



The Impact of the Bologna Process on Disciplinization

Comparative Report

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Table of contents

1. General introduction to the Bologna process	3
2. Agents involved in the Bologna implementation process	5
3. The process of implementation	10
4. Changes in the structure of the higher education system and their impact on educational disciplinization.....	15
5. Opportunities for interdisciplinarity created by the Bologna process.....	23
6. Social and ideological issues in the creation of the European Higher Education Area (EHEA): employment, knowledge and interdisciplinarity.....	29
References.....	37

1. General introduction to the Bologna process

The so-called Bologna process owes its name to the *Bologna Declaration on the European Higher Education Area* signed in 1999 (19 June) in this Italian city. This Declaration is only one of the many initiatives that have been developed, before and after 1999, in order to create a European Higher Education Area by 2010. The main premises of the Bologna process were already established in the *Joint Declaration on the Harmonisation of the Architecture of the European Higher Education System of Paris-La Sorbonne* (25 May 1998), signed by four countries: France, Germany, Italy and the UK. The three principles underlying this declaration were:

- To facilitate the mobility of teachers and students in the European Area as well as the integration of students in the European labour market.
- To improve the international recognition of qualifications through a gradual convergence towards a common framework of qualifications and cycles of study.
- To promote lifelong learning.

It is possible to trace the will of establishing the European HE Area as far back as 1988, to the *Magna Charta Universitatum* of Bologna, signed by the Rectors of the European Universities that gathered in that city for the ninth centenary of the oldest University in Europe. The fundamental principles of this document were:

- The university is an autonomous institution and must be intellectually independent of all political authority and economic power.
- Teaching and research in universities must be inseparable.
- Freedom in research and training is the fundamental principle of university life.
- A university is the trustee of the European humanist tradition and its constant care is to attain universal knowledge.

The *Magna Charta Universitatum* already includes reference to issues such as the mobility of teachers and students and the need for a general policy of equivalent status, titles and examinations.

The *Bologna Declaration* of 1999 on the European Higher Education Area (EHEA) rested on the principles of these two previous declarations, but had a broader scope since there were now 29 signatories and it included institutions such as the European Commission, the Council of Europe and associations of universities, rectors and students. This marked the solid commitment of the organizations with decision-making power in HE and of all agents that constitute the HE community towards the establishment of the EHEA. The *Bologna Declaration* was articulated around six main principles:

- The adoption of a system of easily readable and comparable degrees.
- The adoption of a system with two main cycles (undergraduate/graduate).
- The establishment of a system of credits (such as ECTS).

- The promotion of mobility by overcoming obstacles.
- The promotion of European co-operation in quality assurance.
- The promotion of European dimensions in higher education.

The implementation of this process needed continuous supervision, as it would mean major changes in the HE systems of most signatory countries. Thus, every two years since 1999 there has been a follow-up meeting of the countries involved in the process. In May 2001 a conference was held in Prague, now with 33 signatory states, to evaluate the achievements of the previous 2-year period and to define the new goals. The Prague conference gave importance to three particular points:

- Lifelong learning.
- The involvement of HE institutions and students as active partners.
- The need to enhance the attractiveness of the EHEA.

Ministers met again in Berlin in September 2003. They defined three intermediate priorities for the next two years which were specified in the *Berlin Communiqué*.

- Quality assurance: by 2005 national quality assurance systems should include a definition of the responsibilities of the bodies and institutions involved, evaluation of programmes or institutions, including internal assessment, external review, participation of students and the publication of results, and a system of accreditation, certification or comparable procedures, international participation, co-operation and networking.
- The two-cycle system: the development of an overarching framework of qualifications for the EHEA, within which degrees should have different defined outcomes. First and second cycle degrees should have different orientations and various profiles in order to accommodate a diversity of individual, academic and labour market needs.
- Recognition of degrees and periods of studies: the importance of the *Lisbon Recognition Convention on the Recognition of Qualifications Concerning Higher Education in the European Region* (1997), which should be ratified by all countries participating in the Bologna Process, was underlined. Every student graduating as from 2005 should receive the Diploma Supplement automatically and free of charge.

The *Berlin Communiqué* introduced an important innovation in the process: the third cycle. It was considered necessary to go beyond the present focus on two main cycles of higher education to include the doctoral level as the third cycle in the Bologna process and to promote closer links between the European Higher Education Area (EHEA) and the European Research Area (ERA). This added a tenth action line to the Bologna process: Doctoral studies and the synergy between EHEA and ERA.

The next meeting will take place in Bergen, Norway, on 19-20 of May 2005. National Reports have been prepared for this meeting and are available on the official website <http://www.bologna-bergen2005.no>. The information they provide has been used in this report.

2. Agents involved in the Bologna implementation process.

The Bologna process is generally being implemented by means of a top-down approach which seems to follow from its origins in a Declaration signed at European level by higher education authorities from the national governments. The decisions are thus being taken by agents which hold power in the higher education system, and it is not surprising that the main agency are the governments themselves, through the appropriate bodies and the HE institutions. In Finland, Spain, Sweden and Hungary the institution in charge is the Ministry of Education, usually working with other related national bodies (see point 3 for further information); in the UK it is the Department for Education and Skills, in France the Ministry of Youth, National Education and Research, in Norway the Ministry of Education and Research through the recently created NOKUT, and in Germany, given the federal structure of the country, it is the Standing Conference of Ministers of Culture. This list represents the highest responsible agents in each national government at country level.

Before describing the official bodies and the national HE institutions involved in this process, it may be worth recalling the relative official exclusion of one of its agents: the students. In the *Bologna Declaration* itself, they are listed as an important group in the creation of a common EHEA, and students from all participating countries took part in the meeting of 18 June 1999 in which the Declaration was prepared and which provided “very useful suggestions on the initiatives to be taken” (*Bologna Declaration* 1999: 2). Students, however, were mostly regarded as a consultation group rather than one directly involved in the process through decision-making; evidently, a top-down approach leaves little space for grassroots movements. The National Report on Hungary in this project (Jakab et al 2005: 56), refers to the Student Self-Governance (*Hallgatói Önkormányzat*) claiming more decision power for students in the implementation process, presumably because they were disregarded. This is further reinforced in the *Student Göteborg Declaration* of 2001, resulting from a meeting held by the National Unions of Students in Europe in March 2001 (22-25), before the Prague Meeting of the HE Ministers. There European students affirmed their support and implication in the building of a European HE Area, but also expressed their concern regarding the lack of a social dimension in the Bologna Declaration and the introduction of the economic perspective into HE, in which students are considered “clients”: “Students are part of the HE community. In this respect, students must be seen as partners, not as clients” (*Student Göteborg Declaration* 2001: 1). As stated in this declaration, students in a number of countries protested against the Bologna Process, in which they feel they should be agents. French students have been amongst those actively opposed: “after long and often heated discussions between the Ministry and the academic and student communities, the declarations [Sorbonne and Bologna] were finally adopted” (Le Feuvre and Metso 2005a: 53). Student agency has been recognised by inclusion in later documents, and explicit references to their role appear in the *Prague Communiqué* (2001) and in the *Berlin Communiqué* (2003). The recent *National Reports* prepared for the Bergen meeting in May 2005 include a specific section on student participation in the process, and another on the social dimension of the EHEA.

A perceptive remark in the *Student Göteborg Declaration* introduces a crucial issue for many aspects of the implementation of the EHEA measures: “the Bologna process is not so much a European process. It’s a national process in which the main actors are the government and the HE community consisting of HE institutions and students” (*Student Göteborg Declaration 2001: 1*). Indeed, although promoted from a European level, the process is being carried out mainly in national terms. This report will evidence national differences in the implementation, as well as the lack of a unified European dimension.

One of the crucial differences across the European countries is the relationship between the main agents involved in the decision-making process, the Government and the HE institutions. This varies widely in Europe (see report by Le Feuvre and Metso *The Relationship between State and Education 2005b*), and affects the Bologna process directly, as what emerges, in a general sense, is a power struggle between the state and the universities. The fundamental issue of the autonomy of the universities was a site for struggle before the Bologna Process, but the implementation of the latter has opened up new terrain for debate. Table 1 gives a broad idea of the different degrees of autonomy of HE institutions:

Table 1. The impact of the Bologna process on the autonomy of HE institutions in eight European countries

Country	Before Bologna		After Bologna		
	more autonomy	less autonomy	increasing autonomy	decreasing autonomy	no changes
UK	X				X
Sweden	X				X
Germany	X			X	
Hungary	X			X	
France		X	X		
Finland	X				X
Spain		X			X
Norway		X			X

Source: information in National Reports (Research Integration)

As shown in Table 1, the starting point in the various European countries differs, and in some countries university autonomy is being affected by the Bologna process. British HE institutions are the most autonomous in decision-making, in terms of both course content and university management, although they are broadly regulated by government education acts. Swedish universities follow, since, after the HE Reform in 1993, they gained more autonomy for curriculum planning; the government, however, takes part in decision-making regarding the management of Swedish universities through the board of each institution, by electing the chairperson. In Finland, universities have gained more autonomy during the last decade, and decision-making has been transferred to a large extent from the Ministry of Education to the universities themselves. Although this increase in autonomy is not a direct consequence of the introduction of the Bologna process, there are no reasons to think that this tendency will change.

