COMMISSION OF THE EUROPEAN COMMUNITIES

Brussels, 2.4.2009
SEC(2009) 425

COMMISSION STAFF WORKING DOCUMENT

accompanying the

COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS

A new partnership for the modernisation of universities: the EU Forum for University Business Dialogue

{COM(2009) 158 final
SEC(2009) 423
SEC(2009) 424}

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1. INTRODUCTION

This staff working paper complements the Communication " **A new partnership for the modernisation of universities: the EU Forum for UNIVERSITY-BUSINESS Dialogue**". The Communication reports on the first year of operation of the EU forum for University Business Dialogue, draws conclusions and makes proposals for future work. This text reports more fully on the experiences of university-business cooperation which lie behind the exchanges in the Forum. The intention is to highlight good practises which can serve as a model for new initiatives in this area with a view to strengthen high level skills, innovation and creativity.

The paper draws on practical experiences of university-business cooperation from the Member States, from European programmes and contributions from the University-Business Forum workshops which took place over 2008[1] and continue in 2009. The University-Business Forum covers a broad range of areas in which cooperation between universities and businesses was seen as having a contribution to make. Themes for cooperation include:

- Governance
- Curriculum Development
- Lifelong learning
- Mobility
- Entrepreneurship
- Knowledge transfer

The report aims to summarise some of the main trends in these areas, consolidating the work in the Forum's meetings and workshops by drawing on additional background research. It will help to support Member States' efforts in the modernisation of Europe's Universities in line with the modernisation agenda for universities: education, research and innovation[2].

In 2006, the European Commission published a Communication on "Delivering on the Modernisation Agenda for Universities: Education, Research and Innovation". The Modernisation Agenda for universities is part of the Lisbon Strategy for Growth and Jobs. It highlighted the key role Universities will play in Europe's future and in the successful transition to a knowledge-based economy and society. However, this crucial sector of the economy and of society needs in-depth restructuring and modernisation if Europe is not to lose out in the global competition in education, research and innovation.

[1] University-Enterprise Workshop, Brussels, 17 July 2007, Brussels; Thematic Forum on Continuing Education and Lifelong Learning (Brussels, 30 June 2008); Thematic Forum on Curriculum Development and Entrepreneurship (Tenerife, 30-31 October 2008); European University-Business Forum, Brussels, 5-6 February 2009.

[2] Mobilising the brainpower of Europe, COM(2005)152 ; Delivering on the modernisation agenda for universities, COM(2006)298.

The Communication suggested changes in nine areas as key to success:

– Break down the barriers around universities in Europe

– Ensure real autonomy and accountability for universities

– Provide incentives for structured partnerships with the business community

– Provide the right mix of skills and competencies for the labour market

– Reduce the funding gap and make funding work more effectively in education and research

– Enhance interdisciplinarity and transdisciplinarity

– Activate knowledge through interaction with society

– Reward excellence at the highest level

– Make the European Higher Education Area and the European Research Area more visible and attractive in the world.

The need for action in these nine areas is widely acknowledged by stakeholders and Member States, most recently in the Council Resolution of 23 November 2007. There remains however a clear challenge in the implementation of these measures.

One of the EU-level responses to the changing role of HEIs in the economy has been the establishment of the European University-Business Forum, intended to facilitate exchange of examples of good practice, to foster mutual learning and networking and to inspire further activities in the EU Member States. The Forum is the European Commission's response to calls from the academic and business communities for regular and sustainable dialogue, exchange, sharing and mutual learning.

2. UNIVERSITY-BUSINESS COOPERATION – DRIVERS FOR COOPERATION

At the heart of University-Business Cooperation is the need for Europe to be globally competitive in the knowledge-based economy. Asian economies are overtaking the US and Northern Europe to become the most competitive in the world[3]. After the European Union and the US, China is now the third largest economy in the world. Skilled labour supply in China now equals around 40% of that in all OECD countries, and the growth rate of student numbers is much higher than in the OECD. In the coming years, these shifts may have major implications for global trade[4]

The discussions and presentations in the University-Business Forums point to a number of different drivers for cooperation from the perspectives of business and higher education.

- The changing role of universities in the economy: new sustainable models

[3] 20th World Competitiveness Yearbook, released May 15 2008 by IMD business school

[4] The Higher Educational Transformation of China and Its Global Implications: NBER Working Paper No. 13849 http://www.nber.org/papers/w13849

- Supporting innovation and higher level skills in businesses
- Creating new entrepreneurs, new business start ups
- Improving employability of graduates

The public consultation was designed to involve stakeholders in present and future European debates concerning school education; however, it did not present a proposed policy on which views were sought. On the contrary, it sought to involve participants in the development of future cooperation work by seeking their views on some important aspects of school education and on future challenges and possible solutions. Opinions were sought in particular on what the added value of European cooperation could be in addressing common challenges, while respecting the principle of subsidiarity and Member State competences.

2.1 The changing role of universities in the economy

Throughout the world a consensus is emerging regarding the position and role of Higher Education in the developed knowledge economy, with common agreement that universities are not just places of teaching, learning and 'ivory tower' research. Where it has been possible in the past to sustain academic activity simply to increase the body of knowledge and understanding in particular domains, the economic consequences and opportunities arising through scientific and technological advances have brought knowledge and the acquisition of knowledge firmly into the economic sphere and into world markets. Universities are thus increasingly becoming actors in the landscape of global economic relationships and transactions.

At the same time, a role has been identified for HEIs in the upgrading of skills in the workforces required to power the new knowledge economies, presenting opportunities to engage far greater numbers of students in tertiary education, and to support and resource the lifelong learning activity which can afford not only personal fulfilment but also the continuous updating of skills to meet rapidly changing requirements in the economy. Globally, universities are expected to meet a variety of challenges:

– To contribute to the economic welfare of a region and/or country

– To respond to academic competitive forces

– To engage in the drive for prestige

– To respond to increasing enrolments

– To respond to globalisation of education

In a February 2007 speech at London's Brunel University, the then UK Prime Minister Tony Blair said 'Colleges as sites of disinterested learning are one of the great parts of our civilisation. But we have grafted onto them a very modern phenomenon - that the knowledge that was once the preserve of an elite is now the indispensable requirement for economic advance. To that extent the democratisation of university entrance is a matter both of social justice and of economic efficiency.'

This new enlarged relationship between HEIs and the economy and labour market inevitably directs tertiary education towards collaboration with the primary agents of economic delivery and employment – businesses.

2.2 More innovation and higher level skills in business

The Mid Term Review of the Lisbon Strategy stressed the importance of knowledge and innovation as key drivers of European competitiveness, and outlined a variety of proposals aimed at increasing the level, efficiency and the exploitation of education and research as the drivers of innovation.[5]

"The innovation gap between the EU and its two main competitors, the US and Japan, has been decreasing but remains significant" according to the 2008 edition of the European Innovation Scoreboard (EIS)[6]. The US keeps its lead in 12 out of 16 indicators for which comparable data are available, and Japan keeps its lead in 12 out of such 16 indicators

In this context there is a limited level of knowledge sharing, exchange and transfer between higher education and research centres on the one hand and business on the other[7] . Many European universities and researchers still consider business as a separate, perhaps even an alien world, and many businesses do not consider interaction with universities or other research organisations as a strategic input into their future. Whilst this is, in part, a demand side problem resulting from widespread private sector reluctance to work with the higher education sector[8], the responsibility also lies with European universities, and their ability to deal with the demands of the private sector[9].

2.3 New entrepreneurs, new business start ups

The 2005 Lisbon Strategy describes the essential role of entrepreneurship to promote economic growth. Entrepreneurship and start-up businesses provide jobs, in particular higher-value jobs and career opportunities. In order to sustain economic growth the level of entrepreneurship, and the number of new start-ups must continue to increase. Research demonstrates a positive correlation between entrepreneurship and economic growth, and shows that countries with high entrepreneurship rates have decreasing unemployment rates.

The Global Entrepreneurship Monitor (GEM) 2007 indicates that Europe has far less entrepreneurial activity than China and the US, for example. The GEM figures for "overall entrepreneurial activity" in China are 24.6% compared to, for example, Austria (8.4%), Belgium (4.6%), France (4.8%), the Netherlands (11.3%) or the United Kingdom (10.5%)[10]. Looking at the figures for "High Growth Expectation Early Stage Entrepreneurship in the Adult population", China is higher than all other GEM countries.

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5 COM (2005) 24 final "Working Together for Growth and Jobs: A New Start for the Lisbon Strategy"

6 EIS 2008 published on 22 Jan 2009. EIS is an instrument providing a comparative assessment of the innovation performance of the EU Member States and a limited number of other countries. Report and annexes are available at http://www.proinno-europe.eu/metrics

7 OECD (2002) Benchmarking Industry-Science Relationships

8 (2003) The Lambert Review of Business-University Collaboration

9 Lambert, R. and Butler, N. (2006) The Future of European Universities: Renaissance or Decay?

10 Entrepreneurial Activity in 2007 across the globe GEM Adult population survey 2007 (APS)

The appearance of new pressures on the European economy include an ageing population, shrinking labour force, as well as increasing competition from emerging economies that offer cheaper labour. Facilitating entrepreneurship gives advantages in opening up employment for currently under-utilised sections of the workforce, including the unemployed, disadvantaged, and in particular enabling the entrepreneurial potential of women. In this way entrepreneurship can also contribute to social cohesion through the level of employment as well as enhancing the level of individual economic reward and work satisfaction. Europe needs to prioritise entrepreneurship for these reasons; and universities need to be at the heart of its efforts to do so.

Professors, students and researchers need to develop entrepreneurial skills to facilitate the creation of new opportunities from study and research[11]. On the whole Europe produces few spin-outs and new businesses. The staff working paper[12] accompanying the Communication "Think Small First - A Small Business Act for Europe" underlines that entrepreneurship is still not sufficiently reflected in educational and training policies.

Another issue in the EU relates to insufficient mobility in education, innovation and research among professors, students, researchers and company staff. The low level of mobility – between institutions, across borders and between academia and business – and the existing legal and administrative barriers to mobility hinder knowledge exchange, sharing, transfer and creation.

In order to encourage entrepreneurship, a more favourable social climate must be created through changing the mindset, culture, and the skills set of the workforce, removing obstacles to start-ups and promoting self-employment as an attractive prospect. Higher education provides an ideal opportunity to foster entrepreneurial qualities by enabling individuals to develop the generic attributes, skills and attitudes for entrepreneurship, as well as imparting knowledge about start-up, business, and markets. Higher education institutions offering life-long learning can also spur entrepreneurial activity among individuals who are already in the workforce. Furthermore, individuals with an understanding of entrepreneurship can make a greater contribution to employers. Traditionally, education in Europe has not encouraged entrepreneurship, but examples are emerging of new initiatives to include this is in curricula[13].

2.4 Enhancing the overall employability in students

There is an increasing labour market demand for people with the highest qualification levels (European Centre for the Development of Vocational Training (Cedefop) study: 12.5 million additional jobs at the highest qualification level in 2015; jobs that require high or intermediate skills will correspond to 79% of labour market needs in 2015[14]. Technological change and globalisation are likely to further accelerate the shift in skills demand. Without the adaptation of Higher Education and forecasting techniques which will allow universities to respond to labour market demands as they emerge, the supply will be insufficient.

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[11] COM (2006) 33 "Implementing the Community Lisbon Programme: Fostering Entrepreneurial Mindsets through Education and Learning"

[12] SEC(2008) 2101 "Commission Staff Working Document *accompanying the* Communication "Think Small First - A Small Business Act for Europe"

[13] Communication from the Commission to the Council, *Implementing the Community Lisbon Programme: Fostering entrepreneurial mindsets through education and learning* (2006)

[14] Compared to 74% in 2006

Feedback from employers indicates that a too many graduates do not have the right mix of knowledge, skills and competence that is required in the labour market. Employers are asking in particular for more transversal and transferable skills, an area of skills development which is often inadequately tackled by universities. Research by the CBI[15] in the UK shows that almost a third of employers (30%) have problems with graduates' generic employability skills such as team working, communication and problem solving. Employers are also disappointed with graduates' attitudes to work (25%), self-management (33%), business awareness (44%) and foreign languages (49%). This mismatch between the knowledge, skills and competences acquired by graduates and those expected and valued by employers, is explored in more detail in the study undertaken by the CIHE in the UK[16]. The report confirms the mismatch and provides some recommendations to employers, universities and students.

The report of EUA "Trends V"[17] suggests that employability is a high priority in the reform of curricula in all cycles. This concern transcends national boundaries and implementation priorities. However, the results also reveal that there is still much to be done to translate this priority into institutional practice. This is a paradox for a reform process inspired, at least in part, by a concern that higher education should be more responsive to the needs of a changing society and labour market. In this respect, one of the main challenges for the future is to strengthen dialogue with employers and other external stakeholders.

2.5 The main stakeholders

University-Business Cooperation takes place between the two communities concerned, but a wider array of stakeholders must also be involved.

Table 1 Examples of stakeholder types

Government/public	• National Government
	• Regional Government/authorities
	• Sector councils
	• Funding bodies
Business	• Business/sector associations
	• Trade unions
	• Joint associations
	• Individual businesses
University	• University Associations

15 CBI/Pertemps, "Employment Trends survey", 2006

16 Council for Industry and Higher Education; Graduate Employability: what do employers think and want; 2008

17 Trends V: Universities shaping the EU Higher Education Area, EUA report, 2007

	• Individual universities
Other	• Qualifications/ Quality Assurance Agencies
	• Professional academic associations
	• Student bodies

There should also be a wide range of interactions, allowing stakeholders to work with each other in a number of ways. From the business perspective cooperation can be envisaged through, for example, national government or regional level, channelled through sector organisations, with either groups of universities or individual universities or with faculties. From the Higher Education perspective it can be through, for example, national and regional business organisations, quality assurance agencies, sector specific organisations, alumni mechanisms or individual businesses.

In order to reach SMEs it is important to include organisations that can act as a facilitator and intermediary to bring in different views and see challenges from a different angle: chambers, incubators, investors, government agencies, technology parks, etc. Such intermediary organisations, in particular those close to business, can reach out to enterprises of all sectors, in particular SMEs, and make the necessary link with universities.

Each type of stakeholder can also take a range of approaches to cooperation. The following table gives some examples of the types of mechanisms which might be used. For universities, the more traditional forms of cooperation such as research projects tend to dominate the types of relationships formed with businesses.

