed at overcoming these difficulties by introducing a set of rules on mutual recognition of qualifications.

When a professional wishes to relocate to another Member State of the EU, the process of recognition of his/her professional qualifications differs depending on the national laws of the Member State in question. The mentioned Directive offers these routes of recognition [35]:

- *Automatic recognition of professional experience:* for a limited number of professions the Directive allows for automatic recognition of qualifications based on an EU-wide agreed minimum training requirements: doctors, dentists, nurses, midwives, pharmacists, veterinary surgeons, and architects;

- *General system:* for the majority of professions this system allows for a mutual recognition of qualifications on a case-by-case basis and member States can decide whether they grant the access to a given profession or not. In principle, access to regulated professions is granted to any individual who can demonstrate

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[14] www.naric.org.uk
[15] www.britishcouncil.org/eumobility

that he/she is fully qualified in his/her home country. Only in cases where an individual's qualifications differ substantially from those of the host country or in cases where the length of time spent in the profession falls short of the host country' requirements may compensatory measures be imposed; In these cases citizens can choose between a period of supervised practice – "*adaptation period*"- or an *aptitude test*. In case of successful completion of either grants an individual full access to his/her professional field.

Today some 800 categories of professions are regulated within the EU, meaning that the access to practicing it in one Member State is subject to having acquired a certain specific qualification (e.g. university diploma). Below is a list of websites by Member State with information of regulated professions [36]:

Estonia: http://www.archimedes.ee/enic/index.php

UK : http://www.europeopen.org.uk

Netherlands: http://www.professionalrecognition.nl

Poland (in English): http://www.nauka.gov.pl/higher-education/recognition-of-professional-qualifications-directive-200536ec/

Poland (in Polish): http://www.nauka.gov.pl/szkolnictwo-wyzsze/mobilnosc-akademicka-i-zawodowa/uznawanie-kwalifikacji-zawodowych/

Germany: Anabin database http://www.anabin.de/

Germany (in German): http://www.anerkennung-in-deutschland.de/html/de/index.php/

Germany (in English): http://www.anerkennung-in-deutschland.de/html/en/index.php/