At the other end of the autonomy scale are Spain and Norway. In both countries, the relationship between the state and higher education is very close and

university management is strictly regulated by the state (in Spain also by the regional governments or *Comunidades autónomas*, in aspects such as degree offer and direct funding). However, while the Spanish government, through the University Coordination Council, controls the undergraduate degree catalogue and provides detailed guidelines on course content (and will continue to do so after the Bologna process has been implemented), Norwegian universities are free to decide the content of their curricula. On the other hand, accreditation and evaluation procedures contribute to exercise state control. Interestingly, however, in another country with a close relationship between state and education, France, the Bologna process is helping to increase autonomy for universities. The French HE system had, until very recently, a particular structure based on “faculties” and “France is only just beginning to move towards the creation of universities, as opposed to discipline-based ‘faculties’, and ... this move is directly related to changes in the relationship between the state and the national academic community” (Le Feuvre and Metso 2005a: 5). This new university system, however, is still closely controlled by the state through the creation of nationally centralised institutions such as the “*Conseil National des Universités – CNU*”. But universities are slowly gaining more autonomy, on the one hand, through the contractualisation process (“a public policy elaboration process, whereby the state enters into a contractual relationship with public sector institutions”, Le Feuvre and Metso 2005a: 8) and, on the other, through the implementation of the Bologna process. The decision-making process regarding disciplines is about to change, since the legal texts are considered only as ‘guidelines’, offering universities more freedom in course content.

Conversely, the Bologna process is leading towards a decrease in the autonomy of HE institutions in Germany and Hungary. German universities have so far been under the regulations provided by each federal state and within the broad framework of the Framework Act of HE (the HRG – *Hochschulrahmengesetz*) of 1976. Since the 1960s and 1970s, the government has had an increasing influence on universities. In 1998 an amendment to the Framework Act was introduced with the aim of giving universities more autonomy, but other control systems such as accreditation and evaluation have been created (see Krebs et al 2005: 9-11 for more information). The control of the state is gaining strength with the Bologna process. With the new degree structure of undergraduate and postgraduate levels, the many different degree regulations that existed before, due to the federal system, will now be harmonized more fixedly. The top-down implementation of the Bologna process is leading to more centralised control by the state. In a similar way, the Bologna process represents a backward step in Hungary for the autonomy of universities. Decentralisation has been in process since the early 1990s, with HE institutions gaining more autonomy in their internal organisational structure (though, as in the German case, the introduction of quality assurance opened up some space for indirect state control). But with the Bologna process, the state is aiming at the centralisation of power in HE, and wants to take part in HE institution management through the introduction of the ‘Board of Directors’ (*Igazgató Tanács*),

which would represent the interest of the state in the management of the HEI, and whose proposed members would be prominent representatives of social and economic fields. It would exercise decision-making power in questions of strategic guidelines, developments, investments, and finances. The Rector (responsible for management) and the President of the Senate

(responsible for academic questions) would be subordinated to this board strategically. This implies a decrease in terms of autonomy (Jakab et al 2005: 24)

This brief outline of the very different impacts of the implementation of the Bologna process on national HE systems, and confirms the national rather than European character of the process, as we will see throughout this report, as perceived by the *Student Göteborg Declaration* in 2001.

Despite the differences described, however, it is important to remember that, even in the European countries where HE institutions are most autonomous, the state has control over funding, a crucial issue in relation to the possibilities for the development of interdisciplinarity, as will be seen in point 5 of this report. In countries such as Spain or Norway, it is not surprising that funding for HE is directly controlled by the state. The Spanish Ministry of Education is responsible for all major decisions and policies at national level, including funding and accreditation, although regional governments are now also crucial for budget issues and degrees on offer, and universities must negotiate both at a more local political level. The sources of funding are teaching and research, with little private funding involved, except in certain areas of research. In Norway, after the Quality Reform of 2003, the budget system changed but it is still controlled by the state (in fact, as Widerberg et al 2005 state, “it is important to stress that most of the higher education institutions are in fact *owned* by the state” 14). Before the Reform the number of students per department was the main criterion for funding; now, along with this, there are others: basic allocation, publications of its faculty members and external research projects (through the Research Council of Norway). In Hungary the funding of HE institutions, both for research and teaching, depends also on the state, which includes even church-run, private and foundation universities.

Germany, Finland and France negotiate and have some autonomy in the management of their state funding. German universities gained more financial autonomy in 1998 with the amendment of the Framework Act for HE, and the introduction of “global budgeting” (*Globalhaushalt*). In this system, each university is given annual funds and has the task of administering and distributing them internally. Thus, universities are now freer to decide where to spend their money and can react in a more flexible way to changes. However, this system has not been implemented to the same degree in all German universities (the same is true of the implementation of the Bologna Process). Finnish and French universities negotiate their funding allocation directly with their respective Ministries. In Finland, all universities are state-owned and receive most of their funding from the government. From 2001, the Ministry of Education negotiates with each university the objectives and funding and a 3-year agreement is signed. However, financial issues are revised and checked every year. In the last years, external funding has grown, especially for research. In France, with the contractualisation system, which according to the ministerial decree of 22 May 1998 covers both education and teaching, HE institutions and the Ministry of Youth, National Education and Research negotiate every four years a contract in which, among other things, the budget allocated to each institution is decided. Although HE institutions are allowed to define their priorities, these should correspond to the main objectives defined by the relevant Ministries.

In the UK, although the state does not interfere in the daily management of universities nor in the curricula or degrees offered, it is still in control of funding. Universities have two main sources of funding, both dependent on the state: teaching and research, teaching being the most important one (because funding is given on the basis of student numbers). Research funding is related to the Research Assessment Exercise (RAE), “a recurrent cycle of discipline– and individual-researcher based-assessment of research outputs across all HE institutions” (Griffin et al. 2005 3). In contrast, in Sweden only part of the funding is the responsibility of the government; there are also external grants that are seen as complementary to governmental grants but that, by 1999, had surpassed them. Internally, it is the competence of the board of each HE institution to allocate funds. Once money goes to the faculty board, it distributes it between the different departments. Thus, although part of the HE funding comes from the government, Swedish universities have a high degree of autonomy regarding how and where to use it. In this sense, they are the most autonomous of the eight countries analyzed.

The degree of autonomy of HE institutions thus varies among the different European countries, but the state still holds some control (again, different depending on the country) through funding. The tendency towards social and financial accountability is being put into practice in different ways across Europe, but constitutes a key factor for the implementation of the Bologna process, since national governments and HE institutions are the main agents involved.

3. The process of implementation

The signing of the Bologna Declaration 1999 marked an acceleration of changes in European HE, and the eight countries analyzed in this report have, to different degrees, been actively engaged in the implementation process since the year 2000. Most countries, had in fact introduced changes in the HE system during the 1990s, often in the direction of Bologna concerns. Finland established a Bachelor-Masters degree structure at the beginning of that decade, given the need for comparable degree systems derived from the increase in international cooperation and exchange. In Germany the structure of two consecutive degrees was established in 1998, by the Amendment of the Framework Act for HE (HRG). In the UK, several reforms in HE that took place during the 1980s and 1990s put the British HE system nearer the Bologna objectives: modularization, semesterization, the Teaching Quality Assessment (TQA) and the Research Assessment Exercise (RAE). The degree structure in two main cycles (BA, and MA/PhD) had already existed in the UK. Spain adopted the credit and semester system, and initiated quality assessment of degrees. Other countries introduced innovations during the 1990s (for example, Sweden's HE reform of 1993 and France's contractualisation system) that did not directly relate to the Bologna process but that in aspects such as the increase in the autonomy of the HE institutions or the competition among them, provided a receptive context for the implementation of the Bologna objectives.

However, most countries worked on the process after the signing of the Bologna Declaration. In 2001, the Spanish parliament approved the LOU (Law for Universities) which foresees the mechanisms to promote the integration of the Spanish HE system into the EHEA. From this framework act, the government worked mostly at the level of legal regulations, with two Royal Decrees passed in 2003 introducing the Diploma Supplement and establishing the European Credit System. The most recent legal measures were the Royal Decrees regulating the structure of undergraduate and postgraduate degrees (both passed 21 January 2005). In France, an overall reform of the HE system aimed at making it more compatible with its European counterparts, took place in 2002. Several decrees were published in April of 2005, which constituted the legal structure on which the new system is to be implemented. As the contractualisation system is organized in "waves" (the Ministry of Education divides the country into four zones and negotiates contracts with all HE institutions in a given zone every four years), this reform should be in place in the country around 2005-2006.

Norway is the country where the implementation of the Bologna Process is most advanced. In 2003 the so-called Quality Reform took place and, with it, most of the elements of the process were implemented. It meant "the adoption of a system of *easily readable and comparable degrees*, the adoption of a system based on *two main cycles*, the establishment of a *system of credits*, and the promotion of *mobility* for students, faculty members and academic staff" (Widerberg et al 2005: 54 original emphasis). In a number of countries, some of the measures towards the implementation of the Bologna process will take place during 2005 or are pending. Hungary has planned the implementation process to take place between September 2005 and December 2007; in Finland, the law for the adoption of the new degree

system will take effect on 1 August 2005; in Sweden, although the Diploma Supplement has been effective since 1 January 2003, the government is still to publish a bill describing the implementation process and comprehensive changes are not expected until 2007.

As shown in Table 2, the degree of implementation of the Bologna process varies among the European countries. Some of the reasons for this will be discussed in point 6 of this report. However, all countries have started this process and in each of them structures have been provided for the implementation (for a detailed chart of the stage of implementation of key structures in the different countries, see section 4, Table 5 of this report).

