Dealing with the Challenges in European Higher Education

A history and analysis of the European Union’s higher education and research policies

Professor Frans van Vught

Paper first presented at the AFR Higher Education Conference, Sydney,

13 – 14 March, 2008

ISBN Number: 9780743039811
## Contents

1 INTRODUCTION.................................................................................................................. 3

2 THE EUROPEAN POLICY-SCENE....................................................................................... 5

PART I: THE HISTORICAL CONTEXT ....................................................................................... 9

3 THE HIGHER EDUCATION POLICY-DOMAIN..................................................................... 9
   3.1 THE EMERGENCE OF A EUROPEAN POLICY-CONCERN .................................................... 9
   3.2 THE EUROPEAN HIGHER EDUCATION AREA ................................................................ 12
   3.3 MODERNISING UNIVERSITIES ....................................................................................... 13

4 THE RESEARCH AND TECHNOLOGY POLICY-DOMAIN ............................................. 17
   4.1 THE ORIGINS OF A EUROPEAN PRIORITY AREA ............................................................. 17
   4.2 THE EUROPEAN RESEARCH AREA ............................................................................... 18
   4.3 THE EUROPEAN INNOVATION STRATEGY ................................................................... 24

PART II: THE ANALYSIS ....................................................................................................... 29

5 THE EUROPEAN HIGHER EDUCATION AND RESEARCH POLICY SYSTEM ............ 29
   5.1 INTEGRATED SUBSYSTEMS .......................................................................................... 29
   5.2 A MULTI-ECHelon AND MULTI-INSTRUMENT SYSTEM ............................................... 30

6 THE DYNAMICS OF EUROPEAN HIGHER EDUCATION AND RESEARCH POLICY-MAKING................................................................................................................. 37
   6.1 EUROPEAN HIGHER EDUCATION AND RESEARCH POLICY TRENDS ................................ 37
   6.2 EUROPEAN HIGHER EDUCATION AND RESEARCH POLICY EFFECTS ................................ 42

7 CONCLUSION .................................................................................................................... 49

REFERENCES .......................................................................................................................... 53
1 Introduction

Europe and its universities have a strong and long-standing relationship. During many centuries the European universities have contributed significantly to the social, economic and cultural development of Europe. Perhaps even more distinctive for this intense relationship is the fact that the very existence of the European universities reflects one of the most central dimensions of the ‘idea of Europe’. Particularly from the age of the Enlightenment on, the European universities became the institutional homes of modernity and rationality. When, as Kant said, Europe broke out of its ‘self-imposed tutelage’ during the Enlightenment, modernity became a fundamental European invention and modern science lay at the heart of that modernisation process. Rationality and the corresponding attitude to science and technology became essential and decisive elements of European identity. ‘Since Europe became Europe in its own eyes, science has been held up as its image and its emblem’ (Daston, 2005, p. 30).

Through the centuries the European universities have changed considerably. Yet they have also remained the central European institutions of reason, knowledge, criticism and learning. Already Plato’s Academy was a center of dialogue and critical enquiry. The Medieval universities were open, self-governing communities of scholars. The ‘liberal university’ of cardinal John Newman was an institution for independent intellectual self-empowerment, and Wilhelm von Humboldt’s proposals for the establishment of the University of Berlin were primarily aimed at preventing the search for knowledge being corrupted by social forces (Barnett, 1990; De Ridder Symoens, 1992, 1996; Nybom, 2003).

Through the centuries the European universities have also regularly shown their ‘Europeanness’. Although Plato’s Academy was not the large community of students and teachers that we nowadays associate with the concept of the university, it was an open institution accessible to scholars from all corners of the Greek empire. Similarly, the Medieval universities are known to have attracted scholars and ‘Wanderstudenten’ from all over Europe. Helped by the fact that lectures were normally delivered in Latin, students and teachers moved easily from one university to the other, from Coimbra to Vilnius or from Uppsala to Salerno (Burke, 2006, p. 237). In the 16th and 17th centuries many universities provided temporary academic homes for European scholars without even thinking about national frontiers. Until the 18th century, the European university was a European institution, reflecting the European values of intellectual freedom and a borderless academic community.

The rise of the territorial states largely ended these European academic peregrinations. In the 18th and 19th centuries, the newly emerging national states fostered their unity along the lines of a strong and homogeneous cultural identity, forcing the universities into national frameworks. The effect was a ‘nationalisation’ of science and (higher) education. The European universities received their core funding from the Nation States and they were assumed to train the cadres for the national civil services and to contribute to the new national cultural identities, underpinning the nation-building processes. The Nation State came to Europe (and the world) through long and complex birth pains and is still a dominant part of the reality of Europe today. As Strömholm puts it: ‘The Nation State, with its ambitions, its glories, its splendid political and cultural gifts, its constraints, its oppression of minorities, and ultimately its demand for the life and blood of its citizens cannot be dissociated from our image of Europe today, and will in all likelihood remain for a very long
time’ (Strömholm, 2005, p. 6). As a consequence, the European universities nowadays are still primarily national, rather than European institutions. However, we may also be on the verge of a new phase of academic ‘Europeanness’.

The 20th century brought Europe its largest tragedies and its deepest crises. European intellectuals like Paul Valéry, Thomas Mann and Sandor Márai openly questioned the European culture. Europe appears to have lost its sense of civilization, argues Valéry in 1919. Europe is confronted not only with a political and economic, but with a basic cultural crisis, according to Mann in 1938. The European spirit of humanism has left our continent, concluded Márai in 1946 (Valéry, 1957; Mann, 1995; Márai, 2002).

Yet, on the ruins left by World War II a new European identity started to grow. In 1946 Sir Winston Churchill travelled to Zürich to talk about his dream of a ‘United States of Europe’. Half a year later he argued in the Royal Albert Hall that the ‘idea of Europe’ has to be our guiding principle for the future (Churchill, 2003). Europe needed to make a new start. It should be able to avoid future wars by placing less emphasis on the uniqueness of nations and more on what Europeans have in common.

This paper addresses an aspect of that broader discussion of the new European identity, in particular by focussing on the role and position of the European universities in the new European political context. It raises the question of whether, since the establishment of what we now call the European Union, a European university policy has been developed, and if so, what the characteristics are of such a policy.

Since the political leaders of Europe met in Lisbon in the year 2000, many things appear to be changing in the world of the European universities. Several political initiatives have been launched and the question can be raised as to whether, with the dawn of the new millennium, a new supranational European university policy has also come about. In this paper I will describe and analyse both the European higher education and the European research policies. In the first part I will trace the historical roots of both of them. In the second part an analysis will be presented of the systemic and instrumental characteristics of these two European policy-domains.

The establishment of the European Union certainly is a new phase in the long and complex history of Europe. During that history and until the rise of the Nation State, the European universities have been important institutions and symbols for the preservation and development of European values. Now that, as I will show, universities appear to have increasingly become the addressees of European policies, perhaps a new historical phase is developing for these institutions as well. However, this is a question for the end of this paper. Let us now first look at the modern European policy-scene.
2 The European policy-scene

The European policy-domains of higher education and research are embedded in the broader European integration process. Analysing these policy-domains necessarily forces us to understand the main phases and dimensions of this integration process. As a short introduction to our further analysis, let us first look at the broader European policy-scene.

When, in the aftermath of World War II and during the onset of the Cold War, the wish to create peace and stability in Europe became a common target, the idea of pooling European countries interests appeared to be highly attractive. The 1950s in Europe were a time of reconstruction, reorientation and reconciliation, a context in which European visionairs like Jean Monnet and Robert Schuman could conceive and take the first steps to an integrated Europe.

However, the first steps were not taken easily. Churchills idea to launch a ‘United States of Europe’ was discussed at a major European Congress under his chairmanship in May 1948 in The Hague, the Netherlands. However,a unified and integrated Europe could not be created. The individual interests and sovereignties of the nation states only allowed for intergovernmental co-operation.

One year after the The Hague Congress, the Council of Europe was established as the first European forum (May, 1949). The Council, however, was an intergovernmental organisation without the political means to create a genuine European unification. The Council of Europe acted as a ‘laboratory of ideas’ (Gerbet, 1983, p. 100) and developed into a fruitful platform for co-operation in the field of education and culture. As a matter of fact, the work of the Council paved the way for the stronger European commitment to educational policy in the context of the European Community during the 1960s.

The original objective to create a more integrated Europe, able to act in a supranational way, apparently had to be addressed in a pragmatic, step-by-step way ‘… as it was impossible to build the dream Europe, attention was turned to building a Europe that was actually possible’ (European Communities, 2006a, p. 53). The results were the first three Community Treaties, creating the foundations of what is now called the European Union.

These Treaties are effectively the basic constitutional texts of the European Union. They set out the objectives of the Union and establish the various institutions which are intended to achieve them. The first three ‘Founding Treaties’ of the European Union are:

- the Treaty of Paris, establishing the European Coal and Steel Community, signed in April 1951, entering into force on 23 July 1952 and expiring on 23 July 2002;
- the Treaty establishing the European Atomic Energy Community (Euratom), signed in March 1957 and entering into force on 1 January 1958;
- the Treaty establishing the European Economic Community (EEC), signed – along with the Euratom Treaty – in Rome on 25 March 1957, entering into force on 1 January 1958. This Treaty is usually referred to as the ‘Treaty of Rome’.
In these Communities six continental governments agreed to work together and to create a common market. In particular the EEC Treaty has been an important origin for European research policy. Before the 1980s the European activities in this policy-domain were undertaken on the basis of article 235 of this treaty, which allowed European policy initiatives when these were assumed to be necessary to realise a Community objective. In addition, article 128 on vocational training later supported the development of the Community’s educational activities.

The first Treaties were essentially economic in scope and basically pragmatic, but they created the first supranational policy context in Europe. In contrast with the pure intergovernmental approach, the new Community method began to focus on a true European integration process in key policy-domains, with a European Commission (established in the EEC Treaty in 1957) as the major supranational institution ‘to ensure through its independence that the collective interests of the Community prevailed over the individual interests of the Member States’ (European Communities, 2006a, p. 53).

History shows that further important milestones were the Single Act (signed in 1986 and entering into force on 1 July, 1987), leading to the single market strategy, and the Maastricht Treaty, which paved the way for the Economic and Monetary Union. The Maastricht Treaty (signed on 7 February, 1992, entering into force on 1 November, 1993) changed the name of the European Economic Community to simply ‘the European Community’ which, together with the two other so-called ‘pillars’ (the Common Foreign and Security Policy, and the Police and Judicial Co-operation), has become known as the European Union, of which the scope is both political and economic. It was also this treaty (called the Treaty on European Union) in which, after some debates on the interpretation of the competences of the Community in the EEC Treaty’s articles in the 1980s, the subsidiarity principle was formulated. This principle ensures that decisions are made as closely as possible to the citizens of Europe and that checks are made as to whether actions at Community level are justified. The European Union is assumed not to take action (except in the areas which fall within its exclusive competences) unless such action would be justified by the fact that the Member States cannot themselves sufficiently achieve the intended results.

A further milestone of European integration was the Treaty of Amsterdam, signed on 2 October, 1997 and entering into force on 1 May, 1999. This treaty in fact includes a whole chapter on research and technological development. Research and technological development are assumed to be crucial for the competitiveness of European business and industry and the employment of its citizens, as well as for consumer protection and environmental policy.

The policy domain of (higher) education falls outside the EU’s competencies and it was only in the second half of the 1980s that substantial policy initiatives were taken in this area (Corbett, 2005, p. 13). For the education policy-domain, the subsidiarity principle defines a supporting role for the EU only, with competencies in this area resting with the Member States. The research policy-domain is an area in which the EU has been active since its creation, but which was only fully developed in the mid-1980s. Already the original three Communities allowed European level actions. The Single European Act (1987) introduced a special title with respect to research and technological development (RTD), and the Maastricht Treaty (1992) provided an explicit basis for research activities in all fields where the EU is competent (Caracostas and Muldur, 2001, p. 160).

---

1 These six countries were: Belgium, France, Germany, Italy, Luxemburg and the Netherlands. In 2007 the EU consists of 27 member states and is, with around 490 million people, the world’s third largest population area after China and India.
In general political terms, the European integration process has moved slowly since the Amsterdam Treaty. When the European Council (which is the meeting of the Heads of State or Government and the President of the European Commission) met in Nice in December 2000, it agreed on a review of the existing Treaties. In an annex to the Treaty of Nice (signed on 26 February, 2001 and entering into force on 1 February, 2003) the Council declared that it intended an open debate on the future of the Union. When the Council met again in Laeken (Belgium) in December 2001 it established the European Convention, a body of 105 members chaired by former French president Valéry Giscard d’Estaing, which was given the task of producing a draft European Constitution.

This draft Constitution was signed by the Heads of State and Government at a ceremony in Rome on 29 October 2004. However, before it could enter into force it had to be unanimously ratified by each Member State, a process which was assumed to take around two years. Following the rejection of the Constitution in the referenda in France and the Netherlands in 2005, the European Council extended the deadline of the ratification. After a period of uncertainty and confusion, finally in June 2007 the Heads of State reached an agreement. Formally there will no longer be a Constitution but only a review of the existing Treaties; the decision-making processes of the Union and the composition of the Commission will be simplified; there will be more authority for the European Parliament and for the national parliaments; and Member States can withdraw from the Union if they wish to do so. The result is somewhat disappointing. Once again it shows that Churchill’s dream and the intentions of the early European visionairs are still far from reality.

The most crucial recent phase in the European integration process having a major impact on the developments in the policy-domains of higher education and research is the ‘Lisbon process’. When the EU-leaders met in Lisbon in the year 2000 they decided to boost the Union’s competitiveness and growth. They wanted to create ‘a Europe of knowledge’ and formulated the goal that by 2010 the EU should be ‘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’ (European Council, 2000). The ambition formulated by the European political leaders created an additional context for European policy-making, not so much under the classic method of policy-instruments like directives and regulation, but rather under an ‘Open Method of Co-ordination’ by which the governments of the member states themselves agree to peer review and benchmarking on a number of relevant policy-indicators.

As I will show later, the ‘Open Method of Co-ordination’ radically changed European policy-making. It provided a new platform to discuss national policies and their outcomes at the European level without further impinging on national competences. The objective is to benchmark the performances of the Member States on a number of common concerns and priorities and to discuss and compare the progress on reaching the objectives of the Lisbon agenda.

Unfortunately, as the evaluation report of a special High Level Group showed (European Communities, 2004), at mid-term (2005) the ambitious political goals of the Lisbon summit appear very difficult to reach. Clearly, the weak economic growth in the larger member states has been a major factor. However, the fact that the design and implementation of the policy-actions to reach the European goals rely strongly on the efforts of the Member States and industry, has also been identified as a major reason of the Lisbon process failure (Weber, 2006, p. 6).
The most recent European Commission (in office since November 2004) has deliberately ‘restarted’ the process. It launched the ‘New Lisbon Partnership for Growth and Jobs’ (European Commission, 2005a) during the 2005 Spring European Council which resulted in the singling out of ‘knowledge and innovation for growth’ as one of the three main areas of action. In addition, it developed the ‘Integrated Guidelines’ for the preparation of the three year so-called National Reform Programmes (NRFs) of the Member States as well as the ‘Community Lisbon Programme’ consisting of a set of ‘Actions for Growth and Employment’ (European Commission, 2005b), thus building a new, overarching Community – Member States partnership for the Lisbon agenda.

