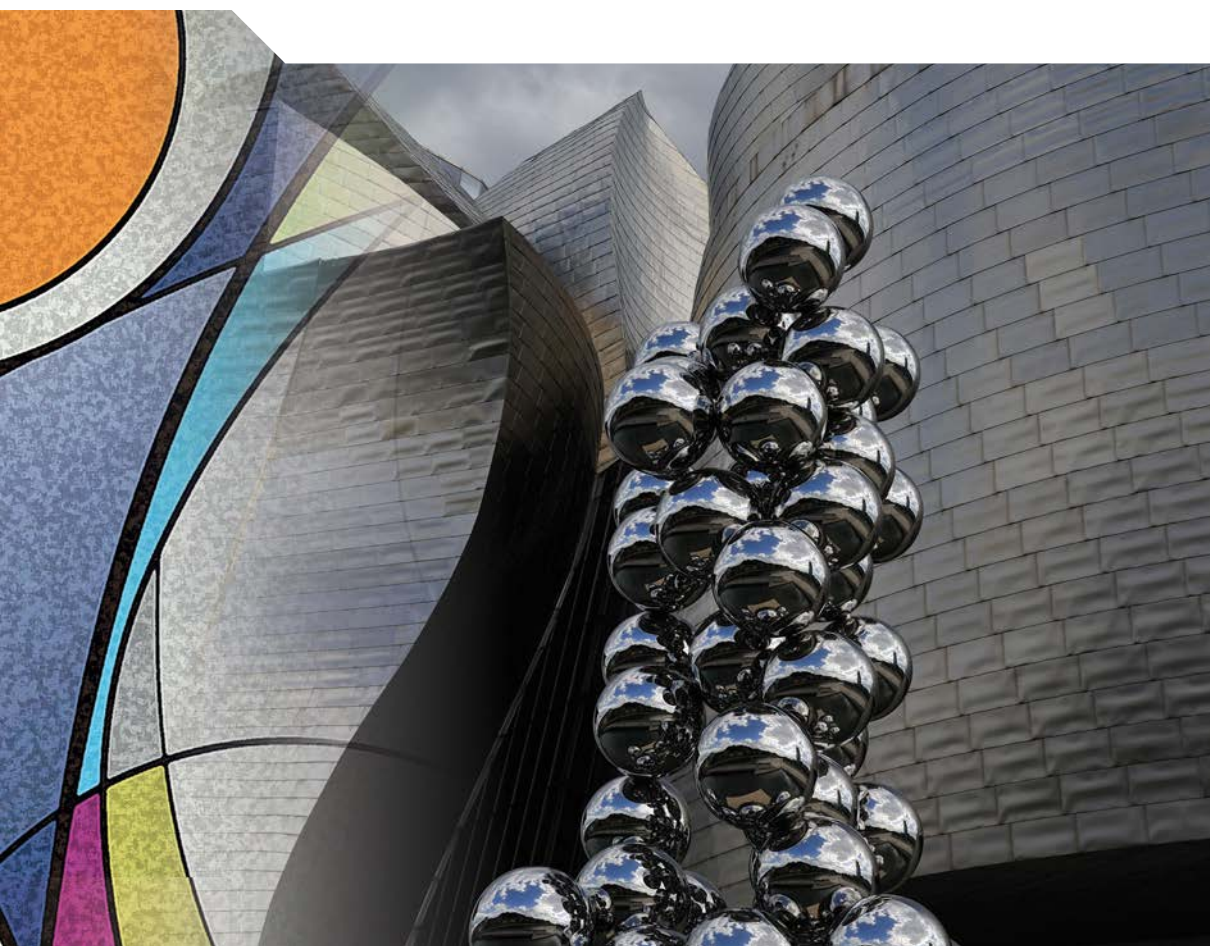


Higher Education in Regional and City Development

Basque Country, Spain

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Foreword

Universities and other tertiary education institutions can play a key role in human capital development and innovation systems in their cities and regions. Since 2005, the Reviews of Higher Education in Regional and City Development have been the OECD's tool to mobilise higher education for economic, social and cultural development of cities and regions. These reviews have analysed how the universities and tertiary education institutions as a system impacts local and regional development and have helped improve this impact in more than 30 cities and regions in over 20 countries. These reviews have examined the tertiary education institution's contribution to human capital and skills development; technology transfer and business innovation; social, cultural and environmental development; and regional capacity building. The review process has been designed to facilitate partnership building in cities and regions by drawing together the different tertiary education institutions and public and private agencies to identify strategic goals and work together towards them.

The review of the Basque Country is the fifth review of higher education in regional and city development in Spain, following the earlier reviews of Valencia and Canary Islands in 2006, and Andalusia and Catalonia in 2010. The Basque Country has developed a reputation for its comprehensive regional policy that has strengthened the Basque industrial base through support for industry-based skills, innovation and cluster development, providing a model for European regional innovation initiatives. The Basque Government has excelled in planning, co-ordination, analysis, goals setting, prioritisation and consensus building. It has developed coherent plans for the university and the vocational education sectors and established well articulated goals. It has gained notable success in uniting the key stakeholder groups and leveraging co-operation across agencies and institutions. This review report investigates how the Basque Country and its universities and higher vocational education institutions can continue to build a more robust skills and innovation system against a backdrop of an economic crisis, ageing society and increasing global competition.

It is our hope that this review will be helpful to the Basque Country and its tertiary education institutions. We also hope that the Basque experience and many good practices will provide an inspiration to other regions that want to unleash the potential of their tertiary education institutions.

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List of acronyms

ANECA	National Agency for Quality Assessment and Accreditation of Spain <i>La Agencia Nacional de Evaluación de la Calidad y Acreditación</i>
ARGO	Mobility Grants aimed at providing financial support to Spanish graduates to carry out a professional internship in European companies
AUD	Australian dollars
BA	Bachelors degree
BERC	Basque Excellence Research Centre
BSc	Bachelor of Science
CECA	Co-operative Education & Career Action, Canada
CEGES	Research Centre for Management in Higher Education <i>Centro de Estudios en Gestión de la Educación Superior</i>
CES	Economic and Social Council
CFP	Centre for Continuing Education <i>Centro de Formación Permanente</i>
CIC	Cooperative Research Centres <i>Centros de Investigación Cooperativa</i>
CONFEBASK	Basque Business Confederation
CSIC	Spanish National Research Council <i>Consejo Superior de Investigaciones Científicas</i>
CVCTI	Basque Science, Technology and Innovation Council <i>Consejo Vasco de Ciencia, Tecnología e Innovación</i>
DIICT	Department of Industry, Innovation, Commerce and Tourism
DU	Deusto University <i>Universidad Deusto</i>
DEUI	Department of Education, Universities and Research
EHEA	European Higher Education Area
ENCYT	Spanish National Science and Technology Strategy <i>Estrategia Nacional de Ciencia y Tecnología</i>
ERA	European Research Area
EU	European Union

EUR	Euro
EUROSTAT	European Union Statistics Institute
EUSTAT	Basque Statistics Institute
GBP	British pounds sterling
GDP	Gross Domestic Product
GEP	Gippsland Education Precinct, Australia
GERD	Global gross expenditure on R&D
GVA	Gross value Added
HEI	Higher Education Institutions
HES	Higher Education System
HEIF	Higher Education and Innovation Fund, United Kingdom
HEZIBI	Alternance Professional Training <i>La formación profesional en alternancia</i>
HOBETUZ	Basque Foundation for Continuous VET
HE-BCI	Higher Education and Business Interaction Survey
HVET	Higher Education and Vocational Education Training
ICT	Information and communications technology
IHOBE	Environmental Management Agency, Basque Country
INE	Spanish National Statistics Institute
Ikesbasque	Basque Foundation for Science
ISI	Institute for Scientific Information- Thomson Institute for Scientific Information
DEUI	Department of Education, Universities and Research
Lanbide	Basque Employment Service <i>Servicio Vasco de Empleo</i>
LEONARDO	European Union's Lifelong Learning Programme
LLL	Lifelong learning
MECES	The Spanish Qualification Framework <i>Marco Español de Cualificaciones para la Educación Superior</i>
MU	Mondragon University
NEETS	Neither in employment, nor in education or training
OECD	Organisation for Economic Co- operation and Development
OIP	Office of International Programmes
OTRI	Knowledge Transfer Office
PCTI	Science, Technology and Innovation Plan
PCTI 2015	Science, Technology and Innovation Plan 2015
QS	QS university rankings
PISA	Programme for International Student Assessment
R&D	Research and Development
R&D&i	Research and Development and innovation
REFLEX	REFLEX survey

RMIT	Royal Melbourne Institute of Technology
RVCTI	Basque Science, Technology and Innovation Network
TAFE	Technical and Further Education
TE	Tertiary Education
TKNIKA	Centre for Innovation for Technological and Vocational Education and Training <i>Centro de Innovación para la formación profesional</i>
SOCRATES	The EU Lifelong Learning Programme: education and training opportunities for all
UDEM	The University of Deusto Educational Model
UNESCO	United Nations Educational, Scientific and Cultural Organization
UPV/EHU	University of the Basque Country
URV	University Rovira i Virgili, Italy
USD	United States Dollar
VET	Vocational Education and Training

Assessment and recommendations

From a strong industrial region towards a magnet for knowledge, skills and investment

The Basque Country stands out in the Spanish landscape because of its wealth, industrial strength and skilled workforce. With 2.1 million inhabitants and a GDP of EUR 64 billion in 2010, the Basque Country accounts for 4.7% of Spain's population but nearly 6% of Spain's GDP. The Basque Country is one of the most prosperous regions in Spain, with the highest GDP per worker. It is also the leading region in the Spanish economy as measured by workforce with tertiary education, business R&D intensity and share of employment in high-technology industries and knowledge-intensive services (KIS). Its figures for government and higher education R&D are however lower than Spanish and OECD averages.

The Basque Country's governance arrangements include greater competencies and control of direct spending than for Spanish regions in general, which impacts the region's ability to steer skills development and innovation. Along with the region of Navarre, the Basque Countries' three historical territories or provinces of Alava, Biscaya/Vizcaya and Gipuzkoa are the only jurisdictions that benefit from a decentralised fiscal (foral) regime within Spain. The Basque Country has the second highest regional budget spending per capita in Spain after Navarre, and exercises wide competencies in science, technology and industry, education and research.

While the strong industrial core in manufacturing has made it possible for the Basque Country to remain more resilient in the global recession than Spanish regions in general, unemployment is rising particularly among the young. The Basque Country's manufacturing sector, in particularly medium-low and medium-high technology manufacturing, employs a larger share of the population than in the rest of Spain (21.8% compared to 13%, respectively in 2009 figures). While the Basque unemployment rate grew to 15.5% by the second quarter of 2012, it was still 10 percentage points below the Spanish average. Youth unemployment situation has, however,

deteriorated dramatically, reaching 30% in 2010, ten percentage points below the Spanish average but ten points above the EU27 rate.

Over the longer term the Basque Country faces critical challenges in maintaining its distinctive global position because of growing competition from emerging economies and an ageing population. The Basque Country is undergoing an industrial shift towards services and more knowledge-intensive activities. The Basque manufacturing firms that will thrive in the changing environment will need to focus on differentiation and a more intense use of knowledge. Success depends on continuing access to skilled and qualified labour, which will become a challenge because of the demographic change and limited inward migration.

The economic crisis, long term demographic change and competition from emerging economies are challenges for the Basque Country but also an opportunity for a new economic transformation. The Basque Government has traditionally held a strong leadership role in steering the region through investments in industrial development, skills and innovation, and is committed to making universities more important players in the regional innovation and skills development systems. In this context, the key challenges for the Basque Country and its universities and the vocational education institutions are the following:

- How to ensure the best use of skills? How to attract and retain talent from other regions and countries?
- How to leverage the current economic base? How to move towards more radical innovation in new industries?
- How to improve the quality and relevance of tertiary education, and transform the universities into a more active asset for the Basque Country's development?

To address these challenges, the Basque Country needs a comprehensive approach to education and lifelong learning with stronger collaboration among universities, and between the university and HVET systems. It needs to make best use of the skills of its ageing population and shrinking youth cohorts, and attract skilled workforce and talent from other regions and countries. The Basque Country needs to build long term research strengths in selected fields and develop an internationally competitive research university as a flagship of its tertiary education system. The good practice examples – university-industry collaboration and innovations in education, management and governance – should be celebrated, better disseminated within the tertiary education system and, where possible, scaled up. The efficiency and productivity of the university system and the articulation between the university and HVET systems should be enhanced. There is

also a need to revisit the University Plan to facilitate stronger steering towards high quality outputs, backed up by more effective performance management for university staff in order to ensure best return on public investment, whether in high quality research, excellence in teaching or third mission. Finally, the Basque Country, its universities and HVET system have championed many innovative mechanisms and models in tertiary education. It is now the time to capitalise on the existing assets and build a global brand for the Basque tertiary education recognising its potential value as an export sector.

Human capital development in the Basque Country

The Basque Country has made great strides in tertiary education and boasts the best educated workforce among Spanish regions with internationally high tertiary education attainment rates. But its successful economic and education model is now challenged by demographic trends and globalisation.

An educated workforce is a key asset for the Basque Country. With internationally high levels of education attainment the Basque Country has the highest share of workforce with tertiary education among Spanish regions. In 2010, 60% of 30-34 year-olds and 44% of the Basque Country's 25-64 year-olds had attained tertiary education. The student enrolment in tertiary education as a share of the population (3.7%) is near the top of Spanish regions and only little below the OECD regional average. In 2010/11, 31% of 18-24 year-olds in the Basque Country were pursuing an undergraduate degree – over 5 percentage points more than in Spain in average. The share of young people in non-university tertiary education was 10 percentage points higher than in Spain.

The Basque tertiary education system consists of three universities, 120 centres for Higher Vocational Education and Training (HVET) and 9 centres for specialised higher education. Three out of four Basque tertiary education students are enrolled in the universities. In 2009-10, 78% of the total of 80 000 tertiary education students were enrolled in universities, most of them in the Basque University System (60 000) or other universities with campuses in the region such as the University of Navarre's TECNUM. A much smaller share, 22%, were enrolled in Higher Vocational Education and Training (HVET) system that had less than 17 000 students in 120 HVET centres. The three universities within the Basque University System each have diverse missions, governance systems and resources. There are a large public research-based institution, the University of the Basque

Country/*Euskal Herriko Unibertsitatea* (UPV/EHU) and two much smaller private universities – the University of Deusto with a Jesuit background, and the non-elitist industry-facing Mondragon University, a co-operative member of the Mondragon Corporation.

The Basque Country’s successful economic and education model is now challenged by demographic trends and globalisation. With 19% of the Basque population 65 years or older, the rapidly shrinking labour force will reduce the labour market participation rates and expose the Basque Country to skill shortages at the point when companies and businesses will require more talent. Falling demand for undergraduate and HVET studies will offer an opportunity to improve the efficiency, quality and relevance of the tertiary education sector. While the entire tertiary education system will be under pressure, great gains will be made if the HVET system strengthens its appeal among students and if the efficiency, quality and relevance improve in the public university that caters to almost 80% (47 000 students) of all students in the Basque University System.

Against a backdrop of an ageing society and falling demand for tertiary education, the Basque Country must make better use of its skills and improve the quality, equity and relevance of its school education.

Despite the overall high levels of education attainment, there is a need to make better use of human capital by reducing the early school leaving rates and targeting the youth who are neither in employment nor in education and training (NEETs). Among the Basque population with some secondary education, a high share does not go beyond lower secondary education. While the Basque early school leaving rate is the lowest in Spain, less than half the Spanish average (13% vs. 28% in 2010), it implies a waste of human capital that the Basque school authorities need to address. Many youth who drop out of school lack the skills needed for a transition to work and for participation in lifelong learning. At 16% in 2011 the share of the youth who are neither in employment nor in education and training in North East Spain was up from 12% in 2008. Although 7 percentage points lower than in Spain overall, this group is most at risk of becoming marginalised from the labour market and suffering long term disadvantages. Better functioning pathways between secondary education and vocational education can help engage youth, improve school retention and graduation rates and ensure transition from school to work.

The learning outcomes for 15-year olds, as measured by the OECD Programme for International Student Assessment (PISA), are one indication

of the skills of the future labour force of the Basque Country as well as a determinant for the access to and success in tertiary education. The Basque Country's PISA performance poses a challenge because it lags behind the top of Spanish or international performance. For 2009 the Basque Country's PISA scores for reading, mathematics and science (494, 510 and 495 in 2009) were over ten percentage points above the Spanish averages, but lower than those of the best performing PISA countries and regions. In Spain, six regions – Madrid, Castilla and Leon, Catalonia, Rioja, Navarra and Aragon – did better in all three indicators.

The Basque authorities need to continue to work on improving the quality and relevance of education, and reduce the equity and quality gaps in primary and secondary education. Continuing efforts are necessary to establish programmes that improve the preparation and professional development of teachers at schools and to ensure that all primary and secondary students (and their families) gain unbiased information they need to prepare for post-secondary education, whether at a university or a vocational education which despite its high profile suffers from a poor public image. At the same time, universities and other tertiary education institutions can and should reach out to local schools to help improve the quality of teaching as well as raise aspirations and academic performance of students. Equipping youth with entrepreneurial skills can also help them enter and stay active in the labour market. In addition, the Basque policies could develop a stronger focus on providing entrepreneurship skills at schools, VET and tertiary education institutions.

While the Basque Country has weathered the economic crisis better than other regions in Spain, the crisis is destroying jobs and hitting particularly hard the young. There is considerable variation on how the Basque universities and HVET centres facilitate students' entry to labour market and address the skills needs of the region.

The Basque Country has benefited from robust long term economic and labour market trends but the ongoing crisis is destroying jobs and hitting especially the youth. By the end of 2012, the Basque unemployment rate had grown to 15.5% (vs. 25% for Spain). Youth unemployment has deteriorated, reaching an unacceptably high level of 30% in 2010. Higher levels of education generally provide a better guarantee for employability, but the LANBIDE (Basque Employment Office) surveys show that unemployment is increasing among the recent graduates of universities (15% UPV/EHU and 13% Mondragon University) and particularly HVET institutions (30.4%

nine months after graduation), whose education and training offer is closely aligned with the Basque industry needs.

The concern for the youth unemployment on the one hand, and the future skills shortages and demographic trends on the other, means that the focus in the Basque tertiary education system needs to shift to embedding employability and entrepreneurship skills within the curriculum in order to ensure that employees will have flexibility to adapt to the labour market changes. The Basque Vocational Education System benefits from the work of a dedicated innovation centre TKNIKA (Centre for Innovation for Technological and Vocational Education and Training) that rolls out demand-led innovations throughout the HVET sector in both public and private institutions. It will be important to continue the efforts to ensure that the Basque vocational education will not become too narrow or company-specific, which can limit the mobility of individuals. The education authorities could also consider how to integrate practical training throughout the HVET study programmes for example by increasing alternance training, which combines periods in an educational institution or training centre and in the workplace. Here the Basque Country could build on international best practice as well as the experience from the HEZIBI programme that began in 2011 with 141 companies and 30 VET centres engaging 255 students.

In contrast to the system approach within the VET sector, the Basque universities have each developed their own approaches to educational reform, often focusing on pedagogical aspects rather than on more profound changes towards demand-driven education. For example in contrast to many international universities which offer only a few broad-based undergraduate degrees, UPV/EHU provides a large number of study programmes with early specialisation. Innovative demand-driven approaches in industry collaboration, such as UPV/EHU's collaboration with the Machine Tool Institute, remain department- or discipline-based, benefiting only a small portion of students, without wider dissemination throughout the university. Both UPV/EHU and the University of Deusto have made great strides in pedagogical reform, but should continue their efforts to move away from study programmes which are based on academic capacity rather than the needs of the economy and society. A thorough review of the Basque Country's university education offer and how it responds to the needs of the Basque society in the globalising world economy would be useful. The ongoing programmes and initiatives could also be better geared towards the needs and priorities of the Basque Country.

Robust results in developing the skills and competencies of students require reforming the teacher-centred learning models and building stronger labour market links. These goals could be achieved through a range of measures, including work-based learning opportunities for all students, for

example through credit-bearing co-op education to all students in collaboration with the local industry and other employers; participation of employers in the curriculum design and delivery; using local, private sector employees as instructors and encouraging temporary movement of university researchers/teaching staff to the private sector. In big universities such as UPV/EHU, experiential and problem-based learning models in group settings could help bring benefits for a wider share of students.

Much could be achieved by better disseminating the good practice examples within the Basque University System. Mondragon University stands out among universities in Spain thanks to its internationally innovative approaches to demand-lead education, including its study-work alternative that brings double benefits for students in the form of work experience and funding to cover the costs of education. Mondragon's co-operative governance, industry collaboration model and focus on the combination of work, study and learning-by-doing are gaining ground internationally, particularly in Latin America, but so far it they have not been widely disseminated within the Basque University System.

The Basque Country has a tradition of serious entrepreneurs which could be capitalised on by its tertiary education system. The Basque universities could make more progress in mainstreaming entrepreneurial experience in curriculum and offer students practical experience of new venture formation. International experience shows that the best support for graduate entrepreneurship comes from teaching programmes where students work in teams to form real companies mentored by entrepreneurs. Such programmes can run at undergraduate and graduate levels and be targeted at students from across the sciences, engineering, business and arts disciplines. Only Mondragon University highlighted the existence of a team-oriented approach to entrepreneurship skills whereas elsewhere entrepreneurship-related programmes seem to be largely conventionally taught. In promoting entrepreneurship, universities themselves would need to become entrepreneurial and innovative. One way of making this happen is to ensure that the recruitment and career development programmes for university staff take into account entrepreneurial attitudes and experience.

Given the need to ensure the best use of skills, the Basque universities need to continue their efforts to improve efficiency in graduate production and systematically track student progress, achievement and labour market outcomes.

Concerns for efficiency in education or academic failure have not traditionally featured high on the agenda of universities in Spain. UPV/EHU has improved its performance over time reducing the dropout rates which correspond to the medium rate among Spanish public universities: in 2008/09, UPV/EHU had a 18% drop-out rate, compared to 10 percentage points lower rates in the private universities in the Basque Country. To address this challenge a stronger policy focus is needed combined with more systematic monitoring of student progress, improvements in the quality of induction process and the first year experience, as well as appropriate support mechanisms for students to help them complete their studies and acquire relevant skills.

There is also a need to improve robust data about graduate performance and employment outcomes. The LANBIDE surveys do not provide an adequate vision of graduate employment and labour market. The Basque Government could take the lead in setting up a robust database to track the progress of students and graduates. At the same time, the universities themselves need to establish an appropriate method of tracking the student progress and graduate employment outcomes as a way of informing curriculum development and a better understanding how education meets the needs of the society and economy.

The ageing society requires better utilisation of skills. Given the low population growth and shrinking youth population, the Basque tertiary education institutions need to make stronger efforts to cater to older age groups. Re-skilling and up-skilling and other forms of lifelong learning should be scaled up.

Given its ageing population, the Basque Country cannot rely on young people as the primary suppliers of new skills. A wide spectrum of full- and part-time adult learning activities need to be available: from work-related employee training, formal education for adults, second-chance courses to obtain a minimum qualifications or basic literacy and numeracy skills, language training for immigrants, and labour-market training programmes for job seekers, to learning activities for self improvement. Skills upgrading, targeted training in mid-career and general enhancement of qualifications would improve competencies of the workforce to meet the challenges of the global economy.

There is room for improvement in the Basque Country's lifelong learning record given the fact that its participation level in adult education is significantly below the best performing countries although above the

national and EU averages and the best performing Spanish regions. In 2011, the Basque rate was 15%, above the Spanish (11.6%), German (7.7%) or EU-27 (9.6%) averages, but below the rate for Sweden (32%).

The current achievements in lifelong learning are closely linked to the Basque VET policies that focus on upskilling for the industry whereas more could be done in the university sector. In 2010, 1 650 groups participated in the lifelong learning courses organised by HVET centres with the funding from the Basque Foundation for Continuous VET (HOBETUZ). The government has included lifelong learning among its strategic objectives also in the University Plan 2011-2014 and is preparing a Law for Lifelong Learning to establish a legal framework for an integrated lifelong learning system to cross-fertilisation across the tertiary education sector and also between private institutions and UPV/EHU. Policy efforts are necessary; with the notable exception of Mondragon University, the Basque universities' response to the lifelong learning needs has been fragmented and without collaborative action. Faced with the rapidly ageing society, UPV/EHU needs to improve its lifelong learning performance and become more responsive to the needs of adult learners and older workers who are in danger of becoming "locked out" due to changes in the economy/labour market.

Increasing the share of the Basque population that is educated and trained will not be enough to meet the future skills shortages. The Basque Country needs to open up to internationalisation to accelerate its economic transformation and address the skills needs. The Basque universities, technology centres and HVET institutions can collectively form a magnet which attracts students, researchers and business in search of talent.

Unlike much of Spain which has experienced a massive population growth fuelled by immigration, the immigration flows to the Basque Country have been very small and not enough to temper the declining birth rates and the ageing population. Currently, the foreign born population is only 140 000; while its share increased from 1% to 6.4% of the total population over the period 2000 to 2010, the economic crisis has now reversed the process.

Increasing the share of the Basque population that is educated and trained will not be enough to meet the skills shortages of the future. The Basque Country needs to increase its stock of human capital also by

attracting skills and talent from abroad. Acknowledging the needs of the Basque companies and society for diverse and specialised high level skills, the Basque Government has taken steps to attract top researchers, mainly with the help of Ikerbasque to overcome regulatory and other barriers to hiring foreign scientists in universities and other research institutions. This strategy needs to be supported with broader education and labour migration policies to internationalise the Basque workforce and education system. There is a need to improve recognition of foreign diplomas and increase flexibility in employment contracts to enable recruitment of employees from abroad and to ensure integration in the education and labour market.

The Basque universities and HVET system need to recruit students outside the Basque Country, from Spain and abroad. The Basque Government in collaboration with the Spanish authorities could consider relaxing the immigration policies to encourage international students to remain in the Basque Country. The advantage of international students for the host region is that they have a qualification that can be easily evaluated and utilised in the labour market. Allowing these students to work part time would help them develop ties with the local society and labour market, which in turn would facilitate their transition to the workforce.

While international mobility and skills-based immigration will need to increase, the Basque universities and HVET institutions should also develop a comprehensive internationalisation plan and strategy for the internationalisation of the curriculum, including global citizen initiatives for the benefit of all students, not only those who are internationally mobile. In order to build international visibility, to pool resources and share expertise, the Basque universities could consider establishing international joint programmes, for example a doctoral school. To play a more central role in skills-based innovation, the Basque HVET sector should address the skills needs in the local-global value chains.

Language policies will continue to require attention in the Basque Country. Promising steps have been taken in schools, VET and tertiary education institutions to improve trilingualism including English skills among students and teachers. These efforts should be evaluated, upgraded and scaled up. While the lack of English skills is a barrier to internationalisation of the Basque education and innovation system, also the general language requirements may require relaxing in the schooling, lifelong learning and labour market programmes.

The Basque Country has championed many innovative mechanisms and models in tertiary education. It is now the time to capitalise on the existing assets and build a global brand for the Basque tertiary education recognising its economic value as a potential export sector.

The following measures would promote human capital and skills development in the Basque Country:

Recommendations for the central government

- Review the current student support system to ensure the key principles of tertiary education funding – cost-sharing, relevance and comprehensive student support. Re-assess whether the cost-sharing balance is desirable and appropriately reflects the relative importance of private and societal benefits of tertiary education. Sustain existing efforts to improve the transparency of the allocation of funds to institutions and make it more consistent with the tertiary education strategy. Develop a system whereby tuition fees more fully reflect costs of delivery both in public universities and the vocational tertiary sector.
- Revisit the achievements of the Bologna Process and continue the process of curriculum reform to encourage flexible pathways and enhance mobility through credit accumulation across Spain and internationally.
- Reduce inequalities in education and training participation by age and skills by adopting a three-pronged strategy: First, increase investment in lifelong learning at mid-career. Second, improve the attractiveness of training and its returns for older learners by adapting teaching methods and content to their needs, by providing short, modular courses and by recognising prior learning and experience. Third, promote later retirement to encourage greater investment in training older learners.
- Make best use of human capital in the Basque Country by reducing early school leaving rates and targeting the youth who are neither in employment nor in education and training. Continue to work on improving the quality and relevance of school education, and reduce the equity and quality gaps in primary and secondary education. Develop better functioning pathways between secondary education and vocational education to engage youth. Make continuous efforts to improve school retention and graduation rates and ensure transition from school to work. Establish programmes that improve the preparation and professional development of teachers at schools. Ensure that all primary and secondary students (and their families) gain unbiased information they need to prepare for post-secondary education, whether at university or vocational education. Equip

youth with entrepreneurial skills to help them enter and stay active in the labour market.

- Continue to open and widen access to tertiary education and address transition barriers perceived by students. Expand the regionally-based grants system to promote the access of vulnerable groups, by stressing the financial need of students. Strengthen the pathways between universities and vocational higher educational institutions, and between different levels of education. Ensure that the Basque Qualifications Framework facilitates a coherent education system that provides a wide range of learning opportunities and facilitates learning pathways from secondary to lifelong learning. Put in place measures to accommodate and encourage mobility within and between educational institutions and levels to enable students to move from one institution to another. Publish a clear guide to the pathways and opportunities. Co-ordinate and formulate formal agreements and mechanisms for recognition and accreditation of prior learning and experience. Promote the development of dual universities and dual tertiary education programmes. Encourage more flexible, part-time university offers and the recognition of prior learning and experience. Establish incentives to promote collaboration among universities. Encourage the universities to engage in higher vocational education through co-operation with vocational training institutions. Take action to improve the public image and appeal of higher vocational education to pave the way of the Basque Country out of the economic downturn.
- Encourage the universities, UPV/EHU in particular, to address the Basque Country’s needs for lifelong learning, re-training and up-skilling of the workforce. Develop re-skilling, up-skilling and continuing professional development in collaboration between HVET and universities.
- Review Basque university education offer to evaluate how it responds to the needs of the Basque industry and society. Map the tertiary education landscape to help brand the Basque Country a region of knowledge. In collaboration with provincial stakeholders and tertiary education institutions, assess current and planned capacity against anticipated student numbers in different provinces.
- Introduce a tertiary education “revolution” by supporting the development of innovative study programmes. Encourage shared learning and dissemination of good practice within the Basque University System and between universities and the HVET system. Provide targeted funding for collaborative programmes at all levels.

Strengthen the labour market relevance of the educational programmes in a systematic way. Encourage universities to embark on targeted regionally relevant institution-wide initiatives which have a solid institutional anchorage and legitimacy within the institutions. Help consolidate new ways of teaching and learning by taking advantage of the opportunities of the Bologna Process. Encourage tertiary education institutions to use new technologies and break away from the traditional lecture model.

- Integrate practical training throughout the HVET study programme. Evaluate the current examples of alternance training within university and VET system to combine periods in an educational institution or training centre and in the workplace, and develop and scale up this offer. Ensure that the Basque vocational education will not become too narrow or company-specific in order not to limit the mobility of individuals.
- Develop a stronger focus on providing entrepreneurship skills at schools, VET and tertiary education institutions.
- In collaboration with the national authorities, universities and HVET system, develop broad policies to internationalise the Basque labour market and education system.
 - Facilitate the integration of international students and employees into the Basque education and labour market. Improve the recognition of foreign diplomas and increase flexibility in employment contracts to enable recruitment from abroad. Continue and enhance talent attraction programmes. In collaboration with the Spanish authorities develop a process to expedite the procedure of acquisition of visa and work contracts for foreign nationals who join the tertiary education sector. Allow international students to work part time to facilitate their transition to the workforce and relax the immigration policies to encourage international students to remain in the Basque Country.
 - Evaluate, upgrade and scale up the current trilingualism programmes in schools, VET and tertiary education institutions. Develop a framework for advanced trilingual training in Castilian, Basque and English to meet the demands of the Basque society and global connectivity. Consider relaxing the Basque language policy requirements in education, research and labour market programmes.

- Build a strong global brand for the Basque Tertiary Education System recognising its economic value as a potential export sector. Support joint international programmes and joint marketing and services, for example by co-ordinating (via the Tourism Department or the Education Department) a common welcome service for international students and staff, and establishing a facility/residence hall for visiting students and researchers. Encourage the Basque HVET sector to address the skills needs in the local-global value chains in order to play a more central role in skills-based innovation. Capitalise on the existing assets, and innovative mechanisms and models in tertiary education, such as TKNIKA and Mondragon University’s co-operative governance system and educational model.
- Continue to facilitate strong, evidence-based strategic decision-making by improving data on graduate performance and employment outcomes. Build on the LANBIDE surveys to develop a comprehensive vision of graduate employment and labour market. Take the lead in setting up a robust database to track the progress of students and graduates across the system, and into employment and beyond. Develop an effective region-wide graduate labour market system that is based on the collection of comprehensive labour market intelligence and online publication of the data in a single place in order to improve students’ ability to make rational choices about their studies, to help graduates and employers to come together and facilitate graduate employment. Use the data strategically within the government and within the tertiary education system to identify regional and institutional priorities and help tertiary education institutions develop their course provision and the supply of employer-specified skills.

Recommendations for the universities and higher VET

- Develop active policies to prepare for and mitigate the negative impacts of the ageing population. Increase efficiency and degree productivity and control the expansion of cost-generating factors. Develop a proactive policy to attract foreign students, students from other Spanish regions, immigrants and other less-favoured socio-economic groups. Promote lifelong learning in response to specific needs throughout people’s entire working lives. Address the needs of a diverse student population and link this with the construction of

flexible learning paths. Design adequate guidance, induction and financial support measures for less academically trained individuals wanting to attend university.

- Continue to improve the labour market relevance of study programmes. Engage employers in curriculum development and delivery, by inviting professors from industry and using local, private sector employees as instructors. Encourage employment after the first cycle. Embed employability skills, work-based learning, internships, entrepreneurialism and Intellectual Property consciousness in all programmes, including PhD programmes. Improve work-based learning opportunities for all students, for example through study-work alternance and credit-bearing co-op education in collaboration with the local industry and other employers. Use experiential and problem-based learning models in group settings.
- Facilitate temporary movement of university researchers/teaching staff to the private sector. Motivate teachers to connect with the local, national and international business and scientific environment. Encourage teachers to act as consultants for companies and develop joint research projects with industry. Integrate researchers and business professionals in the same departments.
- Address the need for lifelong learning and more flexible modes of delivery for those who combine work and study. Improve lifelong learning performance and respond to the needs of adult learners and older workers who are in danger of becoming “locked out” due to changes in the economy/labour market.
- Review the institutional profile and education provision to increase inter-disciplinarity, relevance of education, diverse learning methodologies and place the students at the centre of the learning process. Implement active methods of teaching and learning: (collaborative learning, case-based methodologies, project-oriented learning and problem-based learning).
- Look to match global levels of excellence in supporting entrepreneurship in the curriculum, and build comprehensive support programmes encompassing entrepreneurship training, practical experience of creating new businesses for groups of students, and incubation and hatchery facilities together with seed funds for new graduate ventures. Support graduate entrepreneurship by offering programmes at undergraduate and graduate levels where students work in teams to form real companies mentored by

entrepreneurs, targeting students from across the sciences, engineering, business and arts disciplines.

- Step up internationalisation activities. Develop a comprehensive internationalisation plan and strategy for the internationalisation of the curriculum, including global citizen initiatives for the benefit of all students, not only those who are internationally mobile.
- Develop an incentive system for teaching staff that motivates them to improve their education and training, teaching innovation, collaboration between teachers and the use of new technologies. When selecting teachers, give importance also to other criteria than those imposed by purely educational needs. Ensure that the recruitment and career development programmes for university staff take into account entrepreneurial attitudes and experience. Prevent inbreeding and favour hiring teachers, domestic or foreign, who can add value to the university.
- Systematically track and monitor student progress, as well as students' labour market outcomes and graduate destinations as a way of informing curriculum development and better understanding how education meets the needs of the society and economy. Monitor student satisfaction and the total student experience, which includes students services, and assess the quality of education, encompassing teaching and learning, curriculum, student life, advising and mentoring.

Research, development and innovation

The Basque Country is one of the strongest regions in Spain for its industrial innovation record which has benefited from a consistent policy support dating back to the 1980s. As a consequence of the Basque Government's long-term focus on industrial development, the universities role in regional innovation system has remained less important.

The Basque Country has developed a reputation in Europe for its investment in its regional innovation system. Since the development of the autonomous regional government in 1979, the region has sought to strengthen its traditional industrial base through support for innovation and cluster development, providing a model for European regional innovation initiatives and the idea of smart specialisation. As part of this development,

a sophisticated innovation system has been created, which is focused around a network of technology centres that work closely with local firms and clusters.

Despite an increasing focus on medium to high-technology manufacturing, The Basque Country’s innovation system is characterised by incremental innovation and an emphasis on the “doing-using-interacting” model of innovation, rather than innovation on the basis of developments in science and technology. This model has been reinforced by public interventions that have supported the industrial sector, while the role of universities as sources of innovation has been less important than in regions more dependent on science-based innovation. As a result the Basque universities benefit from a regional innovation system and strategy that is strong, well developed and has benefited from considerable investment by the Basque Government, but they also struggle to compete with the region’s technological centres in building partnerships with SMEs. Because of the strong position of industry and the technology centres, the share of R&D undertaken within the Basque university system is lower than the Spanish and EU average.