Table 2 Stakeholders and cooperation mechanisms

Stakeholder	Cooperation mechanisms
Universities	Contracted and cooperative projects, Licensing and sale of intellectual property, Graduate training courses, Continuing education centres, Adaptation of courses to new skills requirements, Community services, Scientific and technological parks, Spin out companies, Business support services, Staff and student exchanges
Students (new and alumni)	Knowledge on career expectations, Feedback/evaluation of relevance of UBP approaches
Businesses	Internships for students, Internships for university staff, Contracted and cooperative projects, Knowledge on necessary labour market skills required (technical and managerial), Input on advisory boards, Business professors/role models/entrepreneurs, Creation of new centres of excellence/private training
Government (national and regional)	National strategies with reference to engaging HE with businesses, Higher Education Acts/laws, Funding of national/regional initiatives, New bodies/commissions to discuss these issues, Regional consortiums/networks
Funding bodies	New initiatives/funding streams to promote cooperation
Sector councils/Trade unions	Research into sector skills needs, Dialogue with government and Higher Education
Joint Associations	Research into the complete subject, New projects, Dialogue with government
University Associations	Dialogue with business associations, sector councils, trade unions, Dialogue with government. Represent the needs of universities, Dialogue with QA

Stakeholder	Cooperation mechanisms
Qualifications Agencies	Accreditation, Recognition of University-Business Cooperation in performance indicators.

3. THE EUROPEAN POLICY ENVIRONMENT

There are a number of EU policy initiatives and financial instruments either targeted specifically towards education or innovation or research activities individually, or focusing on specific target groups: Higher Education Institutions, companies, research organisations or regions.

In the area of Entrepreneurship, the Recommendation on key competences for Lifelong Learning was adopted on 18 December 2006 by the European Parliament and Council[18]. Among the eight defined competences are digital competence, social, interpersonal and civic competence and cultural expression and sense of initiative and entrepreneurship. The Communication on "Implementing the Community Lisbon Programme: Fostering entrepreneurial mindsets through education and learning" develops a number of proposals to improve entrepreneurial attitudes in Europe.

The *New Skills for New Jobs* initiative identifies a number of measures and actions to improve the availability and quality of information on present and future occupational demand and related skill requirements. Although there is awareness of the complexity of the undertaking, there is universal agreement that forecasting is an indispensable tool better to inform policy makers and to achieve a better match between demand and supply of skills.

2009 is the European Year of Creativity and Innovation. The activities of the year will focus on creating an environment favourable to creativity and innovation and become a strong impetus for a long-term policy priority. The European Year of Innovation and Creativity is proposed as a cross-cutting initiative covering not only education and culture, but also other policy domains such as enterprise, media, research, social and regional policy and rural development[19].

In the area of mobility the European Job Mobility Action Plan (2007-2010) [COMM (2007) 773] has been adopted. Moreover, specific priority actions fostering the mobility in research, including mobility between academia and business, have been proposed by the Commission (COMM (2008) 317).

Several other policy initiatives address the promotion and development of innovation in Europe. The Commission has proposed framework conditions[20] as well as specific measures in support of research and innovation that will contribute to meet the Lisbon targets. The communication on "Improving knowledge transfer between research institutions and industry

[18] http://ec.europa.eu/education/policies/2010/objectives_en.html#basic

[19] http://europa.eu/rapid/pressReleasesAction.do?reference=IP/08/482

[20] COM (2005) 488 "More research and Innovation, Investing for Growth and Employment: a common approach"

across Europe"[21], with its annex[22] goes a step further and provides more concrete support to different stakeholders.

Particularly important in this context is the establishment of the European Institute of Innovation and Technology (EIT)[23], which aims:

- to contribute to improving the innovation capacity of the EU by involving partner organisations in integrated innovation, research and education activities at the highest international standards;

- to become a model and flagship for the integrated European Innovation Research and Education area by generating innovations in areas of key economic or societal interest and providing a reference for managing innovation.

The policy initiatives are financially backed up by various Community programmes: the Financial Framework 2007-2013 allocates substantial amounts of resources to education, innovation and research related activities to contribute to boost the EU economy and create more and better jobs.

The integrated **Lifelong Learning Programme (2007 – 2013)** addresses important needs concerning the modernisation and adaptation of Member States' education and training systems, particularly in the context of the strategic Lisbon goals. It also brings added value directly to individual citizens participating in its mobility and other cooperation actions.

The **7th Framework Programme for Research and Technological Development** is the main financial tool through which the European Union supports research and development activities. Particularly interesting in this context are measures that support the sharing, exchange and transfer of research results, the mobility programme for researchers at all levels of experience being of particular importance. In FP7 People Programme two important schemes – Initial Training Networks (ITN) and Industry Academia Partnership and Pathways (IAPP) have been further developed, addressing researchers at all stages of their careers starting, from initial research training specifically intended for young people to life-long learning, both in the public and private sectors.

The **Competitiveness and Innovation Programme** (CIP) aims at improving the structural innovation and growth conditions of the Union. For this purpose, it includes actions in support of innovation and of growth for SMEs. It aims to improve access to finance and to promote eco-innovation, while funding EU services in support of business and innovation.

The new generation of **economic and social cohesion programmes** allocates a significant proportion of its budget for investing in the main drivers of growth and employment, especially in the fields of research and development, innovation, business-support activities, employment and education. The Community strategic guidelines on cohesion policy (2007-2013) adopted by the Council, stress the promotion of sustainable development and the

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21 COM (2007)182 "Improving knowledge transfer between research institutions and industry across Europe"

22 SEC(2007)449 "Voluntary guidelines for universities and other research institutions to improve their links with industry across Europe"

23 COM(2008) (EIT)

strengthening of competitiveness by concentrating resources on research and innovation (RTDI), entrepreneurship, information society and training and adaptability of workers.

4. THE NATIONAL POLICY ENVIRONMENT

The wide variety of national and regional political economies in Europe, coupled with the current reforms being undertaken in higher education, means that national policy environments are complex. Although some countries have not explicitly set out University-Business Cooperation as a policy priority, in many countries it is embedded in competitiveness, globalisation or science and innovation agendas. There is also evidence of mature regional or institutional development across Europe.

4.1 Laws supporting University-Business Cooperation

The majority of EU Member States have some form of cooperation decreed by law. However these laws differ in focus and complexity. The following give some examples. In Estonia, since 2003 there is a requirement that all Higher Education Institutions (HEIs) need to have curricula councils where relevant employers or professional associations are represented[24]. In Italy, formal compulsory cooperation of business and social partners is provided for in national law and includes the design of curricula of all 1st and 2nd cycle degree courses. In Hungary, the HE Act states that four members of the Hungarian Higher Education Accreditation Committee must be delegated by chambers and national professional bodies involved in the operation of higher education, while six members of the Higher Education and Scientific Council must be delegated by the chambers, one member each by the Trade Unions of Higher Education Employees and three partner ministries[25]. In Austria, in the Universities of Applied Sciences (UAS), cooperation with business and social partners is provided on a legal basis and all UAS study programmes are profession-oriented.

Austria: Universities of Applied Sciences

In the UAS sector, cooperation with the world of business and social partners is provided on a legal basis. UAS study programmes are profession-oriented. The curricula are designed in close cooperation with experts from industry or the public sector following several analyses of the needs of the job market (section 12 paragraph 2 number 9 and paragraph 3, UAS Studies Act). Consequently the implementation of the Bologna principles has always been borne by the institutions and the world of work. There is a strong involvement of external experts both in teaching and in research. Furthermore, representatives of the world of work are involved in the external and internal quality assessment. (Bologna Report 2007)

The Universities Act 2002 in Austria also makes provision for universities to establish certificate university programmes for further education.

"The individual universities and the Federal Government conclude for periods of three years performance agreements whereby the universities shall formulate their contribution to social progress… this includes courses….for working students…" An amendment to the current university act in Finland also states that "in carrying out their mission, the universities shall interact with the surrounding society and promote the societal impact of research findings and artistic activities" (Amendment 715/2004).

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[24] Estonia: Bologna Report 2007

[25] Hungary: Bologna Report 2007

This quoted part will be included in the new act to come into force in 2010. The role of private partners in two of the 16 universities that will exist in 2010 will be significant.

Finland: New law in 2010

The University Law in Finland will be updated in 2010. Universities will have a strong third mission and have to facilitate lifelong learning throughout their activities. When it comes to governance, there is a proposal that at least half of the members of the university boards - including the chairman - shall come from outside the university.

The Finnish Government has started a reform and merger of universities that will guarantee their autonomy. Universities operating either as corporations under public law or as foundations under private law.

Some Laws are very specific: in Romania, the university-business link is fostered through Law No. 258/2007 on student internships. The implementation of its provisions aims at improving quality and content of internships which represent a compulsory component of curricula[26].

Although less prescriptive, in Sweden[27] the Higher Education Law from 1992 establishes that basic higher education has the duty to prepare students for the changes and challenges in working life. Government proposals have since argued that universities as individual institutions are obliged through law to take labour market needs as well as student demand into consideration in its planning of courses and programmes[28]. In a preview of the 2009 budget proposal, the Swedish government also reveals plans for specific investments into higher education entrepreneurship and innovation specific programmes.

4.2 Policy, strategy and incentives for cooperation

- In the publication 'University and Business: Partnering for the knowledge society' (Luc E. Weber and James D. Duderstadt) the authors argue that University-Business Cooperation can only happen through the involvement of state actors.

A number of Member States have developed programmes and incentives for University-Business Cooperation in their strategies and work through other state actors. In the UK, the Higher Education Funding Council for England (HEFCE) plays a central role in the encouragement of new relationships between Higher Education and employers to support business growth. HEFCE support a workforce development programme[29] which includes employer engagement projects and higher level skills pathfinders. The programme has two related goals - to design and deliver of HE courses in partnership with employers, and to increase the number of learners in the workplace supported by their employers. The programme will run from 2008-2011.

UK: HEFCE Employer Engagement Funded Project – University of Derby

[26] Romania Bologna Report 2009

[27] Student demand tends to be the main regulator of higher education supply

[28] http://www.riksrevisionen.se/templates/OpenDocument.aspx?documentid=4781

[29] http://www.hefce.ac.uk/econsoc/employer/

University of Derby Corporate aims to enhance the University of Derby's capacity for employer engagement and fully exploit its proven flexible frameworks for responsive, customised skills development and lifelong learning. The project will engage more employers, including those in sectors with no tradition of higher education (HE). These opportunities will be designed to develop a highly skilled workforce underpinned by the university's flexible framework for bespoke and shorter awards.

Specifically, the three objectives of the project are to:

- establish a new business model for employer engagement to result in more HE programmes in partnership with employers
- create a new academic career pathway in employer engagement through establishing 'Workforce Development Fellows'
- create a purpose-built facility for services to employers that meets the standards required by business clients.

In response to the current economic challenges, UUK and GuildHE[30], with support from UK Government Ministers and HEFCE, produced a brochure to outline some of the ways that higher education can offer short and long-term help to businesses. This includes points of contact at higher education institutions for publicly funded business support[31].

In Denmark, the Danish Government launched an ambitious and pro-active strategy to equip Denmark for the future. The strategy, which was published in April 2006, contains 350 specific initiatives, which include extensive reforms of education and training programmes as well as research and entrepreneurship, and also substantial improvements in the framework conditions for growth and innovation in all areas of society. Two key areas highlighted were: 1. To set up a collaboration programme to strengthen cooperation between educational institutions and companies. 2. To have greater flexibility in short-cycle higher education programmes in relation to the needs of the labour market. Higher education internships for at least 3 to 6 months have been made compulsory in Denmark for students in the first cycle and are allocated ECTS points. Denmark has also introduced advisory panels of users at all institutions, as well as local educational panels. In order to introduce a new course, universities need to demonstrate labour market research that shows there is a requirement for the course.

In Finland, the new innovation strategy[32] calls for the steering and financing system of universities will be renewed in order to support interaction between universities, trade and industry and other parts of society.

The Ministry of Education, Culture and Science of the Netherlands set out an Education and Research Plan in 2004. The plan expressed the government policy aims to achieve excellence and maximum participation in higher education. Included in this was an emphasis on strengthening the relationship between higher education and business and industry. In the

30 UUK is Universities UK and GuildHE is an inclusive body, a key advocate for institutional diversity across higher education

31 http://www.universitiesuk.ac.uk/Publications/Bookshop/Pages/DIUScrisisleaflet.aspx

32 http://innovaatiostrategia.fi/en

Netherlands a number of national agencies and committees support strong relationships between higher education institutions and industry. The Advisory Council on Science and Technology Policy (AWT), the Education Council, and the Social-Economic Council (SER) have all advocated the strengthening of systematic partnerships between higher education institutions and their regions, including enterprises in order to facilitate knowledge transfer. Policies include: collaboration on research and education projects, exchange of personnel, more flexible forms of learning, as well as competence-based learning and the establishment of the Innovation Platform. The policies have resulted in an increase in contract research and establishment of "strategic alliances" between universities and industry[33].

4.3 Research into University-Business Cooperation

The national data on both the need for higher education-business engagement for skills and innovation and the actual level of engagement of universities and enterprises are underdeveloped. At Community level the FP7 Regions of Knowledge initiative aims specifically at the integration of research capacity of universities to the service of the regional and local development within the frame of triple-helix-clusters (business entities, universities and local public authorities). There are, nevertheless, some examples below from the UK, Ireland and Germany.

The UK has a substantial amount of published data and research mainly due to the targets of the Leitch Review[34] and the Lambert Review on business and university collaboration.[35] A large body of evidence has been put together by the CIHE, the Council for Industry and Higher Education.. which has recently produced reports on the "Employer Demand for Higher Level Learning", "Global Horizons and the Role of Employers", "Developing Entrepreneurial Mindsets" and "Graduate Employability" for example.

The higher education sector in Ireland has responded to the demands of the labour market through a series of skills initiatives arising from recommendations of the Expert Group on Future Skills Needs (ESFSN). This government-appointed body brings together industry, academia and State agencies in identifying overall skills requirements in the economy. The EGFSN analyses Ireland's skills and labour needs and makes recommendations for new courses.