Table 2. Degree of implementation of the Bologna process, 2005

Advanced implementation	Medium implementation	Slow implementation
Norway	Finland France Germany Spain	UK Hungary Sweden

Source: information in National Reports (Research Integration)

In most countries the government has reserved funding for this process. Finland has set up a committee formed by representatives from the Ministry of Education, the universities and student organisations, and the Ministry has funded national coordination groups for the humanities, social sciences and other subjects, which have made suggestions regarding their own degree structures and contents. The Ministry of Education has also allocated specific funding to all universities during the period 2004-2006 for the implementation of the new degree system and for the development of educational experiments. A similar procedure took place in Spain, where a working group was established by the Ministry of Education and the *Consejo de Universidades* to coordinate the process of implementation and produce reports and guidelines. All the bodies relevant to the HE system are taking part in the process. The ANECA (National Agency for the Evaluation of Quality and Accreditation), created in 2002, financed pilot projects for proposals of curricula at undergraduate level. In Hungary a National Bologna Committee has been established, composed of members of the HE and Research Council, Hungarian Accreditation Committee and Ministry of Education, on behalf of the state; and members of the Hungarian Rectors' Conference and College Directors' Conference on behalf of the educational institutions. In Norway, the way in which the Bologna process has been carried out, not gradually but immediately and top-down, affecting the whole HE system through the Quality Reform of 2003, has made unnecessary the establishment of specific structures for a gradual implementation. However, the main bodies responsible for the appropriate development of HE are, as stated in section 2 of this report, the Ministry of Education and Research and NOKUT, the Norwegian Agency for Quality Assurance in Education.

In the other countries no new bodies or institutions have been created, but existing bodies have been appointed to work towards the process. In the UK a working and reporting structure has been set up. The Department for Education and Skills has overall responsibility and has to work closely with other bodies:

Universities UK Forum, Quality Assurance Agency for HE, UK Socrates-Erasmus Council, UK National Academic Recognition Information Centre, Standing Conference of Principals and the Learning and Teaching Support Network. In France it is the Ministry of Youth, National Education and Research who is supervising and promoting the implementation and, in November 2002, circulated national guidelines to all university vice-chancellors regarding the new degree structure. In Germany the process is being directed by the Standing Conference of Ministers of Culture (KMK) and the Accreditation Council, and in Sweden this is being done by the Government and the National Agency for HE.

Aside from the tasks allocated to the official structures in each country, higher education institutions themselves are actively participating in the implementation process, by collaborating with the respective governments in the preparation of the new HE structures and by informing their staff of the details of the Bologna process through seminars, conferences, bulletins and web pages.

One of the objectives of the Bologna Declaration concerns the “promotion of European co-operation in quality assurance with a view to developing comparable criteria and methodologies” (*Bologna Declaration 1999*: 4). Although this issue may not seem to be directly related to our concern in this report (the impact of the Bologna process on disciplinization and interdisciplinarity), it does affect disciplinization due to the competences attributed to Quality and Evaluation Agencies in the different countries. As is shown in Table 3, some countries have a longer tradition than others in relation to evaluation and accreditation practices. A brief description of each, in chronological order, will give us an idea of their influence.

Table 3. Chronology of Quality and Evaluation Agencies

Country	Year of establishment	Name of organization
France	1984	National Committee of Evaluation (CNE)
Hungary	1992	Hungarian Accreditation Committee (HAC)
Finland	1995	Finnish HE Evaluation Council
UK	1997	Quality Assurance Agency (QAA) – had previous incarnations
Germany	1998	Accreditation Council (<i>Akkreditierungsrat</i>)
Sweden	2001	National Agency for HE
Spain	2002	National Agency for the Evaluation of Quality and Accreditation (ANECA)
Norway	2003	Norwegian Agency for Quality Assurance in Education (NOKUT)

Source: information in National Reports (Research Integration)

The first of these agencies, the French National Committee of Evaluation (CNE) was created by the 26 January 1984 Higher Education Law. The 10 July 1989 Law made it an autonomous administrative entity which reports directly to the President of the Republic and thus is not under the authority of the Higher Education Minister. The CNE is financed by the state and has its own budget. It aims at evaluating research, cultural and vocational public institutions, reporting to the higher education minister and may also evaluate higher education institutions reporting to other ministries. The CNE is not entitled to evaluate individuals, to authorize courses or to apportion state funds. In the UK there have also been organizations to evaluate HE since the second half of the 1980s. The body which is currently responsible for this task is the Quality Assurance Agency (QAA), set up in 1997. It undertakes both the training and the selection of the Teaching Quality Assessment assessors and provides quality assurance services to HE. Operating since 1992, the Hungarian Accreditation Committee (HAC) is an independent body. It has the task of accrediting programmes and institutions, and makes recommendations regarding the quality of HE in the field of educational policy. The HAC also evaluates universities and colleges every eight years and is part of the National Bologna Committee.

The Finnish and German agencies were created in the 1990s. The Finnish Higher Education Evaluation Council was set up in 1995. It is an independent expert body assisting universities, polytechnics, and the Ministry of Education in matters relating to evaluation. The Council organizes audits of quality work and institutional, programme, and thematic evaluations. Among its tasks is the evaluation and recognition of professional courses offered by higher education institutions. The Accreditation Council (*Akkreditierungsrat*) of Germany was nominated by the KMK (Standing Conference of Ministers of Culture) on 3 December 1998 and started working on 7 July 1999. It is an independent institution which accredits accreditation agencies and defines and coordinates the standards of accreditation. The agencies then work in a decentralised manner and accredit new university courses. In 2001, the Accreditation Council defined a framework that universities must follow for their new BA and MA degrees to receive accreditation (Krebs et al 2005: 7).

In Sweden, the National Agency for HE was set up in 2001 and has as one of its tasks to decide on the accreditation of academic degrees at state institutions. It has been commissioned by the government to evaluate all university programmes and major subjects every six years. It also evaluates study periods abroad and foreign qualifications in relation to the labour market. The Spanish National Agency for the Evaluation of Quality and Accreditation (ANECA) has existed since 2002 and evaluates the quality of degrees, universities and the merits of non-permanent lecturers for the accreditation required for contracts. As explained above in this section, it is directly implicated in the implementation of the Bologna process and, through three calls for proposals, has financed pilot projects of new degrees within the EHEA.

Finally, the Norwegian Agency for Quality Assurance in Education (NOKUT) was established in January 2003 as a consequence of the Bologna process. This independent state body evaluates, accredits and recognizes quality systems, institutions and degree programmes. It is a very powerful organisation since its decisions cannot be reversed by the Ministry.

All these National Quality Agencies are members of the European Network for Quality Assurance in HE (ENQA) and those of Finland, Sweden and Norway also belong to the Nordic Network of Quality Assurance Agencies. As we have seen, most agencies have competences regarding the establishment of courses and degrees and, therefore, are of particular relevance for the implementation of the Bologna process. Their tasks will place them in a privileged position to favour or hinder changes in disciplines and the introduction of interdisciplinary work. In the case of the UK, since the degree of implementation of the Bologna process is still low, it is hard to predict the influence that the QAA will have in this sense. However, we know that at the moment the Teaching Quality Assessment has had a negative impact on interdisciplinarity and, indeed, has served to consolidate the discipline-based structure of HE. In France, external assessments have to be carried out before the state gives accreditation to a new degree programme for the duration of a four-year contract. The intensification in the evaluation process within the French HE sector with the implementation of the Bologna process has led to greater freedom for the individual HE institutions regarding, among other things, course development (Le Feuvre and Metso 2005a: 54). However, this has not been the case in all countries. As said in section 2 of this report, the introduction of quality and evaluation agencies is seen by some as a new means of state control of HE institutions, inhibiting innovation and academic freedom.

4. Changes in the structure of the higher education system and their impact on educational disciplinization

The global effect of the Bologna process on disciplinization is yet to be seen, as it is not an explicit or programmed outcome, but rather an implied consequence of necessary changes. The objectives of the *Bologna Declaration* do not address issues of disciplinization directly (Griffin et al 2005: 57), but the disciplinary order is being affected by the implementation process in most countries. The ways in which this is happening differ, bringing us back to questions of the national, rather than European, dimensions of the process.

As the British report points out (Griffin et al 2005: 57), the only objective of the *Bologna Declaration* that might be related to the content of the courses is the last one, “promotion of the necessary European dimensions in higher education, particularly with regards to curricular development, inter-institutional co-operation, mobility schemes and integrated programmes of study, training and research” (*Bologna Declaration* 1999: 4). However, the implementation of this objective is still at a very early stage and focuses mainly on the development, in each country, of the structures needed to offer joint degrees. Although this objective of convergence will probably have effects on disciplinization in the future and may also offer new chances for interdisciplinary work, it is too early to predict specific outcomes.

The aspect of the Bologna process that is most clearly affecting the disciplinary order, at least at the educational level, is the structural change:

the adoption of a system essentially based on two main cycles, undergraduate and graduate. Access to the second cycle shall require successful completion of first cycle studies, lasting a minimum of three years. The degree awarded after the first cycle shall also be relevant to the European labour market as an appropriate level of qualification. The second cycle should lead to the master and/or doctorate degree as in many European countries (*Bologna Declaration* 1999: 4).

In May 2005, all eight countries discussed here have initiated the process of implementation of the two-tier degrees, as is stated in the national reports prepared for the meeting in Bergen in May 2005 (<http://bologna-bergen2005.no>). However, the additional actions of the *Berlin Communiqué* (2003) included the following point: “Ministers consider it necessary to go beyond the present focus on two main cycles of higher education to include the doctoral level as the third cycle in the Bologna Process” (2003: 7). The introduction of the third cycle in the degree structure makes adaptation easier for countries such as Spain, with longer degrees and distinct PhD programmes, but the previous degree structures of countries vary greatly in their similarities to the new European model, as can be seen in Table 4, and the implications of the introduction of the BA/MA/PhD structure also differ.