The Basque Country’s Science, Technology and Innovation Plan, PCTi 2015, marks a major shift from incremental innovation within the low to medium-technology industries, towards more radical innovation in new industries. This calls for a greater focus on new market opportunities, such as the ageing population, which requires new knowledge and new combinations of actors within the science and innovation system. The plan envisions the need for a high quality science system backed up by universities that focus on their strengths. It also requires motivated researchers willing “to do things correctly”. Specific targets are developed for enhancing the science base and enhancing internationalisation.

The Basque University System needs to establish an international quality reputation in research. While UPV/EHU is moderately successful in research performance in Spanish terms, it lags behind leading universities internationally. It should strive to increase and improve its scientific output and assume a more active role in the EU Framework Programme.

One of the objectives of the PCTi 2015 is to enhance the international profile of UPV/EHU, which requires a greater emphasis on increasing the volume and quality of publications, as well as other aspects of international reputation. UPV/EHU dominates the scientific outputs from the Basque

Country with over 90% of ISI classified publications. In 2012, UPV/EHU appeared in the Shanghai Jiao Tong ranking for the first time in the 301-400 category of universities, placing it in the top seven Spanish universities. At the same time, however, UPV/EHU does not appear in other world rankings such as the Times Higher or QS rankings which indicates a lack of international visibility. Between 2002 and 2010, UPV/EHU produced about 9 000 publications indexed in ISI, the eighth highest level among Spanish universities, with a publication rate of around 1 500 per year. A higher rate of publication should be expected based on the size of the university's academic staff: 5 298 in 2010/11.

The Basque Country is making increasing use of EU sources from the Framework Programme for research projects and mobility, but there is room for improvement for universities to increase their participation. Basque participation has grown steadily over successive EU Framework Programmes from 101 participants in FP3 to 632 in FP6. For FP6, the Basque Country accounted for 12% of all participation from Spain, third only to Madrid and Catalonia. Almost half of this activity was undertaken by the technology centres, whereas universities' share in total participating projects was only 12%. In FP7 the Basque Country has increased its share (13%) of the total, ranking 25th out of 268 EU27 regions and third in Spain. The universities account for 91 of the participating projects recorded so far (out of 661), with the majority of these involving UPV/EHU. There is room for improvement for the Basque universities given the fact that the universities elsewhere are key players in the FP7: they account for a third of all participation in FP7 and make up the largest group in most regions. UPV/EHU however is not among the top ten Spanish universities participating in FP7.

Research in the Basque universities is both underfunded and insufficiently targeted to the needs of industry and society. Block funding for UPV/EHU includes no funding assigned for research. Additional funds are used to support new activities, but the projects funded by these grants have little direct regional orientation.

The Basque Government budget for R&D has increased markedly (107%) between 2005 and 2011, but only a small share of funding is directed to universities. The biggest part of the funding is provided by Department of Industry, Innovation, Commerce and Tourism (DIICT) for industry, mainly through the technological centres. While the R&D budget of the Department of Education, Universities and Research (DEUI) has increased by 209%, it remains relatively small. Since 2008, additional

resources have been provided through the Innovation Fund to support the Basic Excellence Research Centres or BERCs and Co-operative Research Centres or CICs, but these funds have not gone directly into the universities.

Altogether 85% of UPV/EHU's funding is provided as a block grant on a historical basis without any measure of performance on the assumption that this money funds teaching activities. To guarantee better research performance some portion of the block funding that supports the bulk of salaries should be assigned to support research, backed up by a performance management system to ensure that the university achieves international standards of output for that investment. This funding could underpin the research infrastructure and activity of a university, and could be made accountable through some form of research assessment or use of metrics. In the UK, for example, the block grant includes an element determined by research performance, which may make up 10-15% of total university income for a research intensive university.

The Basque Government uses additional funding to encourage greater research activity in universities. The programme contracts with all three universities provide additional funds for new activities that meet with the needs of the region. Around half of the funds associated with the programme contracts are related to research, for example research infrastructure, and developmental activities such as PhD training and research grants allocated within the universities. The projects funded by these grants have little direct regional orientation and their aims and targets are expressed primarily in terms of research growth, such as numbers of publication, citations and PhDs awarded. While there are limited efforts to strengthen existing groups or ensure that they were better targeted on regional needs, considerable focus is placed on the development of new research groups and centres: the DEUI provides EUR 8 million in funding each year to 250 separate research groups.

The management and assessment of research performance is a key issue for the Basque Country in ensuring the best use of its investment in research.

A key element in ensuring improved research performance is to better manage the resources that are currently available, as additional marginal resources will not change the underlying culture. Leading research universities globally are seeking to better manage their resources to ensure critical mass, focus and effective communication of their research. The programme contracts with the Basque Country set targets for the growth of numbers of publications and similar targets, but in the context of civil

service contracts for staff, UPV/EHU has a limited scope for performance management towards greater focus on research and higher quality outputs other than through financial incentives. A complex set of metrics is used to decide on additional payments based on points earned for a variety of activities covering teaching, research and managerial responsibilities over a period of several years. The weakness of this system is the lack of assessment of quality or sanction for staff not participating. It also has the potential of encouraging collection of points rather than focusing on excellent research and impact. UPV/EHU's Euskampus project can help change the university culture, but will require careful management and gearing it to address key structural problems: the inflexibility of employment contracts and internal incentives for research and engagement.

The two private universities have developed more effective systems for staff management, but have weaker research cultures and are smaller institutions. The University of Deusto has an incentive system based on individualised plans negotiated between staff and deans. If agreed targets are achieved then additional payments are made, permitting greater flexibility and sensitivity. In Mondragon University workloads are agreed upon between staff and managers, including performance targets. Important mechanisms for ensuring performance include annual appraisal, financial rewards and social pressure among fellow members of the co-operative.

The Basque universities have developed series of knowledge transfer and innovation activities that are good practice, but in general the outcomes remain moderate. To find a suitable role within the regional innovation system UPV/EHU could concentrate on longer-term and more radical innovation in novel areas.

The Basque universities have actively established projects in collaboration with firms, but the outcomes of the traditional technology transfer remain moderate. During the last five years, the Basque universities have implemented more than 6 400 collaborative projects. While the largest number of contracts has been led by UPV/EHU, Mondragon University has developed a large number of collaborative research programmes with companies, based on its collaborative research model that utilises technology roadmaps and identifies future technology needs within a particular industry. Despite many efforts, outcomes of the technology transfer remain low. Between 2006 and 2010, UPV/EHU applied for 218 patents, but as is the case elsewhere, patenting activity is not covering their full costs (patent fees plus salaries of commercialisation staff). Spin-off activity seems more promising, with 60 firms established between 2006 and

2010, split across three universities. While these firms remain small, they have potential to create significant numbers of local jobs.

The existence of a strong regional innovation system makes it difficult for the Basque universities to find a role with SMEs. The universities struggle to compete with the technological centres in building partnerships with SMEs, although Mondragon University has had more success due to its close links with the Mondragon Group. Other universities, particularly UPV/EHU need to find a suitable role for themselves within the regional innovation system. That role could encompass a greater focus on longer-term and more radical innovation in novel areas, given that technology centre network is more focused on incremental innovation among the traditional engineering firms of the region. A greater focus on collaboration with the BERCs and engagement in international partnerships and knowledge networks through the EU Framework Programme would help reinforce this approach that emphasises longer-term research to meet excellence criteria while still focusing on the needs of the region.

Increased internationalisation is an important element in both the regional strategy and within the universities, but it remains an area where further development is possible.

Support for business innovation requires high quality universities as businesses operate in global markets. This is particularly true in the Basque Country, with its high level of exports. The Basque Government has sought to invest in excellence and internationalisation around new institutes in the form of the BERCs and CICs, which work in partnership with the universities, but there is a need to continue to support a greater internationalisation of the universities. Accessing knowledge outside of the Basque Country is also important because the region's scale does not allow for critical mass in research in all areas. Ikerbasque has made successful steps in this area through its scheme for recruiting international academics, notably for the BERCs and the universities, but could orient further towards the Basque Country's prioritised areas of research to build critical mass. The need to be able to teach in Basque as well as Spanish will also present difficulties. The universities will need to develop more flexible ways of managing teaching across Spanish, Basque and English to ensure that there is scope for the recruitment of talented research staff who lack Basque language skills.

The following measures would promote regional innovation in the Basque Country:

Recommendations for the central government

- Review the employment status and contracts of university staff to promote greater two-way mobility between universities and other employment sectors in mid-career.
- Support system diversity through diversified national grant schemes for research and industry engagement.

Recommendations for the provincial governments and the Basque Government

- Facilitate mobility between universities and other forms of employment through pressure on central government and universities to reform their employment contracts.
- Enhance universities' science base to build critical mass in fields relevant to the Basque Country's economy and society and improve access to external knowledge by developing incentives and accountability schemes. Reinforce also non-tech innovation for example in management, social innovation, knowledge intensive services.
- Continue to invest in enhancing the quality of research through the programme contracts and by introducing international benchmarking of university outputs, but not simply focusing on the number of academic publications or the perceived status of journals.
- Capitalising on the close links between the Basque vocational education sector and the SMEs, ensure that the VET institution's training activities are well connected with support for innovation through their own activities as well as in partnership with the technology centres. In selected areas support collaboration between universities and VET institutions in developing joint programmes for the encouragement of innovation in SMEs.

Recommendations for the universities and VHET institutions

- Develop systems and means to better manage the performance of staff in research and engagement as part of employment contracts that require research productivity and excellence as well as engagement (with industry, region etc).

- Increase interdisciplinarity by rationalising internal structures and promoting the development of larger research centres and institutes across disciplinary boundaries.
- Continue to expand entrepreneurship programmes within the universities with an emphasis on increasing the role of entrepreneurship in the curriculum and on promoting greater job flexibility for academic staff wishing to participate in spin off firms.

Capacity development in the Basque Country

The Basque Country has made significant progress in developing its VET/HVET system and university system. But wider utilisation of skills calls for an integrated tertiary education system with closer collaboration, better pathways and more robust performance management.

The Basque Government is committed to supporting education and skills and has built a strong, well developed Basque Vocational Education System and the Basque University System that consists of the three universities with headquarters in the Basque Country. These systems are exceptional in Spain because they involve not only public but also private institutions.

Strong progress has been made in building a vocational education system that is closely aligned with the Basque industry needs. Key elements of the Basque VET and HVET system include government co-ordination through Vocational Education Plans; the development of a demand-led education provision in collaboration between the government, employer associations and labour unions, and systematic monitoring of labour market developments. VET and HVET provision is supported by the Basque VET qualifications system and quality assurance system. Collaborative networks bring together the entire VET sector – both public and private institutions – for shared learning, while the dedicated innovation centre TKNIKA rolls out demand-led innovations throughout the HVET sector.

Solid progress has been made also in the Basque University System. The University Plan is the basic instrument of organisation and funding for the Basque University System, while the system co-ordination is the responsibility of the Basque Universities’ Council which is formed by members of the Basque Government, local authorities and representatives of the universities. The University Plan 2011-2014 focuses on the strategic

development of the system to enhance the quality and relevance of education and research, and to improve the university system's response to the needs of Basque society in education, research and knowledge transfer.

Despite the development of region-wide mechanisms to co-ordinate the Basque Vocational Education System and the Basque University System, these two systems co-exist as separate without collaboration and articulation. With the notable exception of Mondragon University, there are limited pathways and interaction between universities and vocational education. There is also a lack of shared learning between the HVET system and universities, and within the university system.

The Basque Country would benefit from a more comprehensive approach to human capital and skills development. The advantages of a comprehensive co-ordination for the entire tertiary education sector include the ability to plan more effectively for the tertiary education needs, to co-ordinate missions and programmes, to encourage an appropriate division of labour among institutions and to maintain an adequate information system with appropriate data bases for institutional and system policy development and research.

An integrated tertiary education system could be facilitated by stronger relationships and shared learning within and among the different components of the education sector – universities, HVET institutions and schools. One key step would be designing pathways as an explicit component of the Basque Qualifications Framework. Collaborative efforts between universities and HVET institutions are needed to ensure that these pathways are supported by credit recognition schemes, course and programme articulation agreements, robust schemes to acknowledge prior learning as well as alternative selection mechanisms, clear policies related to credit transfer and increased support for joint and collaborative programmes. The Basque Government could also develop a forum where all the Basque universities and HVET institutions can meet with one another and with the Basque government to consider how best to respond to the challenges and opportunities facing the Basque Country, and how to scale up and disseminate the existing collaborative mechanisms and good practices in student-centred learning, industry collaboration, internationalisation, knowledge transfer and university governance.

There is a need to develop a sustainable financial plan reflecting a long-term commitment on the part of the Basque Country to support tertiary education. Better outcomes could be achieved with a greater shift to performance-based funding.

Any attempt to better co-ordinate the Basque tertiary education system and make better use of skills would be a substantial challenge, if not backed by a sustainable financial plan reflecting the long-term commitment on the part of the government. In 2011, the total funding of the Basque universities amounted to EUR 817 million with nearly 69% of the funding from public sources, mainly the Basque Government (60%). The public university UPV/EHU receives 96% of the funding available within the University Plan which is the Basque Government's steering instrument for the university system. In 2008, the funding from the University Plan accounted for 51% of UPV/EHU's budget of EUR 550 million. The University Plan does not include other sources of earnings coming from other ministries of the Basque government, especially in R&D support, or from other public authorities: local, national or European.

The Basque Government has made a long-term commitment to increase its expenditure in universities from 1.3% of the GDP in 2014 and to 1.5% by 2020, with special focus on the R&D expenditure. This funding will need to be based on clear criteria that align needs, performance and resources in an objective and transparent manner. At the same time, it will be necessary to focus on ways to limit the cost of tertiary education while improving outcomes with a greater shift to result-based funding.

So far, the Basque Government has made a limited use of its funding resources within the University Plans to steer universities. The funding model for the public university where altogether 85% of UPV/EHU funding is provided as a block grant on a historical basis does not provide a strong enough tool for Basque government to steer the university and to improve its accountability. In the case of the private universities, the Basque Government's steering role is even more limited: in 2010, the share of the total budget of the University of Deusto and Mondragon University covered by the University Plan funds was small, only 5% and 9%, respectively.

As noted above, in order to guarantee better research performance some portion of the block funding for UPV/EHU that supports the bulk of salaries should be assigned to support research, backed up by a performance management system to ensure that the university achieves international standards of output for that investment. The Basque Government could also consider strengthening the share of result-based funding for UPV/EHU

within the University Plan. Models tested in other countries and regions such as the Higher Education and Innovation Fund (HEIF) in England could be helpful in developing the Basque University Plans. After years of capacity building HEIF became performance-based in 2011 and is supported with Higher Education and Business Interaction Survey (HE-BCI) that covers a range of activities, from the commercialisation of new knowledge, through the delivery of professional training, consultancy and services, to activities that have direct social benefits.

The management and assessment of university staff performance is an important issue for the Basque Country in ensuring relevance of, and return on investment in tertiary education.

Each of the Basque universities has a different culture and ways of encouraging high performance in research, teaching and third mission activities. The two private universities have developed their own incentive systems using their greater leeway to decide on their governance and management systems. UPV/EHU has few mechanisms to reward excellence in research and teaching, let alone research, education and service related to meeting the needs of industry and society. Civil servants' salaries and rewards are defined by Spanish higher education legislation, although additional remuneration can be agreed in the Basque Country. The key tasks of the university staff are defined as teaching, research and management while the third mission is not included in the list. Promotion and additional payments depend on research performance and publication, but there is little sanction against those who do not engage in research or enhancement of quality in teaching, and none for those who do not engage in outreach.

Due to the economic crises and the ageing of the Basque society, the Basque universities will need to prepare for changes in the way they operate in order to achieve long-term sustainability.

With the economic crisis and the ageing of the Basque society, the Basque universities face a critical juncture in the development of their business models. The major revenue constraints for the Basque universities come from the changes in the Spanish economic landscape and the Basque international competitiveness, weaker prospects for regional appropriations and national funding as well as the demographic change with a continuing decline in the number of secondary school graduates and tertiary education students.

The Basque universities will need to address these challenges by lowering their cost structures, diversifying funding streams, demonstrating value to key stakeholders and becoming more strategic in their allocation of funding. So far only Mondragon University has developed a diversified funding base. The continuing decline in the number of age-eligible students is affecting both Deusto and UPV/EHU. For example, the University of Deusto finances most of its budget through fees (70%). For UPV/EHU, national and EU research grants, lifelong learning activities and collaborative research with industry would offer obvious sources for more diversified funding. In order to ensure long term sustainability, the Basque universities will also need to prioritise programmes, create greater efficiency in their operations, reach new markets, use technology to cut costs, build international brand recognition and demonstrate value in terms of graduate employment, knowledge transfer and responsiveness to the needs of their stakeholders.

To make change happen university leaders need to gain collective ownership and buy-in within the university community. The governance models of the Basque universities show varying degree of flexibility to achieve these goals.

Efforts to introduce efficiency and prioritisation of programmes may run into opposition from staff members, unless the university leaders have the capacity to gain collective ownership and buy-in for the changes. The governance models of the Basque universities show a varying degree of flexibility to achieve this buy-in. Mondragon University’s co-operative governance system and modern management systems help the university to adapt to changes by engaging the entire university community and key stakeholders in decision making. Its four faculties operate as financially self-sustainable co-operatives (or a foundation as is the case of the Gastronomy Faculty), each led by a Dean and a general director who is responsible for management and fulfilment of the objectives. In the case of the University of Deusto, the shared ethical base and a governance system with strong influence from external partners and helps decision making and collective buy-in. For UPV/EHU, as Spanish public universities in general, the challenge is greater because of a complex governance and decision making system which risks a slow response to opportunities. In Europe, many countries have reformed their university governance in order to equip them with stronger decision making capacities and to make them stronger and more accountable to the society. While this reform has not taken place in Spain, UPV/EHU could take advantage of the scope of manoeuvre within the university statutes, for example by taking steps to reduce the size of

governing bodies or changing the ways its academic leaders are selected. Care should also be taken that UPV/EHU's unique decentralised organisation and management model where the three campuses are autonomous in relation to the central administration, facilitates close local links, but does not limit central administration's ability to exercise strategic leadership or influence important horizontal areas.

The following measures would build capacity for regional development:

Recommendations for the central government

- Review the terms and conditions of service and the civil service status of professors to ensure that they do not discourage engagement and act as an impediment for modernising the public university sector.
- Take steps to modernise university governance, by examining the experiences of the European countries that have undertaken this change in recent years. To remove the barriers for universities' engagement in regional and local development and other entrepreneurial activities, consider replacing the collegial bodies (with elected rectors and deans) with a dual structure with appointed leaders and boards including external stakeholders. Endow universities with increased institutional autonomy over financial, estate and human resources.

Recommendations for the Basque Government

- Develop a co-ordinating structure and appropriate mechanisms to articulate a long-term vision and strategy for human capital and skills development stretching from primary education to tertiary education and lifelong learning. Outline clear qualitative and quantitative goals and policies, and confirm the respective contribution of individual institutions (or types of institution), building relationships among the different components of the education sector. Establish an information system to monitor the performance of the Basque tertiary education and benchmark its progress with appropriate comparators in Spain, OECD and EU countries and regions. This requires: *i)* robust data on the status of the Basque country's human capital, *ii)* a policy audit to identify barriers to meeting needs, *iii)* Basque/Spanish policy to foster tertiary education institutions with multiple, complementary missions aligned with regional needs, and *iv)* possible revision of

student selection, finance policy (institutional, regional and national student support) and governance/regulation.

- Develop data and information on: *i)* educational attainment rates benchmarked to country-level achievement, the OECD and EU averages and the best-performing OECD and EU countries and regions, *ii)* migration by educational level and age, *iii)* tertiary education participation rates (socio-economic status and age groups including youth, adults etc.), *iv)* robust information on which institutions serve the region's population, *v)* labour market needs, *vi)* degrees awarded by the Basque tertiary education institutions and *vii)* functioning pathways between and among tertiary education institutions, as well as other levels of education.
- Ensure that the key development plans for the Basque Country are implemented in a flexible way but with co-ordination at all levels of organisation.
- In broad collaboration (with universities, HVET institutions and key stakeholders of the industry, labour market and society) develop a Basque Skills and Innovation System connecting the government-driven strategies and bottom-up initiatives, to guide the development of the overall tertiary education system and to optimise its impact on the region.
- Improve lateral co-ordination between universities and HVET institutions and the Basque Government's different areas of responsibility. Develop a forum to enhance the dialogue between universities, HVET institutions and the Basque Government, linking the various departments/ministries. Devise a programme to link the University Plan with the Vocational Education Plan. Raise funding for this programme from the University and Vocational Education Plans after their mid-term evaluations and revisions. Ensure that the new programme addresses the needs of a more diverse student population, recognises prior learning and experience, develops flexible learning paths and supports mobility between the University System and Higher Vocational Education Systems.
- Make a long-term commitment to tertiary education backed by a sustainable financial expansion plan. A two-pronged strategy could be articulated and implemented to achieve this goal: *i)* mobilise an increasing share of public expenditures for tertiary education in the budget and *ii)* encourage resource diversification in the universities.
- Continue to develop the funding model of the Basque University System to improve the quality, relevance, accountability and

efficiency of the universities. The funding system could create stronger incentives for universities“ local and regional development in the form of long term core funding (which could be allocated by a formula against outcomes) and additional strategic incentive-based funding schemes. The funding system could include: *i*) formulae for block grant funding with higher weights for enrolment of students from special populations (students from lower socio-economic and/or migrant backgrounds) or for enrolments in academic programmes related to regional labour market needs, *ii*) eligibility for additional funding could be contingent on evidence of regional engagement and focus, requirements that institutions collaborate in order to obtain funding (with the minimum requirement of at least two Basque universities and one higher vocational training centre) and to provide matching of funding obtained by universities from contracts with regional employers for education and training services. Consider establishing a special regional investment fund (funded from public and private resources) to support building university capacity for regional engagement and provide incentive funds to institutions and individual faculty members for regional initiatives. These could emphasise increasing tertiary education access for the region's target populations, engaging faculty members and students in teaching/learning and applied research projects related to regional priorities.

- To ensure return on public investment and stronger accountability, improve mechanisms for following-up and monitoring the success of their programmes at the universities and university system level. Strengthen evidence-based decision making by focusing on a dashboard of key performance indicators to assist management and steering of the universities. Avoid accountability burden and over-emphasis on what can be measured (e.g. patents, licenses and spin outs) rather than what matters (e.g. creativity or social innovation) and lagging indicators (what has happened) rather than leading indicators (e.g. building capacity to act in the future). Continue efforts to develop a robust information system to monitor the performance of tertiary education and benchmark its progress with appropriate comparators in the EU and among other OECD countries.

Recommendations for the universities and HVET

- UPV/EHU – Consider changing the university statutes to enable a more agile decision-making structure, to reduce collegiality where it is not needed and to empower academic leadership and

management. Improve the system of remunerating and rewarding staff to develop greater incentives for excellence and relevance of research, teaching and third mission activities.

- Review staff recruitment, hiring and reward systems so as to include the regional development agenda. Create mechanisms to systematically monitor and evaluate the activities in this area, to share good practice within their institution and within the university system and benchmark this experience with other organisations and localities.

Chapter 1.

Human capital development, labour market and skills

This chapter examines how effectively universities and the tertiary education sector in the Basque Country contribute to meeting the social and economic needs of the population and Basque industries in terms of opportunities for skills and human capital development and the relevance of skills and competencies offered. It identifies the main strengths and areas for improvement in the tertiary education system. The chapter concludes with a series of recommendations to enhance the role that the Basque government, universities and vocational education sector can play in improving human capital and skills development in the Basque Country.

The key message is that while the Basque Country has a good record in human capital and skills development, it needs to make continuous efforts to improve the use of skills of the Basque population and to attract skills and talent from other region and countries in order to mitigate the impacts of ageing and to address the increasing global competition. Tertiary education institutions have a major role to play in meeting these challenges.

Introduction

The Basque Country population is shrinking because of low population growth, ageing and limited inward migration. The long term demographic transition will have negative implications for the labour supply and dependency patterns causing skill shortages. Altogether 19% of the Basque population is 65 or older. The population growth has stagnated with an annual growth of 0.45% from 2.08 million in 2000 to 2.17 million in 2010. The small growth can be attributed to immigration which has remained too low to temper the declining birth rates and the ageing population. While the foreign-born population grew from 21 000 in 2000 (1% of the total population) to 140 000 in 2010 (6.4% of the total population), the economic crisis has now stopped or even reversed the migration flows.

The Basque Country's long term labour market trends have been positive and economy more resilient than that of Spain, but the economic crisis is now destroying jobs, hitting particularly the youth. By the end of 2009, the effects of the economic crisis became apparent as the number of unemployed increased by 68%. By the end of 2012, the Basque unemployment rate had grown to 15.5%, altogether 10 percentage points below the Spanish rate. While the long term unemployment is half that of the Spanish average, youth unemployment (16-24 year-olds) has deteriorated, reaching 30.3% in 2010. This figure is ten percentage points below the Spanish average but ten percentage points above the EU27 rate.

The relative resilience of the Basque economy compared to Spanish regions is due to its reliance on manufacturing and well trained workforce. The Basque Country has the highest share of tertiary education graduates in the workforce of any Spanish region. The Basque government has committed significant public resources to meeting the skills needs of the firms in the manufacturing industries. The need to fill employer demands for more sophisticated workforce skills for the local industry has been responsible for the differentiation of tertiary education sector: unlike Spanish region in general the Basque Country has developed a robust network of vocational education and training (VHET) institutions to train the workforce to fill manufacturing jobs. The approach to human capital and skills development taken by the Basque government in order to enhance the impact of tertiary education has emphasised the development of a highly coordinated vocational higher education system and a more loosely coordinated university system that consists of three universities: one public university, the University of the Basque Country/*Euskal Herriko Unibertsitatea* (UPV/EHU) and two smaller private institutions – the University of Deusto with a religious background and Mondragon University, a co-operative member of the Mondragon Corporation. The

VHET and university systems coexist but have limited collaboration, pathways and shared learning.

While the Basque Government's efforts to provide for the direct skills needs of industry have been successful, in future a too narrow skills focus will not serve the Basque economy and the ageing population. A major challenge will be meeting the rapidly changing skills requirements to face the increasing global competition and to maintain high labour productivity. To ensure sustainability the Basque Country needs to make the best use of the skills of its population, ensure that a larger portion of its population is educated and engages in lifelong learning, avoid all waste of human capital, and attract skilled labour and talent from other regions and countries. Tertiary education institutions have a major role to play in meeting these challenges. Continuous efforts are necessary to strengthen the quality, efficiency and relevance of the Basque education system, to improve the productivity of the university system and enhance the articulation between the university and HVET systems.

Within this context the universities and HVET institutions can contribute to the human capital and skills development in the Basque Country by:

- Widening access to and success in education for the current youth and adult population of the Basque Country, thus increasing the more generally-skilled workforce (and demand for more sophisticated products).
- Attracting talent to and retaining talent in the Basque Country, including students and highly-qualified faculty and researchers, to strengthen the stock of human capital. This includes talent across a wide range of fields.
- Producing graduates with knowledge and skills relevant to the Basque Country's economy and the global economy. This may occur through academic and vocational programmes, internships and other programmes that link work experience with formal study.
- Contributing to the development of an economy that will employ graduates and retain and attract an educated population. This includes entrepreneurial and executive education as well as strategic co-operation to foster business development.

In this context, this chapter examines the following dimensions to assess the effectiveness and coherence of human capital development policies in the Basque Country:

- Do the universities and HVET institutions offer adequate and attractive learning and training opportunities to the local population and to population from other regions? How can educational access be widened to include a broader segment of the population?
- Are universities, HVET institutions and educational programmes adequately aligned with the skill needs of the Basque economy? Do they support entrepreneurship in the Basque Country? Is full advantage taken of the Bologna process to improve learning outcomes and employability?
- What lessons can be learned from experience in other regions and countries that can advance the tertiary education goals in the Basque Country?

Achievements in human capital development

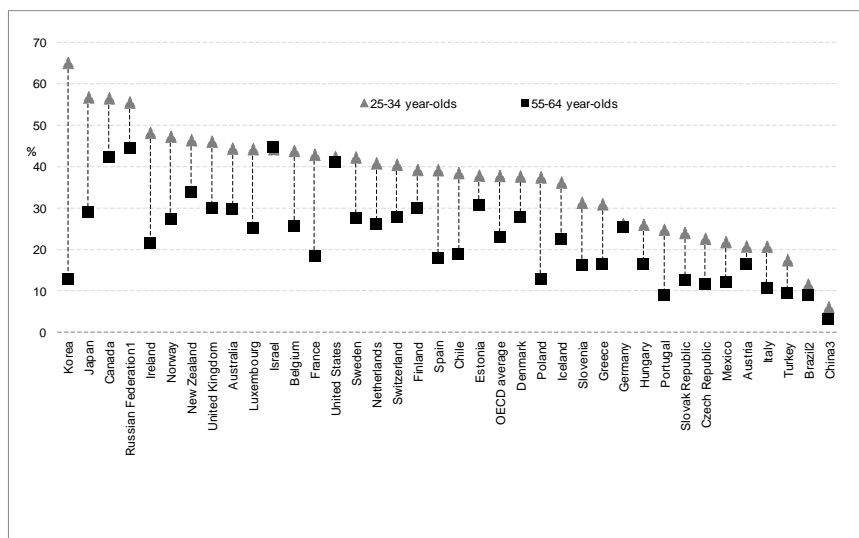
This section introduces the major achievements of the Basque country: internationally well educated work force, high levels of tertiary education attainment and a diverse tertiary education system. It outlines the trends in tertiary education participation and the performance of the universities and VHET system, highlighting the long term decline in the tertiary education student numbers despite high demand for education.

High levels of tertiary education attainment

Spain's tertiary education attainment rates show significant progress over the past decades, surpassed by only a very few OECD countries. OECD data for 2010 (*Education at a Glance*, 2012) shows that the proportion of Spain's population aged 25-34 with tertiary education (39%) is more than twice the percentage of 55-64 year-olds (18%). This compares favourably also to the OECD average of 38%. The proportion of the population attaining tertiary education has increased substantially and was, in 2010, somewhat above the OECD average for younger age groups (see Figure 1.1). (OECD, 2012).

Among Spanish regions the Basque Country has the highest proportion of workforce with tertiary education (university and HVET) and internationally high levels of tertiary education attainment. Between 1986 and 2010, the Basque Country's tertiary education attainment rate among the population aged ten years or above increased from 10.9% to 23.3% (Figure 1.2).

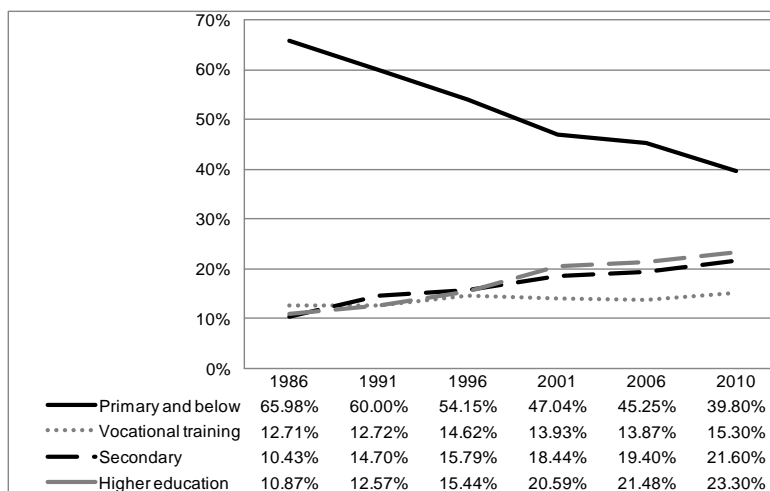
Figure 1.1. Percentage of population, by age group, that has attained at least tertiary education in selected countries, 2010



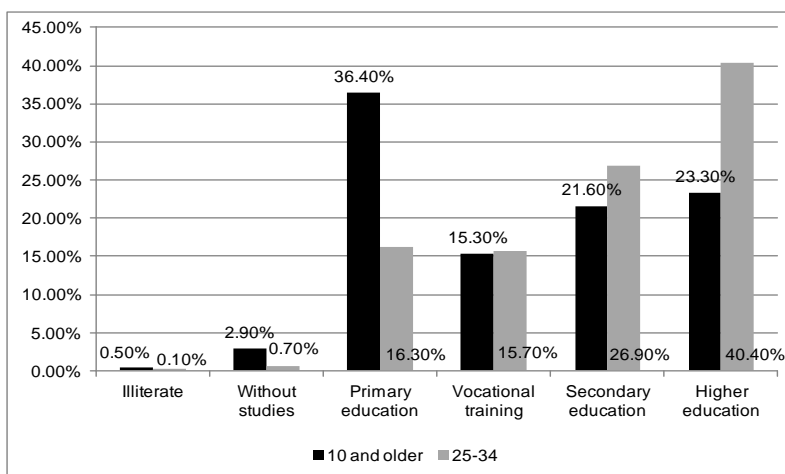
1. Countries are ranked in descending order of the percentage of 23-34 year-olds who have attained at least tertiary education. The year of reference for the Russian Federation is 2002, Brazil 2009 and China 2000.
2. For technical reasons, these figures use Israel's official statistics, which include data relating to the Golan Heights, East Jerusalem, and Israeli settlements in the West Bank.

Source: OECD (2012a), *Education at a Glance 2012: OECD Indicators*, OECD Publishing, <http://dx.doi.org/10.1787/eag-2012-en>.

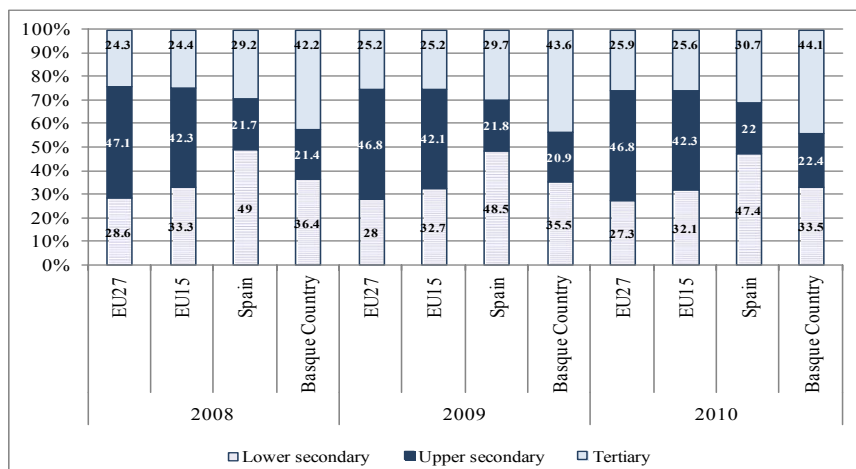
In 2010, 44.1% of the Basque Country's 25-64 year-olds had tertiary education, compared with 30.7% for Spain, 25.9% for the EU27 and 25.6% for the EU15. Tertiary education attainment levels for the younger population are also internationally at a high level. In 2010, 40.4% of the Basque population aged 25-34 had attained tertiary qualifications (compared to 39% for Spain and 38% for OECD). The highest levels of educational attainment are, however, among the population aged 30-34 years: altogether 60% of the Basque population in this age group had tertiary education, compared to 40.6% for Spain, 33.6% for EU27 and 33.3% for EU15 (see Figures 1.3 and 1.4.).

Figure 1.2. Educational level of the Basque Country population aged 10 years and older, 1986-2010

Source: Martínez-Granado, M., G. Patxi and M. Oleaga (2012), “The Basque Country, Spain: Self-Evaluation Report”, OECD Reviews of Higher Education in Regional and City Development, www.oecd.org/edu/imhe/regionaldevelopment.

Figure 1.3. Educational level by age group in the Basque Country, 2010

Source: Martínez-Granado, M., G. Patxi and M. Oleaga (2012), “The Basque Country, Spain: Self-Evaluation Report”, OECD Reviews of Higher Education in Regional and City Development, www.oecd.org/edu/imhe/regionaldevelopment.

Figure 1.4. Educational level of population aged 25-64: international comparison, 2008-10

Source: Martínez-Granado, M., G. Patxi and M. Oleaga (2012), “The Basque Country, Spain: Self-Evaluation Report”, OECD Reviews of Higher Education in Regional and City Development, www.oecd.org/edu/imhe/regionaldevelopment.

Tertiary education participation within a diverse system

While the Basque Country’s tertiary education participation rates are above the Spanish averages, the Basque government could set its targets above 40% of the age cohort. For example, the percentage of 18-24 year olds pursuing an undergraduate degree in the Basque Country was 30.9% in 2010/11, compared to the Spanish average of 24.5%. The participation of young people in non-university tertiary education was 10 percentage points higher than in Spain in average. Moreover, in 2010/11, 6.7% of all Spanish students enrolled in higher vocational training were in the Basque Country, compared with 3.7% of university students.

Almost three out of four tertiary education students in the Basque Country are enrolled in the universities and the rest in the HVET sector. In the academic year 2009/10, 78% (61 995) of 79 633 tertiary education students were enrolled in universities, including non-Basque universities with campuses in the region. The rest (21%) were enrolled in Higher Vocational Schools (16 579) or other Higher Education Centres, mostly focused on the arts and sports (1% i.e. 1 059). The tertiary education student population is evenly distributed across the three provinces of the Basque Country (see Table 1.1).