Denmark: http://en.iu.dk/rp/

Lithuania: http://www.profesijos.lt/go.php/eng/I_pradzia

Once the procedure of mutual recognition is successfully terminated, an individual is granted access to his/her desired profession and can begin practicing it in the Member State where he/she wishes to move to. Below is a figure ranking professions according to the number of recognition decisions taken from 1997 to 2011 for the purpose of permanent establishment within the EU. This figure indicates as well the most mobile professions in the given period, according to the statistics provided:
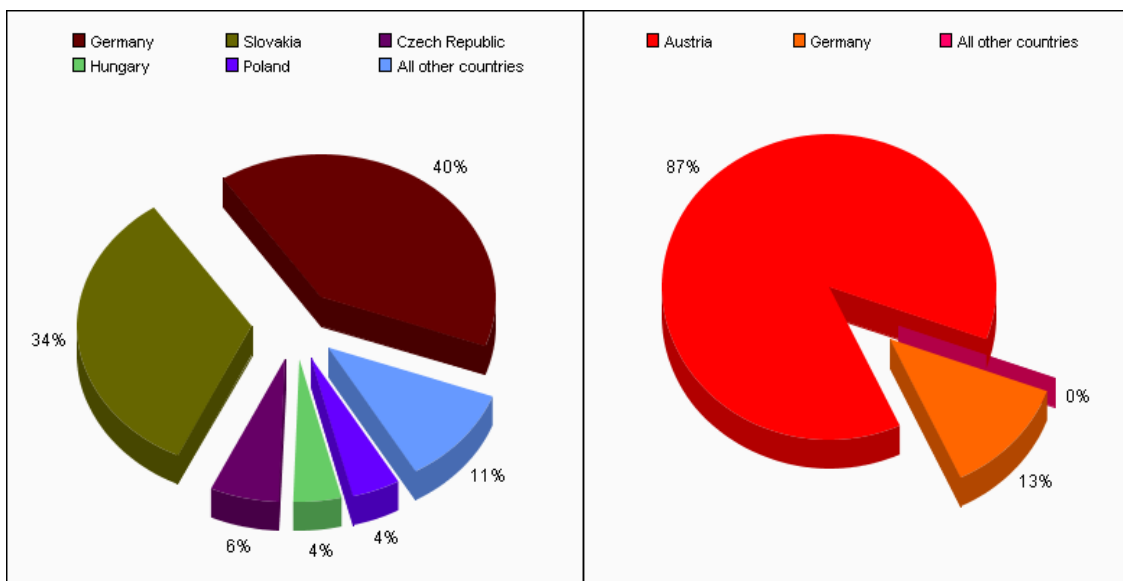
Graph 5: Ranked professions by number of decisions taken on recognition of professional qualifications for the purpose of permanent establishment within the EU (from 1997 to 2011) – long-term mobility
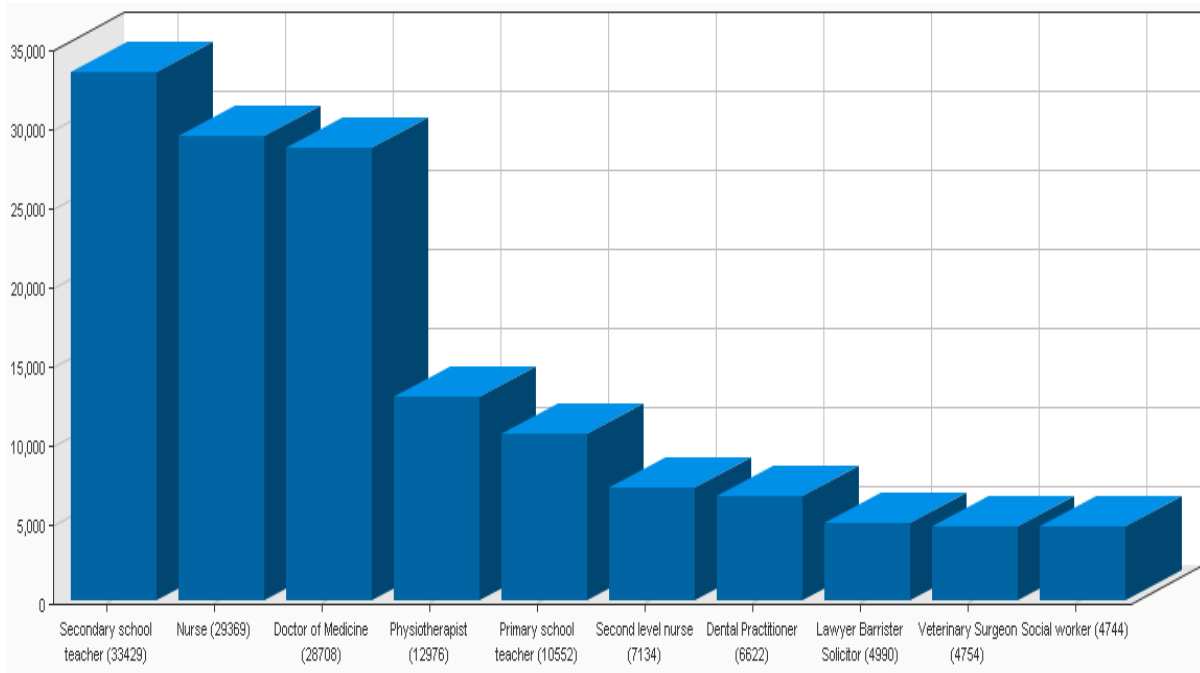
Source: European Commission [37]

From the above European Commission statistics it is possible to retrieve as well the geography of mobility within the same time period and for any given regulated profession. Below is the case of electro-mechanical engineers:

Graph 6: Number of decisions taken from 1997 to 2011 on professionals who obtain professional qualifications in one country (left graph) and apply for recognition in another country (right graph) for the purpose of permanent establishment within the EU – the case of *electro/mechanical engineers*

Source: European Commission [37]

In case an individual wishes to temporary or only occasionally practice his/her profession in another Member State, he/she may do so without a prior check of his/her qualifications. This does not apply tough for professions with public health or safety implications. Below is a figure ranking professions according to the number of recognition decisions taken from 2007 to 2011 for the purpose of short-term establishment within the EU. This figure indicates as well the most short-term-wise mobile professions in the given period, according to the statistics provided:

Graph 7: Ranked professions by number of decisions taken on recognition of professional qualifications for the purpose of short-term establishment within the EU (from 2007 to 2011) – temporary mobility
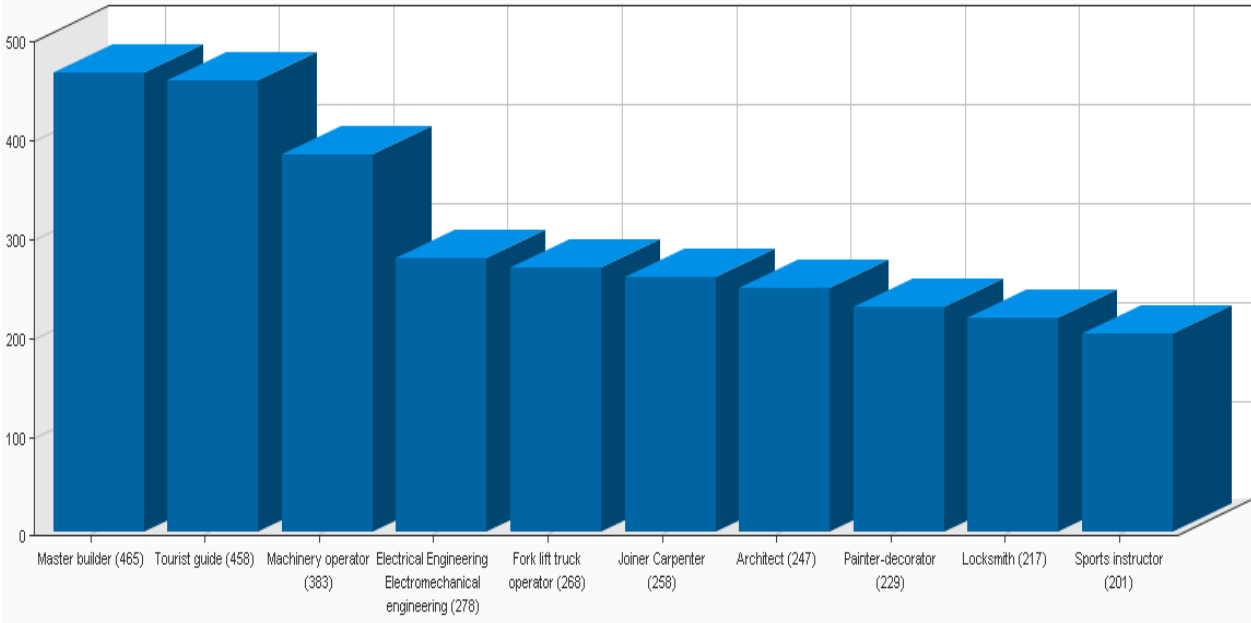
Source: European Commission [37]

An excerpt from the EU-wide regulated professions database looks like this (the example taken is for a nuclear medicine professional):