Table 4. Comparison between the Bologna model and the national degree structure

Similar structure		Different structure
Finland UK	Spain	France Germany Norway Hungary Sweden

Source: National Reports 2005 (www.hull.ac.uk/researchintegration)

Spain appears in the middle of the table because the implementation of the new structure could lead either to qualitative changes or to merely nominal changes in the existing structure of degrees. In 2005, the Spanish HE system is divided into three cycles (3-year *Diplomatura*, 5 (3+2) year *Licenciatura* and *Doctorado*, the latter being in effect the only official postgraduate cycle, leading to a PhD degree – see Carrera Suárez et al 2005 for further information). Thus, changing the names to Bachelor, Masters and Doctoral degrees could nominally cover the Bologna objectives at an administrative level, although since most degrees are 5-year *Licenciaturas*, it would mean at least splitting the present structure of these degrees into two sections, BA and MA. The reality is that in most cases it will mean a shortening of degrees (*Licenciaturas*) to 3/4 years (still undecided in most cases) which may or may not be followed by an MA in the same discipline or area. The structure described in the recently approved Royal Decree (January 2005) on official graduate studies contemplates two levels (undergraduate and postgraduate) and three cycles (BA/MA/PhD), understood in the same linear way as the present system. The parallel process, led by the Ministry of Education, of establishing a much reduced national catalogue of degrees and the redefining and shortening of undergraduate courses (to make space for the MA as distinct from the present ‘2nd cycle’ of the *Licenciatura*) is making the conversion in reality rather traumatic and leading to defensive disciplinarity.

Finland and the UK are the countries where the new structure is most similar to that previously in existence. In Finland, as stated above, a Bachelor degree leading to a Masters degree was already introduced at the beginning of the 1990s, with a view to facilitating and increasing international cooperation, also one of the goals of the Bologna process. Through an amendment to the Universities Act of 1997 and the preparation of a Government Decree of University Degrees, both issued in 2004, the legal framework for the introduction of the Bologna structure was prepared. The Act and Decree will come into force on 1 August 2005 and implementation will start at the beginning of the academic year 2005/6.

In the UK, the former structure of degrees was quite similar to that proposed by the Bologna agreement, as stated in the *UK National Report* prepared for the Bergen meeting: “the basic structure of UK degrees already conforms to the Bologna model of three main cycles of Bachelors, Masters and Doctoral degrees” (2005: 1). However, certain characteristics do not match the structure of the Bologna process so easily. Two of them are the length of the BA and MA degrees. Masters degrees in the UK are generally one year full-time, rather than two, a fact which may lead to a devaluation of British MAs in the eyes of other European countries. On the other hand, the BAs sometimes take longer than three years (four years) because they

include a year's work experience or a year abroad. Another national feature that does not conform to the Bologna structure are the Foundation degrees. These are vocationally oriented sub-degree awards that last two years, and were introduced in 2001. With these, the government wants to meet the EU-driven objective of 50% HE participation among relevant age cohorts by the year 2010 which, at the moment, is around 30%. Even though these degrees do not exist in the Bologna model, they are introduced in the *UK National Report* for Bergen: "in terms of the Bologna Process they are intermediate qualifications within the first cycle" (2005: 1).

Of the countries whose previous degree structure was different from the Bologna model, Norway has advanced most in the implementation process. Since the Quality Reform of 2003, the whole HE system has been adapted to the new BA/MA/PhD structure. Among other reasons (discussed in section 6 of this report) this was possible because it is a young and small country, with only 6 universities and 26 university colleges (plus private institutions). In countries with a longer history and a higher number of institutions, the reforms are proceeding more slowly because the machinery to be transformed is bigger and heavier. The main challenge for Norway now, as stated in their *National Report* for the Bergen meeting, is the use that institutions and students will make of the opportunities offered by the new structural changes (2005: 13).

The Bologna model also implies substantial changes in the Hungarian HE system, which is now based on two separate lines of education: colleges, with professionally-oriented degree programmes that last an average of 4 years, and universities, offering more specialized and extensive degree programmes that last 5 years. The introduction of the BA/MA/PhD marks a change towards a new conception of HE as a linear process, and changes in the degree structure will be implemented between September 2005 and December 2007. In contrast, France is already immersed in this process of transformation. The legal basis for the introduction of the new degree structure was established during the year 2002, and it is expected that the so-called "LMD" (Licence/Master/Doctorat) will be implemented all around the country by the year 2005-2006 or, if delayed, 2007. The country is transforming a rather complex former system of HE (for more information see Le Feuvre and Metso 2005a: 9-15), which has five main streams: universities, Institutes of Technology, Higher Technical Sections, Preparatory Classes for the *Grandes écoles* and Teacher Training Institutes. This system was organized in three cycles, each one corresponding to one or more nationally recognised diplomas or qualifications. The DEUG (*Diplôme d'enseignement universitaire général*) represents in theory 2 years of study (in practice it may take up to 4 years) and marks the end of the first cycle. The second cycle is divided into two levels: *Licence* (1 year) and *Maîtrise* (1 year). Finally, after completing the second cycle, a student may be eligible for admission to the third cycle and can choose between a DEA (doctoral programme one-year foundation course which is an entry requirement for registration as a doctoral student) or a more vocational DESS (specialised higher degree). The adaptation of this scheme involves the following:

- the two-year 1st cycle degrees such as DEUG will be more fully integrated into a 3-year degree programme (BA);
- the term 'Master' has been adopted for all intermediate post-graduate degrees, thus connecting universities and *Grandes écoles*, as the first

qualification that can be offered by both institutions (a step towards the clarification of the national HE system and, therefore, better international readability);

- the DESS are now known as ‘Professional Masters’ and the DEA as ‘Research Masters’;
- the ‘Doctorate’ implies the successful completion of a PhD dissertation.

Given the density of the former French HE system, the adaptation process is also complex. As was the case with the Foundation degrees in the UK, intermediate professionally-oriented degrees are also maintained in France, though in the French *National Report* for Bergen, it is acknowledged that they do not quite fit into the Bologna model:

professional organizations are very much concerned with the maintenance of vocational degrees after 2 years of post-secondary education – which is called in France ‘Bac+2’, meaning 2 years after the ‘*baccalauréat*’: the ‘*DUT*’ (‘*diplôme universitaire de technologie*’) - university - and the ‘*BTS*’ (‘*brevet de technicien supérieur*’) - higher schools with post-secondary courses -. Such intermediate degrees are therefore maintained, even though the L-M-D led to develop ‘bridges’ enabling the ‘best students’ from these courses to go up to the ‘licence’ level, even beyond that (*French National Report* 2005: 7).

Sweden is proceeding slowly with the implementation process in terms of the degree structure. In April 2002 a working group was appointed by the Ministry of Education and Science to review this structure. The group prepared a series of reports recommending that HE degrees be divided into three cycles - undergraduate, graduate and doctoral levels -, and estimated that new legislation and regulations ensuing from the proposals could come into effect on 1 July 2007. The issue of professional degrees is also present in the Swedish implementation process, and the proposal made by the working group distinguishes, on the one hand, between a Bachelor degree and a professional degree (both 180 ECTS) and, on the other hand, the possibility of establishing programmes leading to a professional degree (240 ECTS or more) that would include both first and second cycle studies, but that will not be formally divided into two separate cycles (*Swedish National Report for Bergen* 2005: 6). However, this is a proposal that is still to be accepted and implemented.

Finally, Germany presents a rather different case, as the implementation process is marked by the division of the country into different *Länder* (states). This splits the responsibility between the national government and other centralised institutions and the governments of the *Länder*. Thus, the change in the degree structure is being implemented faster when the competences rely on the national government, such as degrees which involve state examinations. The legal basis for the implementation of the Bologna model was established in 2002, but the process will not be completed nationwide until 2010.

Along with the Bologna degree structure, two other measures are being implemented to favour the creation of a European HE Area: the Diploma Supplement, to create a system of easily readable and comparable degrees, and the ECTS system

promoting student mobility. In Table 5, the implementation process of these measures and of the new degree structure is described for the eight countries analyzed:

Table 5. Implementation of ECTS, Diploma Supplement and degree structure, 2005

Country	ECTS	Diploma Supplement	BA/MA/PhD
Norway	2003	2003	2003
Spain (decrees have been approved but these measures still not implemented)	2003	2003	2005
Finland	Legislative measures to take effect by 2005	not mentioned	Legislative measures to take effect by 2005
France (all will end implementation by 2007)	2005	2005	2005
UK	Not used, only for transfers within the European area. National credit system	In the making	Already existed, more or less. Has not been changed
Hungary	Not yet in use	2004	To be implemented from September 2005 to December 2007
Sweden	Not yet in use	2003	Working on it, legislative measures will be taken in 2007
Germany	Being implemented	2005	Working on it (will be completed at national level by 2010)

Source: information in National Reports (Research Integration)

How the adaptation of the national degree systems to the Bologna model affects or will affect disciplinization is, in most cases, too early to describe in detail. However, we can begin to identify some trends and spaces where innovations in disciplines may be introduced at the educational level; on the other hand, it is also possible to point to features that hinder innovation. As was the case with other issues dealt with in this report, the possibilities of change in disciplinization differ among the countries.

In France, the Bologna process seems to offer the chance to overcome the previous rigidly disciplinary system. Change will take place especially at undergraduate level, since the legal texts that refer to degrees will only be considered as guidelines and will no longer constrain innovation through strictly predefined norms. The notion of flexible learning paths and a modular curricular structure will give students more freedom to combine courses from different disciplines. Therefore,

for the first time, it will be possible for universities in France to create new disciplines without actually asking the Ministry of Education to establish a new one. This is an interesting development which contrasts with the Spanish case, which, from a very similar starting point, fails to seize the opportunity for flexibilization, and maintains (indeed even increases) the rigidity abandoned by France, except, as we will see, at postgraduate level.