Table 1.1. Tertiary education students and percentage of population in the Basque provinces, 2009/10

	Araba	Bizkaia	Gipuzkoa	Basque Country
Students in Higher Vocational Education	2 506	7 964	6 109	16 579
Students in University Education*	8 669	34 940	18 386	61 995
Students in other Higher Education**	291	233	535	1 059
Total Tertiary Education	11 466	43 137	25 030	79 633
Population	317 016	1 151 704	700 318	2 169 038
Percentage of students in Higher Vocational Education	0.79	0.69	0.87	0.76
Percentage of students in University Education	2.73	3.03	2.63	2.86
Percentage of students in other Higher Education	0.09	0.02	0.08	0.05
Percentage of students in Tertiary Education	3.62	3.75	3.57	3.67

Note: * Includes all university students in the Basque Country, also those studying in non-Basque university system with universities that have some presence in the Basque Country.

** Other higher education refers to specialised higher education: The Basque Country has centres for Plastic Arts and Design, music, and sports higher education.

Source: Martínez-Granado, M., G. Patxi and M. Oleaga (2012), “The Basque Country, Spain: Self-Evaluation Report”, OECD Reviews of Higher Education in Regional and City Development, www.oecd.org/edu/imhe/regionaldevelopment, based on data from EUSTAT and the Spanish Ministry of Education, Culture and Sports.

In the Basque country and in Spain in general, half of all university students are studying law or the social sciences (Table 1.2). Engineering and architecture is the second most attractive field for students, with Basque Country showing higher and increasing shares (29.9%) than Spain in general (23.8%). The percentage of students in sciences and mathematics or experimental sciences is low in the Basque Country (5.1% compared to Spain’s 6%) and so is the graduation rate. The Basque Government has made efforts to promote science and technology among students in secondary education. These activities are laudable, but should be combined with an increase in R&D activity that can increase attractive jobs for scientists. Improving labour market conditions for scientists is the best way for attracting young people to these fields.

UPV/EHU dominates the Basque University System with nearly 80% of student enrolments. In 2010/11, 59 468 students – 51 388 undergraduate students and 8 080 postgraduate students (master and doctorate) – were enrolled in the Basque University System. These figures accounted for 3.6% of undergraduate and 4.6% of Master level enrolment in the Spanish University System as a whole. UPV/EHU had the highest enrolment rate, attracting 78% of students within the Basque University System, with

especially high enrolments at the undergraduate and doctoral levels. The competition with the two private universities is higher in master programmes: 53% of the master level students were enrolled at either the University of Deusto (42%) or in Mondragon University (10%).

Table 1.2. University enrolment and graduation by field, 2009/10

		Social and Law Sciences	Technical Studies	Humanities	Health	Experimental Sciences	Total
Students enrolled	Spain	706 245	334 067	127 927	151 554	84 322	1 404 115
	Basque Country	26 355	15,781	3 997	3 932	2 707	52 772
%	Spain	50.3	23.8	9.1	10.8	6.0	100.0
	Basque Country	49.9	29.9	7.6	7.5	5.1	100.0
Students graduated	Spain	100 085	42 190	13 865	23 149	12 020	191 309
	Basque Country	4 990	2 965	652	672	459	9 738
%	Spain	52.3	22.1	7.2	12.1	6.3	100.0
	Basque Country	51.2	30.4	6.7	6.9	4.7	100.0

Source: Martínez-Granado, M., G. Patxi and M. Oleaga (2012), “The Basque Country, Spain: Self-Evaluation Report”, OECD Reviews of Higher Education in Regional and City Development, www.oecd.org/edu/imhe/regionaldevelopment.

The decline in the Basque university student numbers is significant over the long term, although partly compensated by a high demand. For 1998/99, the Basque university system enrolled 78 883 students, 19 415 more than in 2010 (59 468), a decrease of 25%. The declining youth population has been compensated by a high demand for higher education, especially for postgraduate studies, masters and doctoral programmes.

The declining number of HVET students can lead to skills shortages of the Basque industries in future. The number of students enrolled in the higher vocational education and training has declined over the last decade, although to a lesser extent than in the university sector. The total number of HVET students decreased by 2 000 between 2001/02 and 2010/11, a 9% decrease, although the economic crisis has increased the demand for HVET since 2007. In 2010/11, half of the HVET students in the Basque Country are in the manufacturing sector (8 521), reflecting the industrial structure of the Basque Country. While the percentage of Basque HVET graduates in technology is much higher than in Spain overall, the diminishing youth population is likely to cause skill shortages. In addition, the relative

importance of training in traditional manufacturing has decreased in the last five years, whereas courses associated to services (administration, socio-cultural services, health) have gained more importance.

Table 1.3. University students in the three Basque universities by level and year, 2006-2010

Year		2006	2007	2008	2009	2010
UPV/EHU	Undergraduate	44 896	43 523	42 048	42 026	41 728
	Master	269	610	1 029	1 646	2 219
	Doctorate	1 758	1 744	1 995	2 177	2 720
	Total	46 923	45 877	45 072	45 849	46 667
Deusto U	Undergraduate	8 069	7 530	6 957	6 831	6 642
	Master	1 475	1 512	1 432	1 914	1 988
	Doctorate	207	175	177	481	561
	Total	9 751	9 217	8 566	9 226	9 191
Mondragon U	Undergraduate	3 327	3 248	3 103	3 031	3 018
	Master	188	328	290	316	483
	Doctorate	121	131	149	107	109
	Total	3 636	3 707	3 542	3 454	3 610
Total Basque University System	Undergraduate	56 292	54 301	52 108	51 888	51 388
	Master	1 932	2 450	2 751	3 876	4 690
	Doctorate	2 086	2 050	2 321	2 765	3 390
	Total	60 310	58 801	57 180	58 529	59 468

Source: Martínez-Granado, M., G. Patxi and M. Oleaga (2012), “The Basque Country, Spain: Self-Evaluation Report”, OECD Reviews of Higher Education in Regional and City Development, www.oecd.org/edu/imhe/regionaldevelopment, based on the data from Basque Ministry of Education, Universities and Science Policy, www.oecd.org/edu/imhe/highereducationinregionalandcitydevelopment.htm.

Addressing the challenges of the ageing society

Ageing is a key challenge of the Basque Country that has implications to education and labour market participation, skill shortages and old age dependency rates. Given the current high demand for tertiary education, it is not likely that future demand will compensate for the continuing decline of the young population. This section outlines the ways that the Basque Country and its tertiary education institutions can prepare for the challenge of ageing by developing policies to mitigate the negative effects. The Basque Country could consider a multi-pronged approach: First, improving quality, equity and relevance at schools; Second, making the best use of skills by enhancing lifelong learning; Third, improving mobility, pathways and collaboration within the tertiary education; Fourth, developing proactive policies to attracting talent to the region; Fifth, increasing the efficiency of

tertiary education and degree productivity in universities as well as controlling the expansion of cost-generating factors.

Improving quality, equity and relevance in school education

The performance in earlier levels of education has a direct impact on the access to and success in tertiary education. Given the rapid pace of ageing and the need to avoid any waste of human capital, the Basque Country should continue to make efforts to reduce the early school leaving rates by building on the earlier good achievements in this area. The Basque Country had the lowest early school leaving rate in Spain at 12.6% in 2010, less than half the Spanish average (28.4%) and below the European averages (EU17 15.5% and EU27 14.1%), approaching the EU target of 10% by 2020.

A growing cause of concern in the Basque Country is the increasing share of the youth population neither in employment, nor in education or training (NEETS). While the NEETS are much less prominent in the Basque Country than in Spain overall and in EU, the economic crisis is increasing their share. EUROSTAT data provides indication about the NEET population for North East Spain (Basque Country, Navarre, Rioja and Aragon). In 2011, North East Spain had 16.2% of youth between 18 to 24 years as NEETs, compared to 23.1% for Spain, 16.7% for EU27 and 16.4% for EU15. Economic crisis has increased the share of NEETs due to decreasing job opportunities: between 2008 and 2010, the share of the NEET population grew from 12.2% to 16.4% in the North East Spain, compared to 17% to 23.1% for Spain in average.

The performance in secondary education is not only a strong determinant for the access to and success in tertiary education, but also an indication of the skills and competencies of the future workforce. In international comparisons the learning outcomes at Basque schools are above the national averages of Spain, but fall behind the best performing countries and Spanish regions. In 2009, the Basque scores in mathematics and science (494, 510 and 495) were over ten percentage points above the Spanish averages (481, 486 and 488) and comparable to the OECD averages (493, 496, 501) but considerably lower than those of the best performing PISA countries and regions. In the Spanish context, six regions – Madrid, Castilla and Leon, Catalonia, Rioja, Navarra and Aragon – did better than the Basque Country in all three indicators (Informe PISA, 2006 and 2009) (see Annex 1.A1).

In order to ensure better utilisation of skills in the ageing society, the Basque government needs to continue to work on improving the quality and relevance of school education and reduce the existing equity gaps. Better functioning pathways between secondary education and vocational

education can help engage youth, improve school retention and graduation rates and ensure transition from school to work. Continuous efforts are necessary to establish programmes that improve the preparation of teachers in the schools and to ensure that all primary and secondary students (and their families) get the information they need to prepare for university or vocational education which despite its high profile suffers from a poor public image. At the same time, also universities can make efforts to reach out to local schools to help improve the quality of teaching as well as to raise aspirations and academic performance of students. Equipping youth with entrepreneurial skills can also help them enter and stay active in the labour market. The Basque policies could develop a stronger focus on providing entrepreneurship skills at schools, VET institutions and universities.

Little attention has been paid to the broad issues of widening participation or social inclusion in the Basque tertiary education. While equity in tertiary education has improved due to the geographical expansion of institutions and branch campuses, low cost of tuition in the public university and free VET and HVET programmes, and the support of families, the student financial aid system remains limited as elsewhere in Spain. This is an issue that the Basque Government could take on its agenda when it increases its efforts to widen access. The private university sector where the tuition fees are much higher needs special efforts to ensure wider access. Mondragon University's study-work alternative system is a mechanism that offers students both work experience and salary to cover the costs of their studies.

Enhancing lifelong learning

Due to rapidly changing skills needs, lifelong learning, skills upgrading and re-skilling are increasingly important cities, regions and countries. All regions, and particularly those with an ageing population, need to ensure better utilisation of the skills of its older age cohorts.

There is room for improvement in the lifelong learning participation in the Basque Country given the fact that its participation in adult education is below the best performing countries, although above the Spanish and EU averages. Since 2008, the Basque Country has been a top performer in Spain with stable adult education participation levels, reaching the EU2020 target. In 2011, the participation level among adults aged 25-64 in education and training was 15.0% in the Basque Country compared to 13.2% for Madrid, 10.2% for Catalonia and 9.6% for EU27 and 8.6% for EU15. At the same time, the Basque lifelong learning participation is significantly below the best performing countries such as Sweden (31.9%) (see Table 1.4.).

The achievements in lifelong learning are closely linked to the Basque VET policies. Special access conditions apply to students older than 25, those with work experience or studies related to the specific VET course. In 1996, the Basque Government in collaboration with Confebask and the trade unions established the Basque Foundation for Continuous VET (HOBETUZ). HOBETUZ funds publically-subsidised courses that are free for learners and can range from a few hours to a few months. The higher VET centres organise these courses, benefiting from public subsidies. In 2010, 1 650 groups participated in the lifelong learning activities worth more than EUR 8 million (see Table 1.5).

The Basque Government has recognised the need to boost lifelong learning. It has included lifelong learning among strategic objectives in the University Plan 2011-2014 and is preparing a Law for Lifelong Learning to establish a legal framework for an integrated lifelong learning system. This system aims to ensure shared learning across the tertiary education sector and also between private institutions and UPV/EHU.

Stronger efforts are necessary in the Basque University System to improve lifelong learning activities, which remain modest with the notable exception of Mondragon University. Table 1.6 illustrates the lifelong learning activities in the Basque universities: Mondragon University stands out with its significant number of lifelong learning students (4 000) and course offer (207). Lifelong learning activities bring a steady income to Mondragon University, covering 4.8% of its budget (2008).

Table 1.4. Participation of adults (%) aged 25-64 in education and training, 2008-10

	2008	2009	2010	2011
EU27	10.2	10.2	10	9.6
EU15	8.6	8.5	8.4	8.6
Germany	7.8	7.7	7.6	7.7
Ireland	8.1	7	7.2	7.2
France	6.4	6.1	5.4	5.9
Sweden	28.4	28.5	31.1	31.9
Spain	11.3	11.3	11.6	11.6
Basque Country	15	15.3	14.8	15
Madrid	12.1	11.3	11.7	13.2
Catalonia	9.9	11	10.9	10.2

Source : Martínez-Granado, M., G. Patxi and M. Oleaga (2012), “The Basque Country, Spain: Self-Evaluation Report”, OECD Reviews of Higher Education in Regional and City Development, www.oecd.org/edu/imhe/regionaldevelopment, based on EUROSTAT data.

Table 1.5. Groups and subsidies for lifelong learning in higher VET, 2007-10

	2007	2008	2009	2010
Groups	1 859	1 887	1 928	1 650
Subsidies in EUR	7 917 891	9 284 874	9 536 063	8 042 329

Source: Martínez-Granado, M., G. Patxi and M. Oleaga (2012), “The Basque Country, Spain: Self-Evaluation Report”, OECD Reviews of Higher Education in Regional and City Development, www.oecd.org/edu/imhe/regionaldevelopment.

Table 1.6. Lifelong learning and continuous education indicators* by university, 2008

	UPV/EHU	UD	MU
Number of distinct courses offered	49**	15	207
Number of participants	614**	1 063/1 101***	4 000
Average duration of the courses	4.5 ECTS credits	50/16hours	29 hours
Percentage of academic staff that participates in the courses	n.a.	10%	15%
Percentage of academic staff that teaches in the courses	n.a.	21%	25%
Percentage of earnings derived by fees from long-life learning	0.30%	3.90%	4.80%

Source: Martínez-Granado, M., G. Patxi and M. Oleaga (2012), “The Basque Country, Spain: Self-Evaluation Report”, OECD Reviews of Higher Education in Regional and City Development, www.oecd.org/edu/imhe/regionaldevelopment, based on Basque Ministry of Education, University, and Science Policy and own universities.

Notes: * Includes specialisation courses, courses for older people, corporative courses for firms etc. Does not include non-official postgraduate studies.

** Only information for the courses offered by the “own studies unit” and SGIKER are included; No detailed information is available on the 110 courses offered by the OT RI or EUSKOIKER.

*** The first figure corresponds to continuous education and the second to permanent education. Continuous education courses are organised by DEUSTULAN, the Centre for Full Labour Insertion of the University of Deusto.

Considering its size and importance as the only public university in the Basque Country, there is room for improvement in UPV/EHU’s lifelong learning performance. The university has acknowledged this issue and has set the targets for more robust lifelong learning provision for the period of 2012-17. This is encouraging and also necessary given the current low provision: in 2008/09, UPV/EHU offered only 159 LLL courses. While UPV/EHU has a well-equipped centre for summer courses that covers part of continuing education needs, this centre has not developed into a fully-fledged continuing education centre. It also offers university programmes for seniors that benefit those who have not been able to attend higher education before but do not facilitate the extension of productive life. UPV/EHU’s lack of focus on lifelong learning is not only an issue for the Basque adult population but for the university itself. While UPV/EHU has not been able to tap into a significant source of external funding, it has increased its dependency on the Basque government which may be a problem for future sustainability: in 2008/09, only 0.3% of UPV/EHU’s

budget came from lifelong learning courses fees. UPV/EHU could find inspiration from the lifelong learning models developed in other Spanish universities, such as the Centre for Continuing Education at the Technological University of Valencia (see Box 1.1).

Box 1.1. The Centre for Continuing Education, Technical University of Valencia

The Centre for Continuing Education (*Centro de Formación Permanente, CFP*) was created in 1991, at the initiative of the university's Social Council, to serve as "an interface between the university and its environment in terms of lifelong learning". The CFP generates an annual income stream of around EUR 8 million for the university by offering over 60 000 hours of training to more than 50 000 students. The fees charged by the CFP cover the full cost of the courses and are considerably higher than those charged by UPV for the regular undergraduate and graduate programmes. The annual fees of a CFP programme can reach EUR 12 000, compared to EUR 1 000 for regular university undergraduate programme. Only 8% of the CFP students are regular students of the Technical University of Valencia, while the majority are external individuals seeking training opportunities or enterprises interested in enhancing their employees' preparation.

CFP's wide portfolio that has a focus on ICT and management-oriented topics, includes more than 1 600 courses: professional degrees, short training courses and demand-driven courses. CFP works with 2 000 teachers and has 40 administrative staff, 70% of which are employed with university central funds and 30% with subsidies and contract funds. The CFP offers three types of degrees: Professional Master's (over 500 hours; 45 programmes), University Specialist (over 200 hours; 45 programmes) and Professional Specialist (over 400 hours; 16 programmes). The courses are promoted by the schools, institutes or departments of Technical University of Valencia and developed by the CFP, which also presents the programme proposals to the university's governing bodies in order to have the programmes to be officially accepted and to avoid conflicts of interest. This issue is particularly relevant for the Professional Master's programmes, which may be confused with the Master's programmes compatible with the European Higher Education Area. Short specialisation courses are developed as a response to specific needs observed by the CFP's director and technicians. Finally, demand-driven courses are designed in response to specific requests by firms to train their employees.

Box 1.1. The Centre for Continuing Education, Technical University of Valencia (continued)

Since 2001, CFP has used the European Foundation for Quality Management (EFQM) model as a management tool. The key element of this model is the involvement of clients and partners. Thanks to this model, both external stakeholders (students, businesses) and internal stakeholders (university governing staff, co-ordinators, administrative staff) are key determinants of CFP management. This is reflected, for example, in the partnerships with enterprises (mainly through university alumni who have managerial positions in the region's SMEs, which form an important client base for the CFP). In addition, the EFQM puts a strong emphasis on the external environment, including national and international networks of lifelong learning centres, other lifelong learning centres, enterprises and institutions.

Language courses offered by the Technical University of Valencia are managed through the CFP and involve long-term partnerships with private enterprises, NGOs and governmental authorities. The CFP collaborates with the British Council, L'Institut Français de Valencia, the Scuola di Lingua e Cultura Italiana G. Leopardi and the Delegation of the Goethe Institute in developing its course offerings.

The CFP is an important linkage point between the university and enterprises in the Valencia region thanks to the broad scope of its activities and demand-led approach, which is reflected in the course offer, design and managerial approach. The high degree of autonomy of the CFP indicates that university leaders are satisfied with the CFP's outputs.

Source: CFP, The Centre for Continuing Education (Centro de Formación Permanente,) www.cfp.upv.es/formacion-permanente/index/index.jsp.

Improving mobility, pathways and collaboration between university and VHEt systems

Better utilisation of skills also requires mobility, pathways and collaboration within the educational system. The Spanish government has introduced a range of initiatives for lifelong learning and recognition of non-formal and informal learning that allow students to access study programmes without formal academic qualifications. These initiatives facilitate the assessment of experience and partially or totally accredit it towards the learning required for various diplomas, including academic diplomas, vocational education and training, and art education. The Spanish Qualification Framework (MECES), defined in 2009, provides an integrated approach that enables educational institutions to act consistently and provide pathways for learners to take up different learning opportunities at different

stages of their life. Despite these initiatives, mobility across the education system remains limited and recognition of prior learning is extremely rare in Spanish and Basque universities.

Despite the Basque HVET system's high profile with the largest proportion of HVET students in Spain, the links between the universities and the vocational sector remain underdeveloped, with the notable exception of Mondragon University. The Basque university and HVET systems co-exist but have limited collaboration, shared learning and pathways.

The transfer to Basque universities on the basis of HVET degrees varies across the universities, but it is generally low as in the rest of Spain, ranging from 11% in Mondragon and 13% in UPV/EHU. The University of Deusto has a particularly small rate of transfers from HVET at 1% whereas almost one fourth of its new students are university degree holders. (See Table 1.7).

The Basque government has taken initiative to encourage the development of pathways between HVET and universities. Recently a small scale project has been started to develop pathways in training in mechanics between the HVET institutions and universities with opportunities for students to utilise technical degrees from the VET institutions as the basis to move to universities to receive bachelors and masters degrees. It is necessary to systematically evaluate the success of this pilot project and to continue its development.

Table 1.7. Different types of access for new undergraduate enrolments, 2006-11

		2006-07	2007-08	2008-09	2009-10	2010-11
UPV/EHU	% Entrance examination	73.10	72.90	74.10	78.10	75.70
	% Higher VET	9.00	8.70	9.20	10.90	13.60
	% Older than 25	1.70	1.60	1.40	1.60	1.20
	% Other	16.20	16.80	15.30	9.40	9.50
DU	% Entrance examination	72.10	77.40	74.40	73.00	74.90
	% Higher VET	1.50	1.50	1.30	1.40	1.10
	% Older than 25	0.40	0.20	0.70	0.60	0.20
	% Other	25.90	21.00	23.60	25.10	23.80
MU	% Entrance examination	89.70	88.80	90.90	83.10	78.00
	% Higher VET	9.60	10.50	8.40	15.20	11.70
	% Older than 25	0.20	0.30	0.30	0.20	0.20
	% Other	0.60	0.40	0.50	1.60	10.10
Public Spanish Univ.	% Entrance examination	77.90	n.a.	78.30	n.a.	n.a.
	% Higher VET	8.70	n.a.	9.90	n.a.	n.a.
	% Other	13.40	n.a.	11.80	n.a.	n.a.
Private Spanish Univ.	% Entrance examination	n.a.	n.a.	73.30	n.a.	n.a.
	% Higher VET	n.a.	n.a.	9.20%	n.a.	n.a.
	% Other	n.a.	n.a.	17.50%	n.a.	n.a.

Note: Spanish universities do not include distance learning.

Source: Martínez-Granado, M., G. Patxi and M. Oleaga (2012), “The Basque Country, Spain: Self-Evaluation Report”, OECD Reviews of Higher Education in Regional and City Development, www.oecd.org/edu/imhe/regionaldevelopment.

The overall effectiveness of the Basque education system would benefit from universities more systematically recognising courses completed by HVET students. Functional pathways would require greater transparency and a development of credit recognition schemes that are based on a common credit system across the tertiary education system which is currently lacking. Ensuring greater mobility between the HVET and university sectors would also require course and programme articulation agreements, increased support for joint and collaborative study programmes and clear and enforceable policies related to credit transfer between the VET/HVET institutions and universities.

When developing flexible pathways between university and VNET systems the Basque tertiary education institutions could learn from both Basque and international good practice examples (see Box 1.2). Mondragon University's integrated studies provide a model for collaboration between vocational training and higher education. In the state of Victoria and Australia in general, dual-sector universities provide both higher and vocational education, and enable students to enrol in associate or sub-degree programmes, and then progress according to ability and interest.

Box 1.2. Pathways in Mondragon University and Australia

Mondragon University, through its Engineering and Business Faculties has developed a model of integrated higher education studies. From vocational training, Bachelor's and Master's degrees, to PhD programmes, all programmes share resources, labs and teachers. In addition, all programmes at Mondragon are structured around combining work and studies, usually with time spent in the workplace in the mornings and classes in the afternoon or vice versa. Mondragon University (or its predecessors) has offered this model, through a student's co-operative for more than 30 years.

In Australia, learners can, in principle, directly enter university undergraduate programmes via state government-owned Technical and Further Education (TAFE) institutions, which are major providers of postsecondary VET, often located outside metropolitan areas and closely aligned with the key employment sectors. Highest rates of transfer from TAFE programmes to university undergraduate studies happen from the "dual-sector universities" that provide both TAFE and university level programmes. Pathways are strongest when the sending and receiving institutions are close academically and geographically. Dual sector institutions also address the needs of the communities which are big enough to sustain one integrated tertiary institution but not big enough for separate vocational and higher education institutions.

Box 1.2. Pathways in Mondragon University and Australia (continued)

The Victoria government in Australia introduced in 2009 the Victorian Training Guarantee that entitles all Victorians to a government-subsidised place in vocational education and training. It supports an integrated tertiary education and training sector with a variety of pathways. The state of Victoria has developed cross-sectoral and multi-stakeholder collaborations between universities and TAFE institutes. For example the **Gippsland Education Precinct (GEP)** is a multi-sectoral “institution” formed by a partnership between Monash University, Kurnai College, Apprenticeship Group Australia (formerly Gippsland Group Training), GippsTAFE and La Trobe City. It aims to improve access and equity in education and enhance employment opportunities through integrated learning pathways from Year 11 to TAFE diploma, university degree or PhD, with strong partnerships with business, industry and all levels of government. By co-locating all four education providers on a single site, the precinct helps widen access by enabling easier transition to apprenticeships, TAFE or university. As part of a AUD 20 million project, the Precinct offers state of the art facilities in all areas including IT, Science, Art, Library, Sport & Recreation and Technology – and students can utilise Monash facilities including laboratories, computers, student union and staff. The GEP provides the option to remain in Gippsland to live and work. Educational programmes are being developed in close consultation with local industry to help improve employability in the region and hence its sustainability.

Source: Martínez-Granado, M., G. Patxi and M. Oleaga (2012), “The Basque Country, Spain: Self-Evaluation Report”, OECD Reviews of Higher Education in Regional and City Development, www.oecd.org/edu/imhe/regionaldevelopment; OECD (2010a), *Higher Education in Regional and City Development: State of Victoria, Australia*, OECD Publishing, <http://dx.doi.org/10.1787/9789264088979-en>.

Internationalisation and attracting talent

Increasing the share of the Basque population that is educated and trained will not be enough to meet the skills shortages in the future. The Basque Country needs a strong internationalisation strategy to accelerate its economic transformation and to address the impacts of the ageing society.

Acknowledging the impact of the ageing society and the needs of the Basque companies for specialised high level skills, the Basque government has launched a talent attraction programme Ikerbasque that brings top international researchers to universities and research centres. This strategy has been successful but could be more targeted and combined with a wider education and labour market policies to internationalise the Basque

workforce and education system. The Basque Country needs to open up to attract skilled workforce and talent from other regions and countries.

Language policies will require greater attention in the Basque Country. The Basque Government is supporting trilingualism at schools, VET institutions and universities. The trilingualism programmes help university staff improve skills in English and Basque languages to facilitate internationalisation and ensure course provision in Basque language. Despite these efforts the lack of English skills remains a barrier to greater internationalisation of the Basque education and innovation system. The language requirements in general may require relaxing in the schooling, lifelong learning and labour market programmes.

Tertiary education institutions can play a strong role in attracting talent to the Basque Country, but they will need to continue their efforts to their visibility and attractiveness for foreign students, students from other Spanish regions, in addition to immigrants and other less-favoured social groups. Currently, more than 85% of the new university enrolments come from the Basque region, while the rest are mostly made up of students from nearby regions. The regional focus of the undergraduate studies is confirmed by the small percentage of foreign students enrolled in undergraduate programmes: only 1.5% of undergraduates are foreign students compared to the 3.2% in Spain in average, which in turn is low when compared with world class universities. The postgraduate programmes are more international than the undergraduate programmes. In 2009/10, 26.2% of students enrolled in an official master degree programme in the Basque Country and 30.4% of graduates with Masters degree came from foreign universities, compared to 18.4% and 23% for Spain respectively. UPV/EHU has made strong efforts in recent years.

The advantage of international students for the host region is that they have a qualification that can be easily evaluated and utilised in the labour market. Currently, the Basque universities recruit international students mainly with the help of European mobility programmes, most notably SOCRATES and LEONARDO in addition to bilateral programmes. The focus on exchange students means that the international students usually return to their own countries and do not have time and opportunities to develop ties with the local labour market. The international student mobility is unbalanced: The Basque Country sends out far more students than what it receives. International student numbers also remain small, with the exception of the University of Deusto where about 15% of students come from abroad. No robust data were available about staff mobility, but it was widely acknowledged to be at a generally low level without a well-developed strategy.

While internationalisation should be a priority for all Basque tertiary education institutions, it is particularly important to UPV/EHU. A key success factor in building top research universities is the ability to attract, recruit and retain leading academics and students as noted by Jamil Salmi in *Challenge of Establishing World Class Universities* (World Bank, 2009). One way of doing this is significantly increasing the percentage of courses taught in English that make it easier to bring foreign academics and also gear the curriculum towards training students for the global economy. UPV/EHU is in the process of creating an International School of Graduate and PhD Studies. This commendable initiative could be extended to other Basque universities too. The Basque Government could also help develop the international appeal of the Basque tertiary education system, by encouraging jointly designed and delivered internationally visible English-medium study programmes and a Basque Doctoral School that could bring together postgraduate students from abroad as well as from the three Basque universities.

Table 1.8 provides a review of the different components that an internationalisation strategy at the institutional level should ideally have, as well as a review of the gap existing between these components and the current situation of the Basque universities.

Table 1.8. A comparative advantage of internationalisation of higher education in the Basque Country

Internationalisation elements	Level of development and implementation in leading countries and institutions	Situation in the Basque Country
International dimension in the institutional mission.	The international dimension is clearly defined as part of the institutional mission.	International dimension is included in the institutional missions of individual universities and the HVET system. In addition, the Basque University Plans have a focus on internationalisation.
Internationalisation policy.	Clearly defined and publicised.	Exists in UPV/EHU (focus on Campus of International Excellence, and increasing international ranking visibility), University of Deusto (focus on student mobility, participation in international networks and shared courses) and Mondragon University and collectively for the HVET system.
Office of International Programmes (OIP).	Formal unit fully dedicated to support internationalisation. Adequately trained professional staff. Formal budget.	OIP in all universities. OIPs report to vice rectors. The UPV/EHU OIP manages over 9 000 exchange agreements with Spanish, European and International universities. OIP depends on standard governance channels with no special mandate to approach internationalisation policy holistically, including programme-related decisions as part of education product development) Formal budget for OIP in UPV/EHU and private universities, but long-term policy vulnerable to the changes in external project-based funding.
Internationalisation of the curriculum.	Present in most of the academic programmes. Mechanism in place to include the international dimension when relevant in courses.	Present in some academic programmes. No formal mechanism established to include the international dimension in the review of the curriculum.
Outbound student mobility.	5-10 % of all domestic students participate in a study abroad programme.	Considerable diversity among institutions, ranging from ??% for the University of Deusto, ??% for UPV/EHU and ??% for Mondragon University. 1 100 undergraduate UPV/EHU students per year.
Internationalisation elements	Level of development and implementation in leading countries and institutions	Situation in the Basque Country

Table 1.8. A comparative advantage of internationalisation of higher education in the Basque Country (continued)

Inbound student mobility.	5-10 % of total enrolment composed of international students (including degree-seeking and exchange students).	1.5% of undergraduate students are from abroad. Considerable diversity among institutions, ranging from 15% for the University of Deusto, ?% for UPV/EHU and ?% for Mondragon University, UPV/EHU. 20% (about 450 students) of the annual enrolment in official Masters programmes are foreign; 20% of these are completed by European or international students. UPV/EHU PhD Studies Latin American Network.
Full command of a second language.	All students must demonstrate full command of a second language.	The Basque government enforces trilingualism, i.e. the knowledge of the Basque language, Spanish and English.
International academic staff mobility.	In-bound and out-bound mobility of academic staff. Sabbatical programmes aimed at international experiences. Policies to attract foreign teaching academic staff.	Limited number of academic staff being supported for out-bound mobility, mostly at large institutions. IKERBASQUE attracts international top research staff to research centres and universities. Small numbers of foreign academic staff is engaged in regular teaching activities.
Subjects being taught in a foreign language.	Availability of some regular subjects being taught in a foreign language.	Master's programmes and separate courses in English. Special efforts to enhance the knowledge of the Basque language. As a result of the plan of multilingualism, UPV/EHU has 500 accredited teachers that have reached a level C1 in English or French. UPV/EHU: 10% of master's programmes may be taken in English.
International partnerships for the development and offer of dual/joint/sandwich degrees	Offer of degrees in conjunction with selected international partners. Strict internal quality assurance policies and regulations aimed at guaranteeing similar quality to regular domestic offers.	Considerable diversity among institutions. Some programmes offered with international partners. UPV/EHU's Latin American Network of Master and Doctorate Programmes are implemented in 14 universities from 13 different countries No formal quality assurance policy.

A comprehensive strategy for the internationalisation of the curriculum impacts the whole education system and all students (not only those who are internationally mobile) and has the capacity to transform structures, academic models and offers. The Basque universities, particularly UPV/EHU could find inspiration from the experience of universities in the State of Victoria’s in Australia that have restructured or reformulated their approach to teaching, learning and research, by creating “global citizen initiatives”. For example, the University of Melbourne has restructured its curriculum, introducing six 3-year undergraduate degrees. The Melbourne Model includes the university breadth studies, which adopt an interdisciplinary approach to disciplinary or global challenges for example climate change or emerging technologies for transformation. Other global citizen initiatives in the Victoria’s universities include “Monash passport” in the Monash University and RMIT University’s “Global passport” that enables students to combine degree programmes with international exchanges, leadership programmes, work training programmes and volunteer and research opportunities. These initiatives provide experiential learning opportunities and broaden the curriculum to allow students to develop additional skills either in Australia or abroad (see Table 1.9).

Table 1.9. Global citizen initiatives

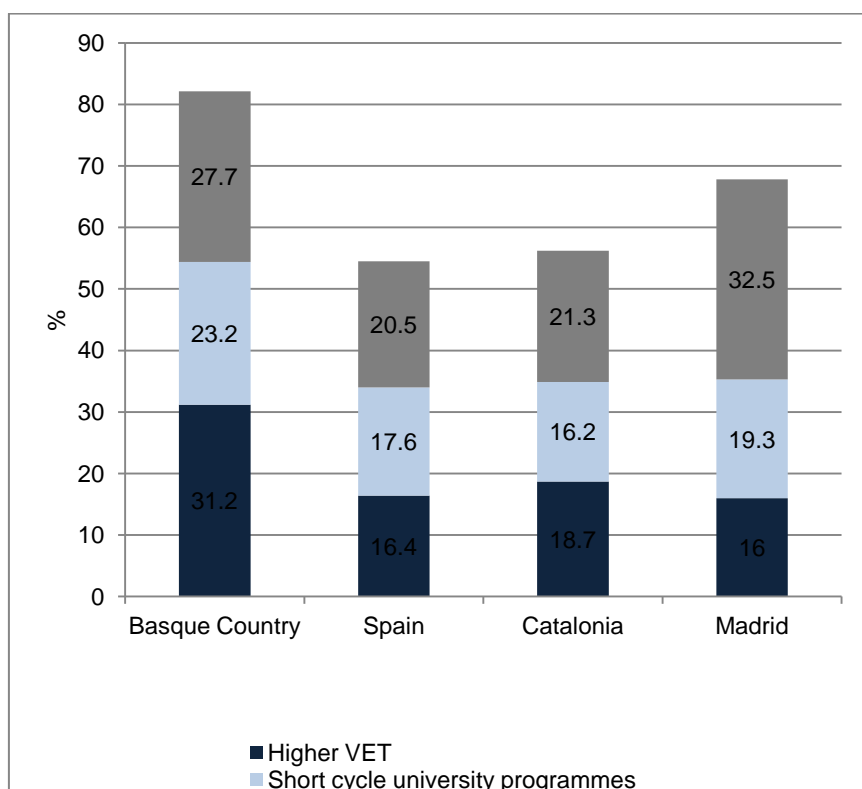
Initiative	Main features
Melbourne Model, University of Melbourne	Six broad-based undergraduate degrees with key features: disciplinary depth, breadth studies, knowledge transfer and capstone experience. Together with increased prospects for internships, study abroad and participation in industry projects, the degrees offer the chance to explore a range of interests before committing to a particular career path.
Monash Passport, Monash University	Combines degree programmes with international exchanges, leadership programmes, work training programmes and volunteer and research opportunities as a grounding for careers.
Global Passport, RMIT University	International education and industry networks provide a wide range of opportunities for students to enhance their education or research experience – at the university’s campuses in Melbourne and Vietnam; with partner institutions in Singapore, Malaysia and China and through education and industry links throughout the world.
Graduate Capabilities Statement, Victoria University	Graduate capabilities transcend technical skills and curriculum content and enable students and graduates to be work, career and future ready. On graduation, students receive a Victoria University Graduate Capabilities statement as part of the Graduation Statement.
Curriculum Framework Project, Swinburne University of Technology	Model for Professional Learning which emphasises real world learning experiences within a supportive environment, integrated with skills development in order to prepare graduates to make the transition to professional practice.

Source: OECD (2010a), *Higher Education in Regional and City Development: State of Victoria, Australia 2010*, OECD Publishing, <http://dx.doi.org/10.1787/9789264088979-en>.

The Basque universities, technology centres and HVET institutions could collectively form a magnet that attracts students, researchers and business in search of talent. By aligning its incentives, policies and financial support mechanisms, the Basque government could help to internationalise the tertiary education system. The Basque government could find inspiration from the State of Victoria in Australia, where the tertiary education sector accounts for over 5% of the state of Victoria's GDP and educational services are Victoria's strongest export, worth more than AUD 5.4 billion, surpassing tourism and automotive sectors. One way of moving forward could be that the Basque government in collaboration with the tertiary education institutions could capitalise on the existing assets and build a global tertiary education brand recognising the economic value of tertiary education as an export sector. Co-operative university model and many innovative initiatives in the VET sector such as TKNIKA have an export value and can also attract talent to the region. While some interviews during the OECD review visit disclosed a lack of confidence in the Basque Country's ability to internationalise, Mondragon University is already expanding its governance model and educational approach to universities in Colombia and Mexico.