With this new partnership the European Commission took a major new step. The policy-domains of higher education and research had never been higher on the European policy-agenda.
PART I: The Historical Context

3 The higher education policy-domain

3.1 The emergence of a European policy-concern

Generally speaking, (higher) education has come only slowly on the supranational European agenda. Although some educational activities were developed at the European level during the 1970s, (in particular in the field of vocational training and the education of migrant workers’ children), the education sector was for a long time ‘taboo’ for European policy-initiatives (Neave, 1984, p. 6). The European Community had not been given competency in the field of education by the national governments.

An illustration of the political sensitivity regarding the educational policy issue is found in the (early) discussions about a ‘European university’. Already during the The Hague Congress (1948) the ambition was formulated to create a real European university. In 1950 the College of Europe was established as an institute for postgraduate European studies in Bruges, Belgium. But a ‘European university’ in the form of a Community institution was never created, largely due to political (and academic) opposition. The final outcome was the establishment of the European University Institute in Florence in 1972 in the form of an intergovernmental agreement rather than a Community body.

It was the Council of Europe which for nearly 20 years provided the platform for educational and cultural co-operation on a European scale, slowly creating a base for future Community initiatives. A breakthrough was a communication on education by the European Commission in 1974. This communication was the beginning of the political reflection on the European policy-domain of education, leading the first (modest) action programme in the field of education in 1976. However, the 1976 resolution also made it clear that education was not a policy-domain falling within the Community’s competence and that the Member States and the Community would have to balance and co-ordinate their policy-actions.

Only in the period 1985-1993 did the first group of substantial European-level policy initiatives come about. In the late 1980’s, the Commission published two major communications placing the policy-domain of education in the context of the Single European Act (entering in force on 1 July 1987). The main objectives of this Act were the completion of the internal market and the creation of an open area in which persons, goods, capital and services could move freely. However, the education ministers of the Member States, although approving the objectives of cooperation and mobility, did not yet put an open area of education on the agenda. They limited the European ambitions to the less binding concept of a “Europe of knowledge and cultures” (European communities 2006a, p. 105).

It was in this political context that the Commission’s proposals for the specific community programmes on education and training were developed. The Member States had considerable misgivings, particularly about the legal bases of these programmes. But eventually all programmes were adopted, resulting in a ‘qualitative and quantitative leap forward for community cooperation’ (European Communities, 2006a, p. 109).
Crucial in this process was a decision by the European Court of Justice that the EU should be able to take all measures regarding higher education to reach the goals of the EEC Treaty, thus providing a juridical basis for the commission’s initiatives.

The first major Community programmes were:

- Comett I (1986) and Comett II (1988) on university-enterprise cooperation;
- Erasmus (1987; amended in 1989) on university cooperation and student mobility;
- PETRA (1987) on initial training;
- Youth for Europe (1988);
- Lingua (1989) on foreign languages;
- Eurotechnet (1989) on innovation and technological change in vocational training;
- FORCE (1990) on continuing education;
- Tempus (1990) on trans European mobility in universities with nations of central and eastern Europe.

These first programmes, all proposed within a very short time, had a major impact on the development of the European policy-domain of higher education. They established stronger links between the Member States and created a base for interaction between a wide range of actors and partners. In short, they triggered a real European co-operation in the field of education and training. Perhaps even more importantly, they established the foundations for the development of a supra-national European higher education policy.

The Maastricht Treaty (1992) forms an important further milestone in this context. This treaty furthered the European integration process substantially by agreeing on the criteria and the timetable for the Economic and Monetary Union (EMU) and by creating the basis for European political co-operation in the areas of foreign and security policy as well as justice and home affairs. In addition, it laid out the conditions on which education could be addressed and supported at the European level. The Maastricht Treaty is a landmark in the history of the European policy-domain of education and training, creating for the first time a clear legal basis for European initiatives in this field.

The Treaty of Amsterdam (1997) put this in the broader context of the knowledge society, concluding that the EU Member States were ‘to promote the development of the highest possible level of knowledge for their peoples through a wide access to education and through its continuous updating’.

In the Treaty of Nice (2001) it was decided that the EU would be able to contribute to the development of quality education by encouraging co-operation between Member States through a wide range of actions, such as promoting the mobility of citizens, designing joint study programmes, establishing networks, exchanging information or teaching languages for all citizens of the EU. The basic idea was that although the competence for education in general, and higher education in particular, remains at the level of the Member States, the Union has a complementary role to play by adding a European dimension to education by helping to develop quality education and encouraging life-long learning.

The main tool for putting this ambition into practice became the Socrates programme. The first phase of this programme ran over the period of 1995-1999, with the second phase running during the years 2000 to 2006. The Socrates II programme supports European co-operation in eight areas, from school to higher education, from new technologies to adult learners. The higher education section of the programme continues from the older Action
Scheme for the Mobility of Students, called the Erasmus Programme, established in 1987. As the higher education Action of Socrates II, the Erasmus programme seeks to enhance the quality and reinforce the European dimension of higher education by encouraging transnational co-operation between universities, boosting mobility and improving the transparency and recognition of studies and qualifications. It supports the exchanges of students and teachers, the launching of joint study programmes and courses, and European networks.

Within the framework of the earlier Erasmus programme, the European Credit Transfer System (ECTS) was introduced in 1989 (and extended in 1996). ECTS started out as a credit transfer system but developed into a credit and accumulation system. It is a student-centred system based on the student workload required to achieve the objectives of a programme, which are preferably specified in terms of the learning outcomes and competences to be acquired.

In 2003 the Erasmus Mundus programme was adopted for the period 2004-2008. Erasmus Mundus is a co-operation and mobility programme in higher education. It is intended to strengthen European co-operation and international links in higher education by supporting high-quality ‘Erasmus Mundus Masters Courses’ (offered by a consortium of universities from different European countries), by enabling students and visiting scholars from around the world to study at postgraduate level at European universities, and by encouraging European students and scholars to study in third (non-European) countries. Erasmus Mundus is presented as a response to the challenges European higher education is facing in a globalising world, in particular the need to enhance the attractiveness of European higher education world-wide. In addition, it is assumed to be an instrument to stimulate the process of convergence of degree structures in Europe and thus to contribute to the creation of the ‘European higher education area’ (see below).

Inspired by the March 2000 Lisbon ambitions, the European Commission in 2001 published the communication ‘Making a European Area of Lifelong Learning a Reality’. The communication argues that lifelong learning has become the guiding principle for the further development of education and training policies and sets out a number of concrete proposals to make lifelong learning a reality for all, including a comprehensive new approach to valuing learning which allows the recognition of both formal and non-formal learning. The establishment of a lifelong learning strategy is seen as a basic instrument to facilitate transition to the European knowledge-based society. A ‘European area of lifelong learning’ will empower citizens, allowing them to move freely between learning settings, jobs and countries. Lifelong learning focuses on learning from pre-school education until after retirement (‘from the cradle to the grave’) and is assumed to help the European citizens to face future economic and social challenges (European Commission, 2001). The European Council adopted a resolution on lifelong learning in 2002.

Following up a further communication of 2004 on a new generation of Education and Training Programmes, the Commission proposed (in 2004) the integrated Lifelong Learning Programme 2007-2013. The general objective of this integrated programme is to contribute to the development of the EU as an advanced knowledge society. In particular it aims to foster interchange, co-operation and mobility between education and training systems within the Union so that they become a world quality reference. The Lifelong Learning Programme has four sectoral programmes, one of which is the Erasmus programme. The aims of this programme are to support the realisation of a ‘European higher education area’ and to reinforce the contribution of higher education and advanced vocational education to the
process of innovation (European Commission, 2004a). As will be argued below, with this proposal the Commission intends to make a major contribution to an overall European innovation strategy.

During the 1990s and particularly after 2000, higher education indeed moved from the margins to the centre of EU’s policy-making concern (Shaw, 1990, p.556; Corbett, 2005, p.11). A crucial process, however, started in another wider and purely intergovernmental European policy-arena: the creation of the European higher education area.

3.2 The European Higher Education Area

Some of the roots of the current European higher education policy lie, in a certain way, in the history of the European universities. In May 1998, the French minister of education used the 800th anniversary of the Sorbonne as an occasion to design a joint declaration of the ministers of France, Germany, Italy and the United Kingdom on the ‘harmonization of the architecture of the European higher education system’. The objective was to create: a ‘European higher education area’ by means of a common two-cycle degree structure, the mutual recognition of degrees, and increased student mobility (Sorbonne declaration, 1998). The ministers stressed that ‘the Europe we are building is not only that of the Euro, the banks and the economy, it must be a Europe of knowledge as well’.

The Sorbonne declaration proved to be a ‘quantum leap’ in the development of European higher education policy (Witte, 2006, p. 124). The four ministers agreed to organise a follow-up meeting in Italy and called on other European countries to join their initiative. The result was astonishing. The eagerness of the other European education ministers to participate in this initiative became visible in the twenty-nine signatures of European ministers under the Bologna declaration, designed in the city with an even older European university. The Bologna declaration formulates the wish to construct the European higher education area, to promote mobility and employability and to increase the compatibility and comparability of the European higher education systems. However, it also emphasizes the need to increase the ‘international competitiveness’ of Europe’s higher education and its ‘worldwide degree of attraction’ (Bologna declaration, 1999).

Unlike the Sorbonne conference, during the Bologna conference the European Commission was present as a guest. But the education ministers made it clear that they intended to see their initiative as an intergovernmental one and to involve non-EU countries in the process. They decided to have their next meeting in 2001 in Prague, then still a non-EU city.

However, it was on the way to the Prague conference that the EU-European Summit took place in March 2000 in Lisbon (see before). Given the importance of education and training in the Lisbon agenda, the Bologna process appeared to be extremely relevant for the European Union. There was a need to increasingly integrate this process in the ambitions of the Lisbon agenda. During the Prague meeting the ministers decided to offer the European Commission a position in the so-called Bologna follow-up group (BFUG), the group that would be responsible for the further development of the process. The Prague communiqué (2001) confirmed the objectives and action lines of the Bologna declaration and added new actions on lifelong learning, the need to develop a ‘common framework of qualifications’ and a ‘coherent quality assurance and accreditation/certification mechanism’ (Prague Communiqué, 2001).

After the Prague conference, the Bologna process accelerated. Various stakeholders organized so-called Bologna seminars, which became informal fora for European policy formation.
The European Commission funded several initiatives (like the so-called Tuning project on the convergence of curricula and the European Credit Transfer System).

When the next conference was held in Berlin in September 2003, the number of participating countries increased to forty. In Berlin, the ministers encouraged the development of an overarching qualifications framework for the European Higher Education Area. In addition a crucial next step was taken: the ministers decided to include the doctorate level as the third cycle in the Bologna process (Berlin Communiqué, 2003). The intention was clearly to create a level of synergy between the development of the European Higher Education Area and that of the European Research Area, which was launched by the European Commission in 2000 as a further step in the Lisbon process (see later).

In March 2004 the European Union grew to twenty five Member States. When the ‘Bologna ministers’ came together again in Bergen, Norway in May 2005, these twenty five states made out the majority of the group of forty five nations which then formed the Bologna group. In Bergen the ministers (a.o.) re-emphasized their objectives (from Berlin) regarding the three cycles structure, adopted the overall framework for qualifications in the European Higher Education Area, the standards and guidelines for Quality Assurance and pressed for closer co-operation regarding the design of the doctoral degree (Bergen Communiqué, 2005). Indeed, doctoral education had clearly become a focus of attention in the Bologna process, and the processes of ‘Bologna’ and ‘Lisbon’ became further integrated.

During the 2007 Bologna conference in London the (then forty six) ministers reemphasized their wish for a closer alignment of the European Higher Education Area with the European Research Area (see below), and for a wider variety of doctoral programmes. They invited the European higher education institutions to reinforce their efforts to embed doctoral programmes in institutional strategies, and to develop career paths for doctoral candidates and early stage researchers.

The integration of the European Higher Education and the European Research Area apparently had become a crucial extra “Bologna objective’. Since the Berlin conference the two policy-arenas are seen as the two ‘pillars of the European knowledge-based society’ (Weber & Zgaga, 2004, p. 36), converging into a coherent policy framework (Van der Wende & Huisman, 2004, pp. 34-35).

### 3.3 Modernising universities

The development of the Bologna process makes it clear that in 2005 all but three European countries, had engaged in an enormous process of changing the structure and dynamics of the European higher education systems. The Bologna process had become a powerful intergovernmental European policy process and a ‘strong engine of change and of adaption to the climate of increasing competition in a globalized world’ (Weber, 2006, p.10). But the Bologna process also had become a central dimension in the emerging higher education policy of the European Union. In particular since the formulation of the Lisbon agenda in 2000, higher education rapidly moved up the ladder of the EU’s policy concerns.

In 2003 the European Commission opened a debate on the ‘place and role of European universities in society and the knowledge economy’ (European Commission, 2003, p.4). The European Commission had not reflected on the European universities since the early 1990s (when it had published a memorandum on higher education in Europe). However, since the European universities of the beginning of the 21st century are ‘at the heart of the Europe of
knowledge’, (employing 34% of the total researchers in Europe and being responsible for 80% of Europe’s fundamental research) and ‘contribute to the strengthening of the competitiveness of the European economy’, the European Commission intended to explore the conditions under which Europe’s universities are better able to effectively play their role in the knowledge society and economy.

The analysis by the Commission is stern: ‘The European university world is not trouble-free, and the European universities are not at present globally competitive’. They should realize that the traditional model of Wilhelm van Humboldt no longer fits the current international context and that the high degree of fragmentation of the European university landscape prevents Europe from responding to the new global challenges. These challenges go beyond national frontiers and have to be addressed at a European level. ‘More specifically, they require a joint and coordinated endeavour by the Member States…, backed up and supported by the European Union’ (European Commission, 2003, p. 10).

The European Commission underlines that existing European support for the universities is already substantial. On the research side, there are the Framework Programmes (see later) and the incentives for technological innovation in the Structural Funds and by the European Investment Bank. On the education and training side, the Erasmus mobility programme, the European Credit Transfer System (ECTS), the Leonardo programme for initial and vocational education and the eEurope initiative are particularly mentioned. In addition the European Commission supports and helps to foster the Bologna process to create a European higher education area ‘which is consistent, compatible and competitive’.