In Finland, the possibilities for creating new fields of study are located at Masters level, and the Ministry of Education has allocated specific funding for this. Thus, the two-tier degree system has the potential of undermining the strictly disciplinary system and an increase of flexibility in disciplinization is encouraged from both the state and the HE institutions themselves. Although it is the Ministry of Education who has the final word regarding the establishment of a new discipline, “active and determined measures within the universities can push the process so far that the Ministry decision becomes only a legitimization of an existing situation” (Keskinen and Silius 2005: 21). The Bologna process therefore offers chances to introduce innovation in disciplines.

In a similar line, the Quality Reform in Norway encouraged the reduction of the importance of disciplines. This was achieved through several features such as, for example, the general shortening of study programmes and the focus on labour market needs. These measures not only implied a decrease in the central character of disciplines but also promoted interdisciplinary work (this will be discussed at greater length in section 5 of this report). The lack of a long disciplinary history in Norwegian HE also made this possible. From the implementation of the Quality Reform, when new students look for information about the university studies they do not encounter disciplines but subjects or topics. When the adaptation to the new degree system was carried out, there were signals from the Ministry of Education and Research and from the university boards and rectors that this process should be done thinking in new terms, opening up disciplines and overcoming disciplinary boundaries.

But the implementation of the Bologna process has not been equally positive for changes in disciplinization in all countries. For Hungary and Spain it has had negative effects. In both countries, the governments have announced a reduction in the number of undergraduate subject areas. Spain at the moment recognises over 150 degrees nationally, and the original intention was to reduce these to a maximum of 60, (although no more has been said recently about this number, and perhaps the idea has been dropped as unrealistic). A first catalogue was announced for 1 May 2005, but the tendency so far, given the emphasis on suppression and shortening of degrees, has been one of defence of the existing disciplinary organization. Added to this, the government will continue to impose detailed guidelines regarding the structure and content of official degrees, which universities must follow strictly in designing the syllabus of specific studies. The interpretation of the Bologna process has therefore been extremely restrictive at undergraduate level, and will lead to greater uniformity in the content, through a higher percentage of compulsory subjects (between 50 and 75%, against the present 40%). MA courses, with very little tradition in Spain, are announced as flexible but competitive and possibly expensive, and their development and role are as yet undefined. In a different but similarly restrictive outcome, Hungary will group the Bachelor degrees according to a common core that corresponds, more or less, to a discipline. This common core training will last one year, followed by a

specialization period of two years. Programmes that cannot easily be listed in a certain discipline will now have to be codified in one, which reinforces the disciplinary character of HE. Mobility from one branch of studies to another which does not share the same common core knowledge is not envisaged. Although Masters programmes will in theory be more open to flexibility in disciplinization, they will be built upon (discipline based) Bachelor degrees and still have to be firmly rooted in an existing discipline.

In Germany the impact of the Bologna process is, so far, ambiguous, partly because implementation is still in its early stages. On the one hand, the new system will be more fixed than before and the BA is leading to a more disciplinary perspective, since the courses are reduced to one main subject (or at most two), while formerly two or three subjects could be chosen (two Major or one Major and two Minors). On the other hand, however, new spaces for innovation are being opened up, such as the so-called ‘complementary field’ or the ‘field of professionalization’. At Masters level, there are more possibilities for a change in disciplinization.

Finally, in the UK there is no visible influence of the Bologna process on disciplinization because there have been no related changes in the degree structure. However, the reforms undertaken during the 1980s and 1990s that led to a system which approximated the Bologna model did bring about change. The most important was modularization, which allowed for greater freedom of choice for students beyond departments, disciplines and specific courses. The underlying idea was to allow greater mobility across disciplines, within universities and across universities (although its success was limited, as we will see in section 5 of this report).

Flexibility in disciplinization, therefore, has been promoted to different extents in each country and, in some cases, has not been promoted at all. However, even in those countries where the Bologna process or earlier reforms have favoured the abandonment of a strict disciplinary structure, other aspects of the HE system prevent the full accomplishment of this goal. They are the funding and administrative structures of HE institutions and the evaluation processes (Norway, Finland, Germany, UK, Sweden) and the establishment of academic careers (France, Spain). In Norway, in spite of the non-disciplinary character of the Quality Reform, the organizational structure of disciplines into departments survives. In Finland, the funding system based on degrees is problematic for the establishment of new ones. In Germany, research evaluation and funding are discipline-based, as are the Research Assessment Exercise and the Teaching Quality Assessment in the UK. In Sweden, the Research Councils, the HE institutions and the competence required to qualify for a course or programme are also discipline-based.

Thus, the Bologna process presents a contradiction in this respect: new European objectives often clash with old national structures, and trying to conciliate the two is an important challenge. In the implementation process national systems are not always revised and changed. The introduction of new degrees and subjects (not necessarily new disciplines) is more likely to occur at postgraduate level (MA and PhD), where teaching and research options are more flexible. However, this is again contradictory with the conservative organisation of the undergraduate level in the disciplines (with the exception of France). Discipline-based structures survive in key

areas such as evaluation, career paths, funding or administration, making innovation a very difficult task for its main agents, the HE communities.

5. Opportunities for interdisciplinarity created by the Bologna process

Previous sections have alluded to some of the possible effects of the Bologna process in the development of interdisciplinarity, particularly at the educational level (section 4). A closer look at these effects, both in education and research, will again evidence national differences, but it is important to understand results from this perspective, since advances for interdisciplinarity in certain countries may seem minor compared to others, but could be crucial from an internal point of view. Table 6 shows the general effects of the Bologna process on interdisciplinarity by country:

Table 6. Effects of the Bologna process on interdisciplinarity, 2005

Favours interdisciplinarity		Hinders interdisciplinarity
Finland France Norway	Sweden UK	Germany Hungary Spain

Source: National Reports 2005 (www.hull.ac.uk/researchintegration)

Sweden and the UK have been situated in the middle of the table mostly because of their low degree of implementation of Bologna measures that directly affect disciplinization and interdisciplinarity (i.e., the new degree structure); in the first case this is due to the slower rhythm of implementation, but in the case of the UK it follows from a previous reform and the similarity of the existing structure. In the other two groups the tendencies are beginning to show, related to each country's specific past and to its process of implementation (for further information see Holm and Liinason 2005b). Our analysis follows this table, but leaving Norway and the UK until the end as case-studies which can offer a number of tentative results, given that the most relevant principles of the Bologna process are already in place in their HE systems.

Sweden does not plan its comprehensive changes until 2007. However, in the implementation of the new degree structure, the responsibility for the promotion of interdisciplinarity will be in the hands of the HE institutions themselves, since these are autonomous for the establishment of new study programmes and courses, including content and curriculum (see section 2 of this report). An understanding of the tradition of interdisciplinarity in the Swedish HE system may situate its further possibilities. Interdisciplinarity is frequent in the Swedish system of HE and has been encouraged by the government for many years, through the introduction of concrete measures such as the decentralisation of the policy-making process, with the educational reform of 1993, and the change in the research funding process in 2001. However, as stated in section 4 of this report, other national structures still operate on a disciplinary basis, and these may constitute a barrier. Also, in the *National Report* prepared for the Bergen meeting, a concern is expressed regarding the adoption of the new degree structure:

In the Swedish case, the comparably liberal system of modularised courses that gives many students great freedom to individually select a combination of courses to form a degree is an important feature. However,

this system of free choice has proven to be particularly difficult to combine with some of the structures that are associated with the Bologna process (*Swedish National Report 2005*: 14).

It would seem, though, that as long as the government continues encouraging interdisciplinary work, the Bologna process should not prevent this development, given the national differences which seem ready to exist.

Spain and Hungary are the two countries where there is less effective promotion of interdisciplinary work, and the Bologna process is increasing this tendency. In both, interdisciplinarity is promoted at a discursive level. It is mentioned as desirable in the *Spanish Brucall Report (2000)* and in the National Research and Development (R&D) Plans for 2000-2003 and 2004-2007. However, interdisciplinarity is not included as a specific point in the evaluation criteria of the R&D Plans (not even in the latest call for projects under the 2004-2007 Plan), and it is hindered by disciplinary evaluation methods. Similarly, the Hungarian Ministry of Education, the Hungarian Academy of Science and the Hungarian Accreditation Committee (HAC) are all interested in incorporating interdisciplinarity, and indeed the HAC supports interdisciplinary work (through multidisciplinary Doctoral programmes and interdisciplinary work at PhD level), but no effective integral policy to introduce interdisciplinarity in the HE system is being developed.

On the educational side, both Spain and Hungary offer certain possibilities only at postgraduate level, which the Bologna project conceives as more open: the *Berlin Communiqué* refers to “the importance of research and research training and the promotion of interdisciplinarity in maintaining and improving the quality of higher education and in enhancing the competitiveness of European higher education more generally” (2003: 7). In Spain the government will establish strict guidelines regarding the content of the BA courses, as was the case with the existing *Diplomaturas* and *Licenciaturas*, but postgraduate studies will be less regularized. However, it must be remembered that present PhD programmes are very free in content, as are the scarce MA courses, so in fact it is not clear that interdisciplinarity will gain, except in the fact that MA courses, until now less established and limited to certain social sciences, will be officialised and therefore generalized. Although the final version of the Royal Decree regulating postgraduate studies, passed in January 2005, has eliminated the reference to interdisciplinarity which appeared in its publicised draft (Article 4.4), it still emphasizes the autonomy of the universities in establishing their own postgraduate degrees and the flexibility of these. However, the sharp contrast between disciplinary undergraduate organization and freer postgraduate MAs will be complex to negotiate, as the postgraduate programmes seem to be far more dependent on competition and self-funding. At the same time, current practices reinforce the heritage of disciplinary organization, even in PhD courses: the present “Quality Mention” given to elite PhD programmes (which entitles them to higher funding and was understood as a prelude for the new programmes) includes interdepartmental and interuniversity collaboration among the relevant criteria, but the assessing system under broad but distinctly official disciplinary categories still conditions results. In R&D programmes, despite examples of promotion of interdisciplinary research groups (for instance in the *Consejo Superior de Investigaciones Científicas*, CSIC, Higher Council for Scientific Research), academic

careers - access and promotion, research assessments - are judged in strict disciplinary terms, creating very powerful barriers.