Increasing TE efficiency and degree productivity

Making the best use of skills also requires improvements in tertiary education efficiency. One way of making tertiary education more efficient is to improve the retention rates and timely graduation. While the graduation rates for the whole Basque system compare well with the Spanish averages, there is room for improvement (see Figure 1.5). The graduation rates are higher and drop-out rates¹ much lower in the private universities than in UPV/EHU. During 2010/11, UPV/EHU had a graduation rate of 15.5% compared to 24% in the University of Deusto. In 2008/09, UPV/EHU had a medium-high drop-out rate (17.8%) when compared with other public universities in Spain, albeit down from 26% in 2006/07 (the previous academic year with available data). The private institutions – the University of Deusto and Mondragon University – had more than 10 percentage points lower rates. Drop-out rates tend to be higher in the fields of technical studies and experimental sciences in UPV/EHU and in humanities in both the University of Deusto and Mondragon University.

Figure 1.5. Gross graduation rates in the Basque Country

Source: Martínez-Granado, M., G. Patxi and M. Oleaga (2012), “The Basque Country, Spain: Self-Evaluation Report”, OECD Reviews of Higher Education in Regional and City Development, www.oecd.org/edu/imhe/regionaldevelopment.

Much can be achieved if efficiency and productivity increases in the public university that trains 80% of the students in the Basque University System. The OECD review visit revealed some issues that UPV/EHU could address to improve efficiency and degree productivity. The lack of systematic tracking of student progress or monitoring the annual dropout rates may imply a lack of policy focus. Existence of a large number of degree programmes, departments and faculties can run a risk of duplication of courses and inefficiency. Anecdotal evidence suggests that there is a number of failed courses, courses from which students withdraw or which require participation in preparatory training outside the university.

Increasing distance education could also facilitate efficiency and degree productivity. Much progress could be made in distance education. All

Basque universities have developed dedicated distance courses but so far the number of students benefiting from the online or mixed mode delivery remains low. In 2012, only 156 students from the Basque Country enrolled in the National Distance University which is a very low figure compared to national figures. While the Basque Government has recently established the Institute for Vocational Distance Training which offered the first courses in 2011/12, it is still too early to evaluate the impact of this initiative.

Box 1.3 below outlines some measures that tertiary education institutions can take to become more productive and improve their graduation rates while controlling overall costs and maintaining/improving educational quality and equity in access.

Box 1.3. Improving degree productivity in TEIs

The degree productivity – the university's total annual costs divided by the number of degrees – gives a rough estimate on how a university manages its resources by capturing the two key components of productivity: cost efficiency and completion rates. There are at least five ways for universities and other tertiary education institutions to become more productive and improve their graduation rates while controlling overall costs and maintaining/improving educational quality and equity in access:

- Help students to graduate. Universities can develop a limited number of clear-cut pathways to degrees, encourage students to support one another and offer students or student segments support and tools for planning their path to graduation.
- Reduce non-productive credits. Universities can track students' progress and intervene when necessary. They can contribute to a better preparation for university and develop policies for recognition of prior learning that allows for a smooth transition from the vocational education system. They can design targeted policies to prevent redundant teaching and learning in the form of guidelines on course withdrawal and academic progress and regular monitoring of a student's rate of credit completion.
- Redesign instruction. Universities can for example use new teaching technologies that can raise quality of education and substantially reduce costs.

Box 1.3. Improving degree productivity in TEIs (continued)

- Improve efficiency in core support and services. Universities can streamline management functions, student services, academic support services and plant operations. They can redesign organisational policies and purchasing policies. They can bring down costs by converting paper-based systems to electronic ones, cross-training to eliminate staff downtime, and using self-service online portals to administer student support.
- Run non-core service efficiently and selectively.

Source: A. Cota, J. Kartik and M. C. A. Laboissière (2011), Boosting productivity in US higher education. America's economic health depends on additional college trained workers. Some universities are showing how to graduate more students at lower cost, MacKinsey Quarterly, April 2011, www.mckinseyquarterly.com/PDFDownload.aspx?ar=2797.

Table 1.10 shows that the student/teacher ratio in the Basque University System has steadily decreased over the past five years and is particularly low in the public university. Declining student numbers have not been matched with decreases in university personnel, on the contrary, the academic staff has increased in all universities over the period from 2006/07 to 2010/11 with average annual growth rates ranging from 2.2% for UPV/EHU and 1.2% for Deusto to 0.2% for Mondragon. The administrative staff decreased only in Mondragon (-2%), but grew in UPV/EHU (2.2%) and particularly Deusto (4.9%), where the administrative per academic staff ratio is now twice as high as in other universities. Inefficiency is particularly damaging in a situation of economic crisis. While low student/teacher ratio can contribute to better quality of learning experience, there is limited evidence that this has been the case.

Table 1.10. Student-teacher ratio in the Basque universities by year

	2006	2007	2008	2009	2010
UPV/EHU	9.6	9	8.8	8.6	8.8
DU	17	16.1	14.6	16.6	15.8
MU	11.8	11.7	10.7	11.2	11.6

Source: Martínez-Granado, M., G. Patxi and M. Oleaga (2012), “The Basque Country, Spain: Self-Evaluation Report”, OECD Reviews of Higher Education in Regional and City Development, www.oecd.org/edu/imhe/regionaldevelopment.

The Basque government could emphasise productivity in tertiary education as a key issue in its policy agenda. The government has already made significant progress in this area by developing a strong steering mechanism – the University Plan and the Contract Programmes. This mechanism provides a framework for steering and incentivising the universities by establishing targets, indicators and goals (and mechanisms of evaluation) aligned with the needs of the Basque country. By agreeing with the universities on standard practices for recording and measuring productivity and publishing the data, the Basque government could require universities to collect more comprehensive, easily accessible data on their degree productivity to facilitate the improvements in efficiency. The Basque government and other funding agencies can also draw attention to productivity, for example, by supporting universities and HVET institutions to share best practices or introducing competitive grants and stronger element of results-based financing, encouraging the institutions to improve their performance in different ways, while helping more students attain degrees at a stable cost and improving quality and access.

Improving quality and relevance tertiary education

Tertiary education institutions need to produce graduates with relevant knowledge and skills and contribute to the development of an economy that will employ graduates and retain and attract an educated population. This section evaluates the progress made in enhancing the quality and labour market relevance of the Basque tertiary education provision. It outlines the efforts made by the tertiary education institutions and highlights the need for the Basque University System to engage not only in pedagogical reform but also in more demand-led education provision. It provides an overview of the graduate employability in the Basque country. It outlines the approaches to work-based learning in the Basque tertiary education institutions, identifying good practice in the Basque country and abroad. It analyses the challenge of developing skills for new jobs particularly in the context of the Spanish public university system on the basis of REFLEX survey. Finally, it provides some ideas for enhancing researcher training in the Basque Country.

Reforming the Basque tertiary education

Progress in the Basque universities

While the Bologna process and the integration into the European Higher Education Area are transforming the Basque tertiary education, it is still too early to evaluate their impact on student learning experience as well as

learning and labour market outcomes. Despite some early experience of low attendance master programmes, the 2008/09 academic year was in practice the first year when the Basque universities implemented new bachelor programmes (*Grados*). This means that the Basque universities are still in the process of developing reforms. The interviews during the OECD review in September 2012 revealed strong efforts by the Basque University System to reform education (see also Box 1.4) but also highlighted the need to mainstream and embed new learning models in the university curricula.

Box. 1.4. Improvements in tertiary education in the Basque University System

The Basque University System has made important improvements in education to meet the requirements of the Bologna process and the European Higher Education Area (EHEA). The Basque Country University Plan 2011-2014 lists the followings achievements:

- Progress in new education models based on the EHEA requirements. Involvement of teachers in EHEA-related training activities, with over 60% teaching staff participation rates in the private universities.
- Progress in international student mobility. The number of incoming international students has increased between 45% and 100% in the three universities. Commitment to internationalisation is part of the university strategies.
- Modernisation of university facilities and management: Improvement of the quality of university processes and services with the help of ICTs; Organisational and management changes in the private universities for greater efficiency.
- Progress in the quality culture: All Basque universities have opted for quality certification. UPV/EHU has tripled the number of masters with quality awards. The University of Deusto has a large number of masters with Erasmus Mundus mention.

Source: Gobierno Basco (2011), Plan Universitario 2011-14.

The three Basque universities have each developed their own approach to educational reform, mainly focusing on pedagogical aspects rather than more profound changes in the educational offer. A thorough review of the educational offer and how it responds to the needs of the Basque society in the globalising world economy would be useful.

In Spain, public universities such as UPV/EHU face significant challenges in reforming their teaching and learning. The results of the REFLEX survey in 2006 highlighted the scope of challenge among 46 Spanish universities, including UPV/EHU as the only institution in the Basque Country, to develop relevant skills and competencies, and greater alignment with the labour market needs. In 2006, active learning modes – project-based learning, research projects, work-based learning through work placements and internships or oral participation – were not widely implemented in UPV/EHU or other public universities in Spain (see Table 1.11).

Table 1.11. Ways of teaching and learning in the UPV/EHU and Spain in 2006, before the Bologna reforms, scale 1-5

	UPV/EHU	Spain
Teacher as main source of information	3.87	3.74
Theories, concepts and paradigms	3.80	3.81
Written assignments	3.11	3.05
Group assignments	2.84	2.91
Lectures	2.75	2.95
Facts and instrumental knowledge	2.96	2.94
Multiple choice exams	2.71	2.81
Project and/or problem-based learning	2.68	2.65
Oral presentations	2.38	2.37
Internships, work placement	2.33	2.34
Participation in research projects	1.74	1.88

Source: CEGES (Centro de Estudios en Gestión de la Educación Superior) (*Research Centre for Management in Higher Education*) and ANECA (Agencia Nacional de Evaluación de la Calidad y Acreditación) (*The National Agency for Quality Assessment and Accreditation of Spain*) (2008), Proyecto REFLEX, www.upv.es/entidades/CEGES/infoweb/ceges/info/632563normalc.html.

UPV/EHU has made strong and commendable efforts in reforming education. It has introduced for example its own co-operative and dynamic teaching-learning model (*Ikaskuntza kooperatiboa eta dinamikoa, IKD*) that uses active learning to boost graduate employability and social responsibility. The model utilises a range of methods, such as internships, collaboration with social initiatives, social networks, links with firms and mobility programmes. UPV/EHU has also introduced many programmes,

projects and initiatives to make its educational programmes Bologna compatible (see Box 1.5).

Capitalising on the good progress, UPV/EHU should continue its efforts, by mainstreaming innovation in learning programmes and developing a more demand-led approach to education. Currently, UPV/EHU continues to provide a broad scope of study programmes – altogether 67 Bachelor’s degree programmes – each with early specialisation. It is unclear whether this approach facilitates the development of broad competencies. UPV/EHU’s education provision appears to remain supply-driven and based on academic capacity within its 31 faculties and schools rather than the needs of the economy and society at large. The OECD review visit highlighted a collaborative degree programme with the Machine Tool Institute (see Box 1.9) as a positive break from the supply-driven model, but nothing similar in other fields of study. UPV/EHU has made external practices mandatory for undergraduate studies, but the success of these arrangements cannot yet be evaluated. It has also made some progress in monitoring the quality of teaching and learning with the help of student surveys in online/mixed mode courses. The tough work of mainstreaming the good practices in the university would bring benefits for all students.

Box 1.5. UPV/EHU: quality and innovation in teaching and learning

UPV/EHU has developed a three-pronged approach to enhance teaching and learning by:

- Curriculum Development Programme that helps enforce institutional and local key indicators and quality assurance processes at the faculty level.
- Teaching Staff Development Programmes that fosters active teaching and learning methodologies, and quality assurance processes. The teachers’ performance evaluation embraces monitoring of teachers’ recruitment and appointment, evaluation of teaching performance by students and training in teaching.
- Educational innovation programmes that includes the “Integral Managing Programme” whereby local committees oversee the university staff and student training as well as performance assessment.

UPV/EHU has made many efforts to improve its quality culture. QA practices have been integrated in staff development and evaluation processes, and key performance indicators are implemented, monitored and publicised by all the faculties, now with the help of the UNIKUDE software. UPV/EHU has also implemented the evaluation programme of teaching.

Box 1.5. UPV/EHU: quality and innovation in teaching and learning (continued)

Practical tools and mechanism that support the quality of teaching and learning include: a Quality Manual, a good practice guide, a resource centre for teaching, a training programme for teaching methods adapted to the new degrees, an Adequacy Teacher Training Programme (FOPU), IKD model centres for curriculum development and a mobility programme for promoting educational innovation. UPV/EHU is currently promoting the use of virtual resources for teaching.

Source: Martínez-Granado, M., G. Patxi and M. Oleaga (2012), “The Basque Country, Spain: Self-Evaluation Report”, OECD Reviews of Higher Education in Regional and City Development, www.oecd.org/edu/imhe/regionaldevelopment.

The University of Deusto’s efforts have focused on pedagogical reform and embedding internationalisation and social responsibility to its curricula and activities, but it could do more to ensure that its education provision is relevant to the labour market and the needs of the Basque country. Deusto began its pedagogical reform during the academic year 1999-2000 in order to move away from the professor-centred teaching and methodological model. The University of Deusto Educational Model” (UDEM) is Deusto’s tool to transform the university into “a student-focused learning organisation”. It stresses interdisciplinary learning and the development of generic and specific competencies and skills. The University of Deusto’s commitment to pedagogical reform is manifested in the university’s international reputation based on mobility schemes as well as leadership and participation in high profile projects such as the TUNING in Europe and Latin America which have developed into a process to (re-)designing, developing, implementing, evaluating and enhancing first, second and third cycle degree programmes. Despite significant efforts, there is still work to do to mainstream generic skills and employability skills in the Deusto curricula and to review whether the education offer serves the needs of the Basque Country in an optimal way.

Mondragon University stands out in the Basque University System thanks to its internationally important approaches to continuous innovation in teaching and developing demand-led education. Mondragon University which launched its own educational model Mendeberry as early as 1999, the year of the Bologna Declaration (Box 1.6). The Mendeberry model stresses the importance of close labour market contacts and employability skills and includes most of the aspects later developed in the Bologna Process. Mendeberry is being implemented throughout the university. Mondragon University collaborates with European universities to develop the

Mendeberri model in order to consolidate itself as a reference point in project-based learning and is now adapting it to the new web 2.0 scenario.

Box 1.6. Mondragon University's Mendeberri model

The Mendeberri model was established by Mondragon University in 1999 before the Bologna Declaration. It supports the university's close links with the companies and its triple commitment to work, study and learning by doing. This combination has facilitated good results in graduate employability: the average time for Mondragon university graduates to find a job is less than three months. Mendeberri has been progressively developed and integrated into all university programmes that now incorporate the key elements advocated by the Bologna Process.

The Mendeberri model has a strong focus on soft skills. It aims to train learners that accept the responsibility for their own training, work in a team, lead projects, take decisions, negotiate and communicate. Mendeberri promotes student autonomy and Interdisciplinary learning. It emphasises general skills such as teamwork, effective communication, problem solving, leadership, decision making, a global vision, multilingualism and ICT skills.

The Mendeberri model implies a change and diversification in the contents of learning as well as in the roles and functions of teachers and tutors who coach and guide the students. Instead of teacher-centred transmission of knowledge, learning takes place in small groups which receive coaching by a tutor and carry out co-operative work while students as team members are responsible for their studies. Students work in different teams throughout their studies and develop communication and social skills. The model emphasises participation, engagement and co-operation; innovation and entrepreneurship; and a sense of responsibility and social transformation.

Progress in the Basque VHET system

In contrast to the highly institutional approach to the reform of education in the Basque University System, the Basque vocational education and training system has developed a fully co-ordinated and holistic system to ensure high quality, relevant demand-led education and training. Leading the VET developments in Spain, the Basque VET system has a strong focus on demand-led education provision in collaboration between the government, employers and labour unions, monitoring the labour market developments, and the development of the VET qualifications system. In contrast to the university system, there are also well developed collaborative networks that bring together the entire VET sector with both private and public institutions for shared learning and quality assurance system (see Box 1.7).

Box 1.7. Key elements of the Basque VET system

- System co-ordination by the Deputy Ministry for VET and Lifelong Learning that brings together the directorate for vocational training and the directorate of lifelong learning within the Basque government. Most positions in the ministry are filled by VET professionals, either teachers of college principals.
- The Basque Foundation for Continuing Vocational Training (Hobetuz) that designs strategies to support demand-led vocational education on the basis of collaboration among the employer associations, trade unions and the Basque government.
- The Basque Observatory of Vocational Training that supports the Basque government in the planning of initial, occupational and continuing vocational training; develops and maintains indicators for vocational education; monitors, analyses and evaluates the labour market developments, working conditions as well as the supply and demand of skills. The observatory is in charge e.g. of the monitoring of the labour market outcomes of VET graduates and invites them for interviews six months after their graduation.
- Basque Institute of Professional Qualifications and Vocational Training (KEI-VAC) that defines professional modules and modules for transversal skills (communication, ICT, numerical and spatial expression), maintains a modular catalogue of training based on the Basque Country qualifications systems, and proposes new skills and competences to meet the new labour market needs.
- Integral Vocational Education Network that covers all types (initial, occupational and continuous) and institutions of vocational education (state colleges, private colleges with agreements with the government and private colleges) which engage in joint projects and collaboration for example in ICT (ICT teachers network), entrepreneurship (entrepreneurial teachers network and international mobility (mobility teachers network).
- Basque Agency for the Assessment of Vocational Training Quality and Skills.

One of the key elements of the Basque VET system is the dedicated innovation centre TKNIKA (Centre for Innovation for Technological and Vocational Education and Training) that rolls out demand-led innovations

throughout the VHET sector in both private and public institutions (see Box 1.8). Nothing similar exists for the Basque universities which rather collaborate with institutions outside of the Basque Country than with those in the Basque University System.

Box 1.8. TKNIKA, a technological innovation clearing house for VET institutions

In 2005, the Basque government, in collaboration with the VET institutions and the Integral Vocational Education Network, established TKNIKA (Centre for Innovation for Technological and Vocational Education and Training) to enhance the VET sector innovation in management, technology, ICT and e-learning as well as teacher training, scenario work and new methodologies with the aim to reduce the time between the development of innovative projects demanded by the industry and the transfer of the results to the institutions. TKNIKA co-ordinates the VET centre innovation projects and maintains a strategic monitoring service in collaboration with the universities, companies and technology centres, allowing them to keep up-to-date with the latest developments, ideas and approaches to innovation. TKNIKA also plays an active role in international networks of VET centres and associations which allows it to share tools and knowledge in different countries.

Based on the open innovation mode TKNIKA has developed an innovation management model TknikaINNOVA that engages companies, technology centres, research centres, universities and other institutions that can add value to the system. TKNIKA's 4-stage model helps diffuse innovations within the VET sector:

- TKNIKA captures ideas through a transversal monitoring system.
- TKNIKA develops innovation pilot projects that are offered to the VET centres.
- TKNIKA selects teachers to take part in the development of the project and develops the project with teachers working part-time in TKNIKA and part-time at their centres.
- TKNIKA helps transfer results to other VET centres and teachers and evaluates the results.

TKNIKA plays an important role in the Basque Country VET system as a clearing house that identifies the most recent and innovative developments in technology and management, both locally and globally. It trains VET teachers in these developments and then transfers them to other VET institutions. This system guarantees that VET institutions are in continuous transformation, adapting to technological and managerial changes. It also ensures that VET institutions are not only aligned with the companies' innovation needs, but they also promote innovation in small business.

Source: Centre for Innovation in Basque Vocational Training (*Centro de Innovación para la formación profesional*), www.tknika.net.

TKNIKA represents a world class example of innovation in vocational education. Its knowhow and expertise could find markets overseas, but it faces challenges for future sustainability. TKNIKA's funding base is fragile because it depends entirely on public funding from the Basque Government. In order to reduce dependency and to build its capacity TKNIKA should be encouraged to diversify its funding streams. Possible ways of doing this would involve stronger cost-sharing with the private sector that eventually benefit from the innovations and developing TKNIKA's knowhow into an export article. The Basque Government could also make efforts to ensure joint learning among the university and the vocational education sector to ensure that the innovative approaches developed by TKNIKA and other agencies involved in the VET sector would benefit the university system.

Labour market relevance

Employment and graduate employability

Unemployment rates in the Basque Country are generally lower than in Spain. In 2001, the Basque Country and the rest of Spain had a similar unemployment rate, which has since diverged. The Basque unemployment rate declined until 2007 and the increase following the economic crisis has been much lower than in the rest of Spain. Table 1.12 shows that although the crisis has affected the Basque Country, the unemployment rates have remained below the national level and are quite reasonable given the current economic situation.

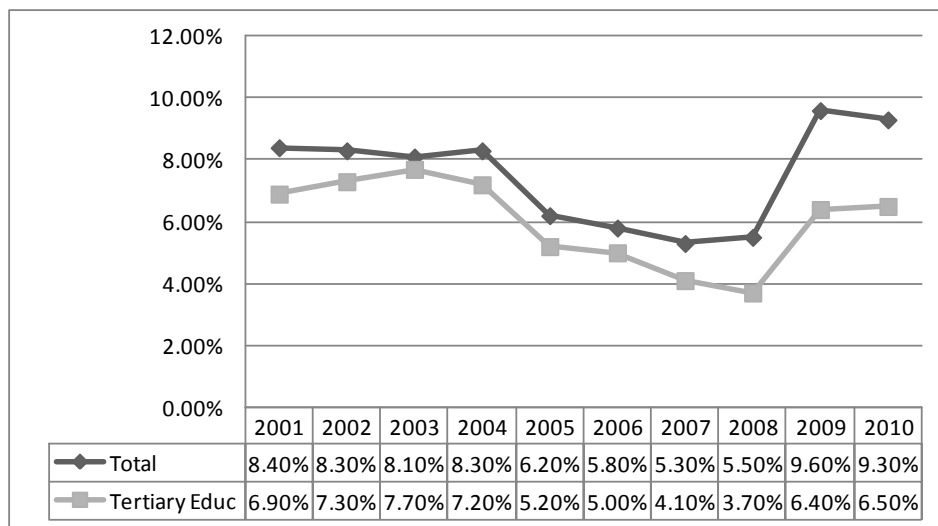
Table 1.12. Unemployment rate by educational level, 2001-2010

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Basque Country										
Total	8.40%	8.30%	8.10%	8.30%	6.20%	5.80%	5.30%	5.50%	9.60%	9.30%
Primary Education	10.00%	8.90%	8.90%	9.80%	8.00%	7.40%	6.40%	7.30%	15.10%	14.00%
Secondary Education	8.40%	8.90%	7.30%	8.00%	5.90%	5.10%	6.20%	6.80%	9.40%	9.90%
Tertiary Education	6.90%	7.30%	7.70%	7.20%	5.20%	5.00%	4.10%	3.70%	6.40%	6.50%
Spain										
Total	8.80%	9.70%	9.80%	9.60%	7.80%	7.30%	7.10%	9.80%	16.00%	18.10%
Primary Educ.	10.30%	11.10%	11.20%	11.30%	9.30%	9.00%	9.00%	13.20%	21.90%	24.70%
Secondary Educ.	8.10%	9.40%	9.70%	9.20%	7.30%	6.80%	6.80%	9.30%	15.30%	17.40%
Tertiary Education	6.60%	7.50%	7.40%	7.30%	6.10%	5.50%	4.80%	5.80%	9.00%	10.50%

Source: Martínez-Granado, M., G. Patxi and M. Oleaga (2012), “The Basque Country, Spain: Self-Evaluation Report”, OECD Reviews of Higher Education in Regional and City Development, www.oecd.org/edu/imhe/regionaldevelopment, based on EUROSTAT data.

As elsewhere higher levels of education ensure better employability. In the Basque Country, the unemployment rate for tertiary graduates (6.5% in 2010) is lower than the total Basque unemployment rate and has even declined since the beginning of the decade.

Figure 1.6. Unemployment for TE graduates in the Basque Country



Source: EUROSTAT.

While the Basque Country's long term labour market trends have been positive and economy more resilient than that of Spain, the economic crisis has destroyed jobs, hitting particularly the youth. By the end of 2009, the effects of the economic crisis became apparent as the number of unemployed increased by 68%. By the end of 2012, the Basque unemployment rate had grown to 15.5%, altogether 10 percentage points below the Spanish rate. As elsewhere, it is particularly the young who have suffered the impacts of economic crisis: In 2010, youth unemployment (16-24 year-olds) reached 30.3%, ten percentage points below the Spanish average but ten percentage points above the EU27 rate.

The high and increasing unemployment rates for the recent university graduates give cause for concern and may lead to brain drain. The employment outcomes of tertiary education graduates are regularly monitored by the Basque Government. The Basque Employment Office (LANBIDE), in cooperation with the Basque universities, carries out surveys of university graduates three and a half years after their graduation. Table 1.13 gives an indication to what extent the Basque university graduates are adapted to the

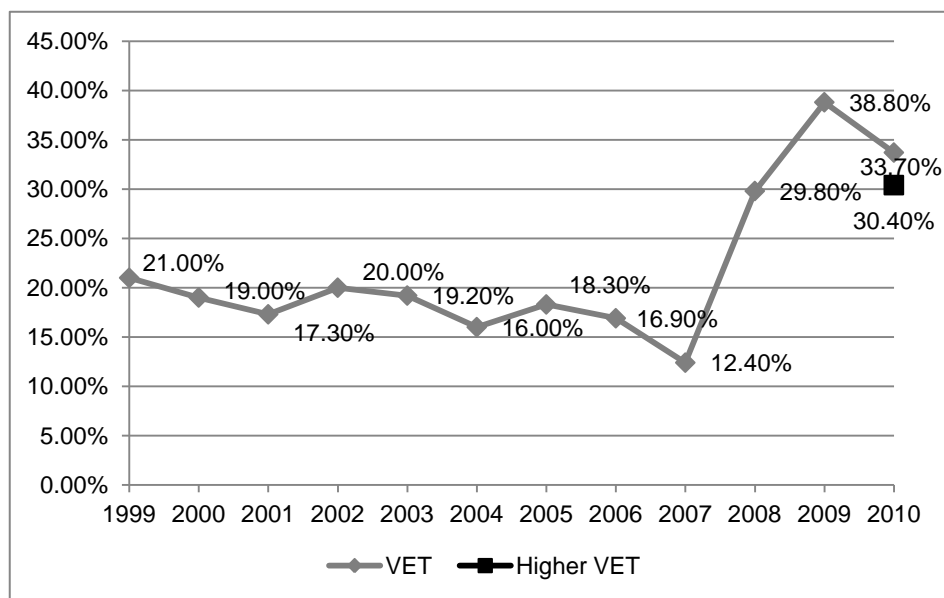
needs of the Basque economy. On the basis of this survey there appears to be alignment between qualifications and employment for graduates of all universities, particularly for Mondragon University, but the unemployment rates (14.7% for UPV/EHU and 13.2% for Mondragon) raise cause for concern.

Table 1.13. Labour market situation of graduates in the Basque Country

	UPV/EHU			UD	MU	
	2005	2006	2007	2005	2002	2007
Year of graduation	2005	2006	2007	2005	2002	2007
Interviewed IV Year	(2008)	(2009)	(2010)	(2008)	(2005)	(2010)
Number of students	7 441	7 729	7 265	2 559	696	832
Labour market participation rate %	95	92.5	92.80	86	96.6	91.9
Unemployment rate %	7.6	13.10	14.7	6.7	5.7	13.2
% that found employment through university	n.a.	13	14	32	28	26
Average salary	1 511	n.a.	1 505	1 553	n.a.	1 514
Employment with the right qualification ("encajado") %	86	89	87	86	89	92.7
% staying in the Basque Country	n.a.	n.a.	85.6	74	94.4	90.1

Source: Martínez-Granado, M., G. Patxi and M. Oleaga (2012), “The Basque Country, Spain: Self-Evaluation Report”, OECD Reviews of Higher Education in Regional and City Development, www.oecd.org/edu/imhe/regionaldevelopment, based on Lanbide and Universities.

While VET and HVET courses are aligned with the Basque industry needs, this has not guaranteed employment for recent graduates. In the case of VET graduates LANBIDE undertakes graduate surveys annually. These show a 30.4% average unemployment rate for the 2010 HVET graduates nine months after graduation, which is a high figure for graduates whose training was intended to meet the needs of Basque industry (Figure 1.7). The activity rate of the recent graduates has also tended to decrease, and was 64% on average for the 2010 VET graduates. The high unemployment rate and the decreasing activity rates for well-trained VET graduates are result of the current economic crisis, associated with the problems of the Basque companies, but may also imply a need for embedding transferable skills and labour market contact in the curriculum.

Figure 1.7. Unemployment of VET graduates in the Basque Country, 1999-2010

Note: Data are based on interviews made 9 to 12 months after obtaining the title (e.g. 2010 data corresponds to the employment situation of VET graduates in the second quarter of 2011).

Source: Martínez-Granado, M., G. Patxi and M. Oleaga (2012), “The Basque Country, Spain: Self-Evaluation Report”, OECD Reviews of Higher Education in Regional and City Development, www.oecd.org/edu/imhe/regionaldevelopment, based on LANBIDE data.

Work-based learning

The Basque tertiary education institutions include work-based learning in their study programmes, but the way this is implemented varies across the institutions, particularly in the university system. Most tertiary education institutions have focused their labour market links in developing student internship opportunities. Virtually all Basque institutions offer students the opportunity to obtain work experience and connect with potential employers as a facet of their educational programme. These internship programmes are proactively managed by the tertiary education institutions.

The Basque HVET institutions offer practice-oriented programmes which have been developed in collaboration with the local labour market. All VET courses include a compulsory training in firms, ranging from 400 to 600 hours. During 2010/11 altogether 6 220 firms collaborated in this type of training. Additionally, with the help of TKNIKA the Vocational

Training Centres and the regional firms in collaboration develop courses that meet the skills needs of the local business network.

Despite the Basque Country's strong policy focus on and world class examples of VET, the system needs to continue to reform and strengthen itself. This is also evident from the VET graduate's employment outcomes that show a negative trend in economic downturn (see Figure 1.7). One way of enhancing the Basque VET education could involve integration of practical training and combining work and training throughout the study programme. The alternance training that combines periods in the educational institution or training centre and the workplace is a new phenomenon in the Basque VET system. For example the HEZIBI programme that brings together 141 companies and 30 VET centres and involves 255 students was launched in 2012. Another common issue for vocational education is that it can become overly-narrow or company-specific when employers play a leading role, so that individual workers are limited in their mobility. The Basque Country has addressed this risk by encouraging sector-based initiatives and involvement of employer associations, rather than individual employers, in the development and delivery of VET programmes. These efforts should be continued, since the interviews with the representatives of the HVET institutions during the OECD review visit in September 2012 revealed growing pressures for company-specific training.

In the Basque University System, there are also some innovative examples of labour market relevant education. Mondragon University's study programmes are based on the combination of work, study and learning-by-doing. During the last 30 years, Mondragon University (or its predecessors) has offered a work-study alternative – (*estudios en alternancia*) that combine periods in the university and in a workplace through the students' co-operative, with more than 3 500 students following it. Students earn a salary of around EUR 500 for their part-time work (four hours a day). Mondragon University's work-study programme has three main advantages: It develops transversal skills, it builds links with the labour market and helps students to cover the costs of education.

As a break from its supply-led education provision, UPV/EHU has recently joined forces with a vocational training centre, the Machine Tool Institute, to offer an official degree of engineering as a work-study alternative "Innovation Engineering in Processes and Products" (Box 1.9). This is a commendable initiative and should be thoroughly evaluated and developed into a system.

Box 1.9. The Machine Tool Institute (Instituto de Máquina Herramienta-IMH) and the UPV/EHU

The Machine Tool Institute, located in Elgoibar (Gipuzkoa) was officially inaugurated in 1991 to offer specialised technical training for the metal and mechanics industry, focusing on areas related with machine-tool. The IMH has a strong relationship with the local industry and a job department that provides first hand information about the professionals demanded by firms. An important part of the IMH portfolio is work-study vocational training.

During the academic year 2012-13, the IMH Co-operative Engineering School will in collaboration with the UPV/EHU offer a new degree programme "Innovation Engineering in Processes and Products" that builds on the co-operative training system and is aligned with the requirements of the Spanish university degree system. This programme combines academic training with company-based work experience and represents an innovative demand-led study option which is directly related to company needs. The students sign a part-time contract and receive a salary according to the corresponding work agreement.

Source: Martínez-Granado, M., G. Patxi and M. Oleaga (2012), "The Basque Country, Spain: Self-Evaluation Report", OECD Reviews of Higher Education in Regional and City Development, www.oecd.org/edu/imhe/regionaldevelopment.

Skills for entrepreneurship

A core element of university support for innovation and enterprise in most countries is through new business incubation and graduate entrepreneurship. The Basque universities, with the notable exception of Mondragon University, have made limited progress in mainstreaming entrepreneurial experience in curriculum and offer students little practical experience of new venture formation. International experience shows that the best support for graduate entrepreneurship comes from teaching programmes where students work in teams to form real companies mentored by entrepreneurs. Such programmes can run at undergraduate and graduate levels and be targeted at students from across the sciences, engineering, business and arts disciplines. Only Mondragon University highlighted the existence of such a programme (modelled according to the Finnish Team Academy programme) and the OECD Review Team was able to find relatively little evidence of this type of activity. Other entrepreneurship-related programmes seem to be largely conventionally taught.

Transferable skills and skills for new jobs

Improving a better match between qualifications and jobs is one of the challenges of Spain and Basque Country to minimise the costs of the current

economic downturn. The traditional learning modes – professor as the main source of information and lectures or writing assignments – do not significantly increase the innovative and entrepreneurial competencies of graduates.

Despite some innovative examples, Spanish public universities such as UPV/EHU need to improve the labour market relevance of their education provision. The 2006 data from REFLEX survey (only the UPV/EHU participated from the Basque Country) based on the opinion of the university graduates four years after graduation show a significant gap between skills and competencies required by the labour market and those provided by the UPV/EHU. The skills related to work behaviour (efficient use of time, performance under pressure), social skills (negotiation, asserting one's authority, co-ordination of activities) and entrepreneurialism (coming up with new ideas, alertness to new opportunities) show the highest deficits (see Table 1.A3.1) The Spanish public universities including UPV/EHU need to use more active learning models based on problem-based learning, experiential learning, group assignments, participation in research projects, work placements or practical knowledge to develop an entrepreneurial and innovative mindset among graduates.

The Bologna Process and its related activities are also starting to shape the mindset of UPV/EHU teachers, but this change still needs to be mainstreamed in the university teaching. According to a recent survey (2011, see Table 1.A3.2 for the table), UPV/EHU teachers believe that the most important competencies for the labour market are transversal or general competencies (for instance, “Mastery of your own field or discipline” is not highly rated) and hence share the opinions of graduates and employers. At the same time they believe that the university is proving more traditional competencies (in this case, “Mastery of your own field or discipline” is the highest rated competence). What these results show is that while the mindset of teachers is changing, their actions have not yet changed. This could be considered a positive result because changes in behaviour are likely to follow the mental changes. UPV/EHU teachers are starting to change their minds and to question prevailing ideas about what are the main objectives of the learning process and consequently about the best ways of teaching and learning.

International examples

When developing more systematic links with the world of work, the Basque universities can learn from work class examples developed within the Basque university system (such as Mondragon University's work-study alternative) as well as those developed in Spain and abroad. Many universities have taken steps to embed employability and transferable skills

in their core curriculum. In Catalonia, the University Rovira i Virgili is doing this through ongoing collaboration with locally important industries. The University of Aalborg in Denmark uses problem-based learning that offers opportunities for students to learn in multidisciplinary teams and solve authentic problems. In Germany, universities have developed dual tertiary education programmes that are based on the examples in vocational education with alternance training in schools and industry. In the United Kingdom, universities have created a number of approaches that ensure that graduates have access to credited, work-related learning opportunities and soft skills. In Canada, the University of Waterloo is running the world’s largest co-op programme of its kind with more than 16 000 students and 3 000 employers (see Box 1.10 and Annex 1.A2 for the Waterloo co-op programme).

The Basque HVET sector could find inspiration from Swedish VET centres which, in addition to their role in the regional innovation system, also address the skills needs in the local-global value chains (Box 1.11).

Box 1.10. Embedding employability in curriculum

University of Rovira i Virgili – industry-based collaboration

The University of Rovira i Virgili in Spain has established a long-term collaboration with the chemical industry in Tarragona that incorporates both education programmes and research that are relevant to the industry needs. Advanced technical vocational skills and higher degree-based skills in engineering are designed in co-operation with the local industry. Students participate in internships and co-op programmes within the local firms. Alumni connections are strong. University staff have on-going relationships with the firms and are allowed to spend time working in local firms during their leaves.

Problem-based learning at Aalborg University boosting employability

Aalborg University was established in 1974 after a popular campaign to establish a university in northern Jutland in Denmark which formed the basis for a close dialogue with the surrounding society, the business sector, trade unions and cultural life. An important decision was to base research and educational activities on interdisciplinary integration, problem orientation and group work. In Aalborg’s project-oriented, problem-based learning model, study programmes are organised around interdisciplinary project work in groups.