The German Academic Exchange Service (DAAD) carried out a project in 2006-2007, entitled University-Enterprise Cooperation, which built on new challenges from past experience from 2006-2007. The project aimed to analyse the place of University-Enterprise cooperation in EU education and training policies to see how universities have integrated this into their strategy and activities. An online survey showed there was a need for structures to promote on-going dialogue and better understanding between universities and business. There is also a need for further professionalisation of higher education management (i.e. how to manage intellectual property, and costing policies, overheads, staff management, customizing service, research/continuing education etc). Furthermore, the project found that universities and enterprises have different cultures and different objectives with universities operating on long-term goals, and enterprises focussing on short-term solutions. Eleven institutions were

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33 Centre for Higher Education Policy Studies *Issues in higher education policy: An update on higher education policy issues in 2004 in 11 Western countries* (2004)

34 http://www.dfes.gov.uk/furthereducation/uploads/documents/2006-12%20LeitchReview1.pdf

35 http://www.hm-treasury.gov.uk/lambert_review_business_university_collab.htm

chosen for case studies, which revealed a number of examples of good practice including: student placements, mission statements/strategic plans and support structures and services. This research showed the benefit of making placements compulsory in initial education programmes, of developing entrepreneurship in education and training, and integrating continuing education into lifelong learning strategies. In addition, the need to upgrade the curriculum, to develop joint research and to support the development of spin-off companies was highlighted. The report concluded that producing qualified workers for a European knowledge society can be achieved through joint strategies in structured networks, to mobilise resources, and respond to market needs. This requires permanent, yet flexible partnerships, and structured dialogue between universities, enterprises and policy-makers.[36]

5. ACTIVITY AT THE MEMBER STATE LEVEL

Whether prescribed or supported through law or policy at the national or regional level, there are interesting examples of activities in the context of University- Business Cooperation taking place at the institutional level in the Member States. The University-Business Forum has been looking at cooperation in the areas of:

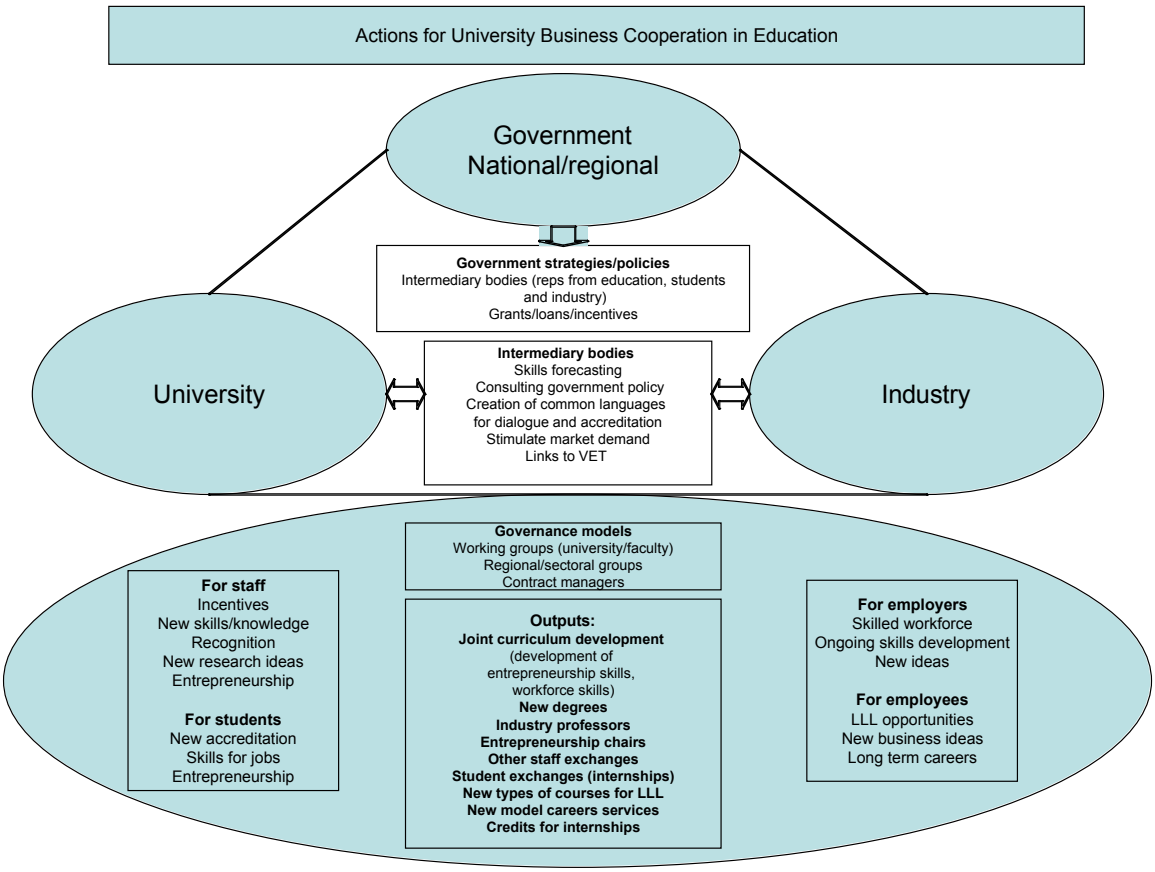
- Governance
- Curriculum Development
- Mobility actions
- Entrepreneurship
- Continuing Education
- Knowledge Transfer

All of these areas are interlinked with many initiatives which may be cross cutting or addressing wider agendas at the level of skills, innovation and creativity. The examples under each category in the following sections give a flavour of the types of activities undertaken in the Member States. Where they touch on other important policy priorities (widening participation, gender balance, regional economic development) this is highlighted. It is followed by a specific section on "other related issues and activities" which are supporting University-Business Cooperation through other national policy agendas.

In order to help illustrate the complex landscape of University-Business Cooperation and the stakeholders the following diagram maps links between the stakeholders and highlights the types of actions and outputs that are expected.

[36] University-Enterprise Cooperation: building on new challenges from past experience, Project Report, DAAD (2006)

Figure 3 - Actions and outputs of University-Business Cooperation in Education



5.1 Governance

For Higher Education, modern governance reform normally means the introduction of more autonomy and responsiveness to society's diverse needs. Institutions are being encouraged to increase their capacity and willingness to become involved in a wider range of activities and to involve more stakeholders: this includes industry. Although industry involvement in modern university governance is limited, it is growing, and is playing a number of roles in governance structures. It can help universities to modernise their structures and funding models, it can help shape courses and degree structures at the strategic level, it can incentivise universities to engage with business, it can help universities in research and development decisions, representing the economy and societal issues. Engaging in governance can also be at the national and regional level, through organisations which mobilise industry and higher education to work together. The Member States are taking various approaches to incentivising and improving engagement with industry. This is happening both at the policy level, through Education Councils, new bodies to promote University- Business Cooperation, and also at the institutional level, through the advancement of teaching staff's careers, widening roles for the career advice centres and other incentives. At the same time, stronger collaboration with universities needs to be balanced with the continued involvement of students and teachers in the governance process. Effective governance needs to be inclusive. Universities also need to link their governance structures to their diverse missions and strategic priorities.

The University-Business Forum has demonstrated that changes in higher education governance at national regional and institutional level are core conditions for the development of effective collaboration between university and business.

5.1.1 National level organisations

In the UK, Ireland, Greece and Spain although very different types of bodies, there are Councils and other organisations which help support the governance of University-Industry Cooperation. The UK has three important organisations. The Council for Higher Education and Industry: CIHE[37] is a high level partnership between people from a wide range of businesses, universities and colleges. The Council leads in developing an agreed agenda on the learning issues at higher education level that affect the UK's international competitiveness, social cohesion and individual development. The National Council for Graduate Entrepreneurship (NCGE) was formed in 2004 with the aim of raising the profile of entrepreneurship and the option of starting a business as a career choice amongst students and graduates. The Council is not only focused on graduates starting businesses, but understanding, developing and promoting a culture of entrepreneurship within higher education through research, education and facilitation[38]. The majority of HEIs have an independent majority on their governing bodies and the Leadership Foundation for Higher Education[39] provides a dedicated service of support and advice on leadership, governance and management for all the UK's universities and higher education colleges.

In Greece, the National Council for Education (Ethniko Symvoulio Paideias - ESYP)[40] is an autonomous advisory body for the Ministry of Education. It aim is to guarantee the widest consensus possible on issues relating to educational policy and practices, to create a community forum where dialogue can occur between a diverse group of policy makers, academics and community members resulting in improved educational opportunities in Greece. Since 2005, the Confederation of Greek industries has been involved in participating in the National Education Council to represent the views of industry.

Ireland has a Joint Council: Irish Business and Employers Confederation and the Irish Universities Association. The Irish Business and Employers Confederation (IBEC)/Irish Universities Association (IUA) Joint Council promotes collaboration between enterprise and universities and provides a forum for university heads and senior business people to discuss national and international issues of common interest.

In Spain the universities' Social Councils (Consejos Sociales), are required by the national legislation and other policies as a mechanism to link the university with important components of the economy, society and culture. The social councils however need to be improved and be credible both inside and outside the university. Spain also has the CYD, the Knowledge and Development Foundation (Fundación Conocimiento y Desarrollo)[41]. CYD was created in 2002 at the initiative of Spanish employers' organisations and universities. Its mission is to showcase and promote the contribution of universities to Spain's economic and social development, and to build links between universities and business. In its 2007 report on

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37 http://www.cihe-uk.com/index.php

38 http://www.ncge.com

39 http://www.lfhe.ac.uk/

40 http://www.ypepth.gr/docs/what_is_the_national_council_for_education__esyp__080115.doc

41 http://www.fundacioncyd.org/wps/portal

the "Contribution of Spanish Universities to Development" CYD analyses the role of the university system in Spain's economic and social development

From the business perspective, in Germany, Stifterverband is the business community's innovation agency for the German science system. It is a private sector-led approach to ensuring research and education excellence in science. It undertakes a number of programmes supporting this aim including looking at quality, career orientation, collaboration, encouraging dialogue and analysing research structures in Germany. Stifterverband has been working on formulating legal guidelines for a more competitive university system and recently benchmarked state university laws in a major study.

5.1.2 Institutional boards promoting cooperation

In most Member States, university boards include members from business and society in their governance structures in the broadest sense. In Austria, each university has one university council with three members holding responsible positions in the societal, scientific, cultural or economic sector who must be external to the university and the public sector. In practice between 40 and 60% of the university council is from the business sector[42].

There is a new law in Baden-Württemberg in Germany which means that universities have an advisory board which is de facto the ruling body. Karlsruhe is one of two universities that decided to have all 9 members of the board from outside of the university. There are also advisory boards at the faculty level who advise on curriculum content and although they have no formal powers, there are between 3-7 external members on each board. The university has an alumni and careers service advisory board which looks at key qualifications and soft skills.

The University of Minho in Portugal has strong links with the region's industry, both with large companies and SMEs. Representatives of companies sit on the board of governors, and the topic of university–business cooperation is often a subject for board meetings.

Denmark has introduced advisory panels for all higher education institutions that include industry representatives, in particular with a view to more communication with the regional economy

There are still some issues in the implementation of new representative governance mechanisms. In Spain for example, the election of representatives varies a lot across the HEIs and in spite of the participation of various stakeholders in the boards, the system is still thought to lack flexibility when it comes to the election of rectors. Often elected representatives are still lacking the requisite skills sets in management and leadership to be able to adequately fulfil all of their duties[43].

5.1.3 The expanding role of careers guidance and alumni

Most universities have careers guidance for the students' careers after higher education. These services tend to be underutilised resources in Higher Education where flows of information to and from industry could be strengthened, as well as feedback from students entering the

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[42] The composition of every university council can be found at: http://www.portal.ac.at/owa/portal.overview_en?otp_id_in=6

[43] University Business Forum : Governance session Feb 2009.

labour market. In the past, careers services connections have been dominated by highly visible multinationals, which targeted universities. New trends in careers services include initiating greater contact with regional economies, including SMEs. A number of countries have national accreditation standards for careers guidance practitioners and there is currently a project underway to look at putting together a comparable system across Europe or certifying professionals.[44]

The UK offers some good examples of how careers services are changing, involving businesses from the beginning of a student's education. Liverpool John Moores University, has changed the way it offers career advice to students through incorporating a new service: World of Work (or WoW skills) which is part of the degree offering. The university decided that higher education has an obligation to provide students from the outset with such workplace skills as project management and strategic thinking. WoW skills are being developed with organisations including Marks & Spencer, Pilkington, the National Health Service, Ford, Littlewoods, Shell and the CBI. These organisations help decide what skills the students should have and are in charge of assessing them through external accreditation.

The University of Lancaster, Centre for Employability, Enterprise and Careers (CEEC - UK), has developed a number of new initiatives to engage employers in the region. CEEC focuses on its external role, engaging local enterprises and has embarked on providing compulsory programmes of employability and enterprise skills relevant to all employers. The University of Manchester Careers Service (Manchester Leadership Programme, Careers & Employability Division), is working with large companies and SMEs to develop placements but also to support local business by involving SMEs in curriculum development, by partnering with 13 other careers services in the region to offer a pool of 50,000 students placement and graduate jobs, and to help SMEs access resources at universities.

Raising Employers' Awareness about the Bologna Process (REABP) is a 16th month project, partially funded by the EU with 4 participating institutions from the Coimbra group. Targeting careers services and employers, the project aims to create an interactive dialogue between universities and employers. The Careers Service also participates in FEDORA, the European Forum for Student Guidance. With a 3-year rotating cycle of conferences, congresses, and summer universities the Forum provides an opportunity for careers guidance professionals to exchange knowledge and share examples of best practice across different institutions and countries.

At the TU Berlin[45], the careers service has taken on a role to help promote entrepreneurship in students, graduates and young researchers. They are using the self employed as role models or ambassadors to come into the university. As part of this the university organises panel discussions with employed and self-employed speakers on topics such as career building, work-life balance etc. It cooperates with TU graduates who have founded their own company – for example as guest speakers in presentations, lectures and conferences and as mentors. As well as continually reviewing their own service the TU is working on transferring the concepts developed to other Technical Universities in Germany and on a European level.

44 International Association for Educational and Vocational guidance

45 http://www.career.tu-berlin.de/

5.2 Curriculum Development

Employability has been at the heart of curriculum reform called for in the Bologna process, but with varying degrees of attention and success.

The forum on curriculum development organised by the European Commission (held at Tenerife, 30th – 31st October 2008) stressed the heterogeneity of the landscape of higher education policy, universities and employers in Europe. Although the advantages of cooperation are clear, there is no one single mechanism, but many which will fit the different contexts of individual, regional and national approaches. However common threads included: the need to demonstrate quality and relevance of study to the labour market, the need for continuous, structured dialogue over time, incentive systems for universities, widening the roles of alumni and career services and providing a common language for dialogue and skills

The range of practice across Europe includes:

– Organisations/enterprises involved in influencing curriculum development

– Joint courses between sectors and universities/facilities

– Involvement in the development of learning outcomes

– Quality assurance

More extensive dialogue with the business sector at the faculty and university level can be very beneficial for the redefinition of knowledge, skills and competences required by graduates and for setting in place cooperative learning.

5.2.1 Organisations involved in influencing curriculum development

For enterprises, getting involved with curriculum development is often a gradual process. Initial contact for enterprise often happens through careers fairs or interviews with students. A second step might be the involvement in student or staff placements or guest lecturing. Collaborative research or joint partnering in developing qualifications is more complex. In most cases this is done through industry associations (eg UIMM in France), unless companies are large multinationals with the ability to mobilise significant resources in this area (eg SAS, Schlumberger, Telefonica, Shell). In the case of large firms, there is often scope for them to have an individual strategy towards how they would like to work with the University sector. SAS[46] for example has a global academic programme and works with over 4000 institutions worldwide and 67 in the UK. The company strategy in this area aims to link customers and universities, to create internships and special programmes for students, to work with academic thought leaders and to develop flagship schools.

Enterprise: Schlumberger – University Relations

Through their Ambassador Programme, Schlumberger is working with about 45 universities worldwide. Schlumberger works directly with faculties and although the company does not specify course content, the company emphasises the need for teamwork, communication skills

[46] http://www.sas.com/

and a commitment to learning. Schlumberger sends scientists and engineers to universities to give demonstrations to staff. The company also provides experts to teach specific subjects, such as petroleum engineering.