In Hungary, the introduction of the “common core training” for BA degrees has led to a tighter disciplinary organization of these, and although there are some multidisciplinary degree programmes in some universities, these must also be included under a given discipline. The effect of the “common core training” has been criticised by some professors, who argue that it imposes a stronger barrier between disciplines, in spite of the focus of the Bologna process on mobility. The HAC might promote interdisciplinary work at postgraduate and research levels, but it discourages the establishment of new BA programmes. At PhD level, disciplinary boundaries are still very strong and, although students may write an interdisciplinary dissertation, PhD degrees are awarded in a traditional discipline. Interdisciplinarity in research is more frequent and the funding boards can establish, if needed, an ad hoc interdisciplinary panel. However, research applications are usually registered in a single discipline on the database. In conclusion, the Bologna process does not seem to predict better chances either for interdisciplinary work or for the establishment of new disciplines in these two countries, although some freedom is included in areas such as postgraduate courses offer.

The case of Germany also shows a discrepancy between the official political discourse on interdisciplinarity in education and research and concrete university politics. Although interdisciplinarity is proclaimed by political authorities, it is not supported structurally or financially and interdisciplinary efforts usually mean an extra workload. As we have seen in the previous section of this report, the new BA degrees are more focused on a main subject than before. As in other countries, MAs may offer more opportunities for interdisciplinary work, but specific results are yet to be established, since the complete implementation of the new degree structure is not expected until 2009-2010. The experts interviewed for the German report think that interdisciplinarity is largely lacking in the new degree structures and that the fact that the reforms are predetermined by state regulations is negative for the development of interdisciplinarity. The innovations introduced in HE with the Bologna process are actually leading to a re-disciplinization because disciplines are afraid to lose their “space”. The new financial cutbacks increase the concurrence between disciplines, which have to secure their own finances and thus cannot use funding to “experiment” with interdisciplinary work. The introduction of peer review in accreditation may also lead to disciplinary hegemonies. Nevertheless, as was the case in other countries, there are more opportunities for interdisciplinarity at research level. The main national research foundation in Germany, the German Research Association (*Deutsche Forschungsgemeinschaft – DFG*) gives importance to interdisciplinarity and supports applied research. It finances several doctoral programmes relevant for interdisciplinarity (such as the Graduate Courses) as well as long-term cross-disciplinary research programmes at universities in which scientists and researchers collaborate (Krebs et al 2005: 17-18).

In a number of countries, the Bologna process seems to be enabling interdisciplinary work. In Finland, the National Research Council (the Academy of Finland) emphasises the importance of cooperation between researchers from different disciplines and states that this must be supported by funding. In the same direction, the latest report of the Research Council for Culture and Society (2003)

dedicates much attention to interdisciplinarity, recognizing that evaluations and result management practices in the universities often become hindrances to interdisciplinary research and teaching (as has been pointed out also in the previous section of this report). In the official report on the implementation of the two-tier (Bologna inspired) degree system, the benefits of interdisciplinary research and education are addressed in detail. It is stated that the new system should make student mobility between disciplines and subjects easier than at present. In addition to the integrated model in which students study the BA and MA degrees in the same main subject, a new system of MAs which provides chances for interdisciplinary programmes is being established. The implementation of the Bologna process is thus very promising for the strengthening of the position of new interdisciplinary fields of study.

France is also widening its possibilities for interdisciplinary training, at present very scarce (although five interdisciplinary fields of study are recognized by the Ministry of Education). The introduction of the Bologna process has opened up spaces to promote further interdisciplinarity. One of the most important effects has been the elimination of the old degree accreditation process: the Ministry of Education no longer requires universities to conform to a single, national model of course content within existing disciplinary boundaries, and thus, universities are free to offer interdisciplinary courses. As has been said above, the reform will be fully implemented in France by 2005-2006, but there are partial results for 2003-2004 from those Academies which have already adopted the BA/MA/PhD system. So far, however, these are not very encouraging, since few students have registered in the new interdisciplinary programmes.

Due to their experience in applying some of the measures which result in educational interdisciplinarity, Norway and the UK can act as “experimental models” for some of the implications of the Bologna process. In Norway the structure has been implemented nationwide since 2003 and can provide tentative results of the reform, while the UK, where some of the structures envisaged by the Bologna process have been in place for much longer, shows some of the pitfalls and the clashes between educational objectives and funding actions. In Norway, young academic traditions and small university communities have historically favoured interdisciplinary thought and organization. The Quality Reform introduced in 2003 was planned and implemented thinking in cross-disciplinary terms, and one of its consequences has been the establishment of interdisciplinary study programmes. In terms of teaching, interdisciplinarity in the new system is to a large extent planned from above and there are formal structures that “push” the students towards interdisciplinarity. The Quality Reform has had three implications (Widerberg et al 2005: 21) for the structure of degrees:

- There are more interdisciplinary degree programmes and more emphasis on these from departments and faculties.
- The disciplinary degrees have relatively speaking become more disciplinary (the major discipline has been given more space compared to the others).
- The degrees are shorter, which means that there is less of every discipline.

Whether the programmes and the students' choices under the Quality Reform have actually meant real interdisciplinarity, it is too early to say. Regarding research, the Research Council of Norway stresses large-scale, interdisciplinary and collaborative projects. At departmental level individuals or groups are encouraged to apply for research money and at faculty level interdisciplinary projects are initiated.

However, the way in which the Norwegian administrative system is organized represents an obstacle for interdisciplinary degree programmes. It is expected that the allocation of money from the Research Council and the universities to interdisciplinary research and teaching might in the long run challenge the present organisation of departments and faculties. This situation is typical, as we have seen, of other countries where, even when measures to promote interdisciplinarity are established, the "old" administrative and organisational structure hinders the process. In this sense, Norway poses an example of how this may be solved through a strong implication of the funding bodies in interdisciplinarity. Norway is also an example of how the success of interdisciplinary work lies in the fact that it is actively promoted from above (the government and the HE institutions' boards). When the encouragement of interdisciplinarity remains at the discursive level, the efforts made by individuals or small groups are rarely recognized and encounter many obstacles. Experience seems to show that it is the task of the HE authorities to remove these obstacles if interdisciplinarity is really to be included in the day-to-day work of the universities.

The evolution in the UK after the introduction of modularization from the late 1980s reinforces this idea. This measure, the most important in promoting interdisciplinarity, meant the division of degree courses into credit-rated sub-units, with the aim of allowing their transferability and greater freedom of choice for students beyond departments, disciplines and specific courses. But this did not turn out as expected, since students tended to choose modules within a discipline or closely related ones. Thus, modularity did not lead to significantly more innovative module combinations by students, and at the moment the UK has a system in which disciplines have re-coalesced into degree courses that are modularized. There is little encouragement for students to select modules from different disciplines. Instead, departments actively encourage students to stay within the department's subject area as 'money follows students'. The moment for re-thinking degree course content and for encouragement of interdisciplinarity thus effectively passed and was not seized upon (Griffin et al 2005: 60). Added to this, the evaluation procedures of the UK (the Research Assessment Exercise and the Teaching Quality Exercise) severely undercut any opportunities for interdisciplinarity due to their operation by discipline, which makes interdisciplinary research extremely difficult. This is also the case in other countries analyzed, where evaluation and funding bodies are organised on a disciplinary basis and thus prevent opportunities for interdisciplinary work.

One of the issues which seems to worry a number of countries (Spain and Germany in particular) is the effect of the shortening of degrees that is taking place with the implementation of the Bologna process. The UK and Norway provide interesting examples at the postgraduate and undergraduate levels respectively. In the UK, Masters courses typically take one year to complete full-time, and they of necessity have to be specialized. Thus, they cannot cover the entirety of a discipline. The understanding that disciplinary coverage cannot be the aim of a Masters degree

has led to a certain freedom from disciplinary constraints. Since Masters courses are often not well supported in resource terms, they are also usually team-taught, and the accommodation of various research specialisms by staff within one Masters programme led to innovative, interdisciplinary co-taught programmes, often not recognized on staff workloads or timetables but highly appreciated by the staff and students who enjoyed the intense engagement with particular topics outside narrow disciplinary frames. Thus, paradoxically, Masters programmes became and remain a site for realizing the potential of interdisciplinary and innovative work in academe, their time-constraint-induced specialised nature leading to freedom from disciplinary boundaries and enabling work at once more specialized and more inter- or transdisciplinary (Griffin et al 2005: 52).

In Norway, the general shortening of the study programmes of BA and MA degrees also resulted in a reduction of the importance of disciplines. The students immerse themselves less in their major discipline simply because there is less time for that, and in that way they are barred from getting a deeper understanding of the nature, methodology and theory of their disciplines. This can also reduce the feeling of disciplinary identity. While this may be seen by some as less academic, or even a devaluation of quality, for others it may break the rigid boundaries that hinder transdisciplinary knowledge or expertise, and produce the problem-solving attitudes seemingly required for labour markets.