Box 1.10. Embedding employability in curriculum (continued)

Problem-based learning at Aalborg University boosting employability (continued)

Up to 50% of the study is problem-oriented project work; students work in multidisciplinary teams to solve real-life problems that have been defined in collaboration with public and private sector and NGOs. At any one time, there are 2 000 to 3 000 ongoing projects to ensure a high degree of collaboration with society and the private sector. The Aalborg model is based on a win-win situation: Students learn transferable skills and gain authentic work experience. Enterprises benefit from a clearer picture of what the university stands for and how students might fit in as prospective employees. The university gets feedback from the world of work and gains access to instructive cases and ideas for research and teaching.

Dual tertiary education models in Germany

Dual tertiary education models mirror the apprenticeship arrangements in the German VET sector: students have to find a place with a training company that co-operates with a university; if successful, they are guaranteed a place at a university. The dual tertiary education programmes offer many advantages: They are attractive to students who earn their living while studying and benefit from career prospects. Employers benefit from the students' productive contribution and the programmes facilitate the process of recruitment. Professional academies (Berufsakademien) and dual university study programmes in regular institutions (duale Studiengänge) are available for example in Baden-Württemberg, Bayern, Berlin, Hamburg, Hessen, Niedersachsen, Saarland, Sachsen, Schleswig-Holstein and Thüringen. Dual programmes are offered in many subjects, primarily in the fields of engineering and technical studies, business IT and care professions. Most programmes end with a bachelor's degree.

Liverpool John Moores University – World of Work

World of Work is a programme that is co-designed and co-delivered with employers to enhance the employability of students. It is integrated into every degree course offered at the university. There are three inter-related elements: *i) Work-related learning*: Every student is offered work-related learning as part of their course, including opportunities to undertake a one-year paid placement, as well as shorter placements and day long "World of Work Uncovered" visits to employer facilities; *ii) Graduate skills*: Soft-skills are developed as part of a degree, with academic modules integrating simulations of workplace situations and curriculum input from employers and careers advisors. Students can receive a "graduate skills transcript" upon graduation; and *iii) World of Work Skills Certificate*: After completing a process involving an online virtual interview, attending careers workshops, writing three skills statements and finally a filmed interview with an employer, students can be awarded a World of Work Skills Certificate, alongside their degree.

Source: OECD (2007), Higher Education and Regions: Globally Competitive, Locally Engaged, OECD Publishing, <http://dx.doi.org/10.1787/9789264034150-en>; Hoeckel, K. and R. Schwartz (2010), *OECD Reviews of Vocational Education and Training: A Learning for Jobs Review of Germany 2010*, OECD Reviews of Vocational Education and Training, OECD Publishing, <http://dx.doi.org/10.1787/9789264113800-en>; OECD (2011b), Higher Education in Regional and City Development: Catalonia, Spain 2011, OECD Publishing, <http://dx.doi.org/10.1787/9789264089006-en>; BIS (Department for Business, Skills, and Innovation) (2012), Following Up the Wilson Review of Business-University Collaboration. Next Steps for Universities, Business and Government, www.bis.gov.uk/assets/biscore/higher-education/docs/f/12-903-following-up-wilson-business-university-collaboration-next-steps.pdf.

Box 1.11. Advanced VET in a Swedish paper cluster

The highly globalised and competitive paper and pulp industry in Sweden requires constant innovation to maintain its competitiveness. The Paper Province cluster, located in Karlstad, Sweden, is one of Europe's largest clusters specialised in pulp, paper and packaging, with around 12 000 employees in 200 companies. The Paper Province cluster co-ordinates and encourages co-operation between participants in the pulp and paper industry in Värmland, northern Dalsland and the county of Örebro in central Sweden. Karlstad Technology Centre plays an important role in ensuring a qualified workforce for the paper and pulp industry. It shares facilities with the Paper Province which ensures ongoing co-operation that spans education, training and applied RDI. The Technology Centre offers tailored workforce development programmes, as well as two year long advanced vocational education programme, following the completion of upper-secondary education. The advanced vocational education programme was developed in close co-operation with industry and as a consequence builds on a model where practice and theory are closely intertwined. Students undertake work placements, which trains them to use theory to solve complex, practice-based problems as the foundation for building skills conducive to practice-based innovation.

Source: European Commission, Vocational education and training for better skills, growth and jobs, SWD(2012) 375 final, Commission Staff Working Document DG Education and Culture. June 2011.

http://ec.europa.eu/education/news/rethinking/sw375_en.pdf.

Researcher training

The Basque Country has the highest share of tertiary education graduates in the workforce of any Spanish region, but a relatively small share of PhDs. This has implications to the regional innovation capacity which is manifested for example in the low level of patent activity compared to the R&D involvement (OECD, 2011).

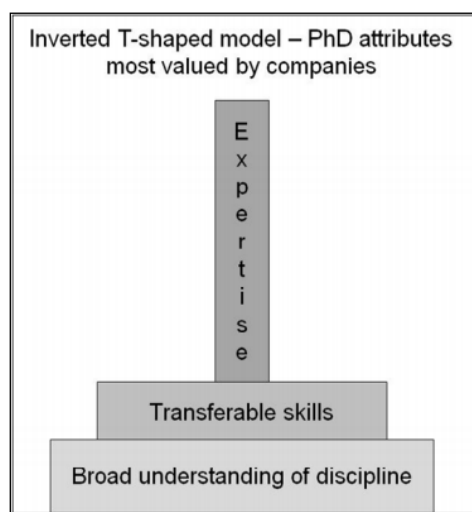
While the number of enrolments in undergraduate programmes has decreased over the years, the number of students enrolled in postgraduate programmes has experienced a large increase, duplicating in the last five years. This increase has taken place in all Basque universities, and particularly UPV/EHU. In 2010/11 altogether 8 080 postgraduate students were enrolled in the Basque universities. At the masters level the competition between public and private sector is strong whereas in the doctoral level the UPV/EHU is leading the scene.

UPV/EHU has made strong efforts to improve its postgraduate education and currently boasts the highest number of Master and Doctoral

Excellence programmes among Spanish universities. UPV/EHU has established a single unit “Master and Doctoral School” that oversees the training of postgraduate students in all knowledge areas and is linked to RDI centres, institutions and companies in the region.

Basque universities could also consider developing doctoral programmes according to the model of a “structured PhD programme” that provides a framework for timely completion over four years, a framework for industry collaboration as well as discipline/interdisciplinary modules and transferable skills as a means of enhancing research training and research career development. While the core component of doctoral training is the advancement of knowledge through original research, doctoral training should also address wider labour market needs and diverse career options (EUA, 2005; Borrell-Damian, 2009, Wendler et al., 2012). Mobility should be embedded in the programme for example through internships within the public, private and non-profit sectors. The following Figure 1.8 provides a useful illustration.

Figure 1.8. Structured PhD Model



Source: ACSTI (Advisory Council for Science Technology and Innovation) (2009), *The Role of PhDs in the Smart Economy*, Forfas, Ireland, www.forfas.ie/media/asc091215_role_of_phds.pdf.

Conclusions and recommendations

The Basque Country has made great strides in tertiary education, committing significant public resources to meet the skills demands of the Basque industries. The approach to human capital and skills development taken by the Basque government in order to broaden and deepen the impact of tertiary education has emphasised the development of the Basque vocational education system and a more loosely co-ordinated Basque University System. The major achievements include:

- Well-trained workforce with internationally high levels of education attainment. About 44% of the 25-64 year-olds and 60% of the 30-34 year-olds have attained tertiary education, which is an outstanding achievement found in the most advanced regions.
- Diverse and comprehensive tertiary education system encompassing a large number of VET schools and three universities – UPV/EHU with a greater focus on basic research, Mondragon University and the University of Deusto with a greater focus on applied research – as well as branch campuses of non-Basque universities.
- A well-integrated HVET system that is aligned with the Basque industry needs, well-distributed across the region and features demand-led innovative curricula.
- Positive efforts in universities to develop new teaching and learning models in order to adapt the study programmes to the requirements of the Bologna Process.

There is room for improvement in issues such as widening access for social groups, developing lifelong learning and developing a more demand-led relevant and internationally competitive and attractive education provision. The Basque TE system is facing some challenges:

- The pool of potential students is shrinking. The upcoming generation of tertiary education students should be more diverse, drawing from migrant populations, other regions and countries. For example a shortage of technicians who are well-prepared for the Basque Country's future economic needs can be a serious problem in the near future.
- The ageing labour force requires a stronger focus on lifelong learning and reskilling. There is a need to develop a strong lifelong learning system that is aligned with socio-economic demands.

- Study programmes are generally based on academic capacity rather than the needs of the economy and society at large. The quality of the educational system especially at university level requires more attention. The new models of teaching and learning that universities are promoting have not yet been embedded in university culture.
- While equity policies have improved, students' financial, academic and social support system remains underdeveloped. There is also a lack of attention to the broad issues of widening participation, social inclusion or issues around completion rates, retention or graduate employment. Due to the lack of adequate student support, Basque students have limited mobility and a significant number of students work while studying.
- Internationalisation of the Basque Tertiary Education system remains incipient. Mobility of students and graduates is very low. Although the Basque Country send out much more students than it receives, most students stay at home during their studies and work in the Basque Country after graduation. International and multicultural experience is essential for acquiring the skills and competencies for the global economy.
- Pathways across the different parts of the tertiary education sector are lacking or inflexible. The Basque University System and VHEIT system coexist but have limited collaboration, pathways and shared learning.

The Basque Government has recognised these challenges and developed elaborate plans, initiatives and programmes to address the challenges. The University Plan 2011-14 (Gobierno Vasco, 2011a) includes separate programmes for a diverse set of issues such as: innovative teaching, teacher training, support for trilingualism and support for research; internationalisation; dissemination of science and technology; support for university-business relationships; student support and improvement of access to education; and support for university-society relationships. Furthermore, the Basque Employment Strategy 2011-14 (Gobierno Vasco, 2011b) has identified the aim to “expand and improve investment in human capital and training systems to adapt management skills” and to “increase co-operation with companies to meet their training needs”. The tools to achieve this objective include: increased training in innovative emerging jobs and increased on the job training; encouraging the incorporation of the profound changes in the production model into the educational process; promotion of collaboration agreements between schools and businesses. All these initiatives are directed towards a common goal. The challenge is to

transform the incidental and coexisting programmes into real action to improve the system.

The OECD review team recommends that the following measures are taken to improve the human capital and skills development in the Basque Country:

The following measures would promote human capital and skills development in the Basque Country:

Recommendations for the central government

- Review the current student support system to ensure the key principles of tertiary education funding – cost-sharing, relevance and comprehensive student support. Re-assess whether the cost-sharing balance is desirable and appropriately reflects the relative importance of private and societal benefits of tertiary education. Sustain existing efforts to improve the transparency of the allocation of funds to institutions and make it more consistent with the tertiary education strategy. Develop a system whereby tuition fees more fully reflect costs of delivery both in public universities and the vocational tertiary sector.
- Revisit the achievements of the Bologna Process and continue the process of curriculum reform to encourage flexible pathways and enhance mobility through credit accumulation across Spain and internationally.
- Reduce inequalities in education and training participation by age and skills by adopting a three-pronged strategy: First, increase investment in lifelong learning at mid-career. Second, improve the attractiveness of training and its returns for older learners by adapting teaching methods and content to their needs, by providing short, modular courses and by recognising prior learning and experience. Third, promote later retirement to encourage greater investment in training older learners.

Recommendations for the Basque government

- Make best use of human capital in the Basque Country by reducing early school leaving rates and targeting the youth who are neither in employment nor in education and training. Continue to work on improving the quality and relevance of school education, and reduce the equity and quality gaps in primary and secondary education. Develop better functioning pathways between secondary education

and vocational education to engage youth. Make continuous efforts to improve school retention and graduation rates and ensure transition from school to work. Establish programmes that improve the preparation and professional development of teachers at schools. Ensure that all primary and secondary students (and their families) gain unbiased information they need to prepare for post-secondary education, whether at university or vocational education. Equip youth with entrepreneurial skills to help them enter and stay active in the labour market.

- Continue to open and widen access to tertiary education and address transition barriers perceived by students. Expand the regionally-based grants system to promote the access of vulnerable groups, by stressing the financial need of students. Strengthen the pathways between universities and vocational higher educational institutions, and between different levels of education. Ensure that the Basque Qualifications Framework facilitates a coherent education system that provides a wide range of learning opportunities and facilitates learning pathways from secondary to lifelong learning. Put in place measures to accommodate and encourage mobility within and between educational institutions and levels to enable students to move from one institution to another. Publish a clear guide to the pathways and opportunities. Co-ordinate and formulate formal agreements and mechanisms for recognition and accreditation of prior learning and experience. Promote the development of dual universities and dual tertiary education programmes. Encourage more flexible, part-time university offers and the recognition of prior learning and experience. Establish incentives to promote collaboration among universities. Encourage the universities to engage in higher vocational education through co-operation with vocational training institutions. Take action to improve the public image and appeal of higher vocational education to pave the way of the Basque Country out of the economic downturn.
- Encourage the universities, UPV/EHU in particular, to address the Basque Country's needs for lifelong learning, re-training and up-skilling of the workforce. Develop re-skilling, up-skilling and continuing professional development in collaboration between HVET and universities.
- Review Basque university education offer to evaluate how it responds to the needs of the Basque industry and society. Map the tertiary education landscape to help brand the Basque Country a region of knowledge. In collaboration with provincial stakeholders

and tertiary education institutions, assess current and planned capacity against anticipated student numbers in different provinces.

- Introduce a tertiary education “revolution” by supporting the development of innovative study programmes. Encourage shared learning and dissemination of good practice within the Basque University System and between universities and the HVET system. Provide targeted funding for collaborative programmes at all levels. Strengthen the labour market relevance of the educational programmes in a systematic way. Encourage universities to embark on targeted regionally relevant institution-wide initiatives which have a solid institutional anchorage and legitimacy within the institutions. Help consolidate new ways of teaching and learning by taking advantage of the opportunities of the Bologna Process. Encourage tertiary education institutions to use new technologies and break away from the traditional lecture model.
- Integrate practical training throughout the HVET study programme. Evaluate the current examples of alternance training within university and VET system to combine periods in an educational institution or training centre and in the workplace, and develop and scale up this offer. Ensure that the Basque vocational education will not become too narrow or company-specific in order not to limit the mobility of individuals.
- Develop a stronger focus on providing entrepreneurship skills at schools, VET and tertiary education institutions.
- In collaboration with the national authorities, universities and HVET system, develop broad policies to internationalise the Basque labour market and education system.
 - Facilitate the integration of international students and employees into the Basque education and labour market. Improve the recognition of foreign diplomas and increase flexibility in employment contracts to enable recruitment from abroad. Continue and enhance talent attraction programmes. In collaboration with the Spanish authorities develop a process to expedite the procedure of acquisition of visa and work contracts for foreign nationals who join the tertiary education sector. Allow international students to work part time to facilitate their transition to the workforce and relax the immigration policies to encourage international students to remain in the Basque Country.

- Evaluate, upgrade and scale up the current trilingualism programmes in schools, VET and tertiary education institutions. Develop a framework for advanced trilingual training in Castilian, Basque and English to meet the demands of the Basque society and global connectivity. Consider relaxing the Basque language policy requirements in education, research and labour market programmes.
- Build a strong global brand for the Basque Tertiary Education System recognising its economic value as a potential export sector. Support joint international programmes and joint marketing and services, for example by co-ordinating (via the Tourism Department or the Education Department) a common welcome service for international students and staff, and establishing a facility/residence hall for visiting students and researchers. Encourage the Basque HVET sector to address the skills needs in the local-global value chains in order to play a more central role in skills-based innovation. Capitalise on the existing assets, and innovative mechanisms and models in tertiary education, such as TKNIKA and Mondragon University’s co-operative governance system and educational model.
- Continue to facilitate strong, evidence-based strategic decision-making by improving data on graduate performance and employment outcomes. Build on the LANBIDE surveys to develop a comprehensive vision of graduate employment and labour market. Take the lead in setting up a robust database to track the progress of students and graduates across the system, and into employment and beyond. Develop an effective region-wide graduate labour market system that is based on the collection of comprehensive labour market intelligence and online publication of the data in a single place in order to improve students’ ability to make rational choices about their studies, to help graduates and employers to come together and facilitate graduate employment. Use the data strategically within the government and within the tertiary education system to identify regional and institutional priorities and help tertiary education institutions develop their course provision and the supply of employer-specified skills.

Recommendations for the universities and higher VET

- Develop active policies to prepare for and mitigate the negative impacts of the ageing population. Increasing efficiency and degree productivity and control the expansion of cost-generating factors. Develop a proactive policy to attract foreign students, students from other Spanish regions, immigrants and other less-favoured socio-economic groups. Promote lifelong learning in response to specific needs throughout people's entire working lives. Address the needs of a diverse student population and link this with the construction of flexible learning paths. Design adequate guidance, induction and financial support measures for less academically trained individuals wanting to attend university.
- Continue to improve the labour market relevance of study programmes. Engage employers in curriculum development and delivery, by inviting professors from industry and using local, private sector employees as instructors. Encourage employment after the first cycle. Embed employability skills, work-based learning, internships, entrepreneurialism and Intellectual Property consciousness in all programmes, including PhD programmes. Improve work-based learning opportunities for all students, for example through study-work alternance and credit-bearing co-op education in collaboration with the local industry and other employers. Use experiential and problem-based learning models in group settings.
- Facilitate temporary movement of university researchers/teaching staff to the private sector. Motivate teachers to connect with the local, national and international business and scientific environment. Encourage teachers to act as consultants for companies and develop joint research projects with industry. Integrate researchers and business professionals in the same departments.
- Address the need for lifelong learning and more flexible modes of delivery for those who combine work and study. Improve lifelong learning performance and respond to the needs of adult learners and older workers who are in danger of becoming "locked out" due to changes in the economy/labour market.
- Review the institutional profile and education provision to increase inter-disciplinarity, relevance of education, diverse learning methodologies and place the students at the centre of the learning process. Implement active methods of teaching and learning:

(collaborative learning, case-based methodologies, project-oriented learning and problem-based learning).

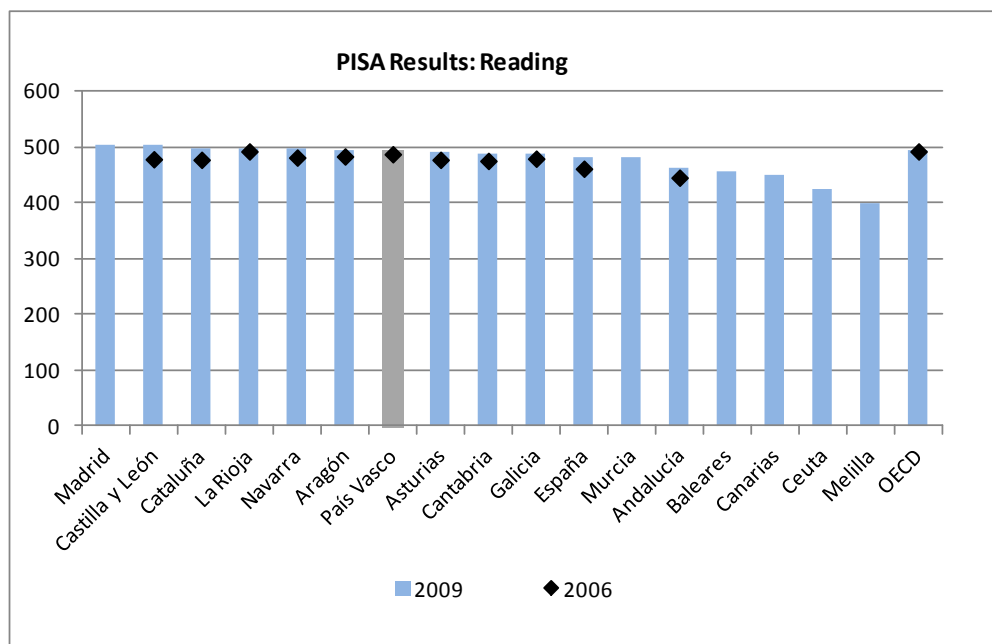
- Look to match global levels of excellence in supporting entrepreneurship in the curriculum, and build comprehensive support programmes encompassing entrepreneurship training, practical experience of creating new businesses for groups of students, and incubation and hatchery facilities together with seed funds for new graduate ventures. Support graduate entrepreneurship by offering programmes at undergraduate and graduate levels where students work in teams to form real companies mentored by entrepreneurs, targeting students from across the sciences, engineering, business and arts disciplines.
- Step up internationalisation activities. Develop a comprehensive internationalisation plan and strategy for the internationalisation of the curriculum, including global citizen initiatives for the benefit of all students, not only those who are internationally mobile.
- Develop an incentive system for teaching staff that motivates them to improve their education and training, teaching innovation, collaboration between teachers and the use of new technologies. When selecting teachers, give importance also to other criteria than those imposed by purely educational needs. Ensure that the recruitment and career development programmes for university staff take into account entrepreneurial attitudes and experience. Prevent inbreeding and favour hiring teachers, domestic or foreign, who can add value to the university.
- Systematically track and monitor student progress, as well as students' labour market outcomes and graduate destinations as a way of informing curriculum development and better understanding how education meets the needs of the society and economy. Monitor student satisfaction and the total student experience, which includes students services, and assess the quality of education, encompassing teaching and learning, curriculum, student life, advising and mentoring.

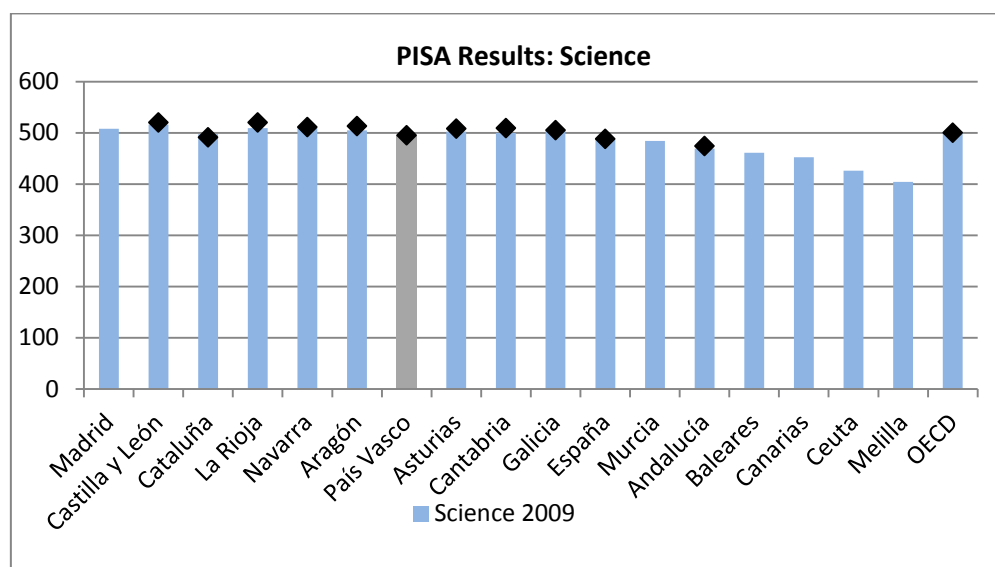
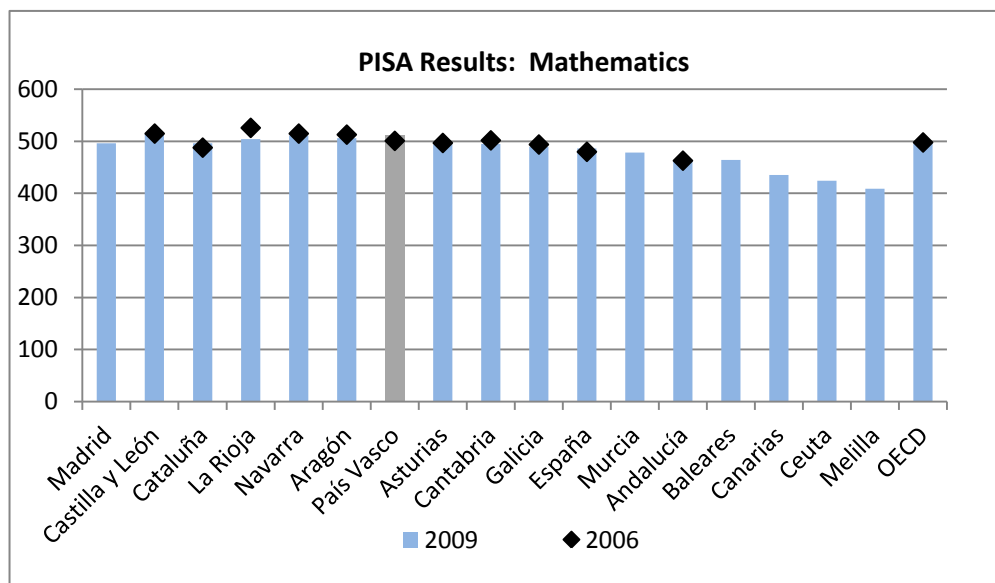
Notes

1. Drop-out rate: percentage of students that were enrolled two years before and are not enrolled in the two following courses.

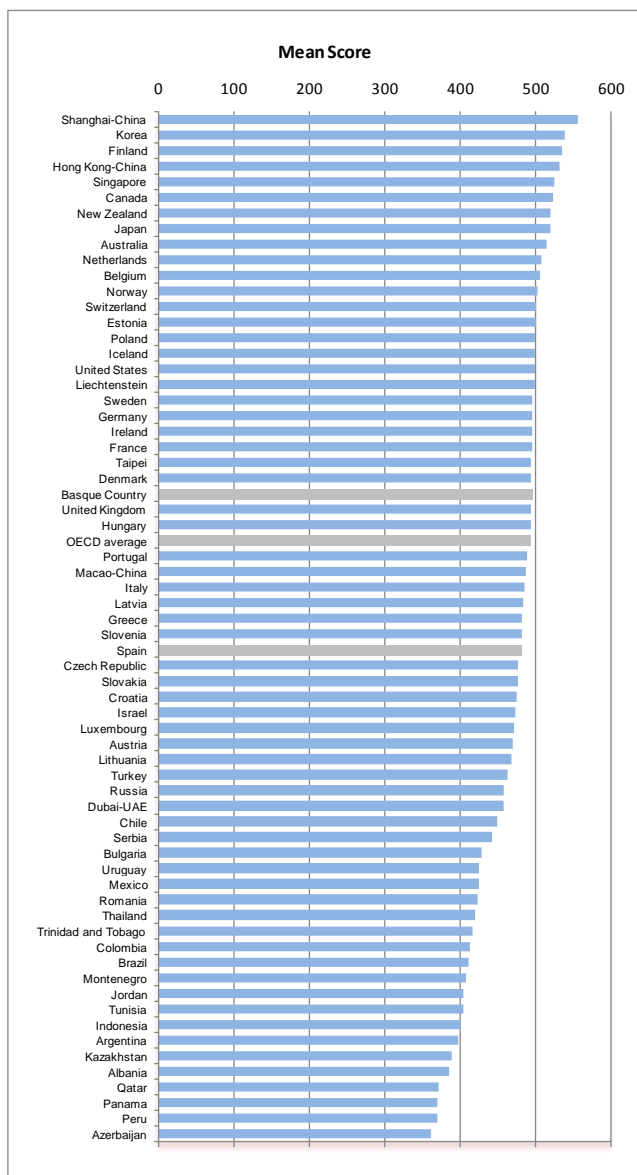
Annex 1.A1. PISA results 2009

Figure 1.A1.1. PISA results for 2009





Source: PISA 2006, Informe Español (Spanish Report) (2007), Ministerio de Educación y Ciencia, Secretaría General de Educación (Ministry of Education and Science, General Secretariat of Education), Spain; PISA 2009 Informe Español (Spanish Report) (2010), Ministerio de Educación y Ciencia, Secretaría General de Educación (Ministry of Education and Science, General Secretariat of Education), Spain.

Figure 1.A1.2. PISA mean scores 2009

Source: OECD (2010), PISA 2009 Results: What Students Know and Can Do – Student Performance in Reading, Mathematics and Science (Volume I), <http://dx.doi.org/10.1787/9789264091450-en>.

Annex 1.A2. UPV/EHU and competencies

Table 1.A2.1. Competencies required in the labour market and acquired in the university: opinion of UPV/EHU graduates

	Required	Acquired	Difference
Ability to use information and communication technology	5.04	2.96	2.08
Ability to negotiate effectively	4.47	2.61	1.86
Ability to use time effectively	5.56	3.70	1.86
Ability to assert your authority	4.66	2.81	1.85
Ability to perform well under pressure	5.30	3.50	1.80
Ability to make your meaning clear to others	5.57	3.79	1.78
Ability to mobilise the capacities of others	4.73	3.10	1.63
Ability to plan, organise and coordinate activities	5.15	3.52	1.63
Ability to come up with new ideas and solutions	5.21	3.59	1.62
Alertness to new opportunities	4.36	2.84	1.52
Ability to communicate in a foreign language	3.55	2.04	1.51
Mastery of your own field or discipline	5.20	3.74	1.46
Ability to work productively in a team	5.46	4.14	1.32
Willingness to question prevailing ideas	4.83	3.55	1.28
Ability to present products, ideas or reports to an audience	4.66	3.62	1.04
Knowledge of other fields or disciplines	4.11	3.13	0.98
Ability to rapidly acquire new knowledge	5.19	4.31	0.88
Ability to write reports, memos or documents	4.89	4.02	0.87
Analytical thinking	4.67	3.93	0.74

Source: REFLEX data for UPV/EHU, 2008.

Table 1.A2.2. Competencies in the labour market and acquired in the university: opinion of UPV/EHU graduates

	Required	Provided	Diff.
Ability to use time effectively	6.1	4.1	1.9
Ability to make your meaning clear to others	6.0	4.3	1.7
Ability to work productively in a team	6.0	4.6	1.4
Ability to write reports, memos or documents	6.0	4.6	1.5
Ability to present products, ideas or reports to an audience	6.0	4.5	1.5
Ability to use information and communication technology	5.9	5.0	1.0
Ability to come up with new ideas and solutions	5.9	4.1	1.8
Ability to rapidly acquire new knowledge	5.8	4.6	1.2
Willingness to question prevailing ideas	5.8	4.0	1.7
Analytical thinking	5.7	4.5	1.2
Ability to communicate in a foreign language	5.6	3.0	2.7
Ability to plan, organise and coordinate activities	5.6	4.0	1.6
Alertness to new opportunities	5.5	3.6	1.9
Ability to negotiate effectively	5.4	3.5	1.9
Mastery of your own field or discipline	5.4	5.4	0.0
Ability to perform well under pressure	5.4	4.4	1.0
Ability to mobilise the capacities of others	5.2	3.6	1.6
Ability to assert your authority	5.1	3.4	1.7
Knowledge of other fields or disciplines	4.7	4.0	0.7

Source: Diputación Foral de Gipuzkoa y Universidad del País Vasco (2011), *Aportación de la universidad y la experiencia laboral en Gipuzkoa al desarrollo de competencias en la juventud egresada universitaria*.

Annex 1.A3.

The Co-operative Education Programme at the University of Waterloo, Canada

The Waterloo Region in Ontario, located about 100 km west of Toronto, has a strong factor advantage of a rich local labour pool largely as a result of a strategic decision made at the inception of the University of Waterloo. The university's founding document in the 1950s (the Waterloo Plan) envisaged a new type of education to be offered on a co-operative basis with industry. The rotation of students to industry and back to the classroom solidified the university's relations with local industry. Today, the University of Waterloo operates the largest post-secondary co-op programme of its kind in the world with more than 16 500 students enrolled over three semesters (60% of the student body) and 3 500 employers involved in the programme each year. It is a model of co-operative education which has spread to more than 100 colleges and universities across Canada.

Extensive co-op programme offers are available in all university faculties and departments and in over 100 different programmes. Many of local and global firms have strong links with the co-op programme. At Sybase, an enterprise software company that spun-off from the original WATCOM Corporation, with over 250 employees in its Waterloo campus alone, 15% of its current employees are Waterloo co-op students, and more than half of their Waterloo staff is former co-op students.

The co-op programme brings a number of benefits to the local economy. It provides a steady source of new hires, because firms know that the students have work experience and get an opportunity to evaluate their performance in the work place before hiring them. Students transfer tacit knowledge and know-how to firms; they also act as a critical source of knowledge circulation within the local high-technology cluster, between different firms as they undertake placements over the course of their integrated work-study programme. The relationship between the university and local industry allows the curriculum to keep up to date with the changing technological frontiers of industry, while industry support of the programme funds the acquisition of technology to enhance classroom learning. Finally, the Enterprise Co-op Programme enables students to start their own venture instead of doing a co-op placement with an established firm, and focuses on creating a local network of contacts and mentors to support it.

Co-operative Education & Career Action (CECA) administers the co-operative education system and career-related services for the University of Waterloo. CECA staff functions as a liaison between students, employers, alumni, and the different faculties and departments within the University of Waterloo to help determine and facilitate employment opportunities. Employees have access to a complete service team, including an account manager who is the main contact for short- and long-term hiring plans (co-op, full-time, part-time or summer opportunities).

The principal obstacle to the success of the Co-op Programme is the high cost of finding and maintaining the work-term positions for the student body. The university invests a considerable amount of its own resources in financing and managing the programme. However, it now benefits from the high reputation that both the programme and the university's students enjoy, which makes it easier to find firms willing to take the students on co-op employment. The key lesson to be drawn from this experience is that the investment of resources in a programme such as this can pay dividends to the local economy over a long period of time.

Source: Marchese, M. and J. Potter (2011), "Entrepreneurship, SMEs and Local Development in Andalusia, Spain", *OECD Local Economic and Employment Development (LEED) Working Papers*, No. 2011/03, OECD Publishing, <http://dx.doi.org/10.1787/5kgdt917nvs5-en>; University of Waterloo (2012), Hire Waterloo, <http://uwaterloo.ca/hire/>.

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Chapter 2.

Regional innovation system and universities

The regional dimension of innovation is crucial to promote long term economic growth and competitiveness. All regions can improve their capacity to adapt and transfer knowledge to regional needs and help the region and its firms to become globally more competitive.

This chapter examines the effectiveness of current RDI policies and practices in the Basque Country and the role of research and knowledge transfer conducted by universities.

The key message is that while the Basque regional innovation system has strengths in incremental development, challenge is to move towards more knowledge intensive innovation by strengthening the universities' research activities and orienting them to emerging opportunities for innovation in the Basque Country, rather than replicating the existing strengths of industry and technology centres.

Introduction

The Basque Country has developed a reputation in Europe for its investment in its regional innovation system. Since the development of the autonomous regional government in 1979, the region has sought to strengthen its traditional industrial base through support for innovation and cluster development, providing a model for European regional innovation initiatives and the idea of smart specialisation. As part of this development, a sophisticated innovation system has been created, which is focused around a network of technology centres that work closely with local firms and clusters.

Universities have been less central to innovation policy in the Basque Country than some other research organisations. The regional government has been supporting the growth of research in the universities, but with smaller budgets than have been available for technological centres aimed at supporting industry. Policy has also focused more on areas of application than on basic research, which presents a different challenge than many other old industrial regions. Old industrial regions may often have a strong research university, but a weak regional innovation system, and the challenge is to make better use of the university's assets. Alternatively, both the university and the innovation system may be weak, so the challenge is to grow both together. In the Basque Country, the regional innovation system is strong, if focused on incremental development, while the universities are looking to strengthen their research orientation. The challenge is to strengthen research in the universities, while orienting them to emerging opportunities for innovation in the region, rather than replicating the existing strengths of industry and technology centres.

The Basque Country has a very high degree of autonomy, especially with regard to research and innovation policy. While it is formally within a multi-level governance system, the national level seems weak compared to the regional level, although the three provinces within the region also have a role to play in innovation policy.

The key questions to be addressed by this chapter are:

- Is the innovation system in the Basque Country well designed and responsive to the needs of the region and its industrial base?
- Do the universities support the regional innovation system in an optimal way? Are there areas of potential improvement?

The Basque regional innovation system

The Basque innovation system has a very distinctive character; it supported an economy that saw steady growth from the 1990s to 2008 at a higher level than other Spanish regions. The regional economy is strongly based on manufacturing in medium-technology goods, especially in engineering, and realised employment growth in manufacturing from the 1990s on, with increasing productivity and increasing technological intensity. Despite an increasing focus on medium to high-technology manufacturing, however, the innovation system is characterised by incremental innovation and an emphasis on what has been termed the “doing-using-interacting” (DUI) model of innovation, rather than innovation on the basis of developments in science and technology. This model has been reinforced by public interventions in the region that have supported the industrial sector, while the role of universities as sources of innovation has been less important than in regions more dependent on science-based innovation. This strong emphasis on industrial innovation and manufacturing has required considerable investment in skills. The Basque Country has the highest share of tertiary education graduates in the workforce of any Spanish region, yet a relatively low share of them have PhDs. The emphasis on incremental innovation is also demonstrated by a relatively low level of patent activity compared to investment in R&D (OECD, 2011).

Devolution in Spain has led to a complex system of governance of research and innovation support. National government retains some oversight of research policy and provides funding for competitive grants schemes and a national system of research centres under the Spanish National Research Council (*Consejo Superior de Investigaciones Científicas*, CSIC). Autonomous regions have the responsibility for block funding of universities, although this does not explicitly cover research, and for providing additional funds for research grants and a wide range of innovation programmes and agencies. Sub-regional provinces and municipalities may also intervene to support innovation, although without funding university core programmes. Finally, there are also considerable sums available from the EU for supporting research through the Framework Programme and for wider innovation activities through Cohesion Funding.