Name of regulated profession ⬆⬇	Country	Region	Recognition under Directive 2005/36/EC	Qualification level
15 item(s) found, displaying 1 to 15			Page(s): **1**,	Item(s) per page: 15 Show by page
Dovoz nebo vývoz jaderných položek nebo průvoz jaderných materiálů a vybraných položek	Czech Republic	All regions	General system of recognition - primary application	Diploma of post-secondary level (exactly 4 years)
Inspektor dozoru jądrowego	Poland	All regions	General system of recognition - primary application	Diploma of post-secondary level (3-4 years)
Instalador nuclear y radioactivo	Spain	All regions	General system of recognition - primary application	Certificate attesting the completion of a secondary course
Medicina nuclear	Portugal	All regions	Doctor in basic and specialised medicine both listed in Annex V	
Medicina nuclear	Spain	All regions	Doctor in basic and specialised medicine both listed in Annex V	
Medicina nucleare	Italy	All regions	Doctor in basic and specialised medicine both listed in Annex V	
Medicină nucleară	Romania	All regions	Doctor in basic and specialised medicine both listed in Annex V	
Nuclear medicine	United Kingdom	All regions	Doctor in basic and specialised medicine both listed in Annex V	
Nuklearmedizin	Liechtenstein	All regions	Doctor in basic and specialised medicine both listed in Annex V	
Nukleærmedisin	Norway	All regions	Doctor in basic and specialised medicine both listed in Annex V	
Specjalista do spraw ewidencji materiałów jądrowych	Poland	All regions	General system of recognition - primary application	Certificate attesting the completion of a secondary course
Técnico de medicina nuclear	Portugal	All regions	General system of recognition - primary application	Diploma of post-secondary level (3-4 years)
Técnico especialista de medecina nuclear	Spain	All regions	General system of recognition - primary application	Diploma (post-secondary education), including Annex II (ex 92/51, Annex C,D)
Zastępca dyrektora do spraw bezpieczeństwa jądrowego i ochrony radiologicznej w jednostce organizacyjnej posiadającej badawczy reaktor jądrowy	Poland	All regions	General system of recognition - primary application	Diploma of post-secondary level (3-4 years)
Ísótópagreining	Iceland	All regions	Doctor in basic and specialised medicine both listed in Annex V	

Source: European Commission [37]

10 Conclusions and recommendations - what can the nuclear energy sector in Europe learn from this?

This report presents the concept of internationalisation, the rationales for its introduction and some threats which are liked to it. It also highlights recent trends of mobility of highly skilled professionals, higher education and students. At the end, the report also presents recognition practices in selected European countries.

This report starts with definitions of concepts used throughout its content, most important of which is of course the concept of internationalisation. Internationalisation is the inclusion of the international dimension in institutional activities and can be seen in these developments which grew in number and/or intensity especially after the fall of the Berlin wall:

- an increased mobility of students, higher education staff, and highly skilled professionals,

- development of an increased number of courses, programmes and qualifications that focus in comparative and international issues,

- development of an increased number of activities related to the internationalisation of research and development (R&D),

- development of new international networks and consortia and

- the creation of new regional and national government policies and programmes that support higher education-related mobility and other internationalisation initiatives.

Internationalisation was a response to globalisation and chapter 3 looks at the implications of the internationalisation of activities, especially of the higher education institutions in Europe. The consequences of these processes were for example the:

- creation of the common European Higher Education Area and the adoption of the Bologna Declaration,

- adoption of the Lisbon Strategy, and

- changes in the financing of the higher education.

Regarding the Bologna process it was revealed that the ERASMUS programme is accounted for a driver for modernizing Europe's higher education systems and with 2.278.4141 million of study/placement mobility reached the status of social and cultural phenomenon. ERASMUS has been and remains a key factor in the internationalisation and

"Europeanization" of higher education systems in the European Union. The same success could be attributed to the Leonardo da Vinci programme.

Chapter 4 is focusing on the rationales for internationalisation, which are likely to fall into of one of these areas:

- socio/cultural,
- political,
- economic and/or
- academic.

Further on the report highlights the development of human resources and the creation of strategic alliances as being not only a motivation for internationalisation but also a benefit of internationalisation itself.