SMEs, find it harder to work directly with universities, especially in curriculum development where they often need generic high level skills rather than specific courses designed for their requirements.

There are numerous sector organisations involved in curriculum development. In many Member States, the engineering societies are involved in curriculum development and quality assurance of education (and indeed at the European level through SEFI). The Finnish Association of Graduate Engineers, TEK[47] is a professional organisation that promotes high-quality engineering education. TEK contributes to a working group of key stakeholders in engineering education in Finland. In the UK, the Sector Skills Councils are working with universities.

The Telematica Instituut is a consortium of companies and knowledge institutions in the Netherlands that form a public-private partnership that is responsible for the management, financing and research of the technological institute. Companies contribute knowledge and money to the institute and courses, and students gain from their expertise.

SEFI – The European Society for Engineering Education - Working Group on Curriculum Development (CDWG)

The CDWG aims to provide a forum for people interested in the development of Engineering Education in Europe. The CDWG consists of people highly involved in all aspects of modern engineering education.

The CDWG is interested in the following:

– The integration of developments in science and technology in engineering education

– Mobility and exchange in engineering education at the European level

– Incorporation of new demands like: life-long learning and distance learning in Engineering Education

– Implementation of active learning methods in the engineering curricula

– Enhancing Engineering Education by new technologies

– Quality care and accreditation

– Faculty development and teacher training.

[47] TEK represents graduates working as engineers or in the field of technology and anticipates the changing needs of the labour market and the education system

5.2.2 Joint courses between sectors and universities/facilities

In the UK, ITMB (BSc (Hons) in Information Technology Management for Business[48] is a new IT degree course available at a number of Universities. It was designed by some of the biggest employers in the IT industry and funded by the UK government. The goal is to ensure that graduates with an ITMB degree are tailor-made for the IT industry. Rather than focus purely on technical areas the degree covers a mix of skills and knowledge for students who want management or senior professional careers designing, developing and implementing technology solutions for businesses. Business, project management, and personal skills are as important as technical skills in this degree[49].

Hewlett Packard (HP) Bulgaria supports eSkills development with university students and strengthens their qualifications for the international labour market. Last year HP Bulgaria supported three universities in offering specially designed modules to be taught in technology labs donated by HP to help graduates gain some of these specific skills. The modules have a strong focus on practical implementation, with 30 hours of lectures coupled with 30 hours of practical lab work in the HP IT laboratories. The participating universities were the University of Sofia, the Technical University and the New Bulgarian University.

Although most examples of curriculum development with industry are in science, engineering and business schools, there is a growing involvement in the arts , humanities and social sciences. The University of Economics, Prague, Czech Republic, in cooperation with the Association of Communications Agencies (AKA), has introduced a curriculum, based on a blueprint developed by the European Association of Communication Agencies (EACA). It involves taught courses, visits to companies and participation in group discussions, case studies, based on individual firms' specifications and, finally, written/oral 'state' exams. Professionals from the business world are heavily involved in lectures and the examination board. Successful completion of the programme leads to a Certificate awarded by both the University of Economics and the Association of Communications Agencies (AKA).

The Royal College of Art and Imperial College London in the UK offer a joint Masters course (MA+MSc) for artistic and technical graduates. The graduates work in the consumer industry, industrial product design, design management, architecture/building design, or the digital industries. Some of the students are entrepreneurs with start-up companies. There are several aspects of business/industry involvement: the students often work with commercial project partners who contribute to their projects; the course also runs some modules with company sponsorship; there are summer project opportunities with industry or summer work placements with partners such as Sony, Unilever, Proctor & Gamble, B&Q, Dyson, Targetti Lighting, BTG, and Bank of America.

There are also examples of universities teaming up with the public sector to improve courses. The University of Warwick, UK, has adapted the curriculum for a course on Clinical Systems Improvement in accordance with the needs of the National Health Service. The course examines how to provide better healthcare by improving processes, leadership, knowledge

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48 http://www.e-skills.com/itmb/1754

49 ITMB is the only Honours degree endorsed by e-skills UK, who officially represent the IT industry to government in the UK. The ITMB degree is supported by BA, BBC, BT, CA, The Cabinet Office, Cisco, Deloitte, Ford, Fujitsu, HP, IBM, Lehman Brothers, Logica, The Met Office, Morgan Stanley, Norwich Union, Royal Bank of Scotland, Sainsbury's, Southampton City Council, Symantec and Unilever.

transfer and systems design, and includes lessons learnt from public and private sector organisations related to health care and outside of health. The NHS Institute for Innovation and Improvement held a conference to bring together various stakeholders who were able to contribute to a discussion on service improvement, with the aim of consensus regarding what a curriculum for Clinical Systems Improvement should be designed to achieve.

5.2.3 Involvement in the development of learning outcomes based certification

At the European level, the Tuning project[50] (Tuning Educational Structures in Europe) is supporting the Bologna process through use of a methodology to "(re-) design, develop, implement and evaluate study programmes for each of the Bologna cycles. It develops reference points in study programmes to help make them comparable, compatible and transparent across countries. These reference points are expressed in terms of learning outcomes and competences. Part of the Tuning methodology is to ensure that for all study programmes, a social need for the programme has been identified and that it has been done on the basis of consultation of stakeholders.

A European Tempus project developing a joint software engineering master's course across four universities in Germany, Serbia, Spain and the UK has involved the European Software Institute (ESI) in reviewing the course curriculum as well as involving local advisory boards in the participating countries.

5.2.4 Quality assurance and accreditation

Quality assurance has an important role to place in the recognition of University- Business Cooperation in most of its forms. The formal responsibility for quality assurance is increasingly taken by higher education institutions themselves. Institutional management, academics and, to a lesser extent, students, are influential when it comes to setting the rules for quality assessment in their institutions. The Ministry of Education (or its equivalent) plays a significant role in several countries. Its role is more to ensure that the institutions take their responsibilities seriously, although the task of evaluating this is frequently delegated to independent national agencies for quality assurance (either through accreditation, evaluation or audit).

It is still rare to find quality assurance which includes measurements relating to University-Business Cooperation or third stream activities. In Greece HQAA is the supervising and coordinating independent agency for the quality assurance system in higher education. Within their external evaluation template there are questions such as:

– How were the objectives of the curriculum decided?

– Which factors were taken into account?

– Were they set against appropriate benchmarks?

– Did the unit consult other stakeholders?[51]

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[50] http://tuning.unideusto.org/tuningeu

[51] See External Evaluation Template http://www.hqaa.gr/files/template%20for%20the%20External%20Evaluation%20Report.pdf

In Hungary, the new HE Quality Award focuses on the labour market relevance of the programmes. The ENQA Report on Standards and Guidelines for Quality Assurance in the European Higher Education Area of 2005[52] addresses the issue of working with industry and calls for "regular feedback from employers and labour market representatives, for instance, to be included in quality assurance of programmes/awards/institutions." There is however little evidence of progress in this area.

ENQA – Standards and Guidelines

The ENQA fulfils the role of a European forum for developing standards and guidelines on quality assurance, as part of this job it aims to find common points in European quality assurance systems. In order to achieve this, the ENQA works with a number of partner organisations including: European University Association (EUA), European Association of Institutions in Higher Education (EURASHE), European Students' Union (ESU), BusinessEurope, Education International. The ENQA organises transnational projects to disseminate information with the long-term aim of establishing a quality assurance framework across the European Higher Education Area.

There are a number of accreditation agencies which include business representatives in their decision making body. ACQUIN in Germany, HETAC in Ireland and CTI in France for example. CTI is responsible for engineering curricula and counts an equal number of members from academia and from industry. Transversal skills and interactions of students with industry are core requirements for accreditation.

5.3 More effective continuing education and training/retraining (Lifelong Learning)

Education, skills and qualifications are important determinants in people's employability but the need to update and acquire skills does not stop on first entry into the labour market. There is a growing need for ongoing education to keep the workforce up to date and economically competitive.

Continuing education therefore plays an important role in the delivery of relevant and timely knowledge and skills. Continuing education also opens the door to widening participation. With education in this area being closely coupled to job opportunities for the future, it is increasingly necessary for enterprise and representative organisations to have an influence on company training, labour market training and new entry routes to learning.

Widening participation

The need to widen participation in higher education is recognised as a key issue within the European Union. An estimated 4-5 % of over-30s in the US are involved in lifelong learning of some kind whereas the European figure is less than 2%[53]. Widening participation addresses the large discrepancies in the take-up of higher education opportunities between different social groups. Under-representation is closely connected with broader issues of equity and social inclusion and concerned with ensuring equality of opportunity for disabled students, mature students, women and men, and all ethnic groups.

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52 www.bologna-bergen2005.no/Docs/00-Main_doc/050221_ENQA_report.pdf

53 EUA figs

The Glasgow Declaration (2005) stated that 'Europe needs strong and creative universities as key actors in shaping the European knowledge society through their commitment to widen participation and lifelong learning, and by their promotion of quality and excellence in teaching, learning, research and innovation activities. The European Commission drew up its communication in October 2006 called 'It's never too late to learn'. The paper, subsequently adopted by EU government leaders, urged that lifelong learning be the core of the Lisbon 2010-process and that in effect the whole of the EU should become a learning area.

The EUA (European Universities Association) drafted a charter of Lifelong Learning in 2008. The document sets out 10 policy commitments ranging, among other things, from wider access to learning, diversifying the student population and increasing the attractiveness of study programmes to the embracing of lifelong learning in a quality culture, strengthening the relationship between research, teaching and innovation, and developing partnerships at local, regional, national and international level. All of which resonate with University-Business Cooperation and relate to widening participation, reaching out to otherwise unengaged groups as well as returners to education.

The forum on continuing education organised by the European Commission (held in Brussels on 30 June 2008) concluded that Universities should recognise the importance of LLL within their mission, policy and strategy. Relevant incentives are required to engage universities into LLL (for universities as organisation and for its staff). The importance of different stakeholders was highlighted – depending on the national, regional or local context - such as local authorities and other intermediate players, in particular for SMEs. In order to fulfil their role in the continued learning context, universities need to offer more flexible courses which respect the training needs and time schedules of all people, including those in employment. In order to define the demand for new skills on local level and develop a comprehensive lifelong learning strategy, universities should involve intermediary business organisations, since they can offer a different perspective on the market needs and be particularly helpful in developing new and adequate skills profiles for the SMEs.

The BeFlex project, funded by the former Socrates programme, monitored the development of university lifelong learning (ULLL) in the reformed structure of higher education qualifications (the Bologna process). The 2007 report included a benchmark of the reforms undergone by over 300 universities. Findings showed that 79% of universities surveyed had either an existing LLL policy/strategy or one in preparation. However, 30% of respondents said that LLL was not yet a high priority.

In Croatia, the Law of Science Activities and the Higher Education (2003) places lifelong learning programmes with the university context. The University of Zagreb supports the professional development and upgrading of competence of former graduates through a new component of LLL as specific educational service to the higher education graduates.

5.3.1 New institutes for lifelong learning

Greece is currently developing new lifelong learning institutes[54] which will provide high level lifelong learning programmes in Universities and Technical Education Institutions (TEIs). LLL Institutes are the first systematic attempt towards the development of a LLL strategy in

[54] Law 3369/2005

Greek Higher Education Institutions (HEIs). One of the objectives is to develop a closer relationship between universities, TEIs and the business sector in order to update graduates' knowledge and skills to make them fit for the labour market. It also aims to bring new knowledge on technology and communication to the existing labour force.

The legislative framework for lifelong learning is rather new in Greece and provides for the establishment of the National Lifelong Learning Committee which consists of representatives of the Ministry of National Education and Religious Affairs, the Ministry of Employment and Social Protection, the Ministry of Internal Affairs as well as representatives of the social partners (employers and employees), of trade unions, the Rectors' Conference, and of the relevant agencies.

As part of a Socrates Project, Hungary put together a national Higher Education Lifelong Learning network.[55] Almost 50,000 people in Hungary are now taking post- graduate specialist training and higher-level vocational training courses. In the Netherlands, the Dutch National Agency for Lifelong Learning was launched in 2007 to take responsibility for managing lifelong learning programmes and promote the EU lifelong learning programme and European mobility. The Open Universiteit Nederland has also formed the Netherlands Laboratory for Lifelong Learning with the aim to research lifelong learning.

Lifelong learning in Finland – University Continuing Education Network[56]

University Continuing Education Network UCEF is a cooperative organisation for the UCE institutions in Finnish Universities. Every Finnish university is represented in the network, usually by their UCE director. UCEF was founded in 1990. The headquarters is located at Helsinki University of Technology Lifelong Learning Institute Dipoli.

The Krems University[57] in Austria is a University for Continuing Education. It started in 1995 with 93 students, increasing to 4000 students by 2008. It is now the largest provider of postgraduate continuing education in Austria.

The Lifelong Learning Institute at the University of Leicester offers a range of activities including adult learning, professional development, research and social, cultural and artistic events, as well as a counselling and psychotherapy programme. The institute works closely with partners in the region including enterprises, secondary education, public sector organisations, and voluntary bodies. The institute offers part-time degrees, diplomas and certificates in several subject areas, and in many cases financial assistance to learners through government schemes.

5.3.2 New courses and adaptation of existing university programmes

Universities which are widening their market to attract returners to education often need to include new methods of learning in order to adapt to the needs of people in employment with little time to devote to structured learning. Another important issue is the accreditation. In Hungary, Higher Education Institutes now have more autonomy to deliver lifelong learning and are introducing shorter vocational training programmes into the universities. Higher

55 Hungarian Higher Education Lifelong Learning Network: MELLearN
56 http://www.dipoli.tkk.fi/uce/english/info.html
57 http://www.donau-uni.ac.at/en/index.php

Education institutes now have the right to provide short programmes to meet labour market needs and can validate non-formal and informal learning.

In Malta: there is now an initiative concerning 'Workers return to learn'[58]: A diploma programme has been jointly developed between MCAST (Malta College of Arts, Science and Technology) and the Federation of Industry in Malta. It is specifically aimed at adult learners who have acquired skills and competences through informal and non-formal routes, but have not acquired much formal education. The diploma is delivered in the classroom and in the workplace. It is split into 40-hour study units, each covering a different aspect of manufacturing and includes mentored training and practical work. Participants who are self funded will receive a 100% reimbursement in the form of income tax credits from the government. Firms sponsoring their employees' fees will receive a 17.5 per cent company tax credit. Enterprises such as Playmobil Ltd, Toly Products Ltd, Trelleborg Ltd and Actavis Ltd have endorsed the diploma and have committed to offer a number of sponsorships over a number of years. MCAST has also produced an employer's guide to vocational training in collaboration with the Federation of Industry.