Basque Government strategies

Support for research development and innovation is spread across several departments within the Basque Government, but principally divided between support for university research in the Department of Education, Universities and Research (DEUI) and support for industrial innovation in

the Department of Industry, Innovation, Commerce and Tourism (DIICT). Additional support is provided for health research via the Department of Health and Consumer Affairs (DSC). Each department has its own strategies and since research and innovation matters are affected by a number of different strategies across the departments, a co-ordinating body has been established by the Presidency: the Basque Science, Technology and Innovation Council (*Consejo Vasco de Ciencia, Tecnología e Innovación*, CVCTI). The CVCTI is responsible for the production of a comprehensive plan for science, technology and innovation, PCTi 2015, which is intended to integrate the specific plans from the separate departments. The Council is chaired by the President of the regional government and has representatives from relevant departments and the three provinces of the Basque Country.

The PCTi 2015 represents a shift in direction for the Basque Government, as well as an attempt to integrate the plans of the different departments. It recognises the need for a major shift in orientation of the regional strategy from a primary focus on incremental innovation within the existing mainly low to medium-technology industries, towards more radical innovation in new industries. There is a greater focus on new market opportunities, such as the ageing population, which requires new knowledge and new combinations of actors within the science and innovation system. As such, the plan envisions the need for a high quality science subsystem, which implies that it is necessary to strengthen the universities. This will require the universities to focus on their strengths, however, as the region is not able to support leading basic research across all areas. It also requires motivated researchers willing “to do things correctly”, a recognition in which the universities underperform at present. Specific targets are developed for, among other things, enhancing the science base and enhancing internationalisation, issues which will run through this chapter.

Box 2.1. The nine targets of the Science Technology and Innovation Plan 2015 (PCTi 2015)

Target 1. Advancing towards a business structure that is oriented towards high-added-value sectors based on science, technology and innovation. This is orientated towards achieving a more innovative productive structure, which develops and offers market products and services with greater added value, which are constantly more competitive on the markets, with a greater number of companies that systematically innovate, both in the industrial sector and in other sectors, including the services sector.

Target 2. Supporting the creation and strengthening of competitive and innovative companies at the head of global markets. This target aims to develop a set of companies and groups that compete in global markets and that lead specific niches and segments, using innovation and technology and developing new productive fabric in sectors based on science and technology.

Target 3. Improving the quality and efficiency of public services through contributions made by science, technology and innovation. This target aims to improve the efficiency and quality of public services based on science, technology and innovation, as well as providing a sophisticated local market for scientific, technological companies and suppliers and for innovation services.

Target 4. Social Innovation as a co-operative strategy in order to face important global challenges. This is aimed at stimulating social innovation to anticipate and respond to the transforming challenges of Basque society and to generate economic, social and environmental opportunities.

Target 5. Science and Technology System that provides value for the productive fabric and is recognised internationally. This seeks to consolidate a second generation Science and Technology System that faces the challenge of increasing its scientific and technological productivity and its contribution to the creation of value as new products, services and companies and of gaining presence and taking the lead on an international scale, accompanying our companies.

Target 6. The Basque Country, an advanced pole of talent. It aims to endow the Basque Country with the best talent to face the challenges of 21st century STI demands by generating, recruiting and retaining researchers, technologists and highly qualified professionals from different origins and with multidisciplinary training in the strategic fields for the Country.

Target 7. The Basque Country, a well-structured territory. It seeks to articulate an attractive territory, endowed with the most advanced infrastructures and services and with an extensive network of inter-connected active agents, aimed at extending the innovation to all Basque SMEs.

Box 2.1. The nine targets of the Science Technology and Innovation Plan 2015 (PCTi 2015) (continued)

Target 8. A country and its citizens devoted to science, technology and innovation. It tries to achieve recognition both inside and outside the country for Basque capacities in science, technology and innovation, which spark citizens' interests in science and technology, an improved understanding of scientific-technological concepts and developments, greater social recognition and more scientific-technological vocations.

Target 9. New funding model. It attempts to configure a new funding model for innovation that gives precedence to the contribution of value, motivates greater participation of private initiative at all levels and incorporates new shared risk instruments that allow the administration to capitalise the investments made.

Source: Basque Government (Gobierno Vasco/Eusko Jaurlaritza) (2011), "Plan de Ciencia, Tecnología e Innovación 2015" (Science, Technology and Innovation Plan 2015), Euskadi+innova, www.euskadinnova.net/es/innovacion-tecnologica/ambitos-actuacion/pcti-2015/163.aspx.

The Department of Education, Universities and Research (DEUI) is the main body responsible for universities and provides most of the funding for the University of the Basque Country (*Universidad del País Vasco/Euskal Herriko Unibertsitatea*, UPV/EHU), the only public university in the Basque Country, as well as a small amount of funding for the two private universities, Mondragon University (*Mondragon Unibertsitatea*) and the University of Deusto (*Universidad Deusto/Deustuko Unibertsitatea de*). The DEUI shares some of the regulatory responsibilities for universities with the national government, which generally concerns itself with basic regulations concerning teaching and governance, while the Basque Government is responsible for the development of the system within its territory. To this end, the Basque Government has a University Plan 2011-2014, which establishes objectives for enhancing the quality and international visibility of research in the universities, enhancing knowledge transfer to regional business and society, and attracting and retaining the staff needed to make this work.

In addition to the University Plan, there is a separate Basque Vocational Training Plan 2011-2014 which covers the activities of the VET sector.

The DIICT has a much larger budget for research support than the DEUI, but it is mainly focused on technology centres and direct support for innovation in firms. A small part of its funding goes to grants for collaboration between universities and industry, but DIICT does not generally see universities as a major component of the innovation strategy.

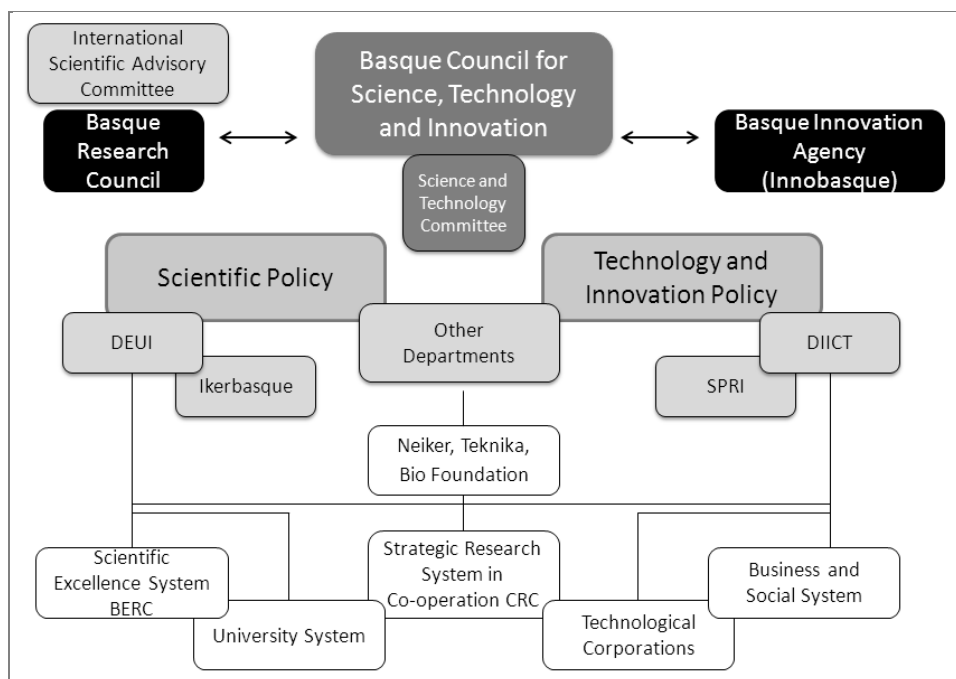
At the same time the focus of the Basque technology centres has shifted towards knowledge generation (see OECD, 2011). The overall strategy for the department's activities is the Business Competitiveness Plan 2010-2013, which has little to say about universities. DIICT's main development in recent years that is relevant to furthering the engagement of universities in industrial innovation has been the creation of the Co-operative Research Centres (CICs), which include universities as part of their consortia and are targeting strategic fields for the Basque Country's regional development and emerging technologies (see Box 2.2).

Box 2.2. The Co-operative Research Centres (*Centros de Investigación Cooperativa, CIC*)

The Co-operative Research Centres (*Centros de Investigación Cooperativa, CIC*) were established with the mission of developing research (basic and applied) in selective regional priority sectors or technologies. The CICs are designed to create an effective framework for collaboration that strengthens interdisciplinary basic and applied world-class research in order to facilitate technology transfer and promote the competitiveness Basque industry in strategic areas.

CICs are organised as associations of different research groups or as virtual networks. The CICs respond to an overall strategy to facilitate rapid generation and transfer of knowledge. This knowledge is geared towards certain fields due to their contribution to the Basque economy sectors (manufacturing) or because of their alignment with strategic diversification policies (e.g. bio or nanosciences). The Basque Country has seven CICs in the following areas: biomaterials, biotechnologies, manufacturing, micro-technologies, nanosciences, tourism, and energy technologies. In 2011, the seven centres had a total of 287 researchers (full-time equivalent) and a combined budget of EUR 38.7 millions, 56% of which is financed by the Basque Department of Industry.

Source: Martínez-Granado, M., G. Patxi and M. Oleaga (2012), "The Basque Country, Spain: Self-Evaluation Report", OECD Reviews of Higher Education in Regional and City Development, www.oecd.org/edu/imhe/regionaldevelopment.

Figure 2.1. Major public components of the Basque innovation system

Source: Gobierno Vasco/Eusko Jaurlaritza (Basque Government) (2011a), “Plan de Ciencia, Tecnología e Innovación 2015” (Science, Technology and Innovation Plan 2015), Euskadi+innova, www.euskadinnova.net/es/innovacion-tecnologica/ambitos-actuacion/pcti-2015/163.aspx.

In addition to DEUI and DIICT, a third department with direct relevance for the universities is the Department of Health and Consumer Affairs (DSC), which funds research on health care issues within the universities.

These regional ministries also support a number of freestanding agencies that play a role in the development of a regional innovation strategy. These include Innobasque, Ikerbasque and SPRI. Innobasque is an agency that brings together public and private representatives to promote innovation, with an emphasis on the promotion of an innovation culture within the region. SPRI is an economic development agency focused on promoting the international competitiveness of the Basque Country, while Ikerbasque is more focused on attracting talent to the region (see Box 2.3).

Box 2.3. Case study of Ikerbasque – Basque Foundation for Science

The Basque Government created Ikerbasque in 2007 to help strengthen the Basque science system by attracting talented researchers and retaining them in the region. Ikerbasque is based loosely on the ICREA agency in Catalonia, which has successfully attracted scientific talent to that region.

Ikerbasque's main activity has been to attract 190 researchers over a five year period to work in research centres in the Basque Country. The agency was also responsible for the implementation of the Basque Excellence Research Centre (BERC) programme, which has created six new centres led by Ikerbasque scientists. All three universities in the region have received researchers through Ikerbasque schemes, as have some of the technological centres and CICs. Of the 99 researchers working permanently in the Basque Country, only 23 have come from other institutions in Spain; the rest have moved from 20 different countries. Of these researchers, 37 have Spanish nationality and half of all researchers are under the age of 40.

In 2012, Ikerbasque has had calls for 20 research professors, 20 research fellows and a programme of visiting professors, jointly funded with the EU Marie Curie programme.

Source: Ikerbasque (2011), *Ikerbasque 5 Years 2007-2011*, Ikerbasque, Bilbao www.ikerbasque.net/images/stories/ikerbasque_2011_annual_report_es.pdf.

The Basque Government budget for R&D has increased markedly between 2005 and 2011, with an overall increase of 107%. Yet within this budget, it is clear that the most significant contribution remains the support provided by DIICT for industry, mainly through the technological centres. While the R&D budget of the DEUI has grown more rapidly than that of the DIICT, having increased by 209%, it remains relatively small. Since 2008, additional resources have been provided through the Innovation Fund to support the BERCS and CICs, but these funds have not gone directly into the universities.

Table 2.1. Main R&D budget lines of the Basque Government 2005-11 (EUR millions)

	2005	2006	2007	2008	2009	2010	2011
R&D Budget Ministry of Education (Scientific Policy Department)	13	20	23	28	37	40	40
R&D Budget Ministry of Industry (Technology Department)	85	91	95	103	113	120	129
R&D Budget Ministry of Agriculture	13	16	18	21	22	22	21
Innovation fund	-	-	-	40	40	40	40
Total R&D Budget	111	126	136	192	213	221	229

Source: Martínez-Granado, M., G. Patxi and M. Oleaga (2012), “The Basque Country, Spain: Self-Evaluation Report”, OECD Reviews of Higher Education in Regional and City Development, www.oecd.org/edu/imhe/regionaldevelopment, based on the Basque Government data.

Overall, the share of R&D in the region undertaken within the university sector is lower than the Spanish and EU average, which indicates the stronger position of industry and the technology centres within the region.

Effects of national policies

National research policies seem to have limited impact in the Basque Country. There are specific funding programmes that the universities can draw upon, but these seem to be less important than regional funds. National government research activity has a limited presence in the Basque Country, apart from the presence of two CSIC (*Consejo Superior de Investigaciones Científicas*) centres that do not seem to have strong links with the local region.

At the national level, the main policy framework for research is the National Science and Technology Strategy (*Estrategia Nacional de Ciencia y Tecnología*, ENCYT), a strategy document drawn up with the participation of the main Spanish science and technology system players. The current version sets the general policy objectives governing both nationwide and regional science and technology policies for the period 2007-2015. The initiative for this strategy arose as a result of the experience of several previous National Plans and the results of the INGENIO 2010 initiative launched in 2005 to boost Spanish competitiveness.

The basic principles governing this Strategy are:

- To place RDI at the service of the general public, social wellbeing and sustainable development, fully integrating women into the workplace and guaranteeing equal opportunities;

- To make RDI a factor in the improvement of corporate competitiveness; and
- To acknowledge and promote R&D as an essential element for the generation of new knowledge.

In 2011, a new Science, Technology and Innovation Law was approved by the Spanish parliament, which established a general framework for promoting and co-ordinating scientific and technical research in order to contribute to sustainable economic development and social welfare by generating and disseminating knowledge and innovation. The Autonomous Communities and universities had an input into the design of the law, as well as other social groups. The new law tried to modernise the public RDI system through the development of an attractive professional career path for researchers and a focus on a knowledge-based society. It specifically sought to promote collaboration and the mobility of researchers between public and private institutions, for example, by guaranteeing the university position of a professor who seeks voluntary leave to create a spin-off company based on their research. Nevertheless, more needs to be done in this area to achieve the same level of flexibility and mobility that is seen in other OECD countries, and this is an area where regional governments are dependent on national policy changes. A nation-wide State Innovation Strategy (E21) was also developed in 2011 as a framework for government action in order to contribute to changing the production model in Spain by promoting and creating a better use of scientific knowledge and technological development.

A national University Strategy 2015 (EU2015) was approved in 2009. EU2015 aims to ensure that universities will be more efficient and internationally-oriented, better prepared academically to face the future, more focused on inter-university collaboration and on forming strategic clusters with other institutions and agents, enjoy greater social recognition and prestige, and receive more adequate funding.

The Spanish government is now working on a new National Scientific Research, Development and Technological Innovation Plan (*Plan Nacional de Investigación Científica, Desarrollo e Innovación Tecnológica*), or National RDI Plan (*Plan Nacional de I+D+i*). This Plan is the programming tool of the Spanish Science, Technology and Enterprise system for accomplishing Spain's medium-term technological research, development and innovation policy objectives and priorities, as defined in the Science, Technology and Innovation Law and in the ENCYT. The Plan is structured in annual Work Programmes. Once approved, it functions as a tool for programming short-term science and technology policies, for co-ordinating the actions of the General State Administration and, lastly, as a platform for presenting and visualising the integrated activities of the General State

Administration and the Autonomous Community Administrations for Science, Technology and Innovation.

As a result of the current financial crisis, there has been a considerable reduction in the Spanish RDI budget, with new budget cuts that threaten the development of research activity and knowledge transfer. Since 2009, the cumulative reduction amounts to more than one-third of the 2009 budget. The situation in the Basque Country, however, appears more positive due to the greater emphasis on the regional government budget and its relative resilience.

EU engagement

In addition to national sources of funding for research and innovation, the region is making increasing use of EU sources from the Framework Programme for research projects and mobility. Increased internationalisation is an important element in both the regional strategy and within the universities, but it remains an area where further development is possible.

The Basque Country is the third most successful region in Spain in terms of the level of participation in the Framework Programme. Basque participation has grown steadily over successive Framework Programmes from 101 participants in FP3 to 632 in FP6. For FP6, the Basque Country accounted for 12% of all participation from Spain, third only to Madrid and Catalonia. Almost half of this activity in FP6 was undertaken by the technology centres in the form of Tecnalia and IK4, a proportion that has been decreasing, even if the number of participating technology centres continues to rise. Universities have remained a small share in total participating projects, reaching 12% for FP6.

Table 2.2. Basque participation in the European Framework Programmes FP1 to FP6

	FP1	FP2	FP3	FP4	FP5	FP6
Number of Basque participating projects	15	68	101	360	578	632
Number of university participating projects	0	0	0	7	21	76
% university	0	0	0	1.9	4	12

Source: Innobasque (2011), R&D&i: Basque Participation in European R&D&i Activity: 2011 Strategic Book, Innobasque, Zamudio, www.innobasque.com/home.aspx?tabid=741&idElementoBiblioteca=192.

Overall participation remains high in FP7 and although the university share remains modest, it is growing. Although the programme is still underway, the region is reported to have already secured a total of 606 projects worth EUR 190.74 million for 2007-10, with a further 55 research projects from other EU programmes worth EUR 8.06 million.

On a comparative basis, an EU-wide study at an earlier point identified the Basque Country as having 510 participating projects worth EUR 144.64 million, ranking 25th out of 268 EU27 regions. Within Spain, the Basque Country still ranks third with an increased share (13.3%) of the total. The universities account for 91 of the participating projects recorded so far (out of 661), with the majorities of these involving UPV/EHU. The University of Mondragon has six projects and Deusto has four projects. The greatest area of participation by number of projects (27 projects and EUR 5.6 million) is the PEOPLE Programme with the Marie Curie Actions mobility scheme, while the greatest amount of funding comes from the European Research Council programme with just four large projects at EUR 6.2 million. Other important programmes include ICTs (18 projects), and nanoscience, materials and new technologies (12 projects), with the rest of the themes having much lower levels of engagement. Despite this growing involvement, UPV/EHU is not among the top ten Spanish universities participating in FP7. The region's excellent performance is mainly due to the technology centres. This is unusual, as universities account for a third of all participation in FP7 and make up the largest group in most regions.

Innovation system performance

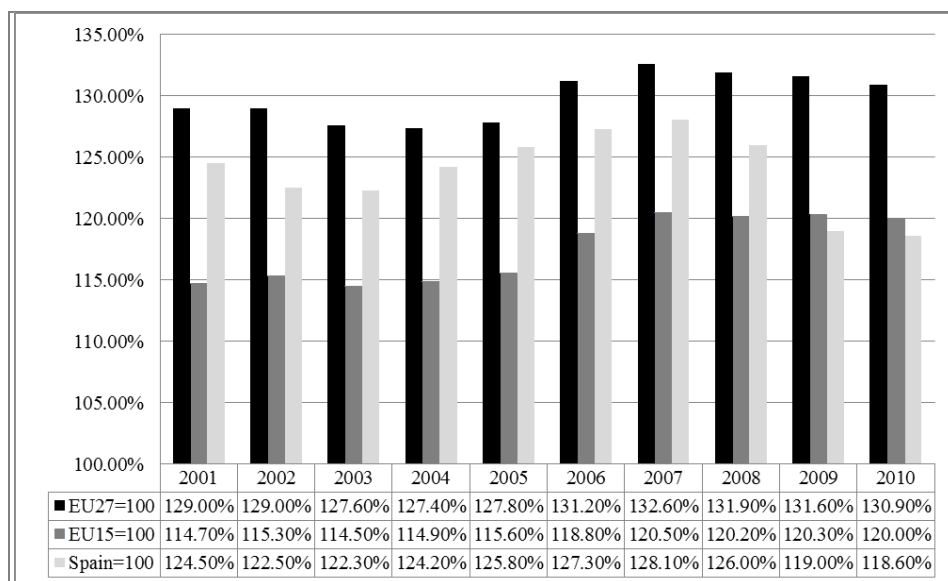
Since 1996, the Basque economy has diverged from the rest of Spain, with its GDP reaching almost EUR 64.5 billion in 2010, or 6.1% of the Spanish GDP. This is despite similar annual growth rates between the Basque Country and Spain (with an average yearly growth of 5.4% in the Basque Country and of 5.6% in Spain since 1996). The average rate of change of the population, however, has been quite different (with an average yearly growth rate of 0.4% in the Basque Country and 1.3% in Spain in the last ten years). In 2001, the GDP per capita was 23% higher in the Basque Country than in Spain; this figure had grown to 36% in 2010. The increasing gap is likely due to the economic crisis, as the Basque Country has been more resilient than the rest of Spain. With respect to the EU27, the GDP per capita of the Basque Country has been, on average, 30% above the EU27 average during the last ten years (from 2001 to 2010). The economic crisis has slightly reduced this gap, although the Basque GDP per capita remains 33% higher than in the EU27 average in 2010, down from a maximum of 38% in 2008. The Basque GDP per capita decreased by 3.5% in 2009 and grew only 2.1% in 2010, well below the growth rates of the pre-crisis years (on average 6.5%).

Table 2.3. Evolution of the Basque GDP per capita compared to EU and Spain, 2001-10

Year	EU 27 average=100		Spain=100
	Basque Country	Spain	Basque Country
2001	120%	98%	123%
2002	124%	101%	123%
2003	125%	101%	123%
2004	126%	101%	125%
2005	129%	102%	127%
2006	134%	105%	129%
2007	137%	105%	130%
2008	138%	103%	133%
2009	135%	103%	134%
2010	133%	101%	136%

Source: Martínez-Granado, M., G. Patxi and M. Oleaga (2012), “The Basque Country, Spain: Self-Evaluation Report”, OECD Reviews of Higher Education in Regional and City Development, www.oecd.org/edu/imhe/regionaldevelopment, based on EUSTAT, INE and EUROSTAT data.

The productivity of the Basque Country (GDP over total employment) has been well above the average productivity for Spain or Europe. Compared to the EU27, the productivity per worker is on average 30% higher in the Basque Country, 23.8% higher with respect to Spain and 17.5% higher with respect to the EU15. The gap has been stable with respect to Europe but has decreased compared to Spain since the crisis. Part of the high productivity level is due to specialisation in higher-productivity sectors: the value added of the production in high tech and medium-high tech firms in the Basque Country accounts for 12.3% of the value added in these sectors for the whole Spanish economy. However, the Basque Country’s sector-specific productivity by industrial branch is actually lower relative to EU15 (OECD, 2011).

Figure 2.2. Productivity gap of the Basque Country with respect to Europe and Spain

Source: Martínez-Granado, M., G. Patxi and M. Oleaga (2012), “The Basque Country, Spain: Self-Evaluation Report”, OECD Reviews of Higher Education in Regional and City Development, www.oecd.org/edu/imhe/regionaldevelopment, based on EUSTAT, INE and EUROSTAT data.

The Basque Country has a relative specialisation in manufacturing with a very large share of total GVA of 22.7% in 2010, ten percentage points above the relative importance of the sector in Spain and more than seven percentage points above its relative importance in the EU27. Participation of this sector, however, has decreased steadily over the last ten years. As a counterpart, the service sector has increased its relative importance, accounting for 63.4% of the GVA in 2010 (see Table 2.4).

In the manufacturing sector, the Basque Country specialises in the production of basic metals and metal products, as well as machinery and equipment, which represent respectively 32% and 12.6% of the total manufacturing GVA. The Basque GVA in machinery and equipment represents 21% of the total GVA in this subsector in Spain. The relative importance of the food and beverage, textile and chemical products sectors is lower in the Basque Country than in the rest of Spain or in Europe in general. In 2010, the sectors of medium and high technology represented 7.4% of the Basque Country’s total GVA, compared to 3.7% of Spain’s GVA. In the Basque Country, most of this GVA corresponds to the machinery and equipment sector (see Table 2.5).

Table 2.4. Relative weight of economic sectors in total GVA

	2000			2005			2010		
	Basque Country	Spain	EU-27	Basque Country	Spain	EU-27	Basque Country	Spain	EU-27
Agriculture	1.9%	4.4%	2.3%	1.3%	3.2%	1.8%	1.1%	2.7%	1.7%
Energy	3.2%	2.8%	2.8%	4.1%	2.8%	2.9%	3.7%	3.1%	3.2%
Manufacturing	28.4%	18.1%	19.2%	25.5%	15.4%	17.1%	22.7%	12.6%	15.5%
Construction	7.2%	8.3%	6.0%	9.6%	11.5%	6.5%	9.0%	10.1%	6.4%
Services	59.3%	66.4%	69.8%	59.5%	67.1%	71.7%	63.4%	71.7%	73.2%

Source: Martínez-Granado, M., G. Patxi and M. Oleaga (2012), “The Basque Country, Spain: Self-Evaluation Report”, OECD Reviews of Higher Education in Regional and City Development, www.oecd.org/edu/imhe/regionaldevelopment, based on INE and EUROSTAT data.

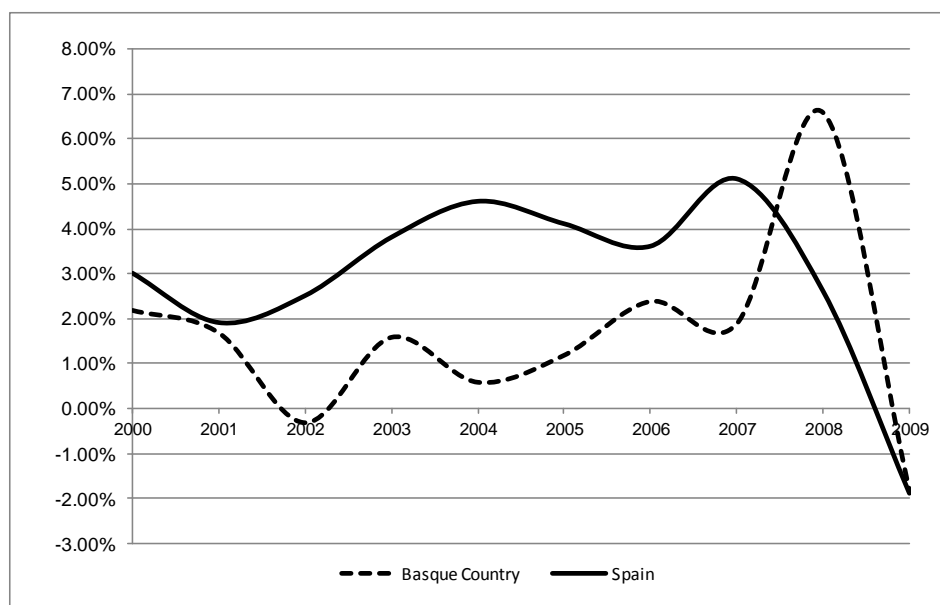
Table 2.5. Distribution of GVA in the manufacturing sector, 2009

	Basque Country	EU27	EU15	Spain
Food products, beverages and tobacco	7.8%	14.3%	14.1%	19.1%
Textiles, wearing apparel, leather and related products	0.9%	4.3%	4.2%	4.4%
Wood, paper, printing and reproduction	6.9%	7.4%	7.3%	7.9%
Coke and refined petroleum products	1.7%	1.1%	1.0%	1.0%
Chemicals and chemical products	3.5%	11.2%	11.6%	10.3%
Rubber and plastic products and other non-metallic mineral products	11.4%	9.3%	9.1%	11.8%
Basic metals and fabricated metal products, except machinery and equipment	32.0%	13.8%	13.9%	15.2%
Computer, electronic and optical products	2.3%	4.4%	4.4%	2.0%
Electrical equipment	5.1%	5.3%	5.3%	3.7%
Machinery and equipment n.e.c.	12.6%	10.7%	11.0%	6.0%
Motor vehicles, trailers, semi-trailers and of other transport equipment	10.3%	9.2%	8.9%	9.5%
Furniture; jewellery, musical instruments, toys; repair and installation of machinery and equipment	5.5%	9.1%	9.2%	9.1%

Source: Martínez-Granado, M., G. Patxi and M. Oleaga (2012), “The Basque Country, Spain: Self-Evaluation Report”, OECD Reviews of Higher Education in Regional and City Development, www.oecd.org/edu/imhe/regionaldevelopment, based on EUSTAT and EUROSTAT data.

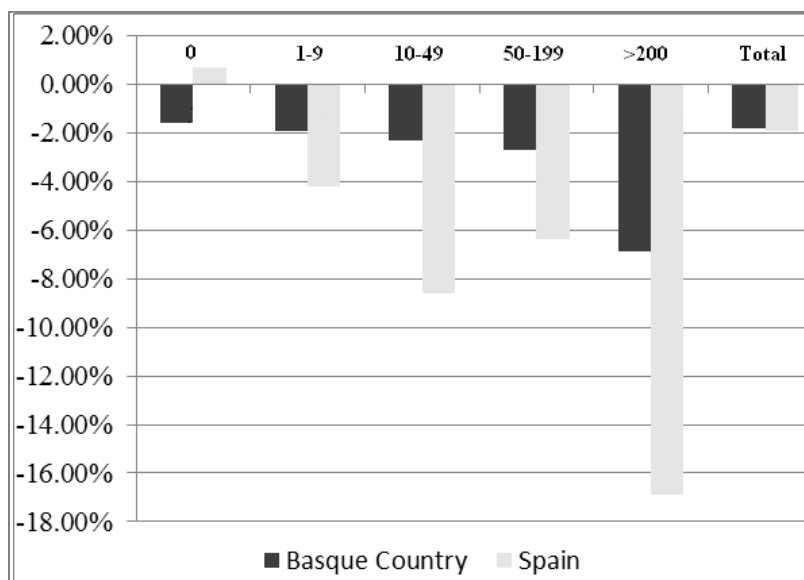
Industry in the Basque Country is characterised by a high percentage of SMEs; of the 171 345 firms registered in 2010, 93.3% were micro firms (less than 10 employees), 5.6% were small (between 10 and 49 employees), 1% medium (between 50 and 249 employees) and 0.2% large (more than 249 employees). These figures were quite similar to those of the EU27 or Spain, where 99.8% and 99.9% of the firms were SMEs. In terms of employment, SMEs in the Basque Country employ 72.5% of the total work force, a figure similar to that of Spain but higher than the overall European level of around 67%. The size structure of Basque firms has remained stable during the last decade in spite of steady growth over the past ten years. The effect of the economic crisis is visible for 2009 (the most recent available data): a total of 3 151 firms disappeared in the Basque Country, of which 91.4% were micro firms. This evolution contrasts with the rest of Spain, where the effects of the crisis appeared earlier and closure has been concentrated in firms with more than ten employees.

Figure 2.3. Net growth in the number of firms in the Basque Country and Spain, 2000-09



Source: Martínez-Granado, M., G. Patxi and M. Oleaga (2012), “The Basque Country, Spain: Self-Evaluation Report”, OECD Reviews of Higher Education in Regional and City Development, www.oecd.org/edu/imhe/regionaldevelopment, based on INE data.

Figure 2.4. Net growth in the number of firms in the Basque Country and Spain, by size, 2009



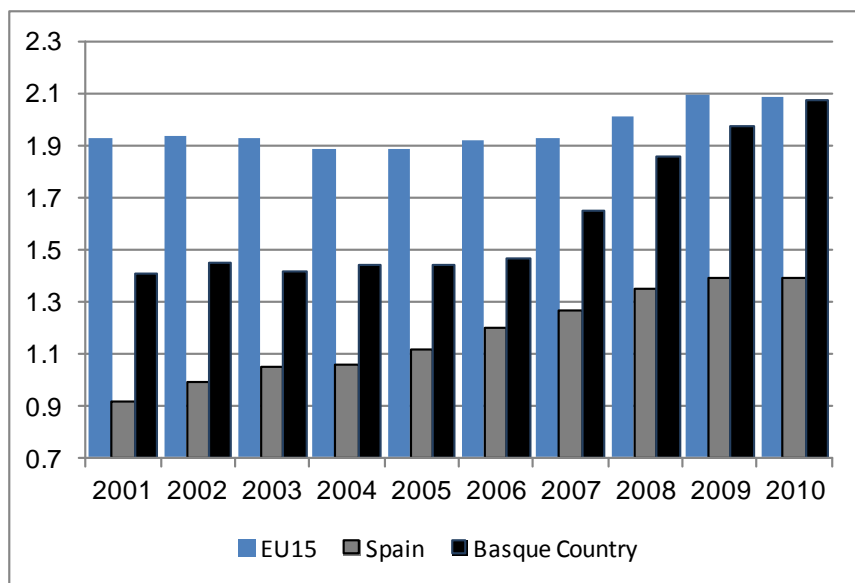
Source: Martínez-Granado, M., G. Patxi and M. Oleaga (2012), “The Basque Country, Spain: Self-Evaluation Report”, OECD Reviews of Higher Education in Regional and City Development, www.oecd.org/edu/imhe/regionaldevelopment, based on INE data.

A particular characteristic of the business structure in the Basque Country is the important presence of co-operatives. The largest in the Basque Country is Mondragon Corporation Co-operative (MCC), the seventh largest business group in Spain. MCC is constituted by 281 firms and co-operatives; it employs 83 569 workers (8.9% of all workers in the Basque Country in 2011) in the areas of industrial production, finance, distribution, R&D and education. The MCC total revenue for 2011 reached EUR 14.8 billion. The MCC plays an important role in the Basque innovation system; 14 technological centres and R&D units are part of the Corporation, as well as Mondragon University, which employed 1 885 researchers in 2011. In 2011, 9.1% of the value added that MCC generates in the industrial area was devoted to R&D investments.

Basque Country exports have been growing strongly since the 1980s, with the exception of 2009, when they decreased more than 26% with respect to the previous year. During the last ten years, on average, metal products, machinery and equipment, and transport equipment accounted for 71% of the total export flow.

In the past decades, the Basque Country has made a strong effort in R&D. In 2001, expenditure on intramural (internal) R&D was 1.41% of GDP, well below European levels (1.87% for the EU27 and 1.93% for the EU15), although above the Spanish level (0.92%). Ten years later, in 2010, the Basque GERD had increased to 2.08%, similar to the EU15 average (2.09%) and well above the Spanish figure (1.39%). Basque R&D intramural expenditure is around 9% of total R&D expenditure in Spain.

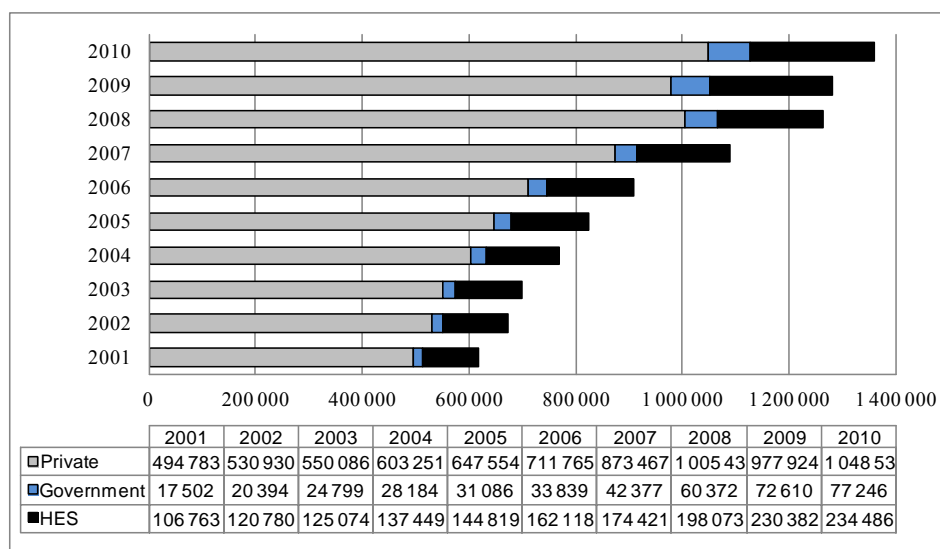
Figure 2.5. Intramural R&D expenditures over GDP (GERD)



Note: Intramural R&D expenditures include all expenditures for R&D performed within a statistical unit or sector of the economy during a specific period, whatever the source of funds.

Source: The Basque Country's Regional Steering Committee (2012), Self-Evaluation Report, The Basque Government, Bilbao, www.oecd.org/edu/imhe/highereducationinregionalandcitydevelopment.htm, based on EUSTAT and EUROSTAT data.