In its contribution to the Bergen conference (2005), the Commission states clearly that ‘from the EU perspective, the Bologna process fits into the broader Lisbon Strategy’ (European Commission, 2005c, p. 2). But it again emphasizes that Europe and its universities face stronger competition than ever before. The figures tell us ‘that the situation is alarming’:

- only 21% of the EU working-age population has achieved tertiary education, significantly lower than in the US (38%), Canada (43%) or Japan (36%) as well as South Korea (26%);
- in the EU 52% of the age group is enrolled in higher education; this is slightly more than Japan (49%) but less than Canada (59%) and certainly the US (81%) and South Korea (82%);
- the number of researchers per 1,000 employees in the EU is 5.5, marginally less than Canada or South Korea, but way below the US (9.0) or Japan (9.7);
- only a handful of European universities are found in the top 50 of the world.

Indeed, the situation is alarming and profound reforms are needed (European Commission, 2005c, p.3).

According to the European Commission, the European universities have so far failed to unleash their full potential to stimulate economic growth, social cohesion and improvement in the quality and quantity of jobs. In a policy-paper in 2005 the EC identifies the following ‘bottlenecks’:

- there is a tendency to uniformity and egalitarianism in many national higher education systems; there is too much emphasis on monodisciplinarity and traditional learning and learners; there is too little world-class excellence;
European higher education remains fragmented into medium or small clusters with different regulations and languages; it is largely insulated from industry; graduates lack entrepreneurship; there is a strong dependency on the state; European higher education is overregulated and therefore inefficient and inflexible; European universities are under-funded; EU countries spend only 1.9% GDP on research while the US, Japan and South Korea are close to 3%; EU countries spend only 1.1% GDP on higher education, far less than Canada (2.5%), the US (2.7%) and South Korea (2.7%); under-funding leads to low enrolment rates, failures to prepare students for the labour market and difficulties in attracting and retaining top talent.

In the view of the Commission, the quality and attractiveness of the European universities needs to increase, human resources need to be strengthened and the diversity of the European higher education system needs to be combined with increased compatibility. More specifically, the autonomy of, and investments in, universities should be increased. The Commission urges the Member States to establish a new partnership with their universities, moving from state control to accountability and to acknowledge that addressing the severe funding deficit in higher education is a core condition for achieving the Lisbon ambitions (European Commission, 2005d).

In 2005, the European Commission launched the concept of a ‘European qualifications framework’ (EQF), setting a broader context for qualifications than the Bologna ministers had set during their Bergen meeting. The EQF was envisaged as a meta-framework increasing transparency and supporting mutual trust. It was believed to enable qualifications frameworks at the national and sectoral level to be related to each other, thus facilitating the transfer and recognition of qualifications. In 2006, after some clarifications regarding the relationships between the EQF and the Bologna-process qualifications frameworks, the Commission formulated the proposal to relate the EQF to the national frameworks of the Member States. The EQF would be voluntary and not entail legal obligations. However, the Member States were asked to set up their national qualification frameworks and link these to the EQF. It was clear that the Commission pushed for the modernisation of education and training also in this field.

The political leaders of Europe lent a ready ear to the Commission’s analysis and suggestions. During the Spring European Council of 2006 they decided that all Member States should try to reach the overall EU target for 2010 for R&D spending of 3% GDP and that the investments in higher education should rise to at least 2% GDP by 2010. The Commission produced another communication in which it identified four priority actions for more growth and jobs, ‘requiring a strong impetus from the highest political level and which should be implemented no later than the end of 2007’. One of these four actions is: ‘investing more in knowledge and innovation’, including the urgent promotion of excellence in both research and education, ‘particularly world-class universities with adequate funding streams and closer links with business’ (European Commission, 2006a, pp. 14-17).

It appears that by the Spring of 2006 higher education had evolved as a crucial policy concern at the supranational, European level. Before we further analyse this concern, let us first look at the historical development of the European research policy-domain.
4 The research and technology policy-domain

4.1 The origins of a European priority area

The European research policy-domain developed fully during the 1980s. However, as was indicated previously, the European Community had been active in this domain since its very beginning. The Treaty of Rome (1957), establishing the European Economic Community, the 1987 Single European Act, and the Maastricht (1992) and Amsterdam (1997) Treaties created important foundations for the European policies on research and technological development (RTD).

The first three European integration treaties (The European Coal and Steel Community, 1952; the European Atomic Energy Community, 1957; the European Economic Community, 1957) provided specifically for coal and steel research, nuclear energy research and agricultural research. The Treaty of Rome (1957) offered (in Article 235) the Community a formal base for action in the research policy-domain. From this base, an incremental diversification of research policy initiatives in other fields could develop (non-nuclear environmental, materials and biomedical research) (Caracostas & Muldur, 2001).

A crucial step was the creation of the first multi-annual research and technological development framework programme. The First Framework Programme (1984-87) was designed to strengthen strategic areas of European competitiveness. It funded the research efforts of both business and industry, and higher education and research institutions, and stimulated the creation of ‘research networks’ spanning organisational and national boundaries. After this first Framework Programme (FP) a series of other FPs followed. FP2 (1987-91) was deliberately, designed as ‘the basis and instrument of European research and technology policy’. FP3 (1990-94) regrouped the research activities around three strategic areas and emphasized quality as a major criterion for selection. FP4 (1994-98) emphasized the importance of consistency between national and Community policies. FP5 (1998-2002) focused on a ‘problem-solving’ approach and user needs and involvement (Geuna, 1999, p. 112, 113). FP6 (2002-06) and FP7 (2007-13) have added major new policy-elements to the general instrument of the Framework Programme. They will be discussed in more detail in the next paragraph.

The Framework Programmes have developed into the central EU instrument in the policy-domain of research and technology. The FPs have become the strategic documents (and decisions) outlining the broad strategic EU priorities (each to be implemented through specific programmes). In addition they address the overall EU budget to be spent for the duration of the programme, the breakdown of this budget into the priority areas, and the ways and modalities through which funding is made available to projects (Caracostas & Muldur, 2001, p. 181). The FPs are a medium-term planning instrument. They indicate the priority areas and the financial scope of the European activities in research and technological development. As such they have become a dominant factor in the European policy-domain of research and technology.

It should be pointed out, however, that other European programmes have an impact in this domain as well. Particularly the regional and social policy activities funded by the EU Structural Funds (the Regional, Social and Agricultural Guidance Funds) should be...
mentioned here. The Structural Funds have the political objective of strengthening the economic and social cohesion in the European Union, in particular in less-favoured and declining regions. In the overall European integration policy ‘economic and social cohesion’ is seen to be as crucial as the development of the ‘monetary union’ and the ‘single market’, expressing the political commitment by the EU to bridge the gaps between the more advanced and less-favoured regions of Europe. Throughout the 1980s and 1990s the Structural Funds have increasingly been used for interventions by means of research and innovation-related activities, hence creating an extra funding base for research and technology policy. In a communication in 2004 the European Commission argues for a reform of the ‘cohesion policy’ and for making the Lisbon agenda ‘one of the main bases for Structural Fund intervention’ (European Commission, 2004b, p. 10). Complementary funding from the Structural Funds and the Framework Programme is assumed to strengthen the process of reaching the strategic Lisbon objectives.

In addition, it should not be forgotten that the research and technology policy-domain in Europe is a comprehensive multi-actor environment, in which a multiplicity of ‘intergovernmental’ associations and organisations exists. Examples of these are the EUREKA-initiative, launched in 1985 and financing pre-competitive-projects according to a bottom-up industrial co-operation process, ESA (the European Space Agency), CERN (the European research center for particle physics), EMBO (the European Molecular Biology Laboratory) and the European Science Foundation which brings together a substantial number of networks in many European countries around a large number of research programmes.

Finally, although the financial and political strengths of the Framework Programmes are considerable, the proportion of their financial research investments on a European wide scale is limited. In the sixth framework programme the proportion is only 5%. The other 95% of investments in European research come from the Member States. Of course, as these national resources often cover infrastructure, salaries and running costs of European projects, the impact of the FP funding reaches much further than the 5% of investments. Nevertheless, the overall European research landscape suffers from fragmentation and unnecessary duplication of efforts and resources (Andersson, 2006, p. 83). The major challenge in the European research and policy-domain is to create critical mass and joint investment schemes. This is the challenge that is being addressed in the proposals for the European Research Area.

### 4.2 The European Research Area

The Heads of State or Government of the European Union decided in 2000 at their Lisbon summit that their common and national investments in research and technological development had to be increased. Aware of the fact that the European investments were far more limited than those of the USA and Japan, and keeping in mind that since the Amsterdam Treaty (1997), they were on the way to the ‘European Knowledge Society’, proposed to create the ‘European Research Area’ which should be able to better integrate national research policies, encourage researchers to work together at the European level, stimulate co-operation between universities and industry, and lower the political and administrative barriers to that co-operation.

The creation of the European Research Area (ERA) has its own history. Since the 1980s, the Framework Programmes (FPs) had developed substantially. By the end of the 1990s, not only had the overall funding levels more than quadrupled, the priorities in terms of support for
specific research fields had also clearly evolved into the direction of ‘the knowledge society’. In addition, the relationships with industrial and societal needs were substantially intensified. Based on the structure of the fifth Framework Programme (FP5; 1998-2002) the evolution since the early 1980s can be described as follows (Caracostas & Muldur, 2001, pp. 184,185):

- A rapid growth during the 1980s, and a decline in the beginning of the 1990s, of the budget for information and communication sciences;
- In the beginning of the 1990s, a substantial increase of the allocation of funds to life sciences and quality of life research;
- A decrease of funds for nuclear energy research;
- A steady increase in funding for research on sustainable growth, including actions like ‘innovative products, processes and organisation’;
- An increase in the budget for environmental research;
- A significant reinforcement of the importance attached to international co-operation concerning innovation;
- An increased emphasis on the importance of SMEs (small and medium sized enterprises);
- An increase in the budgetary share for improving the human research potential.

Nevertheless, an overall assessment of the Framework Programmes in the mid 1990s (chaired by former commissioner Viscount E. Davignon), whilst praising the quality of research undertaken under the programmes and the strength of the networks developed as a result, also identified a major weakness of the FP-instrument. The detailed decision-making procedures (in particular the co-decision mechanism by the European Parliament and the Council of Minister as well as the Member States unanimity rule) slow down the further development of a common European research policy, often leading to unsatisfactory compromises. The European research policy needed a streamlined and better managed research strategy, set in the broader context of innovation and the increase of Europe’s global competitiveness (Davignon, 1997).

During the 1990s several initiatives were taken to speed up the consolidation of the European innovation agenda, eventually leading to the decision by the Heads of State or Government during the previously mentioned 2000 Lisbon summit. The Amsterdam Treaty (1997) clearly spoke of the importance of research and technological development for the economy and social future of Europe. Regarding the European research policy, the fifth Framework Programme (FP5; 1998-2002) reflected the results of the Davignon evaluation. FP5 was to focus on a limited number of strategic priorities in four ‘thematic programmes’ that would redirect the European research efforts towards addressing the major economical and societal issues of Europe. In addition, FP5 was to strengthen the structural consolidation of a truly European system of research and innovation through three so-called ‘horizontal programmes’, aimed at:

- Confirming the international role of Community research;
- Promotion of innovation and encouragement of participation of SMEs;
- Improving human potential and the socio-economic knowledge base.

The horizontal programmes were the new co-ordinating mechanisms in the programme. They were designed to allow an integrated pursuit of better structural relationships between the European research policy and the overall innovation agenda.

The European Research Area (ERA) was launched in 2000 when put on the agenda by means of a communication of the European Commission (European Commission, 2000). The
subsequent conclusions of the Lisbon summit of that year enclosed the idea of the ERA, making it a key-component of the Lisbon-strategy.

However, it was only in 2002 that the European Research Area took further shape. In the communication ‘The European Research Area’ (2002), the European Commission noticed that ‘a specific European research policy still does not exist in the full sense of the term... A more ambitious approach and greater co-operation are called for’ (European Commission, 2002, p. 9). The European Research Area (ERA) should be a major vehicle to implement the European Union’s declared ambition to achieve a genuine common research policy. The objective was ‘to move into a new stage by introducing a coherent and centered approach at Union level from which joint strategies could be developed’. The ERA intended to reflect the political will expressed by the political leaders at the 2000 Lisbon summit. ‘Without this political will, Europe is condemned to increasing marginalisation in a global world economy. With the ERA, on the other hand, Europe gives itself the resources with which to fully exploit its exceptional potential and to become – in the words of the Lisbon European Summit of March 2000 – ‘the world’s most competitive and dynamic economy’’.

The European Commission noted that European research represents ‘a jigsaw’ of (then) fifteen often very different national scientific and technological policies. The EU Framework Programmes appear to be no more than a ‘sort of sixteenth research policy, coming on top of national effects, but not dynamic enough to have a truly integrating effect’. The result is: compartmentalisation, dispersion and duplication, as well as the failure to assemble the critical mass of human, technological and financial resources that major scientific advances demand today. Europe also still largely lacks a proper market for knowledge capital and technological development. Creating such a market calls for a genuine European research policy (European Commission, 2002, p. 8).

The Commission pressed for a concerted effort and suggested that the sixth Framework Programme (FP6; 2002-2006) was designed to do exactly that. FP6 would promote integrated, cross-border projects which would benefit from shared resources and ‘critical mass’. In this sense, FP6 would create ‘European added value’, a principle thought to be more or less synonymous with that of subsidiarity (implying that action undertaken by the Union is intended to complement that undertaken by the Member States). In the research policy-domain, this principle of ‘European added value’ could apply in several ways:

- where the ‘critical mass’ of a research project, in terms of financial and human resources, exceeds the means of a single country;
- where co-operation is economically meaningful (scale economics) and offers positive effects in terms of stimulating private research;
- where complementing national skills can be combined, in particular in interdisciplinary situations;
- where joint research is of interest given the cross-border nature of the problem;
- where the research links in with the Union’s priorities and implementation of its policies.

FP6, in this sense, was to have three main areas of action:

- integrating European research;
- structuring the European Research Area;
- strengthening the foundations of the European Research Area.
FP6 would have a substantial budget: over 19 billion euros, compared to nearly 15 billion allocated to FP5.

At a more operational level, FP6 contained various action lines, either existing ones which were strengthened in terms of support for researcher training and mobility, or new lines for development aid and for creating the scientific and technological infrastructure of the European Research Area. Substantial parts of the programme were also devoted to identifying future European science and technology policy priorities and to the coordination and reciprocal opening up of national research programmes. In addition, three major new instruments were introduced:

• support for the networking of centres of excellence in different countries (in universities, research organisations and business enterprises). These networks have clearly defined thematic objectives and are directed towards advancing scientific and technological knowledge, within medium- to long-term time-frames;
• support for integrated projects, involving a critical mass of scientific and industrial partners, and directed towards significant products, processes or service applications;
• participation in specific science and technology co-operation programmes set up jointly by certain governments or national research organisations.

In its communication ‘More Research for Europe’ (2002), the European Commission stated that the only way to reach the ambitious targets was to increase to general investments in research to 3% of GDP, and that a substantial part of this effort should come from business and industry. The Commission challenged the Member States, showing that this target would imply an increase of the national expenditure levels for research of 6-10% on average per year. Nevertheless, during a political summit in Barcelona in March 2002, the 3% GDP target (of which two-thirds is expected to come from private funding) was accepted and was to be reached by 2010. The European Union took its ‘research area’ seriously.