These two experiences are interesting in so far as they contrast with the case in Spain and Germany where, as we have seen, at the undergraduate level, the reduction in number and shortening of degrees is producing defensive disciplinarity. It would seem, generally, that government decisions in this top-down approach are crucial. This is evidenced by the very different slant given to the Bologna process in two countries that share a similar centralised structure, France and Spain. While in France the Ministry of Education has decided to grant more freedom to universities, thus allowing more interdisciplinary degrees, Spain has tightened the control, therefore disallowing a number of creative ideas (especially in joint or mixed degrees) that had seemed possible. When the emphasis falls on unifying and reducing, it generally hinders deep change and especially interdisciplinarity, as much of the creation of new studies and programmes comes from the innovation in HE institutions themselves (gender studies programmes are a good example in most countries). Contradictory as it may seem, an enabling, flexible structure at state level that encourages or legitimises innovation, appears to be a requirement for change in this direction.

At the moment, therefore, the spaces open to interdisciplinarity are strongly marked by national histories and their interpretations of the Bologna requirements, and the opportunities in the educational field (for some countries already present at undergraduate level, for others only at the postgraduate) are not yet followed by administrative structures, research, evaluation and accreditation or career development, and in fact tend to clash with all of these. Whether change will follow in these areas as a result of a transformed educational field, or whether competing national (and it would seem, generally European) structures will remain is one of the challenges faced by the creation of the EHEA and indeed of the ERA.

6. Social and ideological issues in the creation of the EHEA: employment, knowledge and interdisciplinarity.

As we have seen throughout this report, the construction of the European Higher Education Area (EHEA) still has, at least at this stage in the process, an important national dimension, and the local interpretation of the implementation process plays a major role. But despite the differences among the various countries, not least because the national HE systems that have to be adapted to the new model are quite different in origin, it is possible to identify some general worries or issues that emerge from the Bologna process and that are a source for debates in the national contexts. These are, mainly, the relationship between HE and the labour market and the “economization” of HE.

The focus on the needs of the labour market and on the employability of students is, in many cases, new to the national HE systems (again, the UK constitutes a special case since, as stated in section four of this report, for a long time the market demand of courses has been a key criterion for their existence). In France, after the HE reform of 2002, universities must show the “need” for a new degree programme and the existence of a market for it, either in terms of potential student numbers and/or in terms of job opportunities for graduates, before it is given accreditation. As stated in the *National Report on France*, “this is something of a revolution in France”, since it is the first time that academics have to concern themselves with the labour market outcomes of their students and they are resistant to relinquishing their “pursuit of pure knowledge” (Le Feuvre and Metso 2005a: 58). Similar questions are now posed in Spain for the accreditation of the existing studies or for awarding the “Quality mention” to PhD programmes, also for the first time in the country’s history. In Hungary the new programmes must specify how the qualification is going to satisfy the demands of the labour market or a social need.

In Norway, the employability issue was related to the shortening of degrees. Prior to the Quality Reform of 2003, in comparison with other European countries, Norwegian students were older when they finished their university studies. There were two reasons for this: they were older when they started HE and degrees took longer to complete. The shortening of university studies introduced by the Bologna process contributed partially to solving this discrepancy. However, such measures do not automatically have a positive effect on increasing the employability of students, as the Finnish case shows. In Finland, the introduction of a Bachelor degree in the early 1990s, which implied a shortening in degree completion, had as one of its objectives the prevention of the problem of unfinished degrees. It did not, however, make a big difference in this respect and the BA degree has not been relevant in the labour market either (Keskinen and Silius 2005: 44). As is also stated in the *National Report on Finland*, the mere change of the degree structure will not achieve its proposed objectives without a parallel commitment by those involved. This applies not only to employability, but also, as we have seen in the previous section of this report, to interdisciplinarity.

The need for active measures to promote the expected changes of the Bologna process regarding the new degree structure and employability was also stressed by the

Spanish Conference of Rectors (CRUE) in 2004, in a country where the labour-market oriented character of the BA degree is going to present major challenges. In this sense, the CRUE states in the report delivered by its working group on the European System for Higher Education (*On the length of undergraduate studies*) that “We disregard, as out of the question, that a 3-year degree could be considered from now on in Spain as a professionalizing degree par excellence, substituting the *licenciado* or *ingeniero* degree. It is simply not possible” (2004: 4). This report also mentions a similar situation regarding other European countries: “the undergraduate level is being designed in many European countries as a transit to a postgraduate degree, and not as a degree relevant for the European labour market” (2004: 1). This seems to be true if we take into account the introduction of specific vocational degrees at undergraduate level in some countries (for example, the British Foundation Degrees or the French “Licences professionnelles”).

The focus on labour market needs has an impact on disciplinization. For example, in Spain, where the implementation of the Bologna process is leading towards a reduction of the number of degrees, the humanities are obvious targets for suppression or reduction, as employment paths are rigidly disciplinary and degree-conditioned (as opposed to, for instance, the UK, with a far more open labour market). However, this does not seem to be the general case, since this aspect of the Bologna process is enabling the promotion of interdisciplinary work in other countries. In Norway, the Ministry states that the modern international society and labour market demand both general and specialized qualifications and the ability to cooperate and do teamwork. This focus on labour market needs may diminish the importance of disciplines, since “in the labour market the point is not to hold on to whatever disciplinary ideas or dogmas you might have, on the contrary, in the work place there is more need to be pragmatic and use what you have learnt in a fruitful manner” (Widerberg et al 2005: 55).

This idea is shared by countries such as Finland, France and (theoretically) Hungary. In Finland interdisciplinarity is seen to produce socially relevant knowledge and the aim of the science and technology policy has been to support a national innovation system which can be achieved through growing cooperation between research and its practical users. In France, interdisciplinarity is seen as a way to adapt the universities and their training programmes to the current demands of the employment market and thus better prepare the students for their future professional activities. In Hungary, the creation of new standards and objectives is to provide employers with appropriately trained professionals and to ensure that students can make use of the possibilities of mobility. At the World Science Forum organized in Budapest in 2003, it was suggested that a shift of focus to the complexity of everyday life implied that disciplinary divisions could not be maintained; nevertheless, they seem to be imposed at undergraduate level, as reported earlier.

The other major issue that is debated in relation to the implementation of the Bologna process is the so-called “economisation” of HE, that is, the introduction of economic concepts into the HE system and, with them, the division between “basic knowledge” and “applied knowledge”. This is related to a confrontation between two different academic traditions: the Anglo-American, supposedly more related to the “usefulness” of knowledge, and the German-Humboldtian, that favours “knowledge for knowledge’s sake”. In most countries, the objectives of the *Bologna Declaration*

are clearly related to the first tradition and, since most national HE systems are embedded in the second one, this usually represents a problem in the implementation process and is a source of much debate.

It must be said, however, that the analysis of the implication of this process in the UK reveals that this is not exactly the case, as the following quotation shows: "...when one goes abroad within Europe (...) [one] encounters both bewildered and frustrated academics from other European countries who find themselves the objects of educational reforms that they regard as significantly influenced by Anglophone education realities when, in actuality, those realities themselves are somewhat removed from the frameworks envisaged by the Bologna process" (Griffin et al. 2005: 59). It is true, however, that in British universities education provision is regarded as a matter of the market, rather than dictated by non-economic concerns. This conception has had an impact on disciplinization in the UK in the sense that (disciplinary) university departments with difficulties in recruiting students have been closed or significantly re-structured with the aim of making universities economically more viable. It is in this sense that other countries fear the impact of the Bologna process on their HE systems.

In Germany, the question of application and utility in HE policy is very controversial. The growing economisation of the HE system has been developed in the context of the Bologna process as a consequence, among other things, of reduced public funds. This has led towards an increase in applied research and a separation between theoretical and applied degrees, in order to achieve the political goal of strengthening international competitiveness (Krebs et al 2005: 50). In 1999 the KMK (Standing Conference of the Ministers of Culture) distinguished between a more theoretical Bachelor of Arts and a more applied Bachelor of Sciences, which established also a division between the Arts and Sciences new to the German context, where these two terms were traditionally unified under the term "Wissenschaft", which refers to the systematic construction of every kind of knowledge. All these new tendencies are criticised in Germany as a consequence of using the American model as a role model for German HE. The issue of the applicability of research "could signify an emancipatory ideal or the reduction of the university to short-term usability or total dissolution" (Krebs et al 2005: 43). The apparent incompatibility of these two academic traditions has been debate in Sweden too, where it has been taken up in the phrase "Money or Knowledge!" (Holm and Liinason 2005a: 47).

"Economisation" is also an issue in Hungarian HE. In this country, the process has been interpreted in terms of "rationalization", which has led to the integration of universities in 2000 and will lead to the reduction of degrees with the implementation of the new structure in 2005. In this context, the state has changed its role and now defines itself as a consumer of services and as ensuring the efficiency and legality of the expenditure of public money, instead of being the maintainer of the educational system. A controversy has ensued over the fact that the state, under this new role, wants to take part in the management of the universities through the creation of the Board of Directors (see section 2 of this report). Hungary also makes the distinction between the classical humanist notion of pure knowledge and the pragmatic one of applied knowledge, and this has led to discussions about the difference of values and interests between the knowledge offered by the traditional HE institutions and the demands of society. The Hungarian Academy of Sciences questions the need to

change the historical formations of the educational structures that have proved to be successful, and states that “rather than imitating ‘fashionable’ economising trends, it would be more important to focus on the primary conditions of quality” (Jakab et al 2005: 56).