In Western Sweden, three universities have developed tailor-made distance learning courses for SME employees. "Better Concept" was initiated in 2003 with a year's funding, proving so popular that the Swedish universities of Borås, Skövde and Väst decided to develop it further. Western Sweden is continuing to fund the scheme, and many SMEs in remote areas of the region are participating, gaining access to further education they might not have had the chance of otherwise. Originally two main problems had been perceived in the region: first, there was no established connection between research, academic resources and SMEs. Secondly, the education level of SME employees needed to be at a higher level for companies to be competitive. The primary purpose of Better Concept is to contribute to the region's business and industry development by training SME employees. The courses are university accredited and the credits gained can count towards a degree[59].

5.3.3 Recognition of prior learning

In encouraging lifelong learning, particularly in employees, recognition of prior learning is an important incentive. In Belgium (Fl) complementary to the introduction of the Bachelor-Master's structure, the Flemish Government has put in place a new regulatory framework for flexible learning paths in higher education. From January 2008 a new funding model was put in place in higher education which favoured lifelong learning provision. Higher education institutions have modularised their study programmes and students have more choice in the number of credits they take. All higher education institutions have also developed a system to assess and recognise all forms of prior learning.

In France, the Chambre de Métiers et de l'Artisanat du Val de Marne trains heads of craft businesses with, normally, less than fifteen employees. There are 900,000 such businesses in the country, bakers, builders and so forth. The network of chambres nationwide is now working with HE institutions on the development of professional and accredited qualifications for craft workers taking into account existing knowledge.

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58 http://www.mcast.edu.mt/downloads/quicklinks/employers_guide.pdf

59 http://www.venetonanotech.it/files/index.cfm

5.4 Mobility

Enabling mobility of staff and students between universities and businesses is an important mechanism to facilitate greater understanding between the two cultures, and to develop meaningful, long-lasting relationships. Mobility of personnel between universities and industry facilitates knowledge transfer, collaboration for research and technology transfer, and can influence curriculum development.

For staff, such mobility is likely to include flexible career paths encompassing both university and business either one after the other, or in simultaneous employment. This would necessitate recognition, in terms of career progression and financial recompense, of the skills, and experience gained in each sector by the other.

Between 2007 and 2013, 2 billion Euros will be spent via FP7 in order to foster collaboration between higher education institutions and their business partners. Marie Curie Initial Training Networks will ensure that postgraduate and postdoctoral researchers are able to move around Europe and the rest of the world to work in the best institutes and receive business-relevant training.

For students, mobility, in the form of internships and work placements alongside or sandwiched within university courses, provides an ideal opportunity to build awareness of potential career paths and industry and markets relevant to their course of study. Furthermore, for students, work placements provide ideal learning opportunities for the development of relevant skills, and place in context the skills they have gained at university, and encourage aspiration for further skills they aim to gain in the future. In addition, internships can lead to future employment.

Although there is a growing number of mobility programmes across Europe, including mobility from university to industry, it remains selective and overall, interaction between the two sectors is most commonly found in science and engineering, and still at a relatively low level.

Where established mobility programmes exist, there is a growing trend to recognise and accredit these work placements, especially for students. For staff, mobility is currently even less common, and universities rarely recognise work in industry.

5.4.3 Mobility of academics to and from industry

There are a number of barriers which hamper the mobility of academics to work in industry, for example a lack of accreditation and recognition of such work by universities or in some cases legal barriers (social security; pension).

This has never really been an issue in the US, where dual career paths for professors, i.e. spending time in private industry and in higher education institutions, are widespread. There are also good examples in Europe, in Ireland, personnel in universities have the option to use one day a week to pursue their own interests/consultancy work. In Norway, professor II is a position where professors spend 20 % of their time in industry. Their work in industry is acknowledged and they receive additional salary from industry corresponding to their services, often in addition to their regular salary. In the Netherlands ‘extraordinary professors ‘(bijzondere hoogleraren) are doctorates coming from industry and employed to work for universities. Their number grew significantly during the 1980s. For example, the University

of Utrecht had about 430 ordinary professors and 120 extraordinary professors in 1998. These positions are useful for promoting mobility between industry/interest groups and academia, and, furthermore represent a source of financial support for universities.

Also via the FP7 the Marie Curie Industry-Academia Partnership and Pathways action seeks to facilitate mobility of researchers between public research organizations and private commercial enterprises, in particular SMEs. Some 350 million Euros will be spent breaking down barriers which hamper mobility between these two sectors.

These examples show two themes associated with mobility: freeing time for academics to work in industry, and recognition of their work by both universities and enterprises, in terms of career path, and pay.

Royal Phillips Electronics Public R&D Programmes

Phillips has over 100 projects with public R&D programmes in Europe with many research contracts with universities. They receive many visiting students, R&D trainees and postdoctoral students. The company benefits from the knowledge, including the tacit knowledge, of researchers, and benefit from the mobile exchange between academia and industry for Open Innovation. Furthermore, the company encourages lifelong learning through the Van der Pol Program which has four levels from trainee to principal acting as a host for academics from MSc, PhD, Postdocs, and Visiting Principal Scientists.

5.4.3 Industry Chairs: members of industry chairing or contributing to university boards

In the other direction industry is spending time in higher education. The Spanish company Telefonica has relationships with 169 universities in 39 countries around the world. In Madrid alone they have 50 joint projects with universities. One of their main methods of working is through industry professorships - chairs set up jointly by university and industry. There are now 15 chairs throughout the world and this initiative represents a good permanent relationship between the company and academia. These chairs are an evolving mechanism and since 2008, Telefonica is focusing on how to use them to come closer to societal issues (health education, IT gaps), to improve outreach through the dissemination of new knowledge and through exploring social networking

In Austria another instrument set up is the ‘foundation professorship’ (a form of cooperation between universities and the private sector), exemplified already by the relationship between the Magna Group and Graz University of Technology. Magna is financing three professorships at Graz University of Technology until 2014, whereas the university, in turn, has set up a separate Department for Automobile Engineering. In the UK the University of Strathclyde Hunter Centre for Entrepreneurship, a social investment by the Hunter Foundation, is led by both an executive director with a background in business, and an academic director.

5.4.4 Student internships

The mobility of students is most commonly performed through internships, research projects, and schemes integrated within their course of study. There is already a strong tradition of work placements associated with degrees, particularly in engineering and sciences. However in the past, these have tended to be more unstructured: the “work placements” often involved

the student becoming a normal employee for a short time rather than working on a specific project relating to his or her degree.

The situation in Europe is mixed although many countries have well-developed internship programmes (The Netherlands, UK, France and Denmark for example). The expanding careers services are increasingly taking the responsibility for organising and managing the process as part of the student experience within the university. In Denmark, internships are now a compulsory part of the degree programme. At the university level, the University of Groningen, Netherlands, incorporates traineeships as a compulsory part of degree courses. Students can undertake placements throughout Europe, and approximately 40% chose to go abroad. Individual faculties are responsible for organising placements, and each faculty has a students' placement bureau and liaison officer to help students find the most appropriate placement. Efforts are made by the university to ensure the quality of the placements, and the available mentoring for the students. Each bureau holds a database of placements, with feedback from previous participants to inform future students. [60] In Valencia, ADEIT[61] is an organisation with the specific objective of linking the university to its social environment. University students are placed in either organisations or enterprises of the Valencian Community and in the other countries of the European Union. ADEIT places 1500 students a year with companies. Another key area of work is training for tutors on both sides of the placement. ADEIT including placements in banks (UNECAM) and professor internships where professors work in companies for up to 100 hours.

Turku Academic Career Services (Rekry) is a joint service of universities in Turku and the Turku Employment Office in Finland. Rekry provides information on job openings and job seeking for students and graduates. Career counselling, seminars and info-days are also provided. In addition, Rekry serves companies and public authorities as a channel for finding interns, and students to do their theses on subjects important to the company. The University of Turku has the alumni and mentoring programmes which both try to support at least partly student mobility from the university to the labour market. Within the mentoring programme the person with work experience guides student at the graduating phase to direct final studies, look for job, write CVs etc. The mentor can also use their own networks to find work opportunities for the student

There are also examples of universities running international internships (external to Erasmus). The Oxford University International Internship Programme (OUIIP) was launched in 2008. The programme provides undergraduates with the opportunity to spend their summer working in a sponsoring organisation in another country. The Erasmus University in the Netherlands does not separate out international internships from its internship programme which is coordinated through the careers services. In some of the international master's programmes the internships abroad are compulsory.

DANUBE – European Programmes for Training Research and Technology

The European Programmes for Training, Research and Technology is represented by the organisation, DANUBE, in Vienna. The mission of DANUBE is to promote university-enterprise cooperation. This activity was initiated through the University Enterprise Training

[60] University-Enterprise Cooperation: Building on new challenges from past experience, DAAD (2006)

[61] http://www.adeit.uv.es/

Partnership (UETP). DANUBE has a large number of industry contacts and promotes the value of placements, and through the Leo-Net network promotes placements through the programme Job Offer Exchange for Leonardo traineeships, providing placements for students both nationally and internationally, in which over 120 European universities take part. The trainee produces a work programme agreed upon by both the university and the placement company and is later assessed by the two institutions.

From the enterprise perspective, in France the Union des Industries et Métiers de la Métallurgie (UIMM) supports a national initiative to finance and support student placements in enterprises. One key outcome of the placement programme points to the need to make employers meet the universities and their students and explain their needs. While undertaking placements, students need access to counselling and guidance. There is also a need to ensure proper mechanisms in place for knowledge transfer. In the UK, Shell Step, sponsored by Shell, is a programme which has been running for a number of years across the country and is focused on placing undergraduates into SMEs and community organisations to undertake a specific business or technical projects driven by the needs of the host business. The programme has the dual aim of communicating to small business managers the impact an undergraduate can have on their business and encourages undergraduates to consider starting a career within the small business sector. It has been highly successful and favourably evaluated as to the impact the scheme, not only on the skills of the student but on the absorptive capacities of the SMEs who have taken students.

5.5 Entrepreneurship

The contribution of entrepreneurship has impacts at many levels: the individual, the educational institution, wider society and the economy. Higher education provides an ideal opportunity to foster entrepreneurial qualities among potential economic actors to bring about significant enhancement in business performance and competitiveness.

The European Commission has played an active role in fostering entrepreneurship for a number of years. The Brussels European Council of 23/24 March 2006 "underlines the need of creating an overall positive entrepreneurial climate and of appropriate framework conditions that facilitate and encourage entrepreneurship and therefore invites the Member States to strengthen respective measures, including through entrepreneurship education and training at the appropriate level of education." The Conference on "Entrepreneurship Education in Europe: Fostering Entrepreneurial Mindsets through Education and Learning" was an initiative of the European Commission jointly organised with the Norwegian government which took place in Oslo on 26-27 October 2006. Through a number of workshops and presentations of examples of Good Practice[62], the conference elaborated concrete initiatives on how to put the recommendations of the Commission Communication into practice[63].

There are numerous examples of universities encouraging entrepreneurship development in Europe, many of which are covered in the report by the BEST group "Entrepreneurship in

[62] http://ec.europa.eu/enterprise/entrepreneurship/support_measures/training_education/oslo/oslo_pres.htm

[63] Communication from the Commission COM/2006/0033 final: Implementing the Community Lisbon Programme: Fostering entrepreneurial mindsets through education and learning

Higher Education, especially in non-business studies: Final report of the expert group March 2008"[64].

The **Lahti University of Applied Sciences** (Finland) created a programme called "Business Succession School"[65], linking students with business owners who are looking for a successor. This is a training programme for universities of applied sciences providing the skills to plan and run a controlled transmission of the enterprise to the student, who will be able to continue the profitable business and ensure business regeneration. This practice — piloted in the Lahti University of Applied Sciences — is being extended to ten other universities of applied sciences in **Finland**. (Best Report 2008)

The concept of the 'entrepreneurial university' is becoming more prevalent in Europe and much has been written on it. The Technical University of Munich describes itself as and 'entrepreneurial university'. It lives in the midst of an ecosystem of major global players, Siemens, BMW etc. The chair of the supervisory board is one of the major shareholders of BMW. The overarching aim of the university co-operation is to change perception amongst young people and support their capacity to start and grow businesses of the future. The university Centre for Innovation and Business Creation was established with the mission to encourage and enable entrepreneurship - the Centre for Innovation and Business Creation was founded in 2002. It has 40 employees and is an associated Institute of the university.

5.5.1 Embedding entrepreneurship in the curricula

There are growing numbers of both optional entrepreneurship courses to be taken alongside degrees as well as interdisciplinary approaches to embedding entrepreneurship in the curricula.

The **University of Wolverhampton** (UK) is coordinating the **SPEED** project (**Student Placements for Entrepreneurs in Education**)[66], a network of 13 institutions to help students develop self-employment opportunities as an alternative to traditional work placements. Students present their business ideas to a panel. If accepted, they are offered a placement of 9 to12 months. Each student is helped to develop a personal and business development plan, and is given access to one or more mentors selected for their experience in a related area. The placement may be full time, as part of a sandwich degree course, or part time alongside their academic studies. Each student is supported by a mixture of bursary payments, finance for business related activities and professional services. The institution provides additional resources in the form of incubation facilities and skills training. Where possible a SPEED placement will be credit bearing for the student. (Best Report 2008)

At **Wuppertal University**[67] (Germany) entrepreneurship education modules are offered as compulsory or optional classes in **all relevant undergraduate courses**. In addition, there is a specially designed Master's course called "Start Up, Innovation and Economic Development". Teaching is always highly problem-oriented, student-centred and inter-

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64 BEST procedure project: Entrepreneurship in Higher Education, especially in non-business studies: Final report of the expert group March 2008 http://ec.europa.eu/enterprise/entrepreneurship/support_measures/training_education/entr_highed.pdf

65 www.jatkajakoulu.fi

66 www.speedproject.ac.uk

67 www.brauk.uni-wuppertal.de, www.koch.uni-wuppertal.de

disciplinary. The Wuppertal approach to start-up promotion takes the form of a value chain. As in a funnel, students will become acquainted with entrepreneurship issues in a diversified but not particularly profound way during their first semesters. Later on, more specific modules will follow which incorporate the perspectives of various subjects on entrepreneurship issues. The course is on the one hand designed for students of Economics and on the other hand — in a separate module — for students of other departments such as Engineering, Natural Sciences, Architecture and Design. Both groups will meet in specialised classes such as business plan seminars and case study training.

The support of students which are potential founders should cover the whole course of their studies and should also be expanded to post-graduate activities. Universities should also provide coaching to the young entrepreneurs and support during the start-up process.[68]

As yet, there is little evidence associated with the results of these interventions. Although this document specifically covers higher education, entrepreneurship education is increasingly being delivered throughout the education system from pre-school to university and in vocational education and training programmes.

5.5.2 National strategies for entrepreneurship

There are a general lack of data on the quality of entrepreneurship education in higher education, however, existing data do show that entrepreneurship education in Europe is lagging behind US and Canada. Data from the Survey of Entrepreneurship in Higher Education in Europe show that, of the 21 million students in Europe, around 5 million are actively involved in entrepreneurship, whereas 11 million have no opportunity to engage in entrepreneurship, with business schools as the most likely to offer entrepreneurial education.[69]

The survey analysis shows that acknowledgement among the top management at the HEIs, both to their institution and to society as a whole, is the most important factor in determining delivery of entrepreneurship education. Findings show that top-down and bottom-up approaches do not stand alone, and that top management and academic staff must make a joint effort in order to successfully implement entrepreneurial education throughout the institution.