Unfortunately the 3% GDP target for 2010 appears to be very hard to reach. The ‘knowledge gap’ between Europe and the USA is large and appears to be growing. In particular the European R&D-expenditure by business and industry is limited (Van Vught, 2004).

It is not surprising therefore that the European Union is, at midway between 2000 and 2010, far from its target. The special High Level Group (chaired by former Dutch prime-minister Wim Kok) which evaluated the progress towards the Lisbon and Barcelona objectives, noted that the targets are still far away. It concluded that ‘halfway to 2010 the overall picture is very mixed and much needs to be done in order to prevent Lisbon from becoming a synonym for missed objectives and failed promises’ (European Communities, 2004, p. 10). Similarly, another High Level Expert Group (chaired by former Finnish prime-minister Esko Aho) concluded in 2006 that there is a large gap between the political rhetoric about the knowledge society and the realities of budgetary and other priorities, and that action is urgently needed ‘before it is too late’. The Group suggests to form ‘a Pact for Research and Innovation’ of political, industrial and social leaders, in order to really build the Europe of innovation (European Communities, 2006b).

A number of other ‘Pacts’ had meanwhile been established in the so-called ‘Technology Platforms’. These platforms have largely been set up at the initiative of industry and bring together companies, research institutions, the financial world and the regulatory authorities at the European level. The objective is to develop a common Strategic Research Agenda per platform which could mobilise a critical mass of – national and European – public and private
funding (European Commission, 2004b). The Technology Platforms are bottom-up processes uniting stakeholders around a joint vision and approach of a strategic technology. They define an overall strategy in a specific technological field, to be translated into an operational and implementational programme. There are currently (2007) thirty-one European Technology Platforms spinning a wide range of technologies. The platform’s objective is to influence industrial and research policy at the EU, national and regional level while encouraging public and private investments in key technological fields. The European Commission has sponsored some of the Platforms through specific support actions in FP6. It encourages the platforms to apply for funding in FP7, but it also indicates that they should also look elsewhere for financial support. In FP7 the Commission has introduced the ‘Joint Technology Initiatives’ (JTI’s) which are eligible for FP funding (see below).

Now that the sixth Framework Programme has come to its end, the European Research Area is still under construction. Of course, FP6 could not realise the full European Research Area by itself. The European Union needs a policy framework that creates incentives for its Member States to enhance the contribution that the Union is unable to offer. ‘Without active involvement of Member States, the Commission cannot succeed in enacting an effective global strategy for science and technology’ (European Research Advisory Board, 2006, p. 7).

In developing the seventh Framework Programme (FP7; 2007-2013), the European Commission took this suggestion to heart. It noted that in FP6 successful efforts were made to improve the coordination of national research programmes, but that these efforts must be strengthened. The networking of national programmes (through the so-called ERA-NET activities) should receive more resources, and more attention should be given to the mutual opening-up of national research programmes (European Commission, 2004b, p. 7).

During the summer of 2006, the leaders of the European Union reached an agreement on FP7, with a budget of 54 billion euros. FP7, which started in January 2007, is a major programme for realising the ‘re-launched’ Lisbon agenda. It is the chief instrument for funding European research and innovation and creates a new policy-context for the European Research Area.

Subtitled ‘Building the European research area of knowledge growth’, FP7 is designed to respond to the competitiveness and employment needs of the European Union. It is based on the assumption that knowledge is Europe’s greatest resource which can give growth and competitiveness a new impetus. The programme places greater emphasis than before on research that is relevant to the needs of European industry, through the Technology Platforms and the new ‘Joint Technology Initiatives’ (see below), which will develop research projects in fields identified through dialogue with industry. Also, for the first time, the programme provides support for the best European ‘frontier research’, with the creation of a European Research Council (ERC). The ERC will fund the best European research activities, as assessed by international academic peer review.

The Commission acknowledges the fact that the Technology Platforms, led by industry, have been able to create more focus in the European research activities. In FP7 it introduces the ‘Joint Technology Initiatives’ (JTI’s) as a new funding scheme, offering a framework for particularly ambitious research and technology agendas that require public and private investment at European level. The JTI’s are dedicated legal structures, which co-ordinate the mobilisation of large-scale public and private investments and substantial research resources. JTI’s are assumed to accelerate the generation of new knowledge, to enhance the uptake of research results into strategic technologies and to foster the necessary specialisation in high-
tech sectors which may determine the EU’s future industrial competitiveness. In first instance six JTIs have been identified.

FP7 is organised in four specific categories. In the category ‘Co-operation’, the objective is to gain European leadership in key areas through co-operation of industry and research institutions (like the JTIs). Support will be given to research activities carried out in trans-national co-operation, from collaborative projects and networks to the coordination of national research programmes.

In the category of ‘Ideas’ the objective is to strengthen the science base of Europe by funding European-wide competition. The autonomous European Research Council (ERC; with a budget of 7 billion euros) will support ‘frontier research’ either by individuals or partnerships in all scientific and technological fields.

The category ‘People’ has as its objective to reinforce the career prospects and mobility of European researchers. Support will be available for training, mobility and the development of European research careers.

In the category of ‘Capacities’, the objective is to develop the research and innovation capacities throughout Europe, so that the European researchers have excellent facilities at their service. Support will be available for research infrastructures, regional clusters, research for and by SMEs, ‘science in society’ issues, and ‘horizontal international co-operation’.

FP7 is a continuation of FP6 and continues to develop the European Research Area, though FP7 intends to be less bureaucratic and simpler in its operation. In addition, FP7 has international co-operation as an integrated dimension in all its four categories; it has a focus on the development of the ‘regions of knowledge’ (strengthening the research potential of regions); and it comprises a ‘Risk-Sharing Finance Facility’ aimed at fostering private investment in research by improving access to the European Investment Bank.

In the spring of 2007 the European Commission took an important next step in developing the European Research Area. It published a Green Paper, entitled “The European Research Area: New Perspectives” (2007) and opened a discussion on how the current research system of Europe can be improved.

The Commission further intends to develop the idea of the ERA. Since its introduction, in 2000, the content of European research has evolved, argues the Commission. Globalisation has accelerated, various socio-economic challenges have grown (climate change, ageing, the risks of infectious diseases) and the European research landscape has changed (notably with the launching of new measures such as the European Research Council and the European Institute of Technology). Within this changing context, the ERA concept itself has been subject to gradual changes. Its scope has broadened from a focus on how to improve the effectiveness and efficiency of the fragmented European research landscape, to the awareness that more public and private investment in research is needed, and to the view that research policy should be related to other EU policies in order to achieve coherence and synergies in the context of the overall Lisbon strategy. According to the Commission the ERA must comprise six features:

- an adequate flow of competent researchers with high levels of mobility between institutions, disciplines, sectors and countries;
- world-class research infrastructures, accessible to all;
- excellent research institutions engaged in public-private cooperation, involved in clusters and virtual communities, and attracting human and financial resources;
• effective knowledge-sharing, between the public and private sector, and with the public at large;
• well-coordinated research programmes and priorities;
• the opening of the ERA to the world, with special emphasis in neighbouring countries.

Researcher mobility is clearly a priority throughout the Green Paper. It suggests that the movement of knowledge is crucial for the future of the EU. The movement of knowledge should become a ‘fifth freedom’ within the EU, complementing the four freedoms of the Treaty on European Union, which protects the free movement of goods, services, capital and labour (European Commission, 2007a).

The 2007 Green Paper once more reflects the idea that knowledge is Europe’s best resource. According to the European Commission, investing in knowledge is the most important way to foster economic growth and create more and better jobs, while at the same time ensuring social progress and environmental sustainability. The EU research policy plays an important role in delivering these goals. Research has come at the core of the EU’s renewed ambition to stimulate growth and employment. Together, with (higher) education, it is the key component of a broader European innovation policy.

4.3 The European Innovation Strategy

Innovation is a concept that has rapidly risen on the political agenda of Europe. The FP1 (1984-1987) was already intended to strengthen strategic areas of European competitiveness and stimulated the creation of ‘research networks’ in which both universities and industry participated.

However, it took until 1995 before the European Commission published a Green Paper on innovation, and a vast debate on innovation in all Member States was launched (European Commission, 1995). Based on this, the Commission drew up an ‘Action Plan for Innovation’ in which three objectives were singled out:

• to develop a true culture of innovation;
• to adapt the administrative, legal, financial and fiscal environment;
• to strengthen the links between research and innovation.

The first objective had as its intention the improvement of the generic societal perception of innovation, and the mobility of researchers, teachers and students. The second was to design the various administrative service systems that could stimulate research and innovation (intellectual property issues, venture capital, etc.). The third objective was intended to create better links between research and innovation, and was reflected in FP5, as well as in other Community instruments (in particular the Structural Funds).

The fifth and sixth framework programmes made explicit reference to the importance of innovation. FP5 intended to consolidate a truly European system of innovation through the strengthening of the ‘horizontal programmes’ for innovation, international distinction and human capital formation. FP6 was assumed to help create a proper European market for knowledge capital and technological development in order to allow the Union to further develop its innovation agenda.

The seventh framework programme is clearly designed to address the competitiveness and innovation needs of the European Union. FP7 puts greater emphasis on the linkages between
knowledge institutions and industry than ever before. It acknowledges that knowledge is Europe’s main asset and that the production and application of knowledge are crucial processes in achieving the goals of increased economic growth and more and better jobs.

In 2005 the European Commission launched the ‘New Lisbon Partnership for Growth and Jobs’ (European Commission, 2005a). The Spring European Council of that year singled out ‘knowledge and innovation for growth’ as one of the three main areas for action for the Union. Innovation and research policies were assumed to be the central elements of the new strategy, as together they cover the full spectrum of issues regarding the production and exploitation of knowledge.

The ‘new partnership’ specifies the actions for the Member States (based on the Integrated Guidelines) regarding the preparation of the three-year National Reform Programmes (NRPs), as well as those for the Community (the Community Lisbon Programme). The overall objectives are to achieve sustainable global competitiveness and to create a vibrant European knowledge economy. A coherent and integrated set of policies is assumed to be crucial to reach these ambitious goals.

The European policy-domain of research and technology is a priority area in this broader policy-set. It has become part of the integrated research and innovation agenda that focuses on both knowledge creation and knowledge utilisation. The Commission’s Action Plan ‘More research and innovation’ (European Innovation, 2005) makes this very clear. It addresses ‘the full research and innovation spectrum, including non-technological innovation. It explicitly mentions the commitments taken by the Community Lisbon Programme, by detailing the measures in support of research and innovation that will be undertaken and were described there in general terms. It outlines ambitious actions, reaching beyond the 3% Action Plan and innovation policy to date. It strengthens the links between research and innovation, with research policy focusing more on developing new knowledge, its applications and the framework conditions for research, and innovation policy focusing on transforming knowledge into economic value and commercial success’ (European Innovation, 2005, p. 5).

Research and innovation have moved to the heart of EU policy-making. In this central focus of policy, the Commission promises better and more effective regulation (the ‘better regulation’ initiative) with respect to research and innovation, but it also urges the Member States to support research and innovation wherever possible. The Commission also encourages cross-border research co-operation, public-private partnerships, research dissemination strategies, and joint European research projects. It intends to further develop the European protection of intellectual property and to keep on exploring a ‘European patent’. It wants to create an open and competitive European labour market for researchers and to stimulate research career paths at trans-national level. It points at the benefits of public procurement for innovation (public authorities as launching customers for innovative products and services) and at the positive effects of R&D tax incentives.

In short, the European Commission intends to create a truly European innovation agenda. It asks the Member States to identify research and innovation as key challenges in their National Reform Programmes (NRPs) and to report annually on their targets and policy progress in these fields. In the context of its own policy-competences, the Commission focuses on the new instruments in the seventh framework programme, in particular the Joint Technology Initiatives (long-term public-private partnerships for research and innovation), the Risk-Sharing Finance Facility (intended to improve access to European Investment Bank debt finance), the extra funding for the research and innovation capacity of SMEs, and the
‘Regions of Knowledge’ initiative (supporting the development of innovative regional clusters). In addition, the Commission promotes the use of the Structural Funds and the Rural Fund to improve the European knowledge and innovation base, and the use of financial risk facilities for SMEs. The focus on SMEs is particularly found in the EU’s Competitiveness and Innovation Programme (CIP; 2007-2013), which is designed to support actions to help business and industry to innovate. The CIP has the following objectives:

- to foster the competitiveness of enterprises, in particular SMEs;
- to promote all forms of innovation, including eco-innovation;
- to accelerate the development of a sustainable, competitive, innovative and inclusive Information Society;
- to promote energy efficiency and new renewable energy sources in all sectors.

A special initiative by the European Commission concerns the ‘European Institute of Technology’ (EIT). The proposal to establish an EIT was put forward as part of the mid-term review of the Lisbon strategy in 2005 and has since been further developed. The suggestion is that the EIT could be ‘an education, research and innovation operator’ and that it will be structured to integrate these three areas. The EIT should be a ‘knowledge flagship’. It should set out ‘to attract and keep the best talents in students, researchers and staff in Europe, to work side by side with leading edge business in the development and exploitation of knowledge and research, and to enhance research and innovation skills generally’ (European Commission, 2006b, p. 2).

Realising that the EU’s funding to promote innovation and research activities represents only a small fraction of the overall public European effort (only about 5%), the Commission also presses for the mobilisation of national funding in support of European research and innovation activities. It proposes extending the Community’s instruments to further stimulate transnational co-operation and coordination by providing direct Community support for joint research and innovation programmes between Member States. The new European innovation agenda indeed is designed as a ‘new partnership’ between the EU and the Member States.

The coordination of national and regional research programmes in the EU-context was already a focus of attention from early 2002 when the European Research Ministers acknowledged the importance of the progressive opening of national research programmes as an important step towards the construction of the European Research Area. For the first time in FP6 a specific action line was designed to address this issue: the ERA-NET scheme. ERA-NET is the network of national research councils, working together on a voluntary basis for more co-operation. ERA-NET is essentially a bottom-up process in which national research programmes are coordinated and mutually opened up. The objective of the ERA-NET scheme is to increase the co-operation and coordination of national and regional research programmes in the Member States through the networking of these programmes. In FP7 the ERA-NET scheme is reinforced by a new module (called ERA-NET Plus) which provides a financial incentive by ‘topping-up’ joint trans-national funding with Community funding.

The ‘renewed Lisbon agenda’ reinforces the positions of the European universities in research and innovation. The European research policy-domain has become a cornerstone of a full European innovation policy and the European universities are being challenged to contribute to the policy’s implementation.

During the 2006 Spring European Council, the European Member States indicated that they expected to increase their R&D spending. The Commission urged them to implement their
National Reform Programmes and to set ambitious expenditure targets for R&D and higher education, but also indicated that Europe needs to continue to improve its knowledge infrastructure and to strengthen its innovation systems. More investment in knowledge and innovation are needed, but also ‘the quality of the European innovation systems requires particular attention’ (European Commission, 2006a, p. 16). Excellence in both research and (higher) education needs to be further promoted. Increased trans-national co-operation and stronger links with business and industry are called for.