Higher education institutions are no longer expected to work in isolation, but are perceived to be interactive players who work closely not only with industry but with community and government. The same could be concluded also for other organizations in an economy.

Regarding the threats liked to the process of internationalisation the following three threats were looked at:

1. "brain drain";

2. the changing demographics in the world and in Europe in particular: the aging of the population affecting the retirement of higher education and training staff coupled with the challenge of attracting young talent in certain sectors/industries as well as in higher education and training careers;

3. global competition for talent.

Chapter 5 of the report elaborates more on the trends in "inflow" and "outflow" of highly skilled professionals, international students and higher education staff.

As far as the current data on the migration of highly skilled migrants is concerned, assessments of transnational mobility and migration of highly educated people (researchers, scientists) is difficult and incomplete. Nonetheless, on the international mobility of human resources in science and technology OECD concluded in it report of 2008 (The Global Competition for Talent: Mobility of the Highly Skilled) [1] that the majority of OECD countries are net beneficiaries (with more inflows than outflows). As for mobility of students and higher education staff there is more statistical information worldwide. The chapter concludes by looking more closely at the situation of mobility in and from the five continents.

Chapter 6 is trying to answer the question How to encourage the mobility of the highly skilled professionals. It is also concerned with procedures for recognising of professional qualifications.

It is clear that the mobility of employees is an essential factor in promoting economic integration of Europe in addition to other measures necessary for the formation of a single internal market of goods and services. It is also strengthening the transnational exchange of experience and helps towards the creation of a European identity. However, it is almost impossible to argue that the recognition requirements achieve these goals. According to the presentation of the contemporary professional qualifications' practices in European Union it can be concluded that the procedures of recognition of qualifications and ERIC/NARIC centres are well established in the European countries. The same conclusion applies also for several initiatives such us ERA-MORE network and other mechanisms intended for removing the barriers to mobility. However, there are still serious flaws and problems regarding the recognition of professional qualifications. Although an important step was made by the introduction of the European Credit System for Vocational Education and Training (ECVET), the professional qualifications are not always mutually recognized. Therefore, it would be recommendable to disseminate ECVET policy better and explain to organisations that it could facilitate the validation, recognition and accumulation of work-related skills, knowledge and competences acquired during a stay in another country or in different situations.

It is recommendable also that this concept should include the element of mutual recognition which we can already find in the short-term mobility of students under the ERASMUS programme. The mutual recognition would allow each country to retain its own kind of professional education and training. It is based, not on the process of achieving professional qualifications, but on the nature and quality of the outcome of that process. Mutual recognition assumes an appropriate process of pre-qualification education and training and encourages dialogue between professional organisations in each country in order to investigate the nature of the professional activities undertaken, professional qualifications and the details of pre- and post-qualification education and training. It therefore concentrates, not on the process of qualification, but on the outcome of that process. In other words, it does not matter how individuals become qualified in their own country, the important fact is that they are qualified [38].

Professional qualifications are faced with similar problems of recognition as were recently found in the situation in ERASMUS programme. In order to receive "full recognition" of

courses completed by ERASMUS students in the host country the Sub-Committee for Higher education (SCHE) of European Commission and the National Agencies accepted the following principles[16]: the Learning Agreement is the indispensable basis for ERASMUS recognition; there can be no breach of the Learning Agreement by the Home Institution; there are certain requirements for the creation of a Learning Agreement; the 'no loss of progress' principle; and some other principles on the ERASMUS recognition requirements and the Learning Agreement. Further on we try to apply some of these principles to ECVET according to the priority:

1. **Mobility should represent one of the important criteria for career promotion.**

2. **Memorandum of Understanding** could be the main instrument of a voluntary agreement reached between VET providers, national authorities and other competent authorities of the participating countries. Its aim could be to create mutual trust, the arrangements for cooperation, validation and recognition of qualifications in relation to mobility.