The survey showed differences across the European regions with the Western (EU15) region having more institutions that offer entrepreneurship education. However the Eastern Region (EU>15) tend to have a broader model of entrepreneurship education. This is likely to reflect top-down approaches (for the EU>15 region) whereas the EU15 region, who have a longer tradition of entrepreneurship education, show that traditionally it has been instigated by individuals. One of the key recommendations from the report is that entrepreneurial education should be adopted within a broad definition of entrepreneurship and in this way entrepreneurship is more likely to be included in a broad range of academic subjects.

The concept of entrepreneurial education is still relatively immature, and is usually instigated by individuals rather than at strategic level on the part of the HEI or at national policy level. Lack of funding is cited as the most common barrier to development of entrepreneurship

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[68] Norbert Kailer, "Konzeptualisierung der Entrepreneurship Education an Hochschulen: Empirische Ergebnisse, Problemfelder und Gestaltungsansätze" in Entrepreneurship Education an Hochschulen, ZfKE 2005

[69] Survey of Entrepreneurship in Higher Education in Europe DG Enterprise (2008)

education. Providing funds is crucial for the appointment of entrepreneurship professors, and establishing entrepreneurship courses, centres and extra-curricular activities for students.

The following are some examples at the strategy level. The Norwegian strategy for Entrepreneurship in Education has the purpose of profiling entrepreneurship as an educational objective and training strategy from primary stage to University and College level. Between 2000 and 2005, 844 enterprises have been created by researchers in France, through academic incubators. Recently a new type of company, called "Young Academic Enterprise", allows significant advantages to encourage business creation by researchers and students. In Wales, every university and college now has its own "Entrepreneurship Champion" funded by the Knowledge Exploitation Fund (part of the Wales Assembly Government). These senior members of staff are tasked with promoting a new culture of entrepreneurship among students and academics. Their role includes: building entrepreneurship into the curriculum; facilitating support for new business start-ups by graduates; establishing support networks for local entrepreneurs and students; helping to commercialise the results of research and intellectual property owned by institutions.

5.5.3 Teaching the teachers and the entrepreneurs

The European Foundation for Entrepreneurship Research[70] (EFER), founded in 1987 promotes research and teaching of entrepreneurship in higher education across Europe. EFER introduced Teach-the-Teachers programmes in the early 1990s to train entrepreneurship faculty and collaborates with institutions to provide programmes as well as hosting workshops and conferences on entrepreneurship to build relationships between businesses and universities. In the UK, the Enterprise Educators UK is the national network for enterprise educators. It supports over 600 enterprise educators from more than 90 Higher Education Institutions to develop their practice, network with peers, and collaborate in enterprise and entrepreneurship teaching and research across all curriculum areas[71]. In **Germany**, some universities **give their professors the opportunity to get practical business experience**. For example, the Gelsenkirchen University of Applied Science can give professors one semester off for testing and using scientific expertise and methods as well as to get practical experience in firms (after a period of at least eight semesters).

In **Denmark**, the International Danish Entrepreneurship Academy (IDEA) and associated universities organised more than 10 **innovation camps** during 2005-2007, bringing together students, business people and teachers in a selected physical space and for a limited time. Inter-disciplinary groups of students work on ideas taken from firms and solve problems. In November 2007 IDEA tried a new camp model matching students, business people and university technology transfer people, working with three university patents for 48 hours, and coming up with ideas on how these patents could be applied for practical use.

Alumni are often a natural starting point for institutions and over two thirds of HEIs responded that they use their alumni as good examples and bring them into the entrepreneurial teaching. Conversely, the survey found that the majority of staff teaching entrepreneurship did not have personal experience with entrepreneurship. As entrepreneurship is a practical subject its teaching would be improved if those teaching did have their own practical experience on

[70] http://www.efer.nl/

[71] http://www.enterprise.ac.uk/

which to draw. Furthermore, the teaching skills for entrepreneurial pedagogy are deemed different to the methods used to teach academic subjects. However, few institutions described training opportunities for staff.[72]

As well as teachers, the practical experience of the entrepreneur needs to be conveyed to students and often entrepreneurs may not have the skills set to teach in the university environment. In **Belgium**, the FREE Foundation[73] organised a 2-day **seminar for entrepreneurs** to train them to use case studies, to speak in front of students and to teach some section of a course. The seminar was offered to them in exchange of a commitment to spend (for free) at least 30 hours of their time over a period of three years for teaching. These entrepreneurs are now an important resource for education.

5.5.4 Industrial professors

Industry chairs and professors, mentioned already in the section on mobility, often have the primary strategic function of entrepreneurship and are named "entrepreneurship chairs". Entrepreneurship chairs can have a dual function of lecturing in entrepreneurship as well as training other university professors (teaching the teachers).

A survey carried out in 2000 of funding of entrepreneurship chairs at tertiary level showed that business schools in the United States receive 20 times more funding from alumni and entrepreneurs than European business schools. According to the 2002 European Commission Best Group Report[74] few universities have a Chair in Entrepreneurship. The situation improves in an overview of entrepreneurship activities in general, that is at the presence of entrepreneurship within different teaching subjects (at both undergraduate and postgraduate level). However, in some countries there is an established history of this type of activity. In Germany, the investment bank KfW has, since 1998, invested in and supported the start-up of a number of professorial chairs in various German higher education institutions.. The chairs were limited to five to ten years, after which they had to be able to survive on their own.

In Austria entrepreneurship chairs have been set up at four universities and are also used in the careers services to offer counselling. In the UK, the University of Huddersfield is introducing an "Entrepreneurship Degree", the joint idea of one of the leading Professors of Entrepreneurship at the university, alongside a leading entrepreneur in the region. The Oxford Said Business School has also appointed a Visiting Professor of Science Entrepreneurship, and several universities now have departments that research entrepreneurships such as the University of Lancashire, and Edinburgh University.

5.5.5 Research into entrepreneurship

There are still a number of opinions as to what entrepreneurship is, how it can be fostered, if it can be taught, and what the outcomes should be.

The IDEAS Institute at Valencia University of Technology is running a project to get a better understanding of what entrepreneurship means. The results show that in general

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72 Survey of Entrepreneurship in Higher Education in Europe DG Enterprise (2008)

73 www.freefondation.be

74 FINAL REPORT OF THE EXPERT GROUP: Best procedure: Education and Training for Entrepreneurship November 2002

entrepreneurs, self-employed and employees display rather different profiles regarding both the elements leading to, and those emerging from, their occupational decisions after graduation. Gender and country of residence are important determinants influencing the decision to become an entrepreneur. On average entrepreneurs have high grades in secondary education, suggesting higher ability and they also tend to take longer to complete their higher education, possibly because they performed additional activities during their study period. During their education, entrepreneurs prefer to spend their time gaining practical experience rather than attending lectures. Remarkably, those graduates who start up their own business undertook further education and training in higher proportions than the rest of graduates. Entrepreneurs appear especially concerned about the difficulties their institutions had in providing them with practical experience and with the necessary conditions to facilitate their access to the labour market. Entrepreneurs also showed a characteristic profile regarding the combination of competences they possessed at the time of graduation; those graduates who became entrepreneurs scored relatively higher in leadership and taking responsibilities, and relatively lower in time management.

5.6 Knowledge transfer

Knowledge transfer traditionally refers to the relationship between enterprise and universities in the area of research, development and innovation. With the changing role of universities, the concept of knowledge transfer is being widened to include other relationships which enable knowledge flow. The "entrepreneurial university" is increasingly involved in managing its knowledge assets and facilitating their exploitation, and this includes the area of education. As a term, knowledge transfer has the potential to encompass all the mechanisms or approaches outlined above which seek in some way to exchange knowledge and ideas between universities and business.

University-Business Cooperation in the area of education can learn from the existing mechanisms employed to facilitate knowledge transfer in research, through governance, Technology Transfer Offices (TTO), regional clusters and the management of relationships around Intellectual Property Rights (IPR) and patents.

ProTon, the European Association of Technology Transfer Offices was created in 2003 by the European Commission and is the largest KTO network. It has over 220 KTO members and 10 National Partner Associations (comprising over 500 KTOs), ProTon Europe reaches out to almost 600 universities and public research organisations across Europe. It is self financing and one of the main objectives is to use expertise of the members to highlight issues to the European Commission. It also organises dedicated training sessions to TTO managers. It has already had a direct affect on European Commission work and the Commission Recommendation (2008) 1329 10.4.2008 defends the principle of KT and asks all Member States to develop KT as a strategic priority

Also, if universities already have structured relationships with businesses in the area of research, it makes sense to capitalise on these existing mechanisms. Businesses find it hard to find the time and resources to invest in dialogue and multiple relationships with higher education, especially SMEs. Therefore simplifying or coordinating the contact is beneficial for both parties. There are increasing moves from universities to widen their careers services to include services for students throughout their studies as well as relationships with businesses involved in internships and as potential employers. This service has the potential to

combine with the work in technology transfer offices and become a single entry point for university business transactions.

The final report of the OMC (Open Method of Coordination) 3% CREST Expert Group on the priority topic : "Encourage the reform of public research centres and universities, in particular to promote transfer of knowledge to society and industry". Four areas were developed for:

- The changing role of public research centres in knowledge transfer" - that public research centres should see knowledge transfer as their main mission after research. They should integrate demand driven approaches into the planning of research, and redefine operational management of the organisation

- "Support and development of university knowledge transfer activities" - as part of the "third mission" of universities. However, rather than try to overhaul the organisation of entire universities to this end (with the possibility of distracting from their primary objectives of teaching and research), it is proposed that a knowledge transfer unit, well supported with professional input should operate in a position to promote cooperation with industry and advise departments in order to overcome cultural resistance within universities. This recommendation therefore includes the need for professional management of knowledge transfer activities, appropriate infrastructure for knowledge transfer, and a structure that assess performance regarding knowledge transfer.

- "Design of funding schemes to support knowledge transfer" - Knowledge transfer requires a long time to produce benefits, therefore it necessitates funding support in initial stages, therefore additional public funds are needed to sustain knowledge transfer activities.

- "Creation of incentive schemes for researchers to conduct knowledge transfer activities" – Individual researchers must be on board in order for knowledge transfer to work. Appropriate incentives should be in place including career progression and promotion, and salary increases rewarding researchers for knowledge transfer activities.

The report responds to the Commission's 3% Action Plan (Barcelona objective for R&D investment), which proposes the issues to address as: "establishment of incubators, science parks, seed funds and new types of public-private partnerships and the performance appraisal of researchers".

5.6.1 A coherent support structure for knowledge transfer

There are national, regional and institutional approaches to coherent knowledge transfer structures.

At a national level, Finland's new innovation strategy defines itself as being based on the skills and competences of the individuals and thus encompasses knowledge creation in its widest form "Innovations and entrepreneurship are closely connected. In many cases, entrepreneurs are the ones who are able to combine ideas, the ability to take risks and other required skills with a clear view of customers' needs. Innovation policy must be entrepreneurship policy - a key viewpoint to consider when reforming public services." In Austria the Academia plus Business programme, across Austria run by the Austrian Research Promotion Agency funds innovative, technology oriented spin offs from the academic community through the creation of business centres targeted at young scientists.

The University of Twente is a good example of a university embedded in its regional economy taking a joined-up approach to knowledge transfer. Together with regional partners, the university has a knowledge park and business accelerators linking the knowledge in the university with the business community. In supporting entrepreneurship, for over 10 years, the university has had a minor programme available to all students. For students who wish to start a company there is support from the TOP programme (Temporary Entrepreneurial Positions) with a number of benefits. There is also a programme for University Student Enterprises and a growth programme which is for owner managers of companies. Included in these modules are training and networking activities. Brno University of Technology uses different models of Technology Transfer through its Technology Transfer Office incorporating short term and long term strategies.. Examples of long term collaboration and strategic partnership include Honeywell, Siemens, SKANSKA. Vrije Universiteit Brussel (VUB) in Belgium also takes a multi model approach to technology transfer and also has an initiative CROSSTALKS which is the university and industry network of the Vrije Universiteit Brussel. CROSSTALKS aims at creating an open and constructive exchange dynamic by hosting thematic encounters which go beyond the limitations of specific disciplines and which encourage active participation of key players from all levels of society.

In Finland, the regional development project (Korkeakoulut seutukunnissa) coordinated by the Centre for Extension Studies of the University of Turku supports regional development and strengthens SMEs' competitiveness through improving availability of higher education, research and development services of the seven higher education institutions located in Turku. The project looks for structural and operational models to enhance regional engagement of the HEIs. The work has two approaches:

- knowledge transfer or interaction between HEIs and SMEs and
- knowledge management and operational models inside the HEIs.

The Athens University of Economics and Business has established links with international firms and enterprises which offer career opportunities and scholarships to students and graduates.[75]

5.6.2 Mobility for research

Student internships for industrial experience are only one part of student mobility. There are also a number of undergraduates, professors and postgraduate internships or schemes which focus on research rather than industrial experience (they are more common at the post graduate level). A number of these are already covered under the section on mobility as many placements have a dual function. The knowledge transfer from both research and experience-oriented placements - to the enterprise and to the university - are of equal importance. Both can feed into research and education orientation within institutions. Also once a relationship is established with a business, it can be nurtured and broadened into areas of adult lifelong learning and/or curriculum development for example

A number of these schemes, such as the Marie Curie Actions in FP7, are already covered under the section on mobility as many placements have a dual function.

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[75] http://www.aueb.gr/pages_en/about/index.php; http://www.imba.aueb.gr/

Placements and internships in industry are well-organised for some big companies including Bosch in Germany and NOKIA in Finland. There are also some good practices in countries such as Ireland, Denmark, Sweden, the United Kingdom, Spain and Greece.

Extraordinary professors (bijzondere hoogleraren) in the Netherlands. The*se* are doctorates coming from industry and are employed to work for the university. Their number has grown much during the '80s. For example, the University of Utrecht had about 430 ordinary professors and 120 extraordinary professors in 1998. These chairs are useful for promoting mobility between industry/interest groups and academia and furthermore represent a financial support for universities. In practice, the university board appoints a newly created third party (e.g. a foundation, group of founders) for the establishment of an extraordinary chair. The third party then appoints the person to the chair. Extraordinary professors mostly work part-time (Report Mobility of Researchers: 12 Practical Recommendations European Commission 2006.