The 2006 Council called on the European Commission to present a ‘broad based innovation strategy for Europe that translates investments in knowledge into products and services’. In September 2006 the Commission published its communication ‘Putting knowledge into practice: A broad-based innovation strategy for the EU’.

The strategy is a comprehensive European innovation policy. It is intended to frame policy discussions on innovation at national and European levels. It outlines the most important planned and on-going initiatives, identifies new areas of action, and in particular introduces a more focused strategy to facilitate the creation and marketing of new innovative products and services in promising areas – the ‘lead markets’ (European Commission, 2006c, p. 3). The strategy includes a 10 point programme for action at national and European levels:

- Member States are invited to significantly increase the share of public expenditure devoted to education and to tackle obstacles in their education systems to promoting an innovation friendly society. In particular, they should implement the recommendations included in the Communication ‘Delivering on the Modernisation Agenda for Universities’ for better education and innovation skills;
- a European Institute of Technology should be established to help improve Europe’s innovation capacity and performance;
- the Community and Member States should continue to develop and implement a strategy to create a single, open and competitive European labour market for researchers, with attractive career prospects, including possible incentives for mobility;
- in order to address the poor up-take of research results in Europe, the Commission will adopt a Communication – including voluntary guidelines and actions of Member States and concerned stakeholders – to promote knowledge transfer between universities and other public research organisations and industry;
- the EU’s cohesion policy for the period 2007-2013 will be mobilised in support of regional innovation. All Member States should seek to earmark an ambitious proportion of the 308 billion € available for investing in knowledge and innovation;
- a new framework for State aid to research, development and innovation will be adopted by the Commission, to help Member States better target State aid on market failures preventing research and innovation activities. The Commission will also present detailed guidance for the design and evaluation of generally applicable tax incentives for R&D;
- the Commission will present a new patent strategy and prepare a more comprehensive IPR strategy, facilitating inter alia the circulation of innovative ideas;
- the Commission will continue its work to ensure that the legal framework and its application are conducive to the development of new digital products, services and business models;
- the Commission will test a strategy to facilitate the emergence of innovation friendly lead-markets. In this contexts, it will conduct a detailed analysis of potential barriers to the take-up of new technologies in a limited number of areas;
- the Commission will publish and distribute a Handbook on how pre-commercial and commercial procurement can stimulate innovation to support Member States in availing
themselves of the opportunities offered by the new procurement Directives (European Commission, 2006c, p. 16, 17).

As indicated in the innovation strategy, in April 2007 the Commission published its communication on knowledge transfer, together with a set of voluntary guidelines for research organisations to help them improve their links with industry. The document uses a broad definition of the knowledge transfer concept: Knowledge-transfer involves the process of capturing, collecting and sharing explicit and tacit knowledge, including skills and competence. It includes both commercial and non-commercial activities such as research collaborations, licensing, spin-off creation, researcher mobility, publication, etc. (European Commission, 2007c). The general objective of the communication is to be a starting point for an increased cooperation between the Member States and the EU in this field, leading to a common European approach to knowledge transfer, based on both the R&D Framework Programmes and the Competitiveness and Innovation Programme (CIP).

According to the Commission major barriers to greater knowledge transfer exist in the EU. They include cultural differences between the academic and the business communities, lack of incentives, legal barriers and fragmented markets. Some Member States have set up initiatives to promote knowledge transfer but these largely ignore the international dimension of knowledge transfer.

The document highlights the importance of a number of measures like creating a workforce of skilled knowledge transfer staff in universities (and a professional qualification and accreditation scheme), developing a more entrepreneurial mindset in universities and exchanges of staff between research organisations and industry. It also emphasizes the importance of the financial support for knowledge transfer. In addition to FP7, European funds mentioned include the Regional Development Fund, the Social Fund and the Cohesion Funds. The set of suggested voluntary guidelines to help improve knowledge transfer cover issues like intellectual property management, incentives for researchers to participate in knowledge transfer activities and developing knowledge transfer resources (European Commission, 2007a).

During the 2007 Spring European Council of the Heads of State or Government the current level of European Competitiveness was discussed. The Member States invited the Commission to push forward the implementation of the innovation policy. The meeting concluded that the Member States are determined to improve the conditions for innovation such as competitive markets and to mobilise additional resources for research, development and innovation.

In the European innovation strategy, the European universities are seen as crucial actors for the revitalisation of the knowledge and innovation capacity of Europe. They are urged to use their qualities, not only to create but also to ‘activate’ knowledge (Soete, 2005). They are invited to play a pivotal role in the further development of the European knowledge society. By 2007 they are at the center of European policy-making, but, as the Commission argues in its communication for the autumn 2006 informal European Council meeting, they also have to change substantially to allow Europe to catch up with its global competitors (European Commission, 2006f).
Part II: The Analysis

5 The European higher education and research policy system

5.1 Integrated subsystems

In the preceding paragraphs it has become clear that during the last decades a supranational European innovation policy has been developed which nowadays includes a number of inter-related policy fields. Although the two policy-domains of higher education on the one hand, and research and technological development on the other clearly have their own origins and histories, the two domains increasingly appear to have come together under the broader umbrella of the all-embracing Lisbon agenda.

In particular after the ‘re-launch’ of this agenda in the ‘New Lisbon Partnership’ in 2005, the European Commission has tried to develop a general strategy that could form a solid base for the further development of the European Union. The Union faces fierce economic competition on a global scale and sees development of a comprehensive innovation agenda as a major task. The higher education and research policy-domains have become crucial elements of this broader agenda.

The Commission’s communication to the Spring European Council in 2005 makes these points clearly: ‘Just think what Europe could be. Think of the innate strengths of our enlarged Union. Think of it’s untapped potential to create prosperity and offer opportunity and justice for all its citizens. Europe can be a beacon of economic, social and environmental progress to the rest of the world’ (European Commission, 2005a, p. 3). Referring to the mid-term evaluation by the High Level Group ‘Kok’, which stressed the widening growth gap with North America and Asia, the Commission rises to the challenge to present its proposals for ‘the Union’s Strategic Objectives’: ‘Europe’s performance has diverged from that of our competitors in other parts of the world. Their productivity has grown faster and they have invested more in research and development. We have yet to put in place the structures needed to anticipate and manage better the changes in our economy and society… We need a dynamic economy to fuel our wider social and environmental ambitions. This is why the renewed Lisbon Strategy focuses on growth and jobs. In order to do this we must ensure that:

- Europe is a more attractive place to invest and work;
- knowledge and innovation are at the beating heart of European growth;
- we shape the policies allowing our business to create more and better jobs’ (European Commission, 2005a, p. 4).

The higher education and research policy-domains are interpreted as aspects of a larger overall European policy-agenda. In order to allow Europe to focus on its two principal tasks – delivering stronger, lasting growth and creating more and better jobs – the Union needs a knowledge and innovation policy, consisting of a number of elements:
• ‘public authorities at all levels in the Member States must work to support innovation, making a reality of our vision of a knowledge society;
• more investments by both the public and private sector spending on research and development;
• a major reform of State Aid policy to allow Member States to support research and innovation;
• the Union must ensure that our universities can compete with the best in the World through the completion of the European Higher Education Area;
• the Commission will propose the creation of a ‘European Institute of Technology’;
• the Commission will support and encourage Innovation Poles designed to help regional actors bring together the best scientific and business minds;
• the Commission and Member States must step up their promotion of eco-innovation;
• partnering with industry will be fostered by European Technology Initiatives...’
(European Commission, 2005a, p. 9).

The renewed Lisbon agenda is an ambitious innovation agenda to which the higher education and research policies are assumed to contribute. The Commission’s 2005 Action Plan ‘More research and innovation’ (2005) argues that the relationship between research and innovation is the key factor for economic growth. Similarly, the Commission’s communication to the 2006 Spring European Council stresses the importance of promoting excellence in both higher education and research as well as further strengthening the links between academia and industry.

During the conference, the European Heads of State or Government asked the Commission to design a broad based European innovation strategy. The Commission’s answer was the 2006 communication ‘Putting knowledge into practice’ in which it argues that ‘the EU can only become comprehensively innovative if all actors become involved and in particular if there is a market demand for innovative products’. For this, ‘education is a core policy’ and a ‘two-way communication between researchers and business’ is required. ‘Structured and strategic partnerships between business and universities need to be strengthened’ (European Commission, 2006c, p. 4, 8, 9). In this 10 point strategy the Commission emphasises the importance of the integration of the various policy domains. The innovation strategy represents a framework to take innovation forward bringing together different policy areas that have a bearing on innovation (European Commission 2006c).

In the broader context of the Union’s innovation strategy, the European Higher Education and Research Areas have not only been subsumed under a more comprehensive policy, they also have become more integrated than ever before. The seventh framework programme, the Green Paper on the European Research Area, the communication on knowledge transfer (FP7), and the ‘Modernisation agenda for the European universities’ breathe the same spirit. As major documents in their respective policy-domains they convey the same message: the European universities have crucial roles to play in further developing the European knowledge society.

5.2 A multi-echelon and multi-instrument system

The integrating European higher education and research policy system is a rather complex phenomenon. It encompasses a broad array of issues, addresses a variety of actors and makes use of a diversified set of instruments. In this paragraph we will particularly focus on the multi-level and multi-instrumental dimensions of this policy.
It appears that the European higher education and research policy system can be described as a multi-echelon system. A multi-echelon system consists of a family of interacting subsystems, of which many have decision-making competences that allow them to influence one another. The concept of echelons refers to the mutual relationships between the decision-making levels comprising the overall system. The echelons have their own authorities and competences but are mutually interdependent. The very nature of multi-echelon systems is this interdependency of the various levels of a system. In a multi-echelon system the higher level units condition but do not completely control the goal-seeking activities of the lower-level units. The lower level units have the freedom to (at least partly) select their own courses of action. Their decisions might be, but are not necessarily, the ones which the higher level would select (Mesarović, et al., 1970, pp. 49-65).

In the European higher education and research policy system at least four crucial echelons can be distinguished: the European Union (with its various actors), the Member States (with its political actors), the universities, and the (groups of) individual academics working in these universities. All four echelons have their own competences and decision-making authorities. However, in the European higher education and research policy system these echelons also are interrelated and interdependent.

In the increasingly integrated policy-domains of higher education and research, the European Union addresses both the Member States and the universities (including the individual academics in the universities). The EU’s policy, in this sense, indeed influences higher education both directly and indirectly (De Wit, 2003, p. 172). In addition, in the broader context of innovation policy the Union reaches out to business and industry and other societal actors (regional and local authorities, civil society organisations, trade unions, consumers). The EU calls for ‘a wide partnership for innovation where supply of new ideas and demand for new solutions both push and pull innovations’ (European Commission, 2006c, p. 3, 4).

In the higher education policy-domain the EU’s competence is still restricted by the subsidiarity principle (formulated in the 1992 Maastricht Treaty). The Union is assumed to refrain from policy-actions in this field, allowing the Member States to design and implement their own higher education policies. But, as the historical developments in the European Higher Education Area show, the Commission has used the opportunity of the Bologna process to start a debate on the place and role of the European universities in the knowledge society. It urges both the Member States and the universities to reflect upon these roles and to explore the ways by which the universities could be modernised and adapted to the needs of the knowledge society. In addition, the Commission calls for more public and private investments in higher education. During the 2006 Spring European Council for instance the Commission suggested that the investments in higher education should rise to at least 2% GDP by 2010. And in its broad-based innovation strategy (2006) it presents a 10 point programme for action at national and European levels of which Action 1 explicitly refers to the recommendations included in the communication ‘Delivering on the Modernisation Agenda for Universities’ (European Commission, 2006c, p. 15, 16).

The European Commission uses the ‘Open Method of Co-ordination’ (see below) to stimulate the Member States to develop their higher education policies according to the Lisbon objectives. Without infringing the national competences, the Commission uses this new approach to create a Union-wide policy-forum on which the efforts and results of the Member States can be discussed and compared. In the 2006 Education and Training Progress Report the Commission for instance compares the tertiary education expenditure levels of all
Member States and concludes that the EU would need to double the amount it invests per higher education student (particularly private investments) to match the spending level in the USA (European Commission, 2006e, p. 6, 25).

The European Union also addresses the echelons of the universities and of the academics within them. The Commission for instance invites proposals for the Erasmus student mobility programme and urges universities to design Erasmus Mundus programme proposals in order to foster the attractiveness of European higher education at a global scale. In addition, it supports the development of the Bologna process and has recently taken the initiative to launch a ‘European Institute of Technology’ (EIT) which should ‘pool together the best European students and researchers to work side by side with leading edge business in the development of knowledge and research’ (European Commission, 2006b, p. 9).

In the research and technology policy-domain the European Union has strong competences. Since the mid-1980s the EU has used its Framework Programmes as a crucial strategic financial policy-instrument to influence the overall research agenda of Europe. Arguing that the Union’s policies in this field create ‘European added value’, emphasis has been put on building focus and ‘critical mass’ and fostering co-operation and excellence.

The FP’s address universities, research groups and individual researchers directly. They are strong and attractive funding schemes that have a considerable influence on the dynamics of European research. Many European universities and researchers have acquired EU research funding from the successive programmes.

Regarding the Member States the European research policy-initiatives promote the coordination and reciprocal opening up of national research programmes. Through the ERA-NET scheme (implemented in FP6 and expanded in FP7) the EU seeks to increase the co-operation and coordination of national research programmes, using its financial capabilities to provide incentives to the organisation of joint initiatives by Member States. In addition, also in this domain, the ‘Open Method of Co-ordination’ is being used to create a Union-wide policy-forum for comparing and discussing national efforts and results.

Another initiative by the EU which addresses the other echelons of the research policy system is the introduction of an integrated European human resources strategy. To enhance the public recognition of the role of researchers in the European knowledge society, the EU has published a recommendation on the ‘European Charter for Researchers’ and on the ‘Code of Conduct for the Recruitment of Researchers’. The intention of the Charter and the Code is to give individual researchers the same rights and obligations wherever they work in the EU. In the 2007 Green Paper on the European Research Area, the Commission outlines a broad strategy for the free movement of knowledge, of which researcher mobility is a crucial element.

In the higher education and research policy system several policy-echelons co-exist. The EU tries to influence and co-ordinate the decisions and activities of the other echelons using the competencies at its disposal. Given the fact that these are different for the policy-domains of (higher) education and research, the EU is forced to work with a diversified set of instruments addressing the other echelons in a variety of ways.

The European Union has several categories of policy-instruments at its disposal. In accordance with the literature on policy-analysis, I distinguish three basic categories of European policy-instruments (Mitnick, 1980; Hood, 1983; Van Vught, 1994).
The first category consists of the legal policy-instruments of the European Union. Here it is important to keep in mind that the EU is not a federal government, nor an intergovernmental organisation. The EU is based on the agreements between its Member States.