3. **The Learning Agreement could be the indispensable basis for VET recognition:** the Learning Agreement could be accepted by the three participating parties: the highly skilled professionals, the home and the host institutions. The training programme completed by highly skilled professionals could be evaluated for the purpose of granting professional recognition, and then the role of the Learning Agreement becomes paramount in recognition procedure.

4. **Training recognition requirements and the Learning Agreement:** a Learning Agreement should ensure that the mobility period is both an integral part of the home training programme and sufficiently comprehensive to ensure no loss of progress toward the achievement of the professional certificate.

5. **Professional certificate could be issued in a manner of Diploma Supplement. The best option could be the Europass**. Europass consists of a portfolio 5 documents as follows: Europass Curriculum Vitae (CV), Europass language passport (both these documents are completed by the individual independently), Europass Mobility, Europass Certificate Supplement, and Europass Diploma Supplement (all 3 documents are completed by the competent organisation).

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[16] Retreived from European Commision: http://patrick.boylan.it/ERASMUS/recognit.htm

Another recommendation at a country level could be a preparation of a comprehensive mobility strategy. Mobility policies should be part of a wider strategy that contributes to the country's objectives for science, technology and innovation and sets out the rationale for intervention in mobility issues. At an institutional level the social support related to language, housing, visas, insurance and similar issues could encourage the mobility of highly skilled professionals. "Institutional mobility initiatives also tend to provide support for short-term visits, which are less frequently available at national level" [3].

"Given the differences among countries, it is not possible to identify a "recipe" for what governments should do more of, what they should do less of, and what should stay the same. One promising avenue, however, is removal of barriers to short-term and circular mobility of HRST. Shorter periods abroad may avoid some of the obstacles that currently hinder mobility, and would support knowledge flows associated with brain circulation and the diaspora" [1].

The nuclear energy sector in Europe can also profit from the increased mobility of its employees where this mobility is necessary for:

1.   human resources development (through the exchange of tacit knowledge, transfer of knowledge from retiring experts to newly employed experts, etc.) and

2.   creating of strategic alliances.

There are nevertheless still some questions to be addressed on the European level which could facilitate this mobility:

• the harmonisation of job profiles' denominations or the existence of a common job taxonomy for the nuclear energy sector within the EU;

• a network of E&T and other institutions on national level that recognise the above taxonomy;

• familiarity with and use of the ECVET principles within the nuclear energy sector in the EU for a set of jobs from the above taxonomy which are, for example, defined as "more mobile".

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Abstract

The international mobility of highly skilled professionals is not a new phenomenon - cosmopolitan values have always been part of various institutional operations. Nevertheless the concept of internationalization, as we know it today, developed primarily in the last thirty years on the basis of globalization. Internationalization became increasingly important, if not a core component of the various institutions throughout the world.

In Europe, countries have been faced with profound social, political, economic and technological change especially since the beginning of the nineties. These changes were due to globalization of capital, production, trade and services, and Europeanization. It is recognized that only social cohesion, intercultural dialogue and international cooperation can enable organizations to successfully face the challenges and risks brought by technological development, globalization and European integration processes. The internationalisation of research and development (R&D) and mobility of human resources in science and technology has therefore become a central aspect of globalisation.

As the mobility increases, so do challenges with it, one of which is the recognition of education and qualifications acquired. Mutual recognition concentrates, not on the process of qualification, but on the outcome of that process. In other words, it does not matter how individuals become qualified in their own country, the important fact is that they are qualified.

What about mobility in the nuclear energy sector? The nuclear energy sector in Europe can also profit from the increased mobility of its employees where this mobility is necessary for:

1. Human resources development (through the exchange of tacit knowledge, transfer of knowledge from retiring experts to newly employed experts, etc.), and for

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There are nevertheless still some questions to be addressed on the European level, which could facilitate this mobility:

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- familiarity with and use of the European Credit System for Vocational Education and Training (ECVET) principles within the nuclear energy sector in the EU for a set of jobs from the above taxonomy which are, for example, defined as "more mobile".

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