Economisation has also had an impact in France, and has introduced into the French HE system notions that were not previously in existence. One of them is the idea of “competition” between HE institutions for excellence and for students, not only at an international level, but also in the national context and, particularly, between those located in the same geographical area, related to the new autonomy of universities regarding course content. This will create a new “national HE marketplace” that represents a significant change from the traditional idea of “national cohesion” (Le Feuvre and Metso 2005a: 54). However, it is still too early to know the effect that this will have. A very similar transformation is announced in Spain, particularly for postgraduate education, with an equally undefined development, as the new postgraduate degrees will not be proposed until February 2006.

In Norway, the Anglo-American educational tradition was established after World War II and it was manifested through the creation of various institutes of applied research. This tradition cohabited, however, with the European knowledge-based vision. Even if these two traditions have shared the HE system in Norway for such a long time, debates of basic vs. applied research still take place, with some disciplines considering that too much money goes to the research institutes (responsible for applied research) to the detriment of universities (involved in basic research).

In Finland, the importance given to international cooperation and its following of the OECD policies on developing a knowledge-based economy and society led, among other things, to the introduction of a “third task” for universities, besides teaching and research: impacting on the surrounding society and industry. The so-called “globalisation group” was established to discuss how Finnish production and economy could be successful at times of increasing globalisation and changing economic relations. In the report published in 2004, specific emphasis was given to the production of knowledge and the efficiency of the university system. It stated that competition for university funding should be increased, but also that additional funding should be directed especially to fields of research which enable economic growth and productivity. The increase of external funding in universities and the new ways of organising research have been a focus of Finnish debates on research policy. The changes have been called “academic capitalism” due to the introduction of market-based interests into university research through applied research and closer contacts with trade and industry. Academic capitalism also refers to the tight competition for research funding even if not closely connected to business interests. Interestingly, a Finnish research project (Hakala et al 2003; see also Hakala and Ylijoki 2001; Nieminen 2003, cited in Keskinen and Silius 2005: 39) which studied these changes came to the conclusion that many of the dangers described in academic texts on academic capitalism had not come true. University departments had survived rather well in the competition. Basic research was still valued in the departments and units, although at times there were discrepancies with especially commercial interests. On the other hand, in certain cases, it had become even more usual to emphasise the theoretical and academic aspects of research than earlier. The survey also showed that

scientific values had not changed in a radical way although external funding and project research had increased considerably. Nor had the independence of researchers and research groups disappeared or decision-making power moved to providers of external funding. The formulation of research problems and choosing research methods was often done in negotiation between researchers and providers of funding. The study points out that researchers and other staff in the departments carry out the changes in their own way and adapt the demands to suit their purposes.

This is an interesting study, as it begins to approach some of the questions raised by EU guidelines, seen by some agents to be very conservative and non-socially oriented. A basic question is whether introducing aspects such as attention to employment, applicability (of learning and research) or funding-conditioned education and research hinders basic education and knowledge. The differing results suggest that it is the restricted interpretations and inflexible or unbalanced policies that constitute the real obstacles. There is no doubt, however, that the changes proposed have the potential to transform a more established, European conception of education and knowledge, and that the conflicts between the new objectives and existing structures need resolving for a more harmonious process of transformation.

7. Conclusions

The provisional state of the Bologna process, given its present phase of implementation, makes the analysis of its effect on interdisciplinarity mostly an exercise in prediction from sometimes contradictory facts. In this report we have tried to identify tendencies and possible outcomes, and to compare their results in the eight European countries studied by the project. For our conclusions, we would also like to make use of *Trends III*, the last progress report on the implementation of the Bologna process, prepared for the meeting in Bergen in May 2005 (Reichert and Tauch 2003). A reading of this report together with the specific national reports prepared for this project is quite illuminating, as it confirms important issues identified by our own updated research. *Trends III* takes into account information from all signatory countries in the process, therefore going beyond our eight case studies, but the high degree of coincidence shows the magnitude of the transformations expected and the recurring (perhaps peculiarly 'European') obstacles.

Our report emphasized the lack of a European outlook in the implementation process, showing that it is mostly being carried out from a national perspective. *Trends III* discusses the basis for this:

Currently, a large majority of European higher education institutions are alike (...) in the dominance of a national orientation regarding the community they primarily serve. Only 13% of all European HEIs (16% of universities) see themselves as serving a world-wide community (with large country divergences in this respect), while only 7% see themselves as primarily serving a European community (Reichert and Tauch 2003: 15).

The divergence that we have encountered among countries are therefore not surprising, nor is the attention given to primarily national or local factors, whether academic or social. This is shown in the divergent interpretations of Bologna principles and strategies, which often have contradictory results depending on the country of application.

The top-down approach to implementation of the Bologna process was also observed for all eight countries analyzed, although it materialised in different forms and with different degrees of consultation of HE communities. However, the main agents involved are those who already have decision-making power, that is, the government and the top boards of HE institutions. Other agents, such as the students or even the academic staff themselves, are more reluctantly incorporated. The need to encourage the development of a bottom-up approach was mentioned in *Trends III* :

[T]he reforms have yet to reach the majority of the HE grass-roots representatives who are supposed to implement them and give them concrete meaning. (...) [I]nterpreting Bologna in the light of its goals and the whole context of its objectives at departmental level (...) is a task that still lies ahead for a majority of academics at European universities. Administrative staff and students seem so far to be even less included (Reichert and Tauch 2003: 7).

Thus, implementation has often meant a power struggle among the main agents involved in the process, the government and the HE institutions. While the latter generally seek more autonomy, the state wants to exercise tighter control. As we have seen, Bologna is having an impact on this balance, although in some countries (France, Finland), it is leading to an increase in the autonomy of the HE institutions, at least at the academic and management levels. However, even where HE institutions are more autonomous, the state has developed mechanisms of control, mostly through centralised bodies, funding, and quality assurance and evaluation procedures. Again, *Trends III* identifies this: “Increasing autonomy normally means greater independence from state intervention, but is generally accompanied by a growing influence of other stakeholders in society, as well as by extended external quality assurance procedures and outcome-based funding mechanisms” (Reichert and Tauch 2003: 12).

It is in this context that we must see the ambiguous opportunities for changes in disciplinization and for interdisciplinarity. The disciplinary order, at least at the educational level, is being affected by the Bologna process in most countries. To different degrees, all eight countries analyzed in this report have started the implementation of the new degree structure which, in most cases, has involved reforms in their national HE systems. However, as regards disciplinization, the effects are not uniform and, in general terms, it is the postgraduate level (Masters and Doctorate) that is most likely to accept or produce innovation through the introduction of new areas of study or of interdisciplinary work. This is contradictory, however, with the conservative disciplinary organization that undergraduate courses are developing in a number of countries, and with the objective of employability allegedly inseparable from these.

The national reports on the eight countries analyzed also describe recurring barriers to interdisciplinarity, mostly the administrative structure of the HE institutions and the governmental structures dealing with HE issues (academic career, funding and quality assessments mainly), which are still organized on a disciplinary basis. Thus, it is important that the reform of the national HE systems is implemented also at these levels, not only in degree structures, and that it has a global scope. *Trends III* confirms this suggestion to individual countries: “Governments and HEIs will have to cooperate closely to ensure that the implementation of the new degree structures is not done superficially” (Reichert and Tauch 2003: 11). However, we identify the need for active promotion of these issues from a EU level, since, as we have seen, the national interpretation does not always work in the direction of the EHEA, and the Bologna process can be used to make changes in the national HE systems that have little to do with the EHEA.

The focus on labour market needs, which in some cases is totally new for the national HE traditions, is proving to be positive for interdisciplinarity, as this type of knowledge is regarded necessary for employment. However, this happens in some countries only at the level of discourse, since it is in the degree that is defined as mostly relevant for the labour market, the Bachelor degree, that the reinforcement of the disciplinary order is most evident. “In countries where first degrees at Bachelor level have not existed in the past, there still appears to be a tendency to see these as a stepping stone or orientation platform, rather than as degrees in their own right. The perception of Bachelor degrees as valid and acceptable qualifications still leaves room for improvement” (Reichert and Tauch 2003: 11).

The related issue of the “economisation” of HE, which may affect interdisciplinarity in a number of ways, has led to extended debates in most countries on the need for basic knowledge (Humboldtian-German academic tradition) and applied knowledge (Anglo-American academic tradition). This is also reflected in *Trends III*, which, as our own report has done, sees its harmonization as one of the major challenges:

[F]ears of short-sighted misunderstandings of the ways in which higher education should aim at employability and relevance to society and the economy have re-emerged frequently in the context of comparing and redesigning modules or degree structures. To do justice to the concerns of stakeholders regarding the relevance of higher education and the employability of HE graduates, without compromising the more long-term perspective proper to the higher education institutions and to universities in particular, may well be the most decisive challenge and success-factor of Bologna-related curricular reforms (Reichert and Tauch 2003: 9).

Such reflections bring us back to the difficult balance between the principle of independence of universities abrogated in the earlier 1988 *Magna Charta Universitatum* (see section 1) and some of the more pragmatic objectives derived from the 1999 *Bologna Declaration*, and, specifically in our topic of interdisciplinarity, the structures produced by each pole and their enabling of interdisciplinarity. While it may seem that universities in Europe, given their mostly Humboldtian tradition, might be a repository of disciplinarity, our research has shown that it is mostly when unifying state-control regulations are removed that spaces are opened for interdisciplinary action, particularly in education. While the tendency to disciplinary organization in research evaluation, academic career paths and funding is almost certainly a product of past academic thought and taxonomies (as shown by resistance to new disciplines from within), it seems that at the moment these values tend to be enforced by administrative and state structures, which urgently need to be, at the very least, flexibilised, as is beginning to occur in some of the countries analysed in this report.

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