Generally speaking, there are three types of European legal instruments. The first is the so-called primary legislation type. Primary European legislation basically consists of the various European Treaties and their annexes and protocols. Treaties are legally binding and have to be ratified by the parliaments of the Member States. The Treaties form the constitutional law of the EU and provide the formal contexts in which higher education and research policies can be developed.

In addition to the Treaties (primary legislation), secondary European legislation regards the various legal instruments that the EU uses to develop and implement its policies. These instruments are:

- regulations: legislative acts of the EU which have general scope, are obligatory in all its elements and are directly applicable in all Member States;
- directives: legislative acts of the EU which require the Member States to achieve a particular result without dictating the means of achieving that result. Directives are only binding to the Member States to whom they are addressed. In practice they are addressed to all Member States (with the exception of the Common Agricultural Policy);
- decisions: binding legislative acts of the EU that are not of general application and only apply to its particular addressee;
- recommendations: non-binding EU acts aiming at the preparation of legislation by the Member States.

The three binding policy-instruments of secondary legislation (regulations, directives and decisions) are strong and powerful forms of EU law. They are applied in the research policy-domain, but rarely in the context of education. In the research policy-domain in particular the Framework Programmes are implemented through the decision-instruments and in their more detailed elaboration (in the so-called ‘Rules of Participation’) also through the regulation-instrument. The only issue in the education policy-domain addressed through binding legal instruments is the Life Long Learning Programme.

The third type of European legal instruments are the decisions by the European Court of Justice and the Court of First Instance. The European Court of Justice is the EU’s Supreme Court which adjudicates on matters of interpretation of EU law, most commonly claims by Member States that the European Commission has exceeded its authority or by the Commission that a Member State has not implemented a binding legislative act. The Court of First Instance (which is an independent Court attached to the European Court of Justice) hears and determines nearly all direct actions brought by individuals and Member States, including actions against acts as well as inactions by the Community institutions.

In the higher education and research policy-domains several examples of this type of legal instrument can be found. Well-known is the landmark decision by the European Court of Justice in 1985 (the Gravier case) that access to university is covered under European primary legislation and that any discrimination based on nationality would be against European law. As a result EU students can only be charged the same (if any) study fees as national students. Another well-known case is the one in 2004 of a French student claiming financial support from the British government on the basis of the non-discriminatory principle (the Bidar case). The Court judged in favour of the claim. In the research policy-domain many cases are found
in which either one or more Member States or the Commission ask for the Court’s judgement. It appears that in the majority of cases the Court rules in favour of the Commission’s position.

Nearly all policy-issues in the European higher education policy-domain are implemented by means of inter-governmental conventions and resolutions, without any legal authority at the level of the Union. For instance, the action lines in the context of the Bologna process (like the three cycle structure, the Bologna-process qualifications framework, and the co-ordination of the quality assurance processes) are all the result of inter-ministerial agreements. The EU does not have the authority to make use of its legal instruments in this policy-domain. Given the subsidiarity principle, it necessarily limits itself largely to instruments of information and communication.

The second category of European policy-instruments are the financial instruments. Most prominent in this category is the subsidy-instrument, which basically refers to the power of signing checks. Subsidies are payments made to individuals or organisations under the condition that the recipient supplies a particular product or service. In this sense, subsidies are contracts, under which payments are made when the recipient accepts the conditions set by the provider of the funds.

In the EU research policy-domain the Framework Programmes work with this policy-instrument. Similarly the Competitiveness and Innovation Framework Programme (CIP) uses this instrument to stimulate actions and outcomes that support the objectives of the renewed Lisbon strategy. In the higher education policy-domain the Life Long Learning Programme and the Socrates/Erasmus mobility programme provide examples of the application of the subsidy-instrument. In this latter context the financial policy-instrument have been, and still are ‘strong with hardly any strings attached’ (Huisman & Van der Wende, 2004, p. 352).

In addition to the subsidy-instrument, other financial instruments, particularly loans and warranties, appear to be increasingly considered in the European context. In the seventh framework programme the Risk-Sharing Finance Facility (providing access to European Investment Bank financing) is a clear example. In the Competitiveness and Innovation Programme a financial risk facility instrument for SMEs has been suggested.

The third and final category of European policy-instruments are the instruments of information and communication. Two crucial instruments in this category are the Communication and the Open Method of Co-ordination.

The European Commission can publish communications in areas wherein it is not assigned authority to use legal instruments. In practice the Commission uses this policy-instrument for agenda-setting and as a means to share its views on certain issues. Communications are usually preceded by consultations of the relevant stakeholders and/or expert groups.

Several examples of the use of the communication-instrument have already been presented. Allow me to repeat a few. The re-launch of the Lisbon strategy started with a communication to the Spring European Council in 2005 (European Commission, 2005). The 2006 broad EU innovation strategy with its 10 point programme is presented as a communication from the Commission to the European Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions (European Commission, 2006c). In the higher education policy-domain the Commission used the communication-instrument to start the debate on the role of the European universities in the knowledge economy (European Commission, 2003) and to suggest a ‘modernisation agenda’ for the European universities.
A specific initiative launched through the communication-instrument and with a broad consultation process concerns the Commission’s intention to create a European Institute of Technology (EIT). In the research and technology policy-domain the Commission used the communication-instrument (a.o.) to develop the European Research Area and to set the 3% GDP target for R&D-investments (European Commission, 2002). In the innovation policy context the Commission used the communication-instrument to fund the innovation strategy and to suggest guidelines for effective knowledge transfer (European Commission, 2006c; 2007d).

The Open Method of Co-ordination (OMC) is a relatively new European policy-instrument, which was created at the 2000 Lisbon Council as an instrument for intergovernmental policy analysis. The OMC works with information and communication mechanisms such as indicators, benchmarking and the sharing of best practice. Generally it works in stages. First a Council of Ministers agrees on a set of (often broad) policy goals. These are then translated by the Member States into national and regional policies. Thirdly, specific benchmarks and indicators to measure best practice are agreed upon. Finally, the results are monitored, compared and evaluated.

The OMC is a ‘soft’ policy-instrument which has a decentralised approach. The agreed policies are implemented by the Member States and supervised by the European Council. The Commission has primarily a monitoring role, but in practice it appears to have considerable scope for agenda setting and persuading Member States to increase their efforts to reach agreed policy-objectives. The OMC indeed allows the Commission to use peer pressure and naming and shaming processes to create stronger Member State involvement in European policy processes.

In the policy-domains of higher education and research several applications of the Open Method of Co-ordination are found. The European Innovation Scoreboard monitors the Member States’ innovation performance. In the education policy-domain the Progress reports analyse the progress towards the educational Lisbon objectives and provide a platform to discuss education policies at the European level.

All in all, the European policy-instruments show a rather large variety in their contexts and conditions of application. However, it appears that powerful and effective European policy-instruments are being used, also in the policy-domains of education and research. The EU policy-level is increasingly equipped with European policy-instruments.
6 The dynamics of European higher education and research policy-making

6.1 European higher education and research policy trends

The joint developments regarding the European Higher Education and Research Areas have had a number of major influences on the European university systems. Due to the European higher education and research policies, these systems have clearly opened up and become more integrated. The level of fragmentation in European higher education and research has decreased, although it certainly still exists.

In addition, the ‘areas’ appear to have created a growing awareness of the benefits (and costs) of the European policy-echelon. Clearly different from the days before Bologna and Lisbon, the European Union has become a major higher education and research policy-actor, and many higher education institutions and academics have experienced its conditions and effects.

In this paragraph a few crucial trends will be discussed that appear to be related to European-level policy-making. These trends relate particularly to the changing conditions for and behaviour of the European universities. They are presented as fairly general developments in European higher education at large.

A first general trend is the growing importance of the supranational European policy-echelon, both in higher education and in research. The Bologna Ministers Conferences regarding the European Higher Education Areas, and the EU-political summits regarding the (renewed) Lisbon agenda (and the European Research Area as part of that), leave their traces in the various higher education systems of Europe. Not only national politicians, but also academics and higher education administrators keep an eye on the European policy processes. They are aware of the available budgets and of the contexts in which these can be obtained; they look for partnerships in order to be eligible for funding; and they design consortia and networks to implement their co-operation strategies.

Generally speaking, as the 2005 Glasgow Declaration of the European Universities Association (EUA) for instance shows, the European universities accept their role to contribute to the ‘Europe of Knowledge’. They underline that inter-institutional co-operation is increasingly important in a globalised and competitive environment. They are willing to reinforce the European dimension in various ways, e.g. benchmarking curricula, developing joint degrees, enhancing intercultural and multilingual skills. And they urge European politicians to view the Bologna and Lisbon policy agendas together in order for each to be successful in the long term. ‘Universities acknowledge that European integration must be accompanied by strengthened international co-operation based on a community of interests’ (European University Association, 2005a).

The successive studies of the implementation processes of the Bologna agenda also show that there is general acceptance amongst European universities of the need of these reforms and that many universities have made great efforts to ‘internalise’ the reform process. Clearly, moving towards a comprehensive three-cycle system throughout Europe is a complex cultural and social transformation. But it appears that considerable progress is being made
and that a major innovation process of European higher education is currently taking place (Reichert & Tauch, 2005). The European universities broadly support the general ‘Bologna philosophy’ of student-centred learning and consider it vital to move rapidly towards the European Higher Education Area (EUA, 2007).

Also in the context of the European Research Area, the impact of the European (in particular EU) policy-instruments is considerable. With a budget of over 19 billion euros, FP6 has been among of the largest R&D programmes in the world. In 2003 more that 16,000 proposals were submitted for funding, involving nearly 160,000 participants from more that 50 countries. Some 2,600 of these proposals – with 27,000 participants – were selected for funding (European Commission, 2005a). The substantial budget increase of FP7 (54 billion Euros) may be expected to create an even larger impact in the European research field.

The European framework programmes provide a vital opportunity for universities in countries with limited research funding (Geuna, 1999, p.117). However, even in countries where substantial research funds are available, the FPs appear to be increasingly attractive. As was indicated before, the amounts of research funding that are directly awarded by the various national funding entities are still far larger that those allocated through the EU FPs. Yet, for many universities and research institutions, the EU funding for collaborative research projects – comprising teams that can be institutionally situated anywhere within the EU – is a key element in their pursuit of international academic reputation. The European framework programmes have created a competitive research funding context at the European level, triggering and prompting European researchers to try to obtain these prestigious research funds.

A related second trend is regarding the increasing emphasis on the alignment of the European and the various national policies in the domains of higher education and research. Although the EU competence in the higher education policy-domain is limited, the re-emphasis on the European innovation strategy appears to offer a way to try to strengthen the alignment in this field. The Integrated Guidelines of the relaunched Lisbon strategy (2005), the benchmarking of the National Reform Programmes (NRPs) and the 10 point programme of the broad-based innovation strategy (2006) seem to create extra pressure on the Member States to relate their national policy-efforts to the European agenda. In its 2006 communication on the innovation strategy, the Commission argues that the Member States ‘should ensure that there is sufficient availability of key skills to support innovation. Education must move with the times. As already agreed within the Integrated Guidelines for Growth and Jobs, Member States are invited to set, as a matter of priority, ambitious targets in their National Reform Programmes that address weakness in these areas’ (European Commission, 2006c, p. 5). The Commission also makes it clear that it will continue to use the ‘Open Method of Co-ordination’ to facilitate the modernisation and restructuring of the national education systems. It invites the Member States to significantly increase the share of public expenditure for education, to tackle the obstacles in their education systems for innovation, and particularly to implement the Commission’s recommendation regarding the ‘Modernisation Agenda for Universities’.

In the research policy-domain the alignment is addressed in, on the one hand, the benchmarking of the national targets set for research, and on the other the reinforcement of the ERA-NET instrument in FP7. The national targets first of all regard the level of R&D investments which, if they would be met, would raise the level of EU R&D expenditure from 1,9% GDP to 2,6% in 2010. In addition the Member States are invited to explicitly take the transfer of knowledge into account in their national innovation policies, to ‘ earmark’ a large
proportion of the cohesion policy funds for investing in knowledge and innovation, to create an open, single and attractive European labour market for researchers and to target their state aid on market failures preventing research and innovation activities. In the renewed Lisbon strategy the Commission presses for a kind of ‘multilateral surveillance’. ‘The Commission will, when assessing the (national) progress reports on the implementation of the National Reform Programmes, assess carefully Member States’ reforms and policies addressing the innovation system and report on this in its Annual Progress Report’ (European Commission, 2006c, p. 15).

Using the new ERA-NET Plus Module in FP7 the Commission hopes to provide an incentive for joint, transnational research funding. Combining Member States’ and Community funding appears to be a necessity in order to be able to really create the European Research Area. Alignment of national and European funding policies therefore is a major target. Without such an increased alignment the high European ambitions cannot be reached.

A third trend regards the increasing attention for and importance of Doctoral education. The topic ‘Doctoral education’ was addressed at the European level during the Bologna summit in Berlin (2003) and later in Bergen (2005) and London (2007). In Berlin, the education ministers decided that it was ‘necessary to go beyond the present focus on two main cycles of higher education and to include the doctoral level as the third cycle in the Bologna process’. They emphasised the importance of research and research training in enhancing the competitiveness of European higher education and called for increased mobility at the doctoral level and stronger interinstitutional co-operation (Berlin Communiqué, 2003). During the Bergen meeting the ministers urged the European universities ‘to ensure that their doctoral programmes promote interdisciplinary training and the development of transferable skills, thus meeting the needs of the wider employment market’. Also the number of doctoral candidates should be increased to contribute to the needs of the knowledge society (Bergen Communiqué, 2005). At the London meeting, the ministers re-emphasized the need for better career paths for doctoral candidates and young researchers (London Communiqué, 20007).

In 2003 the European Commission also paid attention to Doctoral education. In its communication ‘Researchers in the European Research Area: one profession, multiple careers’, the Commission discussed the recruitment, training and career opportunities of researchers. In particular, it argued that the competencies and skills of doctoral candidates should focus on a wider labour market perspective than purely academic careers.

Doctoral education begins to feature higher on the European research and education agendas. The days of the Humboldtian doctorate as the entrance to an academic career appear to have passed. Doctoral education is assumed to be able to play a major role in creating the highly trained labour force for the knowledge society which is assumed to need knowledge professionals who have the competencies to work in highly complex, knowledge intensive environments. Europe indeed seems to have discovered the full potential of the third cycle in higher education (Bartelse & Huisman, 2007).

Doctoral education is considered to be the major link between the Bologna and the Lisbon agendas, and more specifically between the European Higher Education and Research Areas. Not only has the topic become an official part of the European political agenda in the Bologna process, it also features as a crucial point of attention in the EU innovation strategy. The European Commission presses for an open, single and competitive labour market for researchers with attractive career prospects and incentives for mobility. In the near future
doctoral graduates may be assumed to not only find their careers in academia and government and private sector R&D laboratories but also in general management positions.