6. OTHER ISSUES AND ACTIVITIES

The themes outlined above illustrate just some of the ways in which universities can cooperate and collaborate with business. The agenda does not sit in isolation. Universities are going through a number of changes; they are embedded in regional economies and respondent to financial crises, the economic downturn and changes in European and national policy priorities. Many Member States have been going through (or are still going through) a number of structural changes in higher education (Denmark, Finland, Portugal, for example). There are also specific issues, wider than University-Business Cooperation, which affect how working relationships can be established. Some of those issues and activities explored here include the regional economy, the role of Corporate Social Responsibility (CSR), the specific involvement of SMEs. Other important areas which affect University-Business cooperation and have been addressed under the existing themes, include: accreditation, quality assurance, the diversification of approaches to learning and the identification of appropriate indicators for University-Business Cooperation.

6.1 The role in the regional economy

In the regions, universities have traditionally played a dual role in the innovation system, enhancing stocks of knowledge through research and education and also indirectly contributing to industry and economic growth. In the past decade many universities in Europe have formally incorporated regional economic development into their mission statements. Regional development agencies are also including policies which support partnerships between universities and industry in regional economic strategies. Although many are focused on technology transfer, a number include widening their role in linking industry to course development and delivery (although are not always explicitly stated).

The modes of policy interaction are critically important at the regional level and often need vertical coordination between the administrative levels (European, national, regional) and horizontal between the regions to avoid duplication and learn from each other. The situation is complex with over 200 regions in the European Union which are heterogeneous in their technological and economic conditions. They have a variety of needs in terms of skills and human resources. They also have varying degrees of power.

The INTERREG IIIC project RUISNET describes a number of examples of good practice and puts forward some conclusions and recommendations.

The objectives of the projects were as follows::

- Improve, value and promote the recognition of the importance of university-company relations within the European regional framework.
- Take advantage of accumulated knowledge (RIS/RITTS projects developed by the DG of Regional Policy of the European Commission) within the regional framework
- Identify the good practices that have an impact on regional development in the 3 sectors selected for development: Innovation, SMEs and Territory; Training and the Labour Market; Entrepreneurship and technology-based companies.
- Create a forum in which to share a common outlook within the European scope, with a strong participation and generalised dissemination of models and systems, in order to exploit the potential of university-company relations in regional development, and create the Association required to ensure the project's continuity with a large number of associates.

http://www.ruisnet.net/web/en/the-project/description.htm

Universities and other higher education institutions (HEIs) can and do make a significant contribution to regional economic and social development, and in a globalised economy this role is growing in importance. Too often, however, the potential for synergy is thwarted by failures of communication between regional stakeholders and HEIs, weak or unclear policy signals, and conflicting agendas in institutions[76].

Regions and HEIs are building partnerships based on shared interest which is principally economic. From the perspective of agencies promoting city and regional development, HEIs have become a key resource. They can help serve regional development most obviously by contributing to a region's comparative advantage in knowledge-based industries and to its human capital base, but also for example by helping to generate new businesses, by contributing to tax revenues and by providing content and audience for local cultural programmes. From the perspective of HEIs, regional involvement has a range of benefits. The local area brings business to institutions in a variety of forms, including student enrolments and payments for research, consultancy and training. At the same time, a thriving region creates an environment in which higher education can also thrive, helping institutions to attract and retain staff and students.

Higher Education and Regions: Globally Competitive, Locally Engaged OECD 2007

www.oecd.org/edu/higher/regionaldevelopment

There are some good examples of universities coming together at a regional level to build capacity which may in turn be of interest to enterprises that want to cooperate on a wider than institutional level (some examples already include enterprise). In France universities are

[76] Higher Education and Regions: Globally Competitive, Locally Engaged OECD 2007. In 2004-2007, IMHE, in collaboration with the OECD Public Governance and Territorial Development Directorate, conducted a comparative review of regional engagement of higher education institutions in 14 regions across 12 countries

starting to work together by creating regional bodies: PRES (Pôle de Recherche et d'Enseignement Supérieur)[77]. Although research-led, these will also lead to benefits of educational excellence across a region. In Italy, TUCEP is a regional Consortium created in the Umbria region of Italy. Members of the Consortium are 13 universities and 32 enterprises and associations, which unify their efforts for promoting and developing collaborative actions between universities and non-formal training bodies through performance of research projects. In the south east of England, UK, the Higher Education Entrepreneurship Group (HEEG) is a regional network of academics, business development, knowledge transfer and entrepreneurship professionals, careers services staff, senior managers and students based in higher education institutions (HEIs) across South East England. HEEG aims to increase the capacities and capabilities of Higher Education to develop more enterprising students and more graduate business start ups through up-skilling staff and sharing best practice[78].

In Finland, wherea new law has been enacted, polytechnics are expected to form relationships with SMEs, and in particular to play a role in regional development. Also in Finland, e-Tampere was a project linked to Tampere's city strategy and involved several SMEs and large companies (e.g. Nokia) and two universities, which were planning and implementing the programme. The e-Tampere programme was designed to support Tampere's balanced city strategy and vision for the year 2012. During the programme, e-Tampere's sub-programmes launched almost 400 local, regional, national and international projects. Extensive co-operation was implemented in these projects between research, business and government and from the perspectives of technology, economy and society.

In Northern Ireland the role of the Workforce Development Forum[79] is to identify and articulate the skills needs for the local economy of the area and to encourage and promote a strategic response to those needs from existing local public and private sector training providers, within the existing local resource allocation. The local Workforce Development Forum will also advise and make representations to government and agencies, on matters affecting the demand and supply of skills in the local area. Through its chairperson, the Forum contributes directly to the implementation of the Skills Strategy for Northern Ireland, Success through Skills and the development of a Regional Employment and Skills Action Plan.

In Romania the National Agency for Partnership between Universities and the Economic and Social Environment operates under the Ministry of Education, Research and Youth and has regional centres in Cluj Napoca, Galaţi, Timişoara and Iaşi. Through regional consortia organized at regional level and composed of social partners, pre-university schools and higher education institutions, 8 Regional Action Plans were elaborated in view of early anticipation of vocational training needs and enhancing the role of higher education in regional development[80].

Some universities take an institutional approach to their liaisons with regional enterprises. At the University of Liege –"Interface Entreprises-Université[81]" is a permanent body that liaises and promotes collaborations between the University of Liege and Enterprises. The goal is to

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77 With the research law of April 2006, the PRES ("Pôles de recherche et de l'Enseignement supérieur") have been introduced to the French system of Higher Education.

78 http://www.heeg.org.uk/Heeg/home.aspx

79 http://www.delni.gov.uk/index/successthroughskills/workforce-development-forums.htm

80 http://nou.acpart.ro/index.php?lang=en

81 http://www.interface.ulg.ac.be/english/

make the research activities, competences and specialized equipments of the University known to local and international companies ; help companies identify opportunities and synergies from potential collaborations with University laboratories ; assist laboratories in finding industrial partners ; render the University more accessible to SME.

The 7 higher education institutions in Turku in Finland have joined forces to promote regional development in the four areas set out in the Strategy for Regional Development 2006 – 2012:

- Social responsibility: the HEIs work together to improve well-being, social and cultural capital and the prospects for sustainable development in the region
- Internationality: the HEIs promote internationalisation of the region and develop international cooperation.
- Entrepreneurship: the HEIs work together to further entrepreneurship in the region.
- Cooperation between HEIs: the HEIs strengthen their mutual cooperation for the benefit of the region.

In Germany, the Network IAW 2010 is an intermediary between the enterprises and entrepreneurs of the region of west Saxony and universities, scientific and research facilities. The network makes an important contribution to the competitiveness and job creation in the region. The University of Wismar adheres to the Model University 2020 – a cultural agreement with the German Government which has a target to adapt the university's services to the needs of the regional economy. The university aims to develop a market oriented degree programme and generate 20% of its budget independently. Wismar has also developed dual degree programmes and aims to offer degrees for retired people, people with children and for people who would not normally go to university.

6.2 Corporate Social Responsibility

Corporate Social Responsibility (CSR) is "a concept whereby companies integrate social and environmental concerns in their business operations and in their interactions with their stakeholders on a voluntary basis.[82]". In the area of University-Business Cooperation, CSR is often the hook which will incite businesses to invest in higher education, especially in devoting time to develop curriculum and to deliver entrepreneurship training where the benefits are not short term for the businesses involved. There are more immediate benefits when the investment is in staff and lifelong learning opportunities.

The European Academy of Business in Society (EABIS) has instigated a number of education projects, which include a curriculum development project launched in 2005. This is a 3 year project "Mainstreaming Corporate Responsibility in the Business School Curriculum" by INSEAD and London Business School. The aim of the project is to encourage the uptake of teaching materials (devised by EABIS members through open competition) for degree and executive learning programmes for innovative and socially responsible management style. EABIS has a particular interest in the promotion of Corporate Social Responsibility.

[82] European Commission definition

From the perspective of higher education, there is an obligation to ensure that future entrepreneurs consider CSR an integral part of their companies. It therefore needs to be integrated into relevant educational courses. Two projects, GILDE (a German economic development agency) and UEAPME (the European Association of Craft, Small and Medium-sized Enterprises), developed and tested teaching modules on CSR for further education[83]

6.3 Small and Medium Sized Enterprises (SME)

One of the main challenges facing Europe is that so few Europeans own their own business, and few European SMEs are growing. The EU has placed SMEs high on the agenda within the Lisbon Strategy and more recently the European Commission set out the "Small Business Act" (SBA) for Europe.

Small Business Act 2008

Adopted in June 2008, the "Small Business Act" for Europe (SBA) reflects the Commission's political will to recognise the central role of SMEs in the EU economy and for the first time puts into place a comprehensive SME policy framework for the EU and its Member States.

It aims to improve the overall approach to entrepreneurship, to irreversibly anchor the "Think Small first" principle in policy making from regulation to public service, and to promote SMEs' growth by helping them tackle the remaining problems which hamper their development.

The Small Business Act for Europe applies to all companies which are independent and have fewer than 250 employees: 99% of all European businesses.

http://ec.europa.eu/enterprise/entrepreneurship/sba_en.htm

The nature of SMEs varies widely, including crafts, micro-enterprises and family-owned or social economy enterprises. Therefore strategies to address interaction between Universities and SMEs must take into account this diversity. According to the Small Business Act Communication "European SMEs grow slower than their US counterparts; University-Business cooperation could facilitate this growth by encouraging employment of university leavers within SMEs. Furthermore, university cooperation with SMEs can improve innovation in SMEs as European SMEs do not innovate as successfully as larger businesses"[84].

6.3.1 Collaboration for innovation within SMEs

In the early phases SMEs are often dedicated to the development of new products, whereas large companies have the resources and flexibility to plan long term, with greater R&D capacity. With more limited resources SMEs focus more closely on existing customers leaving little time to look at future product development, while larger companies have specialists who can communicate with innovators outside, such as university researchers.[85]

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83 Supporting enterprises in their CSR orientation through business development and qualification GILDE, Germany http://www.csr-mittelstand.de/welcome

84 Communication "Think Small First" A "Small Business Act" for Europe COM (2008) 394 final

85 Universities and Business: Partnering for the Kowledge Society Weber, L.E. Duderstadt, J.J. Economica (2006)

The strategic goal set by the Lisbon Agenda to address the risk of an "innovation divide" includes the need to include more SMEs in FP7 Programmes "Cooperation", "Capacities" and "People". In the area of biotechnology a new method in managing University/Biotech SME relationships has been identified that aims to pursue: the quality of relations, mutual reliance, "patience", flexibility, and be orientated to grand challenges. The initiative also includes the need to co-determine governance issues by universities and SMEs, and new task sharing concepts in participation with "horizontal" as well as "vertical" relationships suggesting universities could set up high skill departments, establishing "proxy management" models to participate in technology transfer initiatives.[86]

In Switzerland the Swiss National Science Foundation (FNS) and Swiss Innovation Promotion Agency (KTI/CTI) support research and innovation through project-based funds. The CTI promotes national and international networks that offer Swiss companies easy access to knowledge available at universities. CTI activities aim to meet the needs of SMEs through easy-to-use innovation programmes. The EPFL (Ecole Polytechnique Federal de Lausanne) in Switzerland has a comprehensive approach to innovation and relations with business, including SMEs. The Technology Transfer Office at EPFL has been extremely active in technology transfer over the past 15 years and has established a science park in 1993 which includes an incubator for entrepreneurs and early stage companies with coaching support by the KTI/CTI. In line with this the College of Management of Technology at EPFL established in 2005, to train engineers in economic and business aspects of technology and innovation aims to attract students with an entrepreneurial mindset. [87]

6.3.2 Collaboration for greater employment opportunities within SMEs

Encouraging start-ups, and the growth of SMEs is essential to sustaining the European economy. A central concept of the Small Business Act is the importance of society's recognition of entrepreneurs, and the creation of a climate in which individuals consider starting their own business an attractive option. Universities can play a pivotal role in promoting this option to students. The "Think Small First" principle, that rules should respect the majority of those who will use them (SMEs) would suggest that universities should priorities partnerships with SMEs. One main goal of developing entrepreneurship is that graduates will have the skills and confidence to start up their own companies. A key aspect to encouraging students is to engage SMEs with universities.

Working relationships between SMEs and universities are essential to ensure that the skills requirements of SMEs are represented in curricular development, that students are exposed to the idea of working in SMEs, that students with entrepreneurial potential can learn about start-ups and the needs of SMEs. SMEs should be involved in all of the mechanisms described in this paper (Governance, curriculum development, continued education, mobility, entrepreneurship and knowledge transfer). Universities need to take special measures to reach out to SMEs in order to include them in these processes. The additional barriers of reaching SMEs can be:

– SMEs are less visible to universities

– SMEs do not have the capacity to take time to build relations with universities

[86] DG Research European Commission Nanodiab workshop 2007 Nanomaterials & Diabetes: Highlights from the Event

[87] *The EPFL approach to Innovation Lebret, H. et al in* Universities and Business: Partnering for the Knowledge Society Weber, L.E. Duderstadt, J.J. Economica (2006)

– SMEs are less aware of the advantages of building relations with universities

– Universities prefer to engage with larger companies.

The University of Greenwich (UK) offers an MBA in SME Management. The course is aimed at mature students and to appeal to SME employers by providing management education relevant to the work place and modular options that allow specialisation. It offers flexible delivery of learning for students who may be working full time, and time-off for study is often particularly difficult to organise in smaller organisations. The course builds on student's knowledge from the work environment.

7. CONCLUSIONS

The following overall conclusions are drawn from the university business fora[88]. The conclusions of the for a on the 6 different themes are included in the Annex.

7.1 Overall conclusions

At the policy level:

- University-Business Cooperation, linked to the higher skills agenda, can help lead Europe through the current economic crisis. The progress of University-Business Cooperation should not be impeded by short-term reactions in HE or businesses

- A major challenge for economic recovery will be the availability of a higher-skilled workforce especially in science, technology, engineering and mathematics (STEM)

- Innovation resulting from links between business and Higher Education should not be limited to science, technology, engineering and mathematics (STEM) – the arts and humanities also contribute to socio-economic development

- SMEs are an important area for development. University-Business Cooperation might benefit from an improved understanding of how better to link SMEs to universities and also from understanding the different nature of innovation in SMEs compared to big companies

- The role of the student in the transaction. University-Business Cooperation might benefit from further clarification and understanding of the role of the student in the process: whether as client, customer, partner, 'product', university junior staff member etc.