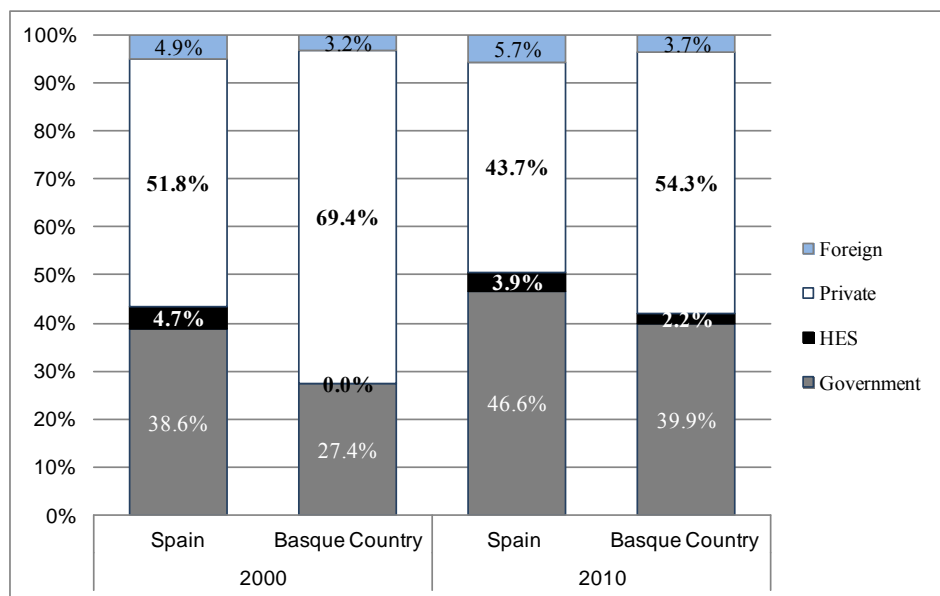
Most of the R&D expenditure in the Basque Country is conducted in the private sector; in 2010, 77.1% of the total R&D expenditure came from the private sector. This percentage is well above that of Europe (62.5% for the EU27 and 63.1% for the EU15) and Spain (51.6%). The contribution of the higher education sector in 2010 was 17.2%, less than its contribution in Europe (around 24%) or in Spain (28.3%). This percentage has remained relatively constant in the last ten years.

Figure 2.6. Intramural R&D expenditure by sector, 2001-2010

Note: in thousand Euros. Intramural R&D expenditures include all expenditures for R&D performed within a statistical unit or sector of the economy during a specific period, whatever the source of funds.

Source: Martínez-Granado, M., G. Patxi and M. Oleaga (2012), “The Basque Country, Spain: Self-Evaluation Report”, OECD Reviews of Higher Education in Regional and City Development, www.oecd.org/edu/imhe/regionaldevelopment, based on EUROSTAT data.

While the funding sources for R&D in the Basque Country are mainly private, the Basque firms benefit from strong public support for the R&D expenditures, and also the public contribution has increased in more than ten percentage points between 2000 and 2010. In 2010, 54.3% of the funds for R&D in the Basque Country came from the private sector, while 39.9% came from the government. Nationally, the two financing sources are more even, with the government financing 46.6% of all expenditures and the private sector 43.7%. The Basque firms benefit from higher levels of public support for their R&D expenditures relative to other regions and countries¹ (25% of business expenditure on R&D, total of 0.47% for R&D support) (OECD, 2011).

Figure 2.7. of funding for intramural R&D expenditures, 2000 and 2010

Source: Martínez-Granado, M., G. Patxi and M. Oleaga (2012), “The Basque Country, Spain: Self-Evaluation Report”, OECD Reviews of Higher Education in Regional and City Development, www.oecd.org/edu/imhe/regionaldevelopment, based on INE and EUSTAT data.

Universities’ research activities

There is an opinion in the Basque Country that research in the universities is both underfunded and insufficiently targeted to the needs of industry and society. These two arguments need to be examined separately, as well as together, beginning with funding for research.

The Basque government seems to have limited capacity to address the level and quality of research in the universities, especially at the two private universities. In the case of UPV/EHU, while the DEUI provides the majority of the university’s budget (around 70%), 85% is provided on a historical basis without any measure of performance on the assumption that this money funds teaching activities. The remainder of the public contribution supports new infrastructure and a programme contract, which is negotiated between the DEUI and the university. (The programme contract is a multi-annual programme negotiated between the Basque government and individual universities in which additional funds are made available against a set of specified activities and performance indicator, covering teaching, research and engagement). Thus some element of the programme contract is

used to support research initiatives and knowledge exchange against agreed objectives and targets. Additional funding is available in the form of competitive research grants and contracts from the regional government, national government, EU and industry.

The block grant for the university is a particularly inflexible mechanism, with little sense of how it supports research. In other countries the block grant encompasses considerable support for research. In the UK, for example, the block grant includes an element determined by research performance, which may make up 10-15% of total university income for a research intensive university. This funding is an important contribution that underpins the research infrastructure and activity of a university, and can be made accountable through some form of research assessment or use of metrics. With just one public university, the Basque Country is not able to apply competitive processes, such as a UK-style research assessment exercise, but it seems reasonable that some portion of the core funding is assigned to support research, and that some form of performance management system is introduced to ensure that the university achieves international standards of output for that investment. This also has implications for the management of academic staff, which will be discussed later.

The Basque Government uses additional funding to encourage greater research activity. The programme contracts, which cover all three universities, provide additional funds for new activities that meet with the needs of the region. Around half of the funds associated with the programme contracts are related to research.

The programme contracts support some additional funds for research infrastructure such as libraries, as well as developmental activities such as PhD training and research grants allocated within the universities. There seems to be little direct regional orientation in the projects funded by these grants, and the aims and targets are expressed primarily in terms of research growth, such as numbers of publication, citations and PhDs awarded.

Additional funding is provided by DEUI on a competitive basis, which is also open to all three universities and includes a wide range of programmes to support PhD projects, post doc research projects, industry collaboration, support for equipment, and support for the development of research centres and groups. Other government departments, such as the DIICT and the Health Department, also provide limited schemes for university research according to their departmental interests.

Considerable effort is placed on the development of new research groups and centres, while there are already a large number of centres being supported. The DEUI provides EUR 8 million in funding each year to

250 separate research groups. One of the performance targets of the programme contracts is to increase the number of research groups at both the higher and lower levels of excellence. It is not clear, however, that additional research groups would be a better outcome than strengthening existing groups or ensuring that existing groups were better targeted on regional needs.

Table 2.6. R&D Earnings for the three Basque universities, 2006-10

		2006	2007	2008	2009	2010
UPV/EHU	R&D earnings (EUR millions)	48.8	81.0	54.8	54.2	72.9
	% from private sources	27.1	15.9	21.9	21.0	17.2
	As % of total budget	12.0	18.3	10.0	9.6	12.0
DU	R&D earnings (EUR millions)	5.5	5.1	7.2	6.2	4.1
	% from private sources	28.0	15.0	20.0	18.0	25.0
	As % of total budget	9.1	8.3	11.2	10.5	6.0
MU	R&D earnings (EUR millions)	4.3	4.9	6.0	7.4	8.5
	% from private sources	77.8	80.3	84.4	79.8	82.7
	As % of total budget	n.a.	15.2	n.a.	n.a.	n.a.

Source: Martínez-Granado, M., G. Patxi and M. Oleaga (2012), “The Basque Country, Spain: Self-Evaluation Report”, OECD Reviews of Higher Education in Regional and City Development, www.oecd.org/edu/imhe/regionaldevelopment, based on data from the Basque universities.

What is notable, however, is that in the Basque Country additional funds are used to support new activities, but there is little attempt to examine how better use might be made of the core grant that supports the bulk of salaries within the university in order to achieve a better performance.

Box 2.4. Case study of the Deusto Advanced Research Centre (DARC)

The University of Deusto created the Deusto Advanced Research Centre (DARC) as part of its 2011-2014 Strategic Plan to foster research. Through DARC, a programme was established to attract talent, boost research in strategic areas, and achieve qualitative improvements in the impact and engagement of its research teams at an international level. A total of 25 international researchers joined through this programme in 2011. This initiative will be continued in the coming years to attract new researchers. An International Projects Office has been created to encourage the research teams' participation in the Framework Programme and offer technical backing for drawing up project proposals and setting up consortia and networks. A programme for strategic alliances has also been implemented with key Basque science and technology organisations, such as Tecnalia and BCAM, as well as the development of previous agreements with American universities within the framework of the Aristos Campus Mundus Consortium. Finally, Deusto International Research School was created to boost the training of new researchers and set up an international grants programme for a hundred new researchers signing on PhD programmes at the University of Deusto. A mobility, exchange and competence development programme has also been recently established.

Source: Martínez-Granado, M., G. Patxi and M. Oleaga (2012), "The Basque Country, Spain: Self-Evaluation Report", OECD Reviews of Higher Education in Regional and City Development, www.oecd.org/edu/imhe/regionaldevelopment.

An example of where the Basque Government has established new centres for basic, non-targeted research is the Basque Excellence Research Centres or BERCs. These centres, described in detail in Box 2.5, are located outside of university governance structures, although they bring together high-profile researchers, often recruited from overseas, with a group of post-docs. These centres are affiliated with the University of the Basque Country, but are not formally part of the university. Their long-term focus is on addressing major scientific challenges and potential opportunities, as well as meeting the long-term needs of the region.

Box 2.5. Basque Excellence Research Centres (BERCs)

The Basque Government, through the DEUI, has established six research centres in cutting-edge areas of science.

The centres were initially established around a cutting-edge researcher recruited by Ikerbasque to work in a broad area identified by the Basque Government. These research leaders identified specific research themes and prepared business plans for the centres. The six centre themes are: climate change; applied mathematics; cognition, brain and language; physics; biophysics; and materials. BERCs are expected to undertake excellent research, but also make a contribution to society.

As an example, the Centre on Cognition, Brain and Language began its operations in San Sebastian in 2009. The Department of Education, Universities and Research of the Basque Government promoted its creation, along with Ikerbasque, Innobasque, UPV/EHU and the Diputación Foral de Gipuzkoa as partners.

The Basque Centre on Cognition, Brain and Language is a world-class, interdisciplinary research centre for the study of cognition, the brain and language. The specific aim of its research activity is to unravel the neurocognitive mechanisms involved in the acquisition, comprehension and production of language, with special emphasis on bilingualism and multilingualism.

Its research is focused on:

- Language acquisition, representation and processing
- Computer modelling of language processing
- Language disorders, learning disorders, and neurodegeneration of language processing
- Sociolinguistics, cultural norms, context of language use, social variables
- Formal studies of the Basque language (Euskera)
- Advanced methods for cognitive neuroscience

Currently the centre employs more than 60 people including researchers, technical support and administrative staff. It is funded partially through the Basque Government BERC programme and partially through competitive regional, national and international projects. Its director, Manuel Carreiras, was awarded an ERC Advance Grant in 2011 (EUR 2.5 million for 5 years) to study changes in the brain when learning to read a first and a second language (see Table 2.7 for detailed structure and outputs).

Source: Martínez-Granado, M., G. Patxi and M. Oleaga (2012), “The Basque Country, Spain: Self-Evaluation Report”, OECD Reviews of Higher Education in Regional and City Development, www.oecd.org/edu/imhe/regionaldevelopment.

Table 2.7. Basque Excellence Centres for Research (BERCs)

Name		BCAM	BC3	BCBL	DIPC	UB Biophysics	MPC
Year created		2008	2008	2008	2008 (2000*)	2008 (2000*)	2008 (2000*)
Field		Applied Mathematics	Climate Change Economics	Neurolinguistics	Basic and Applied Physics	Biophysics	Materials
Staff	Full time equivalent researchers	46	16	56	31	46	32
	Other personal	6	7	19	10	54	7
	Annual Budget EUR (2011)	8 514 957**	1 948 446	4 200 442	4 218 393	1 187 162	2 370 458
Sources of funding (%)	Basque Ministry of Education	22.00	76.73	60.64	29.78	91.90	26.81
	Basque Ministry of Industry	--	1.23	--	19.75	--	22.48
	Other Public Basque	0.95	--	--	11.76	--	--
	Central Administration	72.35	2.29	25.31	16.95	3.66	27.6
	Europe	3.88	9.78	6.89	--		20.18
	Private	0.82	8.33	7.15	21.76	4.43	2.90
Outputs	Publications	46	47	42	229	41	198
	Conferences	7	32	6	8	22	6
	Thesis	1	9	--	6	4	7
	Patents	2	--	--	1	--	--

* The Centre was created in 2000 and accredited as BEREC in 2008.

** Includes a large subsidy from the Central Administration for a new building; the forecast for 2012 is EUR 2 492 677.

Source: Martínez-Granado, M., G. Patxi and M. Oleaga (2012), “The Basque Country, Spain: Self-Evaluation Report”, OECD Reviews of Higher Education in Regional and City Development, www.oecd.org/edu/imhe/regionaldevelopment, based on the data from the Basque Ministry of Education, Universities, and Research.

Rankings

Only the UPV/EHU appears in global university rankings, as it dominates the scientific outputs from the region with over 90% of ISI classified publications. In 2012 UPV/EHU appeared in the Shanghai Jiao

Tong ranking for the first time in the 301-400 category of universities, placing it in the top seven Spanish universities in the Shanghai ranking. The university does not, however, appear in other world rankings such as the Times Higher or QS rankings. This indicates that although the university has a reasonably good level of scientific output to get onto the Shanghai list, it seems to lack the international visibility that is necessary to get onto the Times or QS listings. UPV/EHU produced just over 9 000 publications indexed in ISI between 2002 and 2010, the eighth highest level among Spanish universities, and has a current publication rate of around 1 500 per year. This needs to be considered in the context of the size of the university; with 5 298 academic staff in 2010/11, the rate of publication should be higher.

While global university rankings each have their own limitations and flaws, and a university's role in its region is about more than rankings, what should the region expect of UPV/EHU? There is a clear objective in the PCTi 2015 to enhance the international profile of the university, which implies a greater emphasis on increasing the volume and quality of publications, as well as other aspects of international reputation. This does not seem to have been a priority for the university in the past.

Issues of university culture and performance management

The management and assessment of research performance is a key issue for the Basque Country in ensuring the best use of its investment in research. Each of the universities has a different culture and ways of encouraging research performance. UPV/EHU has a traditional public university management structure, with staff appointed on civil service contracts that largely require them to be teachers. Staff members may decide not to engage in research and there is little sanction against those who do not, although promotion and additional payments may depend on research performance and publication. A complex set of metrics is used to decide on additional payments based on points earned for a variety of activities covering teaching, research and managerial responsibilities over a period of several years. While there is no requirement to apply for additional payments, the points system does not seem unduly burdensome and the research element covers a wide range of activities including publications and research income generation. The weakness of the system seems to be that there is little subjective assessment of quality, or indeed sanction for staff not participating, and there must be a tendency towards collecting points rather than focusing on excellent research and impact.

The University of Deusto also has an incentive system based on individualised plans negotiated between staff and deans. If agreed targets are achieved then additional payments are made. This may permit greater

flexibility and sensitivity, although it is recognised that Deusto's research is more focused on meeting local needs than achieving high status publications. The University of Mondragon operates somewhat differently, as it is a co-operative system, but workloads are agreed upon between staff and managers, including performance targets. Social pressure among fellow members of the co-operative is an important mechanism for ensuring performance in addition annual appraisal and financial rewards.

Overall, the region, and particularly UPV/EHU, the only public university in the Basque Country, needs to decide if it is serious about strengthening its research performance, as at present it is moderately successful in Spanish terms, but lagging behind leading universities internationally. A key element in ensuring improved performance is to better manage the resources that are currently available, as additional marginal resources will not change the underlying culture. Leading research universities globally are seeking to better manage their resources to ensure critical mass, focus and effective communication of their research. The University of the Basque Country seems to have problems rationalising its departments, with duplicate departments often each operating across all three campuses, many staff members without recent publications, and limited information on research outputs on its website. The general impression is that the university has become difficult to manage effectively.

Interfaces for knowledge exchange

The universities in the Basque Country have developed a number of different kinds of interfaces for engaging in knowledge exchange, some generic, while others are focused on particular kinds of partners. A number of the interfaces have been established relatively recently and therefore have no track record of performance that can be assessed.

All three universities are active in establishing projects in collaboration with firms. During the last five years, more than 6 400 collaborative projects have been implemented. All universities are involved, but the largest number of contracts has been led by UPV/EHU. Despite its much smaller size, however, Mondragon University has been able to develop a large number of collaborative research programmes with companies.

Box 2.6. Offices for the Transfer of Research Results (OTRI)

The OTRI network is a longstanding policy in Spain to support knowledge transfer, mainly focused on the management of contracts and patents, and relationships between the university and industry. Each of the Basque universities have an OTRI office to support their industry linkages. OTRIs also support the creation of spin-off companies based on research results through offering space for new firms to develop, economic resources, expert consultancy, support for company start-up and training of entrepreneurs. The promotion of entrepreneurial activity is supported by workshops, conferences, seminars and competitions.

Source: Martínez-Granado, M., G. Patxi and M. Oleaga (2012), “The Basque Country, Spain: Self-Evaluation Report”, OECD Reviews of Higher Education in Regional and City Development, www.oecd.org/edu/imhe/regionaldevelopment.

Table 2.8. Collaborative projects between the Basque universities and firms, 2006/07

		2006	2007	2008	2009	2010
UPV/EHU	Number	942	1 030	1 049	1 037	1 083
	% with SMEs	n.a.	n.a.	n.a.	n.a.	n.a.
	EUR (millions)	13.24	12.88	11.98	11.38	12.56
DU	Number	56	29	50	50	44
	% with SMEs	n.a.	n.a.	n.a.	n.a.	n.a.
	EUR (millions)	1.53	0.75	1.44	1.09	1.03
MU	Number	189	195	220	231	278
	% with SMEs	38%	36%	35%	37%	35%
	EUR (millions)	3.35	3.91	5.09	5.94	7.01

Source: Martínez-Granado, M., G. Patxi and M. Oleaga (2012), “The Basque Country, Spain: Self-Evaluation Report”, OECD Reviews of Higher Education in Regional and City Development, www.oecd.org/edu/imhe/regionaldevelopment.

Through the OTRI, UPV/EHU has applied for 218 patents between 2006 and 2010, with the numbers rising over time. It is not clear how many of these patents have been commercialised, whether locally or elsewhere. With a reported income of EUR 82 910 over a three year period from patent licenses, it seems unlikely they are covering their full costs (patent fees plus salaries of commercialisation staff), but this is not an unusual situation for universities and Nelson reports that most US universities lose money on patent activity (Nelson, 2001). Spin-off activity seems more promising, with

60 firms established between 2006 and 2010, split across all three universities. Although these firms remain small, spin offs can create significant numbers of local jobs in some cases. The experiences in Spain may not yet be as significant as in other countries; a survey of Spanish spin offs found the largest firm in the sample group employed only 78 people, but in the UK there are now many examples of spin offs employing several hundred staff members. As with all new firms, however, many fail to grow beyond the first two or three employees (Vendrell-Herrero and Ortín-Ángel, 2007).

The limitations of the OTRI model, focused on university intellectual property, licences and spin offs, seem to have prompted the universities to develop a range of other mechanisms for commercialisation and economic development, including wider entrepreneurship programmes (described later). One of the oldest is the Euskoiker Foundation, established by UPV/EHU with the three provincial governments and three regional chambers of commerce of the Basque Country. Euskoiker helps to bring together companies and academic staff in small research projects, to develop proposals and to provide administrative support for the projects. Through this mechanism, academic staff can generate additional funds to support their research or supplement their salaries. Professors are potentially able to supplement their salaries by up to EUR 127 127 in a year, although this must come from several separate projects as each project is limited to a EUR 15 713 payment. This is a generous arrangement compared to many other countries where academic staff is expected to generate income from industry to support their own salaries and research costs.

Box 2.7. The University-Industry Classrooms

The University-Industry Classrooms are company-laboratories within the university, created and funded by companies to promote innovation. They are an effective tool for collaboration between UPV/EHU and businesses, through research, technological development and innovation, training for students and training or retraining of company personnel. At the moment there are six of these classrooms:

- **Iberdrola classroom** located in the School of Engineering.
- **Robotiker classroom** in the School of Engineering of Bilbao, which seeks to promote the training of students in the fields of mechanics and telecommunications.
- **Aeronautics classroom**, which aims to carry out research and technological development in the fields of aircraft design. It arises from the agreement signed between the School of Engineering of Bilbao and the Basque association of aerospace companies Hegan.
- **Ormazabal classroom**, the result of the collaboration between the School of Engineering of Bilbao and Ormazabal Group, whose aim is to train students in the various fields of Engineering and Management.
- **Eco-design research classroom**, born from the collaboration between the public Environmental Management Agency (IHOBÉ), the Industrial Design Centre DZ (now BAI Innovation Agency) and the School of Engineering of Bilbao.
- **Befesa Classroom**, created through an agreement signed by the School of Engineering of Bilbao and the business group Befesa, for research in the areas of chemical engineering, environmental technologies, simulation and control process, mining and metallurgical engineering, and fluid mechanics

Source: Martínez-Granado, M., G. Patxi and M. Oleaga (2012), “The Basque Country, Spain: Self-Evaluation Report”, OECD Reviews of Higher Education in Regional and City Development, www.oecd.org/edu/imhe/regionaldevelopment.

The Basque vocational education sector has close relationships with SMEs and should seek to ensure that their training activities are well connected with support for innovation through their own activities as well as in partnership with the technology centres. In selected areas there may be potential for collaboration between universities and VET institutions in

developing joint programmes for the encouragement of innovation in SMEs. Recently, TKNIKA's innovation centre for VET and lifelong learning in collaboration with the business development agency SPRI (Society for the Competitive Transformation) has launched "learning accounts" (Innova Cheque) for micro and small companies with 3 to 50 employees. This initiative aims to offer low cost quick solutions to concrete problems and to boost competitiveness and good practices in the small and micro firms. Buy paying EUR 500 a small firm will gain access to a specialised service provided by a VET centre (equivalent to up to two working days).

The Basque government could also consider developing knowledge transfer programmes based on people mobility to boost the exchange of knowledge between universities and firms in a co-operative manner. International examples of such programmes include the Knowledge Transfer Partnership scheme in the United Kingdom which has been running very successfully (previously as Teaching Company Schemes) since the 1970s (see Box 2.8).

On a larger scale, the national "Campus of International Excellence" competition resulted in three projects in the region, each led by one of the region's universities, and each to some degree aiming to redefine the relationships between the universities and business or society. UPV/EHU's Euskampus project involves a partnership with the Donostia International Physics Centre and the Tecnalia group of technology centres to develop collaborative research and commercialisation in three specific areas: sustainable ecosystems and environmental technologies, innovative processes and new materials, and healthy ageing and quality of life. The Euskampus seems to be a quality and engagement concept rather than a physical campus, and is meant to represent a change in the culture of the university. It is unclear, however, how it proposes to address the university's major structural problems such as the inflexibility of employment contracts and internal incentives for research and engagement.

Box 2.8. Knowledge Transfer Partnerships in UK

The Knowledge Transfer Partnership programme in the UK began in the 1970s as the Teaching Company Scheme, and was designed specifically to foster close collaborative partnerships between universities and companies with an explicit focus on the transfer of knowledge into company practice rather than supporting research in universities. The main focus is on improving the competitiveness of the industrial partner, through the work of post-graduate “associate” working in the company with supervision from the academic partner. The scheme is partly funded by the companies involved and partly by a public organisation such as the Technology Strategy Board or a Research Council, with more advantageous terms available for small and medium-sized enterprises (SMEs). Typically an SME would pay around GBP 20 000 per year for involvement.

The projects are usually two years in duration and the postgraduate associate is employed to work in the company during this period on a pre-defined project. The associate is paid a salary and in some cases is registered for a higher degree (usually devoting 10% of their working time to professional development), and this way forms the linkage between the company and the supervising academic in a university or research organisation. The academic partner is compensated for some of the time of the supervisor and for university overheads.

The primary outcome of the project is usually the implementation of some form of innovation or technology in the company. An additional benefit is usually the recruitment of the associate; around 75% of associates in projects lasting 1-3 years are offered jobs in the company. The 2008/09 annual report for the scheme reported 977 active projects. Estimated benefits to UK business include over 6 500 staff trained, 1 119 new jobs created and an increase in pre-tax profits of GBP 126 million.

Source: TSB (Technology Strategy Board) (2010), “Knowledge Transfer Networks”, www.innovateuk.org/deliveringinnovation/knowledgetransfernetworks.ashx, accessed 5 April 2010.

Spain has also invested heavily in technology parks and there are a number in the Basque Country, although their connection with universities seems to be poorly developed. Evidence from other countries shows that even when science parks are located adjacent to university campuses and include university participation in their management, the parks may successfully agglomerate high technology firms, but not necessarily link them to the university. The science parks in the Basque Country seem to have no direct governance by the universities and are physically separate from the main campuses. While some firms on the science parks may have links with universities, this is probably no more likely than similar firms in other locations.

A more interesting form of engagement is the potential for PhDs to be used as a means of transferring knowledge. UPV/EHU has launched a scheme where 50 PhDs would be funded by the university using regional government allocations based on projects designed in collaboration with industry. These types of programmes are becoming common internationally and provide a useful means not just for developing long-term collaboration projects, but for inducting new researchers into collaborative research as preparation for either a career in academia or in industry.

The University of Mondragon has a more structured approach to collaboration, building on its nature as a member of the Mondragon group of co-operatives. Mondragon has developed a collaborative research model in which a technology committee is formed involving the university, companies and other technology partners to develop a technology roadmap: a three to four year agenda on future technology needs within a particular industry. The roadmap is then used to identify a series of potential projects with budgets which can be offered to the industry partners. Specific projects are then implemented according to the needs of the industry partners, each with their own characteristics and dynamics through teams involving academic staff, PhDs and students. The outputs from the projects are monitored and fed back into the technology committee. While the core members of these technology committees are from the Mondragon group, there are other local firms involved from outside of the co-operative movement as well. The benefits that arise from this scheme, in addition to the technical outputs, include the development of mutual trust among the participants, a commitment to expand R&D activities within the companies, a closer alignment between the university's research and the companies' needs, genuine collaboration to replace a customer-supplier model and a culture of external surveillance and idea generation to promote innovation.

All three universities in the Basque Country have developed entrepreneurship programmes aimed at students as well as staff.

Box 2.9. Deusto Entrepreneurship Centre

Founded in 2011, Deusto Entrepreneurship Centre's mission is to boost entrepreneurship at Deusto. It offers the university community the opportunity to explore ideas and develop entrepreneurial competences. The centre aims to make Deusto an exemplar of international innovative entrepreneurship. Its main activities consist of an innovation and creativity programme and other initiatives to support entrepreneurs. Five new technology firms, some of which have received international awards, have been created in its business accelerators.

Source: Deusto Entrepreneurship Centre, www.deusto.es/servlet/Satellite/Page/1244752208606/_ingl/%231244752208606/UniversidadDeusto/Page/subHomeNoInfTPL, accessed 19 December 2012.

Interfaces for social innovation

When examining engagement with business, it should also be recognised that there are opportunities to promote innovation within the social and community sector through social innovation. All three universities have been developing activities in this field, working with community bodies to introduce innovation into social life.

The Sinnergiak social innovation centre was set up by the University of the Basque Country as part of its Euskampus strategy. The centre undertakes research into social innovation leading towards action projects and the development of skills among the local population, but it also creates a space for interaction and sharing ideas. Projects include studies on innovation in the voluntary sector and in the creative sector. For example, Sinnergiak worked with the San Sebastian 2016 European Capital of Culture office as part of an international Future City Jobs project. In this it was proposed to make use of shipping containers as temporary spaces for entrepreneurial activities along the riverside in San Sebastian. This provides flexible, low-cost space where entrepreneurs can sell products and services to the local population.

Deusto Social Innovation is the unit for knowledge transfer and outreach at the University of Deusto in the field of Social Research and Innovation. Its goal is to respond to local and international changes and challenges to society and contribute to the improvement and transformation needed to achieve just and balanced development. Established in 2011, it brings together the experience and knowledge of nearly a hundred researchers specialised in social innovation from the perspective of the social sciences, economics and technology through interdisciplinary co-operation. Deusto also has an initiative called Bizkailab which brings together the university

with Biscay Regional Council to promote innovation in the community. Each year, specific projects will be developed focused on local problems and drawing together teams from the university to work with partners.

Mondragon University has capitalised on San Sebastian's culinary reputation with the highest number of Michelin stars per capita by establishing the Basque Culinary Centre as the fourth faculty of the university (see Box 2.10).

Box 2.10. Basque Culinary Centre, Mondragon University

Mondragon University, launched in 2011 a new faculty of gastronomic sciences in the form of a centre for culinary education in partnership with some of the leading chefs of the San Sebastian area as well as TecNALIA, the food industry, the governments of Gipuzkoa and San Sebastian. This novel initiative, the first of its kind in Spain, promotes research and training in gastronomy in partnership with some of the most inventive chefs in the world. Alongside the local chefs with multiple Michelin stars, the centre has an international scientific board comprising 12 of the world's greatest chefs. Housed in a highly innovative new building, the centre is recruiting 100 students each year onto 4-year bachelor's degree courses to meet the needs for more highly trained chefs, but is also working with a wider range of food companies to innovate in techniques, cooking, and in the dining experience. The centre has its own grant programme that help cover the tuition fees (EUR 8 000 a year). The centre also houses a restaurant in which the students can learn to cook and serve food to local customers, and which is booked out for several months in advance. This example illustrates a creative approach to building partnerships and identifying new opportunities for locally embedded research and teaching.

The Basque Culinary centre has run ahead of educational policy as all teaching staff is required to have university training, which means the centre had to recruit staff who had trained in other disciplines but were food enthusiasts as there is no other place which awards degrees in gastronomy.

Source : OECD review visit, see also Basque Culinary Centre at www.bculinary.com/en/home.

More traditional forms of communication with the wider society are also supported through, for example, a Chair of Scientific Culture at UPV/EHU. The holder of the chair, a former rector, organises events for the communication of science to the general public in order to help people participate in decisions in areas such as genomics.

Conclusions and recommendations

The Basque Country's universities have a number of strengths in terms of research and support for innovation, and are developing a series of activities that are good practice. They benefit from a regional innovation system and strategy that is strong, well developed and has benefited from considerable investment by the regional government. The region is one of the strongest in Spain for its industrial innovation record and has benefited from a consistent policy of support dating back to the 1980s. As a consequence of this long-term investment, the region has a sophisticated network of technology organisations that provide extensive partnership opportunities for the universities, even though they also, at times, provide competition for engaging with local businesses.

Support for business innovation requires high quality universities as businesses operate in global markets. This is particularly true in the Basque Country, with its high level of exports. The region's universities have sought to invest in quality with the support of the regional government. UPV/EHU has built a good and improving research base, and there are strong research niches in the University of Deusto and Mondragon University also, although the universities lag behind some other Spanish regions and continued investment in quality is still required. Accordingly, the Basque Government has sought to invest in excellence and internationalisation around new institutes in the form of the BERCs and CICs, which work in partnership with the universities, although it is as of yet too early to see if they have a positive effect on the quality and reputation of the universities or on long-term innovation within the region.

The three Basque universities are developing an interesting set of projects for engaging with business and to support wider social innovation. These are having some success in reaching partners, although there is considerable competition from the existing networks of technology centres in the region that are specifically tasked with addressing the needs of SMEs. The universities are also supporting growing entrepreneurship activity among both staff and students, but there seem to be very few large spin offs as of yet.

Nevertheless, there remain a number of challenges that the Basque universities and the region must face. The universities need to establish an international quality reputation in research, while at the same time addressing local needs. Despite some success in developing a research culture, the scientific output should be higher for the number of academic staff employed and stronger mechanisms are needed for driving towards research quality. The programme contracts with the region set targets for the growth of numbers of publications and similar targets, but the public

university has limited scope for encouraging a greater focus on research other than through financial incentives. The possibility for performance management towards higher quality outputs does not easily exist in the context of civil service contracts for staff. The two private universities seem to have better developed systems for staff management, but have weaker research cultures and are smaller institutions. In addition, UPV/EHU as a public university has limited flexibility for recruiting academic staff from industry with more diverse experience. The nature of the academic employment contract tends to imply there is low mobility between universities and industry, as it is not easy for people to move back and forth between the sectors.

The Basque universities struggle to compete with the region's technological centres in building partnerships with SMEs, although Mondragon University has had more success due to its close links with the Mondragon Group. The existence of a strong regional innovation system makes it difficult for universities to find a role with SMEs, as there are many other elements in the system. Universities thus need to find a suitable role for themselves within the regional innovation system. That role could encompass a greater focus on longer-term and more radical innovation in novel areas, given that the technology centre network is more focused on incremental innovation among the traditional engineering firms of the region. A greater focus on collaboration with the BERCs and engagement in international partnerships through the EU Framework Programme would help reinforce this approach.

A related issue is the need to continue to support a greater internationalisation of the Basque universities in order to further encourage the internationalisation of the local region and companies. While efforts are being made to provide an international experience for students, there are greater barriers to the recruitment of international talent into universities. Ikerbasque has made some successful steps in this area through its scheme for recruiting international academics, notably for the BERCs, but also into the three universities. The universities will need to develop more flexible ways of managing teaching across Spanish, Basque and English to ensure that there is scope for the recruitment of talented research staff who lack Basque language skills. Ikerbasque's talent attraction activities could also be more strongly oriented towards the Basque Country prioritised areas of research to build critical mass.

Overall, the Basque Country needs to clarify whether it wants a world-class research university or one that works with local SMEs, as it currently misses the mark on both fronts. Given the massive investment in technology centres focused on working with SMEs, the universities should focus on what they do best and look to longer-term research to meet excellence

criteria while still focusing on the needs of the region. Within this context, the OECD review team recommends that the following measures be taken to improve the research, development and innovation outcomes in the Basque Country.

The following measures would promote regional innovation in the Basque Country:

Recommendations for the central government

- Review the employment status and contracts of university staff to promote greater two-way mobility between universities and other employment sectors in mid-career.
- Support system diversity through diversified national grant schemes for research and industry engagement.

Recommendations for the provincial governments and the Basque Government

- Facilitate mobility between universities and other forms of employment through pressure on central government and universities to reform their employment contracts.
- Enhance universities' science base to build critical mass in fields relevant to the Basque Country's economy and society and improve access to external knowledge by developing incentives and accountability schemes. Reinforce also non-tech innovation for example in management, social innovation, knowledge intensive services.
- Continue to invest in enhancing the quality of research through the programme contracts and by introducing international benchmarking of university outputs, but not simply focusing on the number of academic publications or the perceived status of journals.
- Capitalising on the close links between the Basque vocational education sector and the SMEs, ensure that the VET institution's training activities are well connected with support for innovation through their own activities as well as in partnership with the technology centres. In selected areas support collaboration between universities and VET institutions in developing joint programmes for the encouragement of innovation in SMEs.

Recommendations for the universities and VHET institutions

- Develop systems and means to better manage the performance of staff in research and engagement as part of employment contracts that require research productivity and excellence as well as engagement (with industry, region etc).
- Increase interdisciplinarity by rationalising internal structures and promoting the development of larger research centres and institutes across disciplinary boundaries.
- Continue to expand entrepreneurship programmes within the universities with an emphasis on increasing the role of entrepreneurship in the curriculum and on promoting greater job flexibility for academic staff wishing to participate in spin off firms.

Recommendations for the Spanish government

- Review the employment status and contracts of university staff to promote greater two-way mobility between universities and other employment sectors in mid-career.
- Support system diversity through diversified national grant schemes for research and industry engagement.

Recommendations for the provincial governments and the Basque Government

- Facilitate mobility between universities and other forms of employment through pressure on national government and universities to reform their employment contracts.
- Enhance universities' science base to build critical mass in fields relevant to the Basque Country's economy and society and improve access to external knowledge by developing incentives and accountability schemes. Reinforce also non-tech innovation for example in management, social innovation, knowledge intensive services.
- Continue to invest in enhancing the quality of research through the programme contracts and by introducing international benchmarking of university outputs, but not simply focusing on the number of academic publications or the perceived status of journals.
- Capitalising on the close links between the Basque vocational education sector and the SMEs, ensure that the VET institution's

training activities are well connected with support for innovation through their own activities as well as in partnership with the technology centres. In selected areas support collaboration between universities and VET institutions in developing joint programmes for the encouragement of innovation in SMEs.

Recommendations for the universities and VHET institutions

- Develop systems and means to better manage the performance of staff in research and engagement as part of employment contracts that require research productivity and excellence as well as engagement (with industry, region etc).
- Increase inter-disciplinarity by rationalising internal structures and promoting the development of larger research centres and institutes across disciplinary boundaries.
- Continue to expand entrepreneurship programmes within the universities with an emphasis on increasing the role of entrepreneurship in the curriculum and on promoting greater job flexibility for academic staff wishing to participate in spin off firms.

Notes

1. Comparisons between countries and regions should be handled with caution since they should take into account other forms of public R&D support to firms that do not appear in the statistics, such as subsidised loans.

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Chapter 3.

Capacity building for regional development

The extent to which universities and tertiary education institutions are engaged in the regional skills development and innovation depends to a large extent on the policy context relating to funding, regulation and institutional and governmental management and governance.

This chapter examines the Basque Government policies and plans and their impact on the performance of the university and HVET systems. It highlights where these policies and practices could be improved to enhance regional engagement of tertiary education. Drawing from examples in the OECD countries, the chapter concludes with recommendations to help capacity building for regional and local engagement among the Basque tertiary education sector.

Introduction

The OECD countries have in recent years witnessed a general trend towards comprehensive regional policies that help generate growth in the regions. The regional policy paradigm has shifted from supporting regional economies that had failed to modernise to developing place-based regional potential for competitiveness and growth-oriented activities, notably education, innovation and employment OECD (2009a). Since the establishment of the Basque Government in 1979, the Basque Country has developed a reputation for its comprehensive regional policy that has strengthened the Basque industrial base through support for industry-based skills, innovation and cluster development, providing a model for European regional innovation initiatives. The focus on skills has resulted in a strongly co-ordinated vocational education system that is aligned with the Basque industry needs.