As a consequence, Doctoral education appears to enter a phase of further innovation and diversification. On the one hand the European universities have recognised the need to offer doctoral candidates a broader experience than core research disciplinary skills based on individual training by undertaking research. They increasingly introduce courses and modules offering transferable skills training and preparing candidates for career opportunities in sectors beyond academic institutions (European University Association, 2005b). On the other hand, the European universities appear to accept the challenge to diversify their Doctoral training programmes. Relatively new concepts like professional doctorates, industrial doctorates, taught doctorates and practice-based doctorates have made their entry into the European discussions. In the years to come the traditional Humboldtian doctorate may very well be supplemented with a variety of new European doctorates (Scott, 2006).

A fourth trend is clearly the reinforcement of the relationships between universities and European society. The very heart of the European innovation strategy is to create stronger linkages between academia and European society, in order to further develop Europe as an ‘innovation-friendly society’.

According to the European Commission, ‘Europe has to become a truly knowledge-based and innovation-friendly society where innovation is not feared by the public but welcomed, is not hindered but encouraged, and where it is part of the core societal values and understood to work for the benefit of all its citizens’. For education, this implies that talent and creativity should be promoted from an early stage and that key skills that support innovation need to be nurtured. The European universities can contribute to these processes, and can do so ‘more and more efficiently’ than they have done so far. For research, the innovation strategy emphasises the importance of knowledge transfer. ‘The knowledge economy relies on the transfer of knowledge from those who generate it to those who use it and can build on it. The transfer of knowledge between public research organisations and third parties (including industry and civil society organisations) needs to improve… Doing so will help to build new market opportunities on research. Public research organisations… have a particularly important role to play in this. All of the many forms of knowledge transfer – contract research, collaborative and co-operative research, licensing, publications and exchanges of skilled researchers between the public and private sectors – need to be further developed and better managed’ (European Commission, 2006c, p. 3 - 9).

This trend implies a shift in the orientation of both the education and research activities of the European universities. In their educational programmes universities are urged to focus more intensely on entrepreneurial skills and to develop joint training activities with business and industry. In their research programmes universities are prompted not only to address knowledge creation but also knowledge diffusion processes.

As a result, the basic functions of the universities in the European higher education and research systems appear to be changing, in particular their research roles. The general goal of the European Research Area is to bring researchers together to facilitate both knowledge creation and distribution. On the one hand the centres of excellence and networks create ‘critical mass’ and synergies that improve the productivity of knowledge creation. On the other, networking also intends to facilitate both the geographical diffusion of new knowledge and its industrial application.
It may be argued that EU research funding entails a few strategic purposes. Certainly one is to improve Europe’s industry’s international competitiveness by inventing and developing new products and processes, or by forging links between academic and industrial research groups. Another is that of fostering the ‘cohesion of Europe’ by reducing disparities in its regions’ R&D capabilities (David & Keely, 2003, p. 261). Yet another purpose is to use the public investment in R&D to further develop the extensible knowledge infrastructure in order to enable it to continue to produce new knowledge (Geuna et al., 2003, p. 396).

These strategic European funding purposes have their impact on the ways the European universities address their research functions. Due to the financial and in particular the prestige-related aspects of EU-funding, the European universities appear to adapt to the stronger European emphasis on the application of knowledge as a criterion for funding. The policy-goal to increase the application of scientific knowledge in industry and other parts of society has pushed universities to develop, at least partly, a closer and more instrumental role in advancing Europe’s economic competitiveness. The European universities are increasingly held responsible for generating not only intellectual but also economic and social capital. As Martin argues, the social contract between (European) society and the universities has changed: ‘there are now much more explicit and direct expectations that, in return for public funding, universities and researchers should endeavour to deliver greater and more direct benefits to society’ (Martin, 2003, p. 25).

A fifth trend could be described as ‘the rise of European social networking’ in the higher education and research policy-domains. Increasingly, collaborative networks have become the major ‘instruments for collective action’ (Foray, 2003, p. 372). In the Erasmus programmes networking has become the dominant strategy for many European universities to promote mobility and language proficiency (Teichler, 1998, p. 91). In the Framework Programmes, networks (of various kinds) have proven to be the main mechanisms of exchange between researchers, and between research and industry.

However, it should be observed that in particular in the EU research and innovation policies, there appears to be a strong emphasis on establishing university-industry linkages. Geune et al. argue that this European approach to social networking for research and innovation differs from the US approach. ‘In the case of the US, it was the combination of high industrial demand for research and the relative high quality of the US science system’s output that helped to generate the new networks bridging science and innovation. It was demand that created the new networks, rather than the networks that created the demand. In the case of Europe, policy has often created networks that are in search of demand’ (Geune et al., 2003, p. 399). The EU research policy intends to create and formalise social networks that promise to develop and implement research and innovation agendas but that have, at the time of their application for funding, often hardly begun to do so. The social networking processes in the European research policy-domain are triggered and stimulated by the instruments that are being applied, in particular, in the Framework Programmes. The basic assumption apparently is that the social relationships between academia and industry are limited and thus have to be increased. For this reason the European social networking strategy focuses on the generation of new networks, rather than on the recognition of existing research networks. In this sense, the EU social networking strategy also is a top-down, rather than a bottom-up process. The exceptions are the Technology Platforms. These are largely initiated and led by industry and are clearly demand-driven. The recent recognition of these platforms as crucial instruments for strategic knowledge creation and application agenda setting indicate that the EU social networking approach is slowly changing.
It may be concluded that the social networking approach has become a increasingly dominant mechanism in European higher education and research policy. Over the years the FPs have grown substantially. The financial support for the various research networks has become a major (and increasingly prestigious) factor in the European research efforts (Geuna, 1999, p. 117). Similarly the networking activities in the context of the Erasmus programmes have increased substantially over the years.

The final trend regards the changing European general governance model in higher education and research. Generally speaking, for decades now the trend in European higher education and research systems has been from ‘state control’ to ‘self-regulation’ and accountability (Van Vught, 1989). The autonomy of universities has increased in Europe over the last 25 years, and detailed governmental planning strategies have lost ground to supervision and accountability strategies. The move to accountability has brought about the recognition of stakeholders’ needs and interests, and hence the acceptance by universities of their ‘social embeddedness’ and their relationships with and dependencies on various political and economic organisations.

On the European scene this trend towards a new ‘diversified’ governance model is recognisable in the increasingly instrumental role that universities are assumed to play in the European knowledge society (Geuna et al., 2003, pp. 393-401). Instead of their traditional academic role, the European universities are increasingly being challenged to focus on their new roles of advancing the competitiveness of Europe and contributing to a European culture of innovation.

Both the Bologna process and the EU universities modernisation agenda provide clear indications of this changing role. At the Prague, Berlin, Bergen and London conferences of the Bologna process emphasis was put on the need to develop a European quality assurance system and an overall qualifications framework. The modernisation agenda suggests that with respect to their universities the Member States should move from a control to an accountability strategy and that universities should be enabled to contribute to the overall innovation strategy of Europe.

In the research domain universities are being prompted to intensify their relationships with industry. Based on the belief that Europe is afflicted by an ‘interaction deficit’ in its innovation system, universities are encouraged to develop and participate in collaborative networks with industry in order to jointly create better conditions for the overall European innovation strategy.

The result is the emergence of a new, multi-stakeholder governance model in European higher education, with multiple funding sources, a stronger focus on accountability and pressure to deliver innovation-relevant outcomes. The governance systems of the European universities appear to have changed during the last decades, mainly as a result of the social and economic expectations regarding their processes and outputs.

### 6.2 European higher education and research policy effects

What are the effects of European (and in particular EU) higher education and research policy-making? Which effects are observable? Which were intended? Which were unintended? In this paragraph a number of results and effects will be discussed. In addition some conceptual frameworks will be offered to interpret some of these effects.
Let us first look at the results of the EU policies. These are monitored by the various assessment and benchmarking instruments that the Commission has developed since the introduction of the Lisbon strategy and currently offer a rather comprehensive statistical overview of the performances of both the Member States and the EU.

The European Innovation Scoreboard is the main statistical tool for monitoring innovation performance. The Scoreboard was developed after the Lisbon European Council in 2000 and has been published since 2001. It shows the progress of the individual EU Member States regarding the Lisbon ambitions and compares and ranks them on a number of indicators.

In the sixth edition of the Scoreboard (2006) innovation performance is measured by combining a set of 25 indicators, organised in five broad categories:

- Innovation drivers (input), like ‘population with tertiary education per 100 population aged 25-64’ and ‘broadband penetration rate’;
- Knowledge creation (input), for instance: ‘public and private R&D expenditures’;
- Innovation and entrepreneurship (input), for instance: ‘innovation expenditures’ and ‘early-stage venture capital’;
- Applications (output), like employment in high-tech services and exports of high tech products is share of total products;
- Intellectual property (output), for instance: ‘EPO (European Patent Office) patents per million population’ and ‘triadic patent families (filed in the EU, Japan and the US) per million population’.

A summary Innovation Index (SII) and an average growth rate of this index allow an assessment of the relative strengths and weaknesses of the innovations performance of the Member States and a comparison of the EU performance with those of the USA and Japan. The comparisons show four groups of countries:

- Innovation leaders;
- Innovation followers
- Catching-up countries
- Trailing countries

The 2006 Scoreboard edition shows that some Scandinavian countries (Finland, Denmark) and Germany (and non-EU member Switzerland) are the innovation leaders. Most of the other ‘old’ Member States appear to be followers. The ‘new’ members and the southern European countries are either catching up or trailing. At the same time there appears to be a ‘process of convergence’ in innovation performance in Europe. The catching-up countries are closing the gap and both the innovation leaders and followers are experiencing a relative decline in their innovation lead over the whole group.

The US and Japan are still performing better in innovation than the EU, but the gap, particularly with the US, is decreasing. Compared to the US, the EU has improved its performance in (a.o) number of Science and Engineering graduates (13% of population aged 20-29; US 10%) and employment in medium/high and high-tech goods industries (7% of total workforce, compared to 4% in US). On the other hand, the EU is lagging behind the US and Japan in (a.o.) business expenditure for R&D (1.2% GDP in EU; 1.9% in US and 2.4% in Japan), ICT-expenditure (6.4% in EU; 6.7% in US and 7.6% in Japan) and tertiary education
attainment level (23% of the population in EU; 38% in US and 37% in Japan) (Innovation Scoreboard 2006).

The results regarding the EU innovation policy are getting better, but are still limited. The performance of the Member States show a large variety, with some better and some less good performers. On average the European innovation results are still disappointing. There appears to be good reason to quickly implement the new broad-based EU innovation strategy.

With respect to education and training, the Commission publishes its so-called Progress reports. The first report was adopted by the Commission in 2004 and analysed the progress towards the Lisbon objectives in the field of education and training of 30 European countries (including the then 15 EU countries). The second report, adopted by the Commission in 2005, delivered a number of strong political messages to the European Spring Council of 2006 (when this Council reviewed for the first time the revised Lisbon strategy). These included:

- reforms are moving forward but more substantial efforts are required;
- education and training must be viewed as a priority for investments.

The 2006 Progress report offers (amongst other things) a mixed picture of the results in the policy-domain of higher education. For instance, on one hand it appears that the EU is on (and even ahead of) schedule regarding the objective to have 1 million students graduating in mathematics, science and technology every year by 2010 (compared to 755,000 in 2003). On the other hand the EU still suffers from under-investment in higher education. In 2002 public spending on tertiary education in the EU amounted to 1.14% GDP, compared to 1.40% in the US. A considerable larger gap exists in private spending on higher education: 0.2% in the EU and 1.42% in the US. To match the US level of public plus private expenditure, the EU would have to spend an additional 140 billion euros per year.

Generally speaking, also in higher education the policy results in the EU-context are limited. Access to higher education is not improving sufficiently. Although there have been increases, further progress regarding the participation in tertiary education is still needed. Also, most EU students are still not taught two languages (an objective formulated during the 2002 European Council) and the mobility of students within the Erasmus programme would have to more than double to reach the target of affecting 10% of the student population (European Commission, 2006e).

The results thus far in the – geographically broader – Bologna process show that the European universities are going through a remarkable process of change. In less than a decade the universities are engaged in processes to adapt their curricula and degree systems, to implement quality assurance systems, to develop their governance models and to professionalise their management. The European universities have taken responsibility for the emerging European Higher Education Area, and support the underlying ideas of student-centred and problem-based learning (EUA, 2007). Nevertheless, whether these changes will also definitely create the European Higher Education Area still remains to be seen. Much will depend on the ways in which the highly cherished diversity of the European higher education systems can be combined with increased cooperation, harmonisation and transparency on the European scale (Floud, 2006).

The results in the policy-domain of research and technological development are presented in the independent Five-Year Assessments of the Research Framework Programmes. The third
and most recent assessment reviews the implementation and achievements of the FPs over the period 1999-2003 (FP5 and – partly – FP6).

The review shows that on the one hand the FPs have played an important role in developing the European knowledge base. ‘The strength of emphasis on information and communication technologies and on life sciences has, for example, been instrumental in strengthening European capabilities. There has been strong interest from industry, universities, and other research institutes. The Framework Programmes have played an important part in the generation and diffusion of new knowledge and the formation and reinforcement of inter-organisational networks’. But on the other hand the achievements of the programmes in terms of direct contribution to innovations with the potential to dominate global markets are still limited (Assessment FPs, 2004, P. II).

Regarding FP6 the assessment refers to the review by the Marimon Panel (a panel of high-level experts, chaired by prof. R. Marimon) which praised the new instruments of FP6 (the Networks of Excellence and the Integrated Projects) for their ambition and their emphasis on trans-national collaborative research, but which also pointed at the relatively high costs and risks of participation in these instruments for industry partners, notably SMEs, and the need for more flexibility and simplification (Marimon, 2004).

The working document accompanying the 2007 Green Paper on the European Research Area provides an evaluation of the progress regarding the ERA so far. It mentions the following issues:

- The ERA-NET instrument has made a start in addressing the inefficiency and the fragmentation of the European research system. However, the volume involved is still marginal and the national and regional programme ‘owners’ are still reluctant to further develop genuine joint research programmes.
- Good progress has been made regarding research infrastructures. A first milestone was the adoption on the European Strategy Forum for Research Infrastructures (ESFRI) Roadmap. However, for the implementation of the Roadmap new legal, institutional and financial tools need to be developed.
- In the area of international research cooperation the EU has demonstrated that it is able to show leadership to address global challenges. The International Thermonuclear Experimental Reactor (ITER) is a showcase. However, these initiatives are far from systematic and often poorly coordinated with those of the Member States.
- Although there is some success in better exploiting human resources, Europe still lacks an open, competitive and attractive market for researchers. Some researchers are still leaving the EU, while others cannot enter research careers in Europe.
- Private investment in research is still far too limited. Europe’s business funded research intensity has not increased since 2000 and the gap between the EU and the US has not been reduced.
- The research policies of the Member States have certainly evolved, but the question is whether the pace of national policy reform is sufficient.
- Some convergence in national policy making is materialising, largely through the communicative instruments of the Commission.
- Although transnational cooperation is an element of Member State research policy, there is little evidence that national policy makers have taken ownership of the ERA concept (European Commission, 2007b, pp. 8, 9).
The conclusion is that, also in this field, some results are visible, but that the innovation policy objectives certainly have not been reached. The policy-instruments (in particular the FPs) can be further developed (as has been done in FP7) and the relationships between research policy and innovation policy can be further intensified. The progress on the ERA is limited and there is still much to do. The various actors in the research policy system still face a series of challenges (European Commission, 2007b, pp. 9, 10).