At the implementation level

- There is a need for dissemination of, and access to, examples of good practice and success stories in University-Business Cooperation, with a better understanding of the impact of success (what is specifically achieved, how is it measured etc.)

[88] First and Second University Business Forum, Brussels, February 2008 and 2009, Continuing Education, Brussels 30 June 2008, Curriculum Development, Tenerife, 30-31 October 2008, Knowledge Transfer, Brussels, 7 November 2008

- It is important to be clear about the models and principles which underpin good practices in their specific contexts (the mechanisms; who is involved; in what legal/economic conditions etc.)

- There needs to be a change of mindset in many cases to facilitate the alignment of the different cultures of the business and university worlds

- There is a need to recognise the particular value of individuals and organisations as champions of change, and to provide relevant support measures for champions

ANNEX A1 - PUBLICATIONS

COMMISSION DOCUMENTS

- COM(2005) 152 final: Mobilising the brainpower of Europe: Delivering on the modernisation agenda for universities, COM(2006)298
- COM(2008) 800 final: Communication from the Commission to the European Council. A European Economic Recovery Plan
- COM (2005) 24 final: Working Together for Growth and Jobs: A New Start for the Lisbon Strategy
- University-Enterprise Workshop, Brussels, 17 July 2007, Brussels: Workshop Report
- COM (2006) 33 : Implementing the Community Lisbon Programme: Fostering Entrepreneurial
- Mindsets through Education and Learning
- COM(2005)548 final: Commission proposal for a Recommendation on Key Competences for Lifelong Learning
- COM (2005) 488 :More research and Innovation, Investing for Growth and Employment: a common
- approach
- COM (2007)182 : Improving knowledge transfer between research institutions and industry across Europe"
- COM (2008) 394 final : Communication "Think Small First" A "Small Business Act" for Europe
- BEST procedure project: Entrepreneurship in Higher Education, especially in non-business studies: Final report of the expert group March 2008
- SEC(2008) 2101 : Commission Staff Working Document *accompanying the* Communication "Think Small First - A Small Business Act for Europe
- SEC(2007)449 : Voluntary guidelines for universities and other research institutions to improve their links with industry across Europe"
- Survey of Entrepreneurship in Higher Education in Europe DG Enterprise (2008)
- Thematic Forum on Continuing Education and Lifelong Learning (Brussels, 30 June 2008): Workshop Report
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– Future skill needs in Europe: synthesis report: Medium-term forecast: CEDEFOP – 2008

– The Framework for Qualifications of the EHEA – 2005

– Mobility of Researchers between Academia and Industry: 12 Practical Recommendations. DG Research 2006

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– OECD GDP Growth Projections: 2008-2010

– OECD (2002) Benchmarking Industry-Science Relationships

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– Higher Education at Work – High Skills: High Value (UK) 2008 DIUS

– World Class Skills: Implementing the Leitch Review of Skills in England (UK) 2007 DIUS

– Entrepreneurial Activity in 2007 across the globe GEM Adult population survey 2007 (APS)

– CBI/Pertemps, "Employment Trends survey" (UK) 2006

– Council for Industry and Higher Education; Graduate Employability: what do employers think and want (UK) 2008

– Workforce Development: how much engagement do employers have with higher education?(UK) 2007 CIHE

- International Competitiveness: Businesses working with UK Universities, (UK) 2006 CIHE
- International Competitiveness: the role of universities (UK) 2007 CIHE
- Estonia: Bologna Report 2007
- Hungary: Bologna Report 2007
- Romania Bologna Report 2009
- University-Enterprise Cooperation: building on new challenges from past experience, Project Report, (DE) DAAD - 2006
- Universities and Business: Partnering for the Knowledge Society Weber, L.E. Duderstadt, J.J. Economica (2006)
- Higher Education for the Workforce: Barriers and Facilitators to Employer Engagement (UK) 2008 Dr Marilyn Wedgwood, Manchester Metropolitan University, DIUS Research
- Creative futures: Building the creative economy through universities (UK) 2008 Centre for Creative and Cultural Industries Research: Napier University
- Educating Engineers for the 21st Century:. The Industry View (UK) 2006 Henley Management College
- Enterprise and entrepreneurship in higher education (UK) 2007NCGE
- Good practice in enterprise development in UK higher education (UK) 2007 NCGE
- Higher-level skills for higher value: Design blueprint (UK) 2008 Design Council
- Impact of higher education institutions on regional economies (UK) 2007 University of Strathclyde
- University-Industry Knowledge Exchange: Demand Pull, Supply Push and the Public Space role of Higher Education Institutions in the UK Regions (UK) 2008 University of Cambridge
- "Universities, Business and Knowledge Exchange" (UK) 2008 "CIHE: Maria Abreu, Vadim Grinevic, Alan Hughes, Michael Kitson and Philip Ternouth"
- Understanding the factors influencing graduate entrepreneurship (UK) 2007 NCGE
- Influence through Collaboration: Employer Demand for Higher Learning and Engagement with Higher Education Full Project Report (UK) 2008 CIHE
- Stepping Higher: Workforce development through employer-higher education partnership (UK) 2008 HEFCE
- HEFCE strategy to support links between higher education and employers on skills and lifelong learning (UK) 2006 HEFCE

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- Quality assurance and employer engagement in HE learning (UK) 2008 HEFCE
- Good Practices in University - Enterprise Partnerships- GOODUEP Project (ES) 2008 Centre for the Study of Higher Education Management Universidad Politécnica de Valencia Camino de Vera
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- "University-Enterprise Cooperation: Building on new challenges from past experience" DE/EU DAAD
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- Skills Road Map for the Digital Media Industry (IE) 2006 Forfas
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- Promotiing Enterprise – Higher Education Relationships (IE) 2007 Forfas and Advisory Council for Science, Technology and Innovation

Annex A2 – Forum Conclusions

A2.1 Governance

The University Business Forum has demonstrated that changes in higher education governance at national, regional and institutional level are core conditions for the development of effective collaboration between university and business.

University-Business Cooperation needs to be embedded in institutional strategies

– Universities have to modify their governance structures in order to enable the organisation and its staff (professors, researchers, graduates, students) to face the challenges of a changing world

– University-Business Cooperation has to be part of university strategy. There are still many universities in Europe with internal governing boards which do not lend themselves to supporting the modernisation agenda

Institutional leadership

– Leadership is key in the implementation of relevant governance models

– There is a need to develop instruments to support leadership

Representation of all the stakeholders

– Businesses are just one set of stakeholders that need to be present and active in institutional governance. Representation from staff, students and the community is equally important in decisions on University-Business Cooperation

Supportive structures and services

– European universities can learn from the experience of their American counterparts, particularly in establishing close links with their alumni and benefiting from their expertise and networks.

– Universities are seeing a change in the organisation and remit of career services to cover university industry transactions in the broadest sense

Management of Human Resources, incentives, recognition

– Particular effort is needed to improve the management of human resources, career progression and incentive systems

– Relevant assessment systems mean that University-Business cooperation is recognised in the metrics

– Appropriate incentive systems mean that cooperation with business is part of the criteria for career advancements of teaching staff (performance contracts)

Importance of national and regional policy support

– At national level changes are needed relating to legislation and to administrative and funding arrangements to support incentives to institutions and staff

– The collaboration work and its acknowledgement, moving away from traditional academic merits can be supported through national and regional funding

A2.2 Curriculum Development

The competitiveness of economies is increasingly dependent on the availability of a qualified and entrepreneurial workforce. This means that universities have an important role in the "production" of this qualified human capital. As a consequence it is imperative that universities and businesses understand the value of cooperation in curriculum development.

A better match between graduate profiles and qualifications

– Joint curriculum development greatly improves chances for companies to find students/graduates that have the knowledge, skills and competences that are needed on the labour market

– Quality and relevance (labour market) of study programmes should be demonstrated/assessed

Supportive internal structures to facilitate curriculum development

– Universities' careers services are already changing and could develop into the point of contact at universities for all companies and feed into the development of curricula

– Alumni are future employers and/or employees: they can provide important feedback to the quality and relevance of their studies

– More extensive dialogue with the business sector at the faculty level can be beneficial for the redefinition of the knowledge skills and competences required for graduates

A common language for universities and business

– The focus on Learning Outcomes provides the opportunity to serve as common language of relevance for cooperation, understandable by all stakeholders

Future proof

– There needs to be a balance between short-term and long-term skills needs in the curricula.

– New concepts are required to ensure that the curricula are innovation-supportive, ie. that graduates are equipped for the development of innovation

A2.3 Continuing Education & Lifelong Learning

The concern about employability is not only for those who enter the labour market. The upgrading of competences in the adult population is an even bigger challenge for Europe.

Lifelong learning embedded in institutional strategies

– Universities should clearly recognise the requirement for Lifelong Learning within their mission, policy and strategy

– Strategies for Lifelong Learning should also consider the incentives to individuals from all stakeholders to engage in this activity including lecturers, students and employers

Lifelong learning has to be done in partnership

– There need to be frameworks allowing business and university stakeholders to come together to define the demand for new skills: There is great potential for relevant intermediary organisations to bridge the gap between universities and business, in particular between universities and SMEs

– SMEs need particular attention; they have specific needs and require special arrangements as well in the definition as the delivery of a demand-driven offer. Clearly defined contact points like departments for continuing education at universities can help with attracting SMEs

Funding of Lifelong learning

– Strategies for Lifelong Learning should look into a range of sources of funding, whether these include national, regional, institutional, or individual sources

– University/business promoters have to find new economic models and organisational architecture to allow movement between learning and work

National and regional policy support for Lifelong learning strategies in Higher Education

– The inclusion of continuing education and adult lifelong learning in strategies hinges on the provision of the right policy environment

– Lifelong Learning strategies in Higher Education can contribute to regional economic development, and closer relations between universities and businesses, particularly SMEs

– National policies need to take into account the differing time scales that universities and businesses work within, and foster collaboration for Lifelong Learning with sensitivity to supply and demand

New modes of learning

– In order to facilitate Lifelong Learning, universities need to be able to adapt to individual circumstances and offer flexible courses. This means offering a wider range of course content, more tailored to business demand, and more flexible facilities for access

- **Recognition and accreditation**

– To widen access to Lifelong Learning universities need to recognise prior learning and skills from outside of formal higher education

– Lifelong learning courses should be properly accredited by both universities and employers to be of real benefit

– Relevant quality assurance mechanisms have to be extended to LLL programmes

– Updating/upgrading skills has to be valued/recognised on the labour market

A2.4 Entrepreneurship

The low levels of entrepreneurship in the EU are a major source of concern for fostering of growth and employment. The challenge for Higher Education is to shape the learning environments that stimulate and support entrepreneurship. The approach needs to move from the knowledge economy to an entrepreneurial economy – from knowledge to the application of knowledge.

Creating the right context

– Higher Education cannot 'make' entrepreneurs but can create an environment that is conducive for the development of entrepreneurial individuals (their attitudes, behaviour and skills).

– There is a need for further developing institutional leadership at senior management level with responsibility for cultural change and achieving agreed outcomes and impact; for staff training and development and curricula innovation.

– Accompany and help graduates creating their own business through incubators, mentoring and tutoring.

– It is important to create and promote a positive image of entrepreneurs: this involves the university being receptive to the role of promoting and encouraging entrepreneurship.

Development of the entrepreneurial eco-systems

– All types of stakeholders need to be involved in the development of entrepreneurship

– Staff play a key role in the development of entrepreneurial attitude among students

– Trust and mutual understanding needs to be created between the stakeholders and networks

Qualifications, mechanisms and role models

– Too few qualified educators are available, and not enough training opportunities exist for interested candidates.

– There are not enough chairs of entrepreneurship in Europe – necessary to better understand the issues and for championing its development.

– Good entrepreneurship relies on the flow of knowledge from university to business and vice versa with mobility of students and staff

Access to entrepreneurship education

– Entrepreneurship education in Europe is too focused on specific subjects. All students, regardless or where and what they study (full time, part time or in LLL), should be exposed

to activities that contribute to the development of entrepreneurial activity. Specific modules dedicated to entrepreneurship should be included into in each study programme.

– Entrepreneurship education should start as early as possible; exposure to situations where entrepreneurial attitude can be developed is crucial (appropriate pedagogical approaches).

Entrepreneurship research

– Develop entrepreneurial research in order to convince the research community of the importance of entrepreneurship related issues.

Measuring and demonstrating the impact of entrepreneurial education

– Relevant measures and criteria need to be defined to assess the outcomes and the impact of entrepreneurial attitude on individual, organisational and societal level

– Successful mechanisms for developing entrepreneurship need to be shared

A2.5 Mobility

In spite of a number of success stories with student placements and collaborative project work the level of interaction and mobility between the two sectors remains low.

The value of mobility

– The value of mobility needs to be recognised by university and business in all its different modalities

– Mobility is not an end in itself; it should have a purpose linked to career paths.

– Targeted actions towards SMEs are necessary to convince them of the value of internships

Supporting academic and student mobility

– Legal frameworks for researchers and students have to be flexible (social security, pensions, grants etc)

– For academics there needs to be accreditation and recognition of such work by universities

– For students: Placements should be an integral part of curriculum and accredited

– There should also be provision for the mobility of managerial staff

- **Increasing use of industry funded chairs**

– Industry chairs linked to companies should be encourage

– It is important that industry chairs are given time to maintain their links to the external environment

– Other short term mechanisms should be explored on bringing in industry people to teach or to feed back on the mobility schemes between their companies and the university

Mobility and the global dimension

– Current mobility initiatives tend to be rather locally based, but in a global world a European dimension of mobility is required. There are increasing number of international initiatives, such as the Marie Curie Actions, which should be encouraged.

A2.6 Knowledge Transfer

Innovation is the only possible answer to the main challenges facing today's world. It is also key to the competitiveness of Europe and its enterprises. Knowledge transfer is about building lasting strategic alliances between equals. It needs to be redefined in the widest sense. It is about people transferring knowledge between business and higher education – not mechanisms. This encompasses education, research and innovation and in that sense many of the existing conclusions are relevant to knowledge transfer.

Legal and funding framework

– In many countries there are still legal and funding disincentives for engaging in knowledge transfer

Overcoming institutional barriers

– In order to enhance knowledge transfer it is necessary to overcome faculty boundaries

– Universities (faculties) and businesses have to better understand their respective needs

– A change in mindset on both sides is necessary to facilitate open cooperation : Business "in" universities

Knowledge transfer in ideas and management

– Knowledge transfer mechanisms cannot be separated into those which relate to research and those which relate to education. A more joined-up approach to relation with the business community will be beneficial to enhancing University-Business Cooperation

– The use of standard industry management procedures in university knowledge transfer mechanisms should be explored

– Development of joint research projects with businesses should be strengthened

– University-Business Cooperation can facilitate exchange of experience from traditional research partnerships taking place in universities to companies