In addition, it appears that so far the rate of growth of the EU’s investments in R&D (0.7% per year between 2000 and 2003) is far from sufficient to reach the 3% GDP target in 2010. The Commission has argued that if this trend remains unchanged the result will only be a 2.2% R&D intensity in 2010 (European Commission, 2005e, p. 9).

However, there is also reason for optimism. In its annual policy strategy for 2008 the Commission argues that the Lisbon strategy is beginning to yield results and has contributed to the economic performance of the EU. The challenge now is to capitalise on the current upturn in order to press ahead with further reforms (European Commission, 2007e, p.5). A 2007 review of progress in the Lisbon Strategy also shows that finally, in the 7th year of the Lisbon agenda, some of the objectives seem within reach. In an analysis of the ‘original’ E15 countries, Europe is reported to perform better economically than in any year since 2000. Economic growth in the E15 reached a level of 2.8% in 2006, and this growth appears to be more stable than before (Lisbon Council, 2007). Realising the Lisbon ambitions for the expanded EU of 27 Member States of course remains a major challenge.

Another recent economic analysis criticizes the weak European progress in R&D, particularly the cost of patenting (still five times higher in Europe than in the US) and the failure to reverse the ‘brain drain’ from the EU to the US (LSE, 2006). In this context, the recent EU initiative to introduce a European ‘blue card’ for talented knowledge workers, comparable to the US ‘green card’ can be mentioned. It may be expected that this initiative will have a positive influence on the reported ‘brain drain’.

A third study, based on an analysis of the implementation report of the National Reform Programmes, concludes that the re-launched Lisbon strategy is more successful than Lisbon I. Although the economic improvement of the EU cannot be completely assigned to the Lisbon achievements so far, real advances appear to have been made and a coherent and effective strategy is developing (Begg, 2007).

Looking at the effects at a somewhat more general level, a further set of both intended and unintended effects of European policy-making in these domains can be distinguished. Let us focus on a few.

An observable and clearly intended effect is the reinforcement of the knowledge diffusion capacity of the EU. A primary aspect of this in the higher education policy-domain is the increasing mobility of students. The 2004 decision of the European Parliament and of the Council on a single framework for the transparency of qualifications and competences (Europass) can be mentioned here, as well as the development of the credit transfer systems for academic and vocational education and training. Although the Erasmus mobility programme has not yet reached its target of affecting 10% of the European student population between 1987/88 and 2004/5, more than 1,3 million students studied abroad under the aegis of this programme and 87% of all European universities participated (Progress Report Education and Training, 2006). Generally speaking the harmonisation activities in the Bologna process are creating a comprehensive system of easily readable and comparable...
degrees, with the potential to further integrate the various national higher education systems. As an effect, through the growing mobility of students the knowledge sharing and diffusion capacity of the EU is increasing.

In the research and technology policy-domain particularly the networking efforts in the Framework Programmes have substantially increased Europe’s knowledge diffusion capacity. The formation and strengthening of collaborative networks have had a major influence on the European R&D landscape. The Networks of Excellence and the Integrated Projects of FP6 have brought together large groups of researchers and specialists from academia and industry. In particular the Technology Platforms (although not an instrument of the FPs) have developed important strategic technology agendas with a strong knowledge sharing and diffusion capacity. These platforms unite all relevant stakeholders, with industry taking the lead role. They have built bridges between industry, the academic community, the financial world, regulators and consumers. FP7 intends to capitalise on these platforms, assisting them to translate their ‘Strategic Research Agendas’ into concrete actions. The Cooperation Programme of FP7 provides the means, via the Joint Technology Initiatives scheme, to implement the agendas that have a European dimension as well as a strong industrial relevance. The Structural Funds, the European Investment Bank and the new Risk-Sharing Finance Facility in FP7 provide further financing options. It may be expected that, with the reinforcement of the research networking instruments and the increased emphasis on knowledge transfer, the European knowledge diffusion capacity will continue to grow.

Regarding the process of knowledge transfer a recent (rough) comparison between the EU and the US shows the European public research institutions lag behind their US counterparts regarding invention disclosures as well as patents applications and grants, but perform better regarding licenses granted and start-ups established (European Commission, 2007b, p.68). Apparently, despite less effort, the EU is relatively successful in the actual use of public R&D results by the business sector, which again shows that the European knowledge diffusion capacity has been reinforced.

In addition to the general intended effect of an increased EU knowledge diffusion capacity, there appears to be some empirical evidence for a general unintended effect. This unintended effect occurs as the combined result of two processes and can be described as a ‘stratification effect’ in the overall higher education system of Europe. The two processes that appear to create this stratification effect are the changing participation processes of the European universities in the FP programmes and the occurrence of a counter productive consequence of the reinforcement policy regarding the interaction between universities and industry.

Regarding the first process, it has been pointed out that in particular larger and older universities have a higher participation rate in the networks of the Framework Programmes than other universities. In addition, there appears to be (in the FPs) an increased homogenisation of research institutions. The variety of participating institutions decreases over time. In addition past success appears to be an important indicator for future participation (Geuna, 1999; David & Keeley, 2003). What appears to be happening is the occurrence of the well-known Matthew Effect: ‘research groups that are successful in finding external funding for their research have a higher priority of producing publishable research, which improves their probability of getting funds in the future’ (Geuna, 1999, p. 117). Universities with successful research groups (in terms of receiving EU funding) appear to have a higher probability to also secure future funding because their earlier successes are seen as an indication of their high quality performance.
The effect is a slowly increasing stratification between universities that are more and those that are less successful in receiving FP-funding. Given the fact that the variety of institutions appears to be decreasing and that larger and older universities are on average more successful in getting EU-funding, the EU research funding policy appears to be contributing to the creation of a European category of ‘research universities’ that are distinguishable from other higher education institutions.

The other process is the occurrence of a counterproductive effect of the push in EU research policy towards closer links between universities and industry. Geuna (1999) argues that this counterproductive effect particularly occurs in universities with a relatively weak financial situation. ‘Constrained to accept industrial funds for developing routine contract research, and faced with the impossibility of charging the real cost of the research, their collaboration with industry results not in a contribution to the wealth of society, but in an exploitation for private profit of a public investment’ (Geuna, 1999, p. 173).

Again, the effect of the further weakening of already financially vulnerable universities appears to be a stratification increase in the overall European higher education system. While universities that are successful in getting EU-funds appear to increase their potential for success in acquiring future funds (and thus in principle reinforce their financial situation), financially weaker universities that increase their links with industry, run the risk of further weakening their financial situation. The outcome of this increasing differentiation between financially stronger and weaker universities is a growing diversity in terms of reputation. Like any other higher education systems around the world, the European universities are also engaged in a ‘reputation race’ (Van Vught, 2006). Universities are first and foremost driven by their wish to maximize their academic prestige and to uphold their reputation. In this race universities are constantly trying to create the highest possible reputation for themselves, and in order to achieve this, they need all the financial resources they can find. A weakening of its financial position has a negative effect on the reputation building capacity of a university, which will have stratification consequences at the overall systems level.

The EU research policy appears to influence the ‘reputation race’ of the European universities. Through the FP-funding instrument and the push to intensify the relationships with industry, the EU research policy is changing the positions that the various universities have in this race, creating financial and stratification effects that may not have been intended.

These unintended stratification effects may have unexpected positive results in the future. The average quality of the current European higher education and research system is good, but its excellency is limited. The number of world-class top-level universities is small. A diversification of the European system higher education may actually help in creating a larger and broader set of top European universities. A diversification of missions, and of research portfolios and funding levels, would be necessary to allow the occurrence of more European top universities. The unintended stratification effects of the European policies could be the start of such a diversification process.
7 Conclusion

During the first years of the 21st century the higher education and research policy-domains moved to the heart of EU policy-making. Since the March 2000 Lisbon European Council meeting and particularly since the re-launch of Lisbon strategy in 2005, the two policy-domains have become integrated in an overall and comprehensive European innovation strategy. In this strategy, knowledge is singled out as Europe’s most important resource. Knowledge is to be the driving force of the European lifelong learning society; it is the basis for Europe’s future economic, social and environmental development; it is the fundamental resource for the innovation of products and services. Universities are Europe’s most crucial knowledge institutions. The European universities have become the cornerstones of the European innovation policy.

The history of European higher education and research policy shows that the European universities have moved to the heart of EU policy-making. Universities have become one of the most important categories of policy addressees for the EU institutions. They are increasingly being addressed as crucial actors for the provision and exploitation of knowledge, and hence for the realisation of the European innovation strategy.

In the policy-domain of higher education, the recent EU Lifelong Learning Programme (2007-2013) intends to contribute to the European knowledge society by fostering co-operation between the various national education systems. In its higher education sub-programme (Erasmus) it seeks to reinforce the contribution of higher education to the overall European innovation strategy by supporting the realisation of the European higher education area. In the context of the Bologna-process, the EU intends to create a ‘consistent, compatible and competitive’ European higher education system fitting into the broader Lisbon strategy. It emphasises the importance of the three cycle structure, of a European qualification framework and of Doctoral education. In addition, it underlines that universities have a crucial place and role in the European knowledge society and should modernise themselves in order to become globally competitive institutions.

In the policy-domain of research and technology, the EU policy-intentions are to encourage researchers to work together at the European level and to stimulate co-operation between universities and business and industry. The EU seeks to increase the investments in R&D (to 3% GDP) and to create stronger co-ordination of national research policies. Research is seen as the core factor in the EU’s ambition to create growth and employment. Particularly the seventh Framework Programme is offered as a major instrument to fully develop the European research area, and by doing so, to respond to the competitiveness and employment challenges of the European Union. Also in this policy-domain, the European universities are seen as major knowledge institutions, the positions and roles of which need to be reinforced in order to better enable them to contribute to the renewed Lisbon agenda.

The analysis of the historical development of the two policy-domains of higher education and research leads to the conclusion that since the turn of the century the EU has indeed developed a university policy, covering their various activities: their delivery of education, their research activities, and their potential as innovation drivers. In this policy the European higher education and research areas (EHEA and ERA) have become integrated and a
coherent set of policy objectives and instruments involving various policy actors has been designed and implemented.

The EU university policy is being developed and implemented in a multi-echelon policy system in which several decision-making levels, each with their own authorities and competences, exist and are interrelated. The European universities are addressed both directly and indirectly by European policy-initiatives. Indirectly, by the co-ordination of the policy-actions of their own Nation States that are increasingly aligned with the overall European ambitions and strategies. Directly, by EU-initiatives in both the research and the higher education policy-fields (for instance: FP7, European Research Council, Erasmus Mundus, European qualifications framework).

In this multi-echelon policy system the EU policy-actors make use of a whole array of policy-instruments: legal instruments, financial instruments, and information and communication instruments. In particular this last category of policy-instruments has allowed an increase of the policy-capacity at the EU-level. The European Commission is increasingly using the ‘soft’ Open Method of Co-ordination instrument (benchmarking, naming and shaming) to create stronger Member State involvement in EU policy processes.

The European policy-making processes appear to have contributed to a number of trends that may be expected to continue to be relevant for the future dynamics of the European higher education system. Generally speaking, these trends can be described as:

- the growing importance of the supranational European policy-echelon;
- the increasing alignment of European and national policies;
- the increasing attention for and importance of Doctoral education;
- the reinforcement of the relationships between universities and European society;
- the rise of European social networking in higher education and research;
- the changing higher education and research governance model.

These general trends once more underline the emergence of an EU policy-context in the domains of higher education and research. Although the European Union is not a federal government, they show that a European-level EU university policy has developed and is creating its effects. In this sense a supranational European university policy indeed appears to have ‘gradually and rather smoothly’ developed (Huisman & Van der Wende, 2004, p.355; De Wit, 2003). In the increasing integrated policy-domains of higher education and research, the EU Member States have accepted the supranational policy echelon and even have started to develop, coordinate and implement national policies that fit the European general policy-agenda.

The effects of EU university policy-making are hard to assess, given the fact that this policy is still rather young. The results of the EU innovation policy on average appear to be disappointing. The policy results in both the higher education and the research policy-domains are so far still limited. However, there also is some reason for optimism, given the fact that the European economic growth has increased and that some of the Lisbon objectives seem within reach. Furthermore, the knowledge diffusion capacity of the EU has clearly been reinforced and it may be expected that this capacity will continue to grow, contributing to the further development of the European knowledge society.

A visible and unintended effect appears to be an increasing stratification process in European higher education. As a combined result of the European universities’ participation in the Framework Programmes and of the reinforcement policy regarding the interaction between
universities and industry, a reputation differentiation process appears to be created, which will have its impact on the dynamics of the overall European higher education system and which may well in the future lead to a growing diversification of this system.

Finally, the question can be raised as to whether the newly developed EU university policy addresses the European universities in their historical roles of important institutions and symbols of European values. Here the answer should be negative. The EU university policy is first and foremost an innovation policy. It addresses the European universities as central actors in the overall EU innovation strategy. As such, the EU policy is a larger-scale reproduction of the university policies by many European (and other) Nation States. Like in these national policies, in the EU university policy emphasis is put on the instrumental and utilitarian functions of the university in present-day society. Universities are assumed to be able to better contribute to the further development of the knowledge society by increasing and professionalising their provision of human capital and their production and transfer of knowledge. At the EU-level, the processes of stimulation, co-ordination and harmonisation of the Member States’ policies for higher education and research create, as we have seen, their own dynamics and effects. However, the main focus of the EU university policy remains on the roles the European universities can play as the major providers of knowledge and knowledge-workers for the future of Europe.

Nevertheless, the EU university policy may well lead to a new phase of ‘Europeanness’ of the European universities. The fact that they are increasingly being challenged to contribute to the European (rather than only the national) knowledge society, may urge the European universities to once again reflect upon their historical roles of truly European institutions. As history shows, these roles have been broader than those of only the creation and transfer of knowledge. They also contain the crucial cultural dimensions of which through the centuries the European universities have been major symbols. The European universities are challenged by the EU university policy to act as European institutions. However, these challenges are limited to only a part of their broader European roles. It is now up to the European universities themselves to further develop their historical roles as one of the most important institutions, guarding and carrying ‘the idea of Europe’ into the future.
References


Begg, I., 2007, Lisbon II, Two Years On: an Assessment of the Partnership for Growth and Jobs, Centre for European Studies, Brussels.


European Council, 2000, *European Council Presidency Conclusions, Nr. 100/1/00, Lisbon European Council*.