The economic crisis, long term demographic change and competition from emerging economies require a new economic transformation in the Basque Country with greater emphasis on knowledge and continuous access to higher level skills. The Basque Government has traditionally held a strong leadership role in steering the region through investments in industrial development, skills and innovation. It is important to ensure that the Basque universities will become more important players in the regional innovation and skills development systems. It is equally important to ensure that the universities' quality, relevance and international brand recognition will improve. Much depends on the tertiary education policy and regional strategy to mobilise universities.

In this context, this chapter examines the following questions:

- Are the existing funding, governance and co-ordination mechanisms effective?
- Do the current policies and mechanisms support and incentivise regional and civic engagement of universities in the Basque Country?
- What lessons can be learnt from international experience?

Policy framework for regional development

The experience in the OECD countries suggests that regional policies and mechanisms are needed to encourage and support the engagement of tertiary education institutions in regional development. This section outlines the regional policy framework for the Basque tertiary education institutions.

It sets out the scene by highlighting the key elements of the Basque Governance that impact education: autonomy, decentralisation and control of direct spending. It outlines the main steering mechanisms for the tertiary education sector: the University Plan and the Vocational Education Plan. While the necessary mechanisms are now in place, the government could make stronger efforts to build a more integrated tertiary education system.

Autonomy, decentralisation and financial control

In the Spanish landscape, the Basque Country stands out because of its high degree of autonomy and decentralisation including important powers and a greater control of its direct spending (see Table 3.1). Its three historical regions, the provinces of Alava, Biscaia/Vizcaya and Gipuzkoa/Guipuzkoa are the only regions that benefit, along with the region of Navarre, from a decentralised fiscal (foral) regime within Spain. An important part of Basque self-government is the Economic Agreement (*Concierto Económico*) that guarantees the Basque Country a more favourable funding base than other regions. As a result, the Basque Country boasts the second highest regional budget spending per capita in Spain after Navarre.

Figure 3.1. Spain and the Basque Country



Table 3.1. The governance structure of the Basque Country, Euskadi

Spanish Government	<p>Government Office (<i>Delegación del Gobierno</i>): represents the national government in the autonomous region. Its headquarters is in Vitoria-Gasteiz with branch offices in each province.</p> <p>Main functions: migration affairs; general co-ordination and promotion of scientific and technological research; public works of general interest or affecting two or more autonomous regions; regulation of academic and professional qualifications.</p>
Autonomous Community of the Basque Country	<p>One of the three historic regions in Spain (along with Catalonia and Galicia); wide powers (incl. health, education, security, housing, employment and taxation), but excluding defence, external affairs and basic legislation.</p> <p>Executive power: the Basque Government</p> <p>President: leads and co-ordinates the Governing Council of the Basque Government, co-ordinates the administration and appoints the Basque Ministers.</p> <p>Governing Council: holds executive and administrative powers. Council – president and regional ministers – holds weekly meetings.</p> <p>11 ministries/departments: presidency, internal affairs; justice and public administration; economy and treasury; education, universities and research; public works, housing and transportation; industry, innovation, commerce and tourism; employment and social affairs; health and consumer affairs; environment, land planning, agriculture and fisheries; culture.</p> <p>Legislative Power: Parliament of the Basque Country</p> <p>Passes regional legislation, monitors and encourages the performance of the governing council and approves of the Basque country’s budget. Democratically elected every four years. The legislative powers are exclusive or shared, depending on the policy area.</p> <p>Economic Agreement (Concierto Económico)</p> <p>Gives Basque institutions autonomy to administer and collect taxes, and validates the existence of a specific Basque tax system. Regulates the transfer of funds collected by the Basque Country to the Spanish state in order to compensate for spending in competencies that remain under the Spanish state control. Among Spanish regions, only Navarre and the Basque Country through its provinces, have own treasuries and are responsible for collecting taxes.</p> <p>Other authorities independent from the regional government</p>
Provinces (3) Alava, Bizkaia, Gipuzkoa	<p>General Assembly</p> <p>Regulatory and operational capacities similar to parliament.</p> <p>Provincial Council (executive)</p> <p>Treasury, tax collection; Economic promotion; Municipal co-ordination, legal assistance and advice. Assistance in fire and rescue service, waste management, water services, inter-urban transport etc. for the smallest municipalities.</p>
Municipalities (250)	<p>Municipal or City Council:</p> <p>Main functions: urban planning; social housing, community social services; water supply and waste management; public lighting; fire prevention; public transport; maintenance of roads; customer service; tourism, culture and sport promotion; co-operation with other administrative linked to Basque heritage <i>etc.</i></p>

Source: Basque Government.

Strategic plans for tertiary education

The Basque Government has established a number of strategic plans and steering mechanisms concerning regional growth and welfare that relate to tertiary education, and provide a framework on which universities and HVET institutions can build and develop their regional engagement, and collaborate with the regional stakeholders. (Table 3.2). The Department of Education, Universities and Research has designed successive university and vocational education plans, most recently the University Plan 2011-2014 and the Basque Vocational Education Plan 2011-2014. These plans have undergone incremental development over time and reflect the state of development of the Basque tertiary education and the needs of the Basque Country. Tertiary education's importance and role are taken into consideration also in other plans and strategies, such as the Basque Business Competitiveness Plan 2010-2013, the Basque Employment Strategy 2011-2013 and the Basque Health Plan 2010-2012. These plans are brought together by the overarching Science, Technology and Innovation Plan 2015 (PCTi 2015) that was launched in December 2011. PCTi 2015 depends directly on the presidency of the Basque Government and involves four departments or ministries, including the Department of Education, Universities and Research. PCTi 2015 governance and management arrangements are outlined in Box 3.1.

Table 3.2. Strategic plans related to the Basque TE

PRESIDENCY			
Science, Technology and Innovation Plan 2015 – PCTi 2015 (Defines the broader lines for S&T promotion and internationalisation of R&I)			
Department of Education, Universities and Research	Department of Industry, Innovation, Commerce and Tourism	Department of Employment and Social Affairs	Department of Health and Consumer Affairs
University Plan 2011-2014. The basic instrument of organisation and funding for the university system. Promotes talent attraction and fosters university-industry collaboration. Basque Vocational Training Plan 2011-2014. Develops a new framework to foster co-operation between VT schools and the business world.	Business Competitiveness Plan 2010-2013. Defines the Basque economy competitiveness model. Integrates plans of action and budget to boost industry. Euskadi Energy Strategy 3E-2020. Energy management and renewable sources.	Basque Employment Strategy 2011-2013. Promotes labour market integration and increased quality and stability of employment.	Basque Health Plan 2010-2012. Addresses the multiple aspects of health and shapes policy orientation, including in the university sector.

Source: Martínez-Granado, M., P. Greño, and M. Oleaga (2012), “The Basque Country, Spain: Self-Evaluation Report,” *OECD Reviews of Higher Education in Regional and City Development*, www.oecd.org/edu/imhe/highereducationinregionalandcitydevelopment.htm.

Box 3.1. Governance of PCTI 2015

The governance issues of PCTI 2015 are: leadership and strategic orientation, planning and management, and monitoring and evaluation

The leadership and strategic direction of PCTI 2015 is ensured by the **Basque Science, Technology and Innovation Council** (*Consejo Vasco de Ciencia, Tecnología e Innovación, CVCTI*), created by decree in July 2007 and chaired by the president of the regional government. This body is responsible for setting the policy of science, technology and innovation and for inter-departmental co-ordination in policy and budget design. The council's members include: the Minister of Education, Universities and Research; the Minister of Industry, Innovation, Commerce and Tourism; the Minister of Employment and Social Affairs; the Minister of Health and Consumer Affairs; representatives (the presidents) of provincial governments; the rectors of the three universities of the Basque university system; and the presidents of Ikerbasque (the Basque Science Foundation) and Innobasque (the Basque innovation agency).

Within the Council is the **Inter-Institutional Committee**, the body responsible for co-ordination. Its members include representatives of the Basque Government departments and of the three provincial governments concerned with STI.

The Council also includes the **Science, Technology and Innovation Committee**, which is chaired by the president of the regional government and includes representatives from the ministries with activities in science, technology and innovation. This committee is responsible for system governance.

A **commissioner** named by the Basque president ensures the implementation of the plan and is responsible for monitoring its progress.

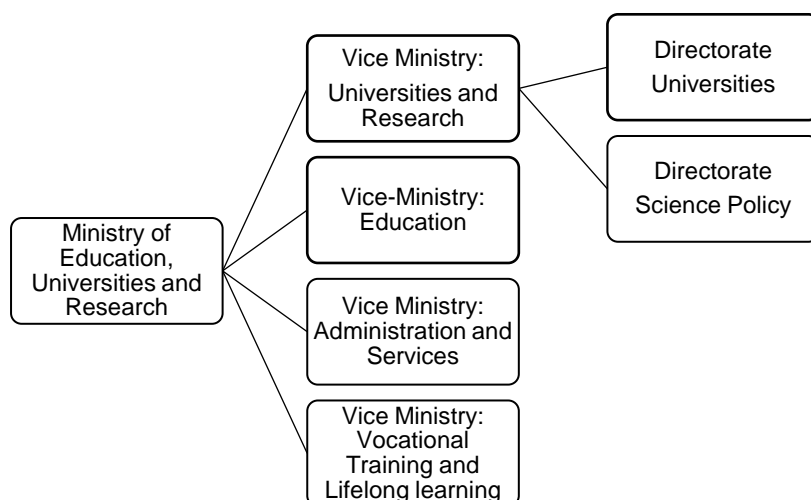
Source: Martínez-Granado, M., P. Greño, and M. Oleaga (2012), "The Basque Country, Spain: Self-Evaluation Report," OECD Reviews of Higher Education in Regional and City Development, www.oecd.org/edu/imhe/highereducationinregionalandcitydevelopment.htm.

The University Plan 2011-2014

Higher education in the Basque Country operates under the Law 3/2004, which guides the strategic development of the Basque University System to meet the challenges of Basque society, and establishes the University Plan as a key instrument of organisation and funding. As stipulated in this law, the Basque Universities' Council, formed by members of the Basque Government, local authorities and representatives of the universities, carries the responsibility for the university system co-ordination and integration into the European Higher Education Area (EHEA). The Basque

Government's Department/Ministry of Education, Universities and Research is in charge of education issues, whereas the Vice-Minister for Universities and Research is responsible for the Basque University System and the University Plan (Figure 3.2).

Figure 3.2. Organisation of Basque Department of Education, Universities & Research



Source: Based on communication with the Basque Government.

The University Plan 2011-2014 focuses on the strategic development of the Basque university system. The plan, that was elaborated by a committee of four university representatives (2 from UPV/EHU, 1 from the University of Deusto and 1 from Mondragón University), defines the framework for improving quality, relevance and international recognition of the Basque universities' education and research (see Box 3.2). The co-ordination, management, follow-up and monitoring of the University Plan are achieved in a hierarchical manner: the University Plan is not directly linked to the Basque Government's other strategic plans, but connects with the overarching PCTi 2015, (see Figure 3.3). On the basis of the interviews during the OECD review visit (September 2012), these governance arrangements may require further revision to reduce complexity and potential for inefficiency and conflict. There is risk, and also anecdotal evidence that stakeholders do not feel involved or do not understand the mechanisms for co-operation.

Box 3.2. The University Plan 2011-2014

Mission and Vision: The strategic development of the Basque university system, and the definition of a shared framework of objectives and ways to meet them.

The four main objectives are:

- **Education:** Implement the necessary changes to fully respond to the needs of the Basque society; take advantage of integration in the EHEA.
- **Research:** Improve research performance and international recognition; integrate fully into the European Research Area.
- **Knowledge transfer:** Make full use of universities’ capacity to develop a knowledge-based society.
- **Attract and retain talent** by providing attractive working conditions.

To address these objectives, the action plan includes nine programmes that promote innovative teaching, student support, trilinguism, qualified academic staff, research, internationalisation, dissemination of science and technology, university-business relations and university-community co-operation.

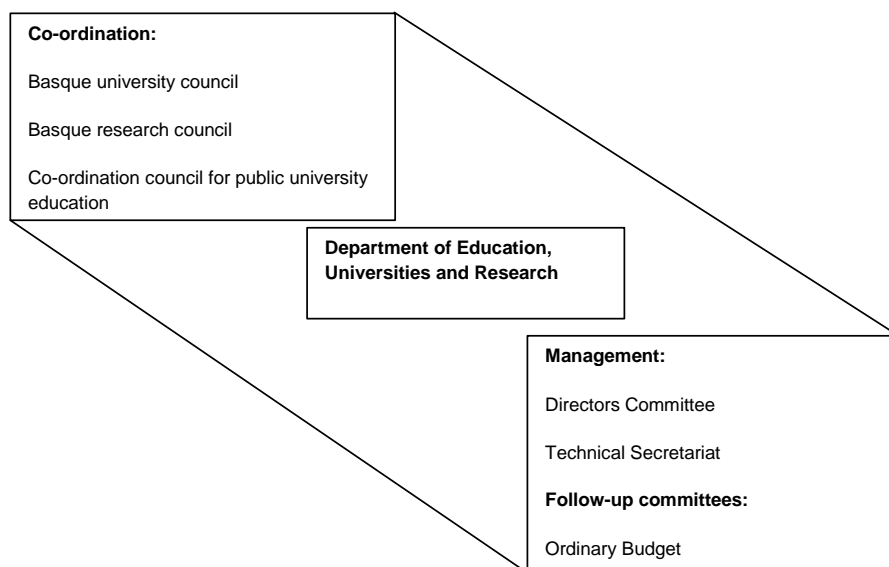
These programmes entail different types of actions and instruments for example grants and competitive calls at the university system level involving all three universities, co-operation between different universities, and support for UPV/EHU to ensure its financial sustainability.

Funding: Implementation presupposes an annual expenditure of about 1.3% of the Basque GDP by 2014 (to be increased to 1.5% by 2020). R&D executed by universities is expected to reach 0.49% of GDP by 2014. Public funding of higher education is to remain at about 69% (Table 3.2).

Co-ordination: the Basque University Council, the Basque Research Council, the Co-ordination Council for Public University Education, the Basque Council for Science, Technology and Innovation, an inter-departmental committee and the General Conference on University Policy (Conferencia General de Política Universitaria, CGPU).

Management by a Directors Committee: chaired by the Counsellor of Education, Universities and Research and includes the Vice-counsellor of Universities and Research, and the Director of Universities and the Director for Scientific Policy from the Department of Education, Universities and Research. This committee ensures the implementation of the plan and reviews proposals for its improvement.

Follow-up and monitoring: four different committees that focus on the budget, on infrastructures and multi-year investment programmes, on the contract programmes, and on UPV/EHU’s Social Council. The Department of Education, Universities and Research acts as a technical secretariat for the Plan.

Figure 3.3. University Plan: co-ordination, management and follow-up

The III Vocational Education Plan

The Basque Country has developed a well co-ordinated and efficient Higher Vocational Education and Training System, well aligned with the Basque industries and far more attractive than HVET elsewhere in Spain (see Box 3.3).

Box 3.3. HVET centres in the Basque Country

The Basque Country has 120 centres for Higher Vocational Education and Training (HVET). In 2010-11, 17 401 students enrolled in Higher Vocational Training, which is 6.5% higher when compared to 2005, and ten percentage points above the rest of Spain. According to data available for the same year, 6.7% of enrolments in HVET in Spain were in the Basque Country.

The Basque Country's integrated vocational schools are dedicated to vocational education at all levels. They offer courses leading to diplomas with academic and professional value, as well as occupational certificates, both of which are based on the National Catalogue of Occupational Qualifications. Both vocational subsystems are inter-connected through "units of competence," which, once they have been assessed and accredited, can be put towards achieving a diploma.

Box 3.3. HVET centres in the Basque Country (continued)

Governance of public higher vocational education centres is the responsibility of the General School Council, which ensures the participation of the school community and the Teachers' Assembly. The management team typically includes the director, the heads of studies and a secretary. The integrated vocational schools have a provision for a Social Council, which provides for community participation.

Higher vocational education funding system is similar to that of secondary schools. In contrast to the university sector, higher vocational education centres and institutions do not charge tuition fees, while some private schools that provide higher vocational programmes receive public subsidies for teaching activities.

The governance and development of the Basque VET system is undertaken within the framework of a government-led multi-stakeholder collaboration. The Spanish central government and the Basque Country share the responsibility for governance of the non-university system (see Annex 3.A1 For Spanish HVET system). Responsibility for evaluation, co-ordination and advising for vocational education rests with the Basque Council for Vocational Education and Training which has representatives from government, employers, labour unions and VET institutions. This council has the following members: the Basque Minister of Education, the Vice-Minister of Universities and Research (Chair), the Vice-Minister of Labour and Social Affairs (Vice-Chair), a secretariat from the Department of Education, Universities and Research and 25 counsellors (7 from different government departments and provincial authorities, 7 from the Basque Business Confederation – CONFEBASK, 7 from the main trade unions and 4 from the public and private VET centres).

The Basque Government uses vocational education plans as a key instrument of steering the system on order to modernise the sector and close the gap between training and employment. The III Basque Vocational Education Plan was developed by the Basque Council for Professional Education and Training in collaboration with the Department of Education, Universities and Research, the Department of Labour and Social Affairs and centres for vocational education that for the first time joined their forces in strategic development (Consejo Vasco de Formación Profesional, 2011). This plan aims to create an integrated vocational education system by establishing four strategic priorities for vocational education: *i)* to ensure lifelong learning and mobility between education and employment, *ii)* to improve quality and efficiency of education and training, *iii)* to promote

equity, social cohesion and active citizenship and iv) to enhance creativity, innovation, and entrepreneurship at all levels of education and training. Each of these strategic priorities has dedicated action plans (see Box 3.4). The implementation and follow-up of the plan is undertaken by three bodies under the Vice-Ministry for Vocational Education and Lifelong Learning of the Department of Education: The Basque Institute for Qualifications and Vocational Education, TKNIKA, and the Basque Agency for the Evaluation of Competencies and Quality of Vocational Education. The III Vocational Education Plan relies on the vocational training centres for implementation. Funding for the plan comes mainly from the Basque Government's education department (95%) and the Basque Employment Service, LANBIDE.

Box 3.4. The III Basque Vocational Education Plan: Strategic priorities and action plans

1. Ensure lifelong learning and mobility between training and employment.

Action plans:

- Complete the Catalogue of Vocational Qualifications.
- Introduce mobility programmes, implement blended learning.
- Develop procedures for validation of competencies acquired via non-formal education and/or work.
- Provide services for information, counselling and orientation (LANBIDE).

2. Improve quality and efficiency of education and training.

- Promote learning of languages.
- Improve qualification of teachers.
- Improve governance and funding.
- Determine market needs.
- Improve adult education.

3. Promote equity, social cohesion and active citizenship.

- Reduce drop-outs.
- Integrate migrants and citizens with special needs.

Box 3.4. The III Basque Vocational Education Plan: Strategic priorities and action plans (continued)

4. Enhance creativity, innovation and entrepreneurship at all levels of education and training.
 - Promote the incorporation of innovation (processes and products) into education projects (e.g. TknikaINNOVA).
 - Promote diverse methods of collaboration between vocational training institutions and enterprise.

Source: Consejo Vasco de Formación Profesional (2011), *III Plan Vasco de Formación Profesional: La nueva FP, marca de país*, Consejo Vasco de Formación Profesional, Gobierno Vasco, Donostia-San Sebastián, Spain, www.lanbideheziketa.euskadi.net/es/book.php.

Despite many achievements, the Basque tertiary education system remains weakly integrated. The three components of tertiary education – the university system, higher vocational education and specialised higher education – are isolated from each other in terms of strategy, policy design and procedures. The Basque University System and Vocational Education System continue to exist as separate systems with a lack of collaboration, shared learning and pathways.

Furthermore, the higher vocational education in the Basque Country tends to be perceived as an extension of secondary education, with its resource management and quality assurance identical or comparable to practices in the secondary school system. There is little discussion of the role higher vocational education can play in RDI. Efforts to develop diverse learning paths between university and non-university higher education remain limited (see Chapter 1). Apart from Mondragon University, the Basque universities, as universities in Spain in general, have difficulties assimilating non-university higher education. Despite the urgency to develop lifelong learning little progress has been made in creating joint lifelong learning strategies that would bring together universities, higher vocational education and training, and specialised higher education.

When continuing its efforts to develop a more integrated tertiary education system, the Basque government and its universities and HVET institutions could find inspiration in international examples. In the Netherlands, the VET excellence centres typically involve both vertical and horizontal co-operation with VET institutions, universities, and research and

business organisations, mirroring the characteristics of the regional innovation system.

Policy alignment for regional development

The experience in OECD countries indicates that it is a challenge for universities to be engaged with their regions unless policies at the institutional and national level are aligned with this mission. This section investigates whether institutional policies that affect the universities and their staff support their regional role. Key policies relate to: *i*) institutional missions and goals, *ii*) allocation of funding to universities and university funding sources, *iii*) staff incentives, and *iv*) governance and decision making systems.

University missions and goals

The three Basque universities and the HVET system have developed formal missions and goals that relate directly to providing opportunities for the Basque population and contributing to its development (see Box 3.5.). Despite their regional missions and/or origins, there is a significant diversity among the Basque universities in terms of how they have embedded the regional engagement in the core teaching/learning and research and service missions (see Chapter 1 and 2).

Box 3.5. Regional missions of the Basque universities and HVET system

The University of the Basque Country/Euskal Herriko Unibertsitatea (UPV/EHU), founded in 1980, is the only public university in the Basque University System. It dominates the Basque tertiary education scene with its 31 faculties and schools for 45 000 students and 5 000 academic staff. UPV/EHU offers a wide range of degrees and postgraduates courses in all knowledge branches. It is a bilingual university: teaching in Spanish is guaranteed in all programmes, but 35% of students choose to study in Basque. UPV/EHU's multi-campus university structure is based on a decentralised organisation and management. Each campus has a significant autonomy in their budget and institutional relations and is closely linked to the local needs. UPV/EHU has a key role to play in the economic transformation of the Basque Country, by boosting RDI, internationalisation and talent attraction. The main instrument for achieving this goal is the Euskampus project which supports the modernisation of the university and the pursuit of world class excellence in three areas of specialisation: Sustainable ecosystems and Environmental Technologies; Innovative processes and New Materials; and Healthy Ageing and Quality of Life.

Box 3.5. Regional missions of the Basque universities and HVET system (continued)

The University of Deusto is a private non-profit Christian institution with a strong focus on internationalisation and social responsibility. It is the oldest university in the Basque Country, established in 1886 as a result of the pursuit of the Basque Country to have its own university and the wish of the Jesuit brothers to relocate. Deusto has achieved recognised prestige in training professionals and leaders not only for the Basque Country but also for the rest of Spain. Traditionally focused on social, economic, humanities and legal study programmes, the university has expanded to psychology as well as technical education and engineering which have close alignment with regional needs. Deusto's 9 650 students are spread in two urban campuses based in Bilbao and San Sebastian.

Mondragon University was established in 1997 by merging three different co-operatives that make up the faculties of Engineering, Business, and Humanities and Education. In 2011, a fourth faculty was established: The Basque Culinary Centre. The co-operative university is embedded in its region, committed to the transformation of the Basque Country. It has close links with industry, particularly those within the Mondragon Corporation. In 2010/11, the university enrolled 3 610 students, of which 3 018 students in undergraduate programmes and 592 in doctoral and postgraduate studies. Recent projects that contribute to the Basque innovation system include the Basque Culinary Centre, a new engineering building with a joint research centre to meet the needs of local businesses, and a research and technological innovation centre in electronics and embedded systems.

University funding

Funding policy is the most influential policy tool that governments can use to impact the behaviour of autonomous universities and their staff. This section investigates the Basque Government's funding policy for universities and the tools to modernise and incentivise Basque universities to engage with business and community. The Basque Government's total expenditure in universities through the University Plan is relatively low but shows an increasing trend. The Basque Government has taken steps to take advantage of the funding tool in steering the universities and improving their accountability, by introducing output-based elements in the funding system. As the only public institution among the Basque universities, UPV/EHU receives the majority of the funding under the University Plan, but 85% of its funding is based on block funding without any consideration of performance. There is also a significant diversity among the three universities in terms of their funding sources. With the economic crisis and the ageing of the Basque society, the Basque universities face the need to

diversify their funding streams and become more strategic in their allocation of funding.

Funding by University Plans

The Basque Government's total expenditure in universities through the University Plan shows an increasing trend. The Basque Government's total expenditure as a percentage of GDP or expenditure per student as a percentage of GDP per capita in the Basque Country is below the Spanish, EU or OECD averages, particularly in terms of the expenditure on HE R&D. This is in stark contrast to the fact that the Basque Country's total expenditure in R&D is well above the Spanish average (see Chapter 2). The Basque Government has acknowledged the need for stronger funding for universities and aims to increase the expenditure on universities to 1.3% of the GDP by 2014 and to 1.5% by 2020, with special focus on R&D. This objective requires a strong commitment of public resources against a backdrop of an economic crisis.

Table 3.3. Expenditure on HEIs, 2009

	Expenditure in HEIs as a % of GDP	Expenditure per student in HE as a % of GDP per Capita	Public expenditure in HEIs as total expenditure	Expenditure in R&D in HEIs as a % of GDP
Basque Country*	0.97	35	76	0.28
Spain	1.3	42	79.1	0.38
EU21	1.4	39	78.6	0.46
OECD	1.6	42	70	0.45

*Note:** Information from 2008

Source: Martínez-Granado, M., G. Patxi and Oleaga M. (2012), "The Basque Country, Spain: Self-Evaluation Report", OECD Reviews of Higher Education in Regional and City Development, www.oecd.org/edu/imhe/regionaldevelopment, and OECD (2012), *Education at a Glance*, OECD Publishing, <http://dx.doi.org/10.1787/eag-2012-en>.

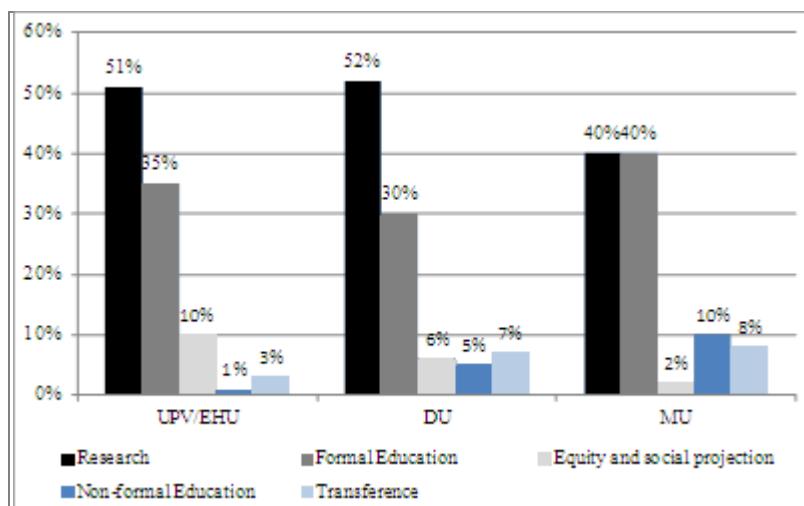
Funding under the University Plan is made available through programme contracts involving each of the three universities, grants attributed on an individual basis and financial support for UPV/EHU. The bulk of public funding (93.7%) comes from the Department of Education, Universities and Research. The planned distribution of public funding to the three universities is shown in Table 3.4.

Table 3.4. Planned distribution of public funding to Basque universities in millions of EUR

University	Instrument	2011	2012	2013	2014	Total
UPV/EHU	Total	336.8	348.7	363.2	381.3	1 430.0
	Budget	288.8	294.3	303.3	312.3	1 198.7
	Contract Programme	31.2	34.4	37.9	44.0	147.5
	Multi-year Investment	16.8	20.0	22.0	25.0	83.8
Deusto University	Contract Programme	4.5	6.0	8.0	10.0	28.5
Mondragon University	Contract Programme	4.0	5.5	7.1	9.0	25.5
Total		345.3	360.2	378.3	400.3	1 484.1

Source: Martínez-Granado, M., G. Patxi and Oleaga M. (2012), “The Basque Country, Spain: Self-Evaluation Report”, OECD Reviews of Higher Education in Regional and City Development, www.oecd.org/edu/imhe/regionaldevelopment, OECD (2012), *Education at a Glance 2012: OECD Indicators*, OECD Publishing., <http://dx.do.org/10.1787/eag-2012-en>.

All the Basque universities benefit from output-based programme contracts, whereas UPV/EHU receives more than 96% of the funding of the University Plan, which has three components: a block grant on a historical basis without any measure of performance (yearly negotiation), multi-annual investment for infrastructure and output-based programme contracts. Programme contracts are the only output-based part of the UPV/EHU’s funding and account for a small part of the University Plan budget: 4% in 2007, but projected to grow to 13% by 2014. Programme contracts benefit mainly research and formal education, whereas funds dedicated to other areas, such as non-formal education (non-degree), knowledge transfer, and equity and social projection, represent less than 20% of the total (Figure 3.3).

Figure 3.4. University Plan 2011-12: Relative importance of programme contracts

Source: Martínez-Granado, M., P. Greño, and M. Oleaga (2012), “The Basque Country, Spain: Self-Evaluation Report,” *OECD Reviews of Higher Education in Regional and City Development*, www.oecd.org/edu/imhe/highereducationinregionalandcitydevelopment.htm.

The University Plan does not include other sources of income coming from other departments/ministries of the Basque Government (especially in R&D support) or from other public authorities (local, national or European). In 2011, the total funding of the Basque universities amounted to EUR 817 million with nearly 69% of the funding from public sources, mainly the Basque Government (60%) (Table 3.5). Furthermore, the weight and importance of the funding from the Basque Government’s University Plan varies significantly among the Basque universities: in 2008, 51% of the EUR 550 million budget of UPV/EHU, 5% of the EUR 61 million of the University of Deusto and 9% of the EUR 32 million budget of Mondragon University, came from the University Plan.

Table 3.5. Funding sources for the Basque universities, 2011-14

	Funding in millions of EUR					% of total funding				
	2011	2012	2013	2014	Total 2011-2014	2011	2012	2013	2014	Total 2011-2014
Private Funds	249.3	260.5	273.5	287.2	1 070.4	30.5	30.3	30.1	29.8	30.2
Public Funds	561.7	591.9	627.7	665.7	2 447.0	68.7	68.9	69.0	69.2	69.0
Basque Government	492.9	519.7	551.8	586.0	2 150.4	60.3	60.5	60.7	60.9	60.6
<i>Deputaciones Forales</i>	34.0	35.7	37.5	39.4	146.7	4.2	4.2	4.1	4.1	4.2
Central Administration	34.8	36.5	38.3	40.3	149.9	4.3	4.2	4.2	4.2	4.2
International (incl. UE)	6.3	7.2	8.3	9.5	35.3	0.8	0.8	0.9	1.0	0.9
Total	817.2	859.6	909.5	962.4	3 548.7	100	100	100	100	100

Source: Martínez-Granado, M., G. Patxi and Oleaga M. (2012), “The Basque Country, Spain: Self-Evaluation Report”, OECD Reviews of Higher Education in Regional and City Development, www.oecd.org/edu/imhe/regionaldevelopment, OECD (2012), *Education at a Glance 2012: OECD Indicators*, OECD Publishing., <http://dx.doi.org/10.1787/eag-2012-en>.

Funding policy is the most important tool that the governments can use to influence autonomous universities and their staff. So far the Basque Government has not yet made an effective use funding in steering the universities. The University Plan’s funding model for UPV/EHU, in which 85% of the funding is provided as a block grant on a historical basis without any measure of performance, does not provide a strong enough tool for Basque Government to steer the university and to improve its accountability.

Funding sources of the Basque universities

There is a significant diversity among the three universities in terms of their funding sources. UPV/EHU’s main source of funding is the public sector (about 70%); funding from fees have gone down both in absolute terms and as a percentage of the total budget, from 15.4% in 2006 to 7.8% in 2010 due to the reducing student numbers; the contribution of firms (through contracts) to the UPV/EHU budget tends to be small, accounting for only 1.3% of the total budget in 2010. Funds coming from other sources have increased in the last years (about 21% in 2010), in the form of long term loans from the Basque Government or the Spanish Government (see Table 3.6).

The University of Deusto finances most of its budget through student fees (70%), mainly from formal education and to a lesser extent from lifelong learning (5%). Although the funding from fees has increased every year in absolute terms, its share of the budget has decreased. The share of

the public sector funding, mainly in the form of non-competitive funds, has almost doubled in absolute terms from 9% in 2006 to 13.4% in 2010. The share of the funding from contracts with firms varies annually and was 9% of the Deusto budget in 2010.

Mondragon University has a more diversified funding structure: in 2010, 48% of its budget was financed by student fees, 26.5% by the public sector, 15.5% by contracts with firms and 10% by other sources. The relative importance of the public sector and the firms' contracts as sources of funds has tended to increase since 2006. Among Basque universities Mondragon has the highest contribution of firms to its budget.

Table 3.6. Budgetary structure of Basque universities, 2006-10

	Year	2006	2007	2008	2009	2010
UPV/EHU	Fees %	15.4	11.9	11.4	8.8	7.8
	Public Sector %	70.7	72.1	71.1	73.0	69.2
	Firms %	0.4	0.5	1.5	0.9	1.3
	Other %	13.5	15.4	16.0	17.2	21.7
	Total Budget EUR millions	406	443	550	566	610
DU	Fees formal education %	75.3	74.5	72.6	72.6	67.8
	Fees life-long learning %	3.6	3.9	3.8	4.6	5.1
	Public Sector-competitive %	0.8	1.4	1.4	5.0	2.4
	Public Sector – non- competitive %	8.1	10.2	11.0	10.0	11.0
	Firms %	6.2	4.9	6.7	3.3	9.4
	Other %	5.9	5.1	4.5	4.5	4.3
	Total Budget EUR millions	59	61	64	63	72
MU	Fees formal education %	42.6	40.9	39.8	40.3	42.2
	Fees lifelong learning %	7.0	6.5	6.8	5.7	5.8
	Public Sector – competitive %	12.9	15.7	17.5	16.3	17.0
	Public Sector – non-competitive %	7.6	6.9	7.5	7.5	9.5
	Firms	13.5	13.9	14.8	17.9	15.5
	Other	16.4	15.8	12.8	9.6	10.0
	Total Budget EUR millions	n.a.	32	n.a.	n.a.	n.a.

Source: Martínez-Granado, M., G. Patxi and Oleaga M. (2012), "The Basque Country, Spain: Self-Evaluation Report", OECD Reviews of Higher Education in Regional and City Development, www.oecd.org/edu/imhe/regionaldevelopment, OECD (2012), *Education at a Glance 2012: OECD Indicators*, OECD Publishing., <http://dx.doi.org/10.1787/eag-2012-en>, based on the annual report for the UPV/EHU; data provided for Mondragon University; University Plan for Deusto University.

Fees at the public universities are regulated and vary according to the degree of experimentalism of the degree (that requires or not the use of labs). The fees charged by UPV/EHU are slightly above the Spanish average but below the average charge by universities in Madrid or in Catalonia. Private universities are free to set their own fees according to the market. They are higher both for undergraduate and graduate studies, although the difference is larger in the undergraduate fees. (See Martínez-Granado et al.(2012) for more details.)

With the economic crisis and the ageing of the Basque society, the Basque universities face a critical juncture in the development of their business models where the revenue streams may be reduced and they may need to make a fundamental change in their business model to achieve long-term financial sustainability. The Basque universities will need to address these challenges by lowering their cost structures, diversifying their funding streams and becoming more strategic in their allocation of funding. So far only Mondragon University has developed a diversified funding base. The University of Deusto finances most of its budget through fees (70%). In Deusto's case the continuing decline in the number age-eligible students, the potential reduction of household income and decreasing graduate employment outcomes may seriously impact the university's funding base. UPV/EHU faces challenges in diversifying its funding structure. Currently lifelong learning and collaborative research with industry each represents a very small share of the university budget, 0.3% in 2008/09 and 1.3% in 2010 respectively. To change this situation UPV/EHU will need to generate additional resources from lifelong learning activities and collaborative research with industry, and compete more successfully for national and EU research grants.

International experience

International experience shows that a variety of design mechanisms can be used to provide funding incentives for regionally relevant activities or engagement of universities. For example there could be formulae for block grant funding with higher weights for enrolment of students from within the region or policies governing tuition fees and student support that could allow for lower fees and higher amounts of student aid for students from the region. These mechanisms are not suitable to the Basque Country because it needs to improve its appeal to students from other regions and countries. However, the Basque Government could consider the following mechanisms:

- Formulae for block grant funding that includes higher weights for enrolment of students from special populations, or for enrolment in academic programmes related to regional needs.
- Eligibility for special funding that is contingent on evidence of regional engagement and focus.
- Eligibility for special funding that is contingent on inter-institutional collaboration. This could provide incentives for universities and further education and training colleges to facilitate mobility of students (credit transfer within the region) and share programmes and resources in efforts to serve the region.
- Special funding that is provided to match funding obtained by universities and HVET institutions from contracts with regional employers for education and training services.

The Basque Government could also consider introducing a new funding and monitoring mechanism within the University Plan to specifically support university industry and community engagement. Such mechanisms include the Higher Education and Innovation Fund for England (HEIF) and the associated monitoring system the Higher Education and Business and the Community Interaction Survey (HEBCIS) (Box 3.6). While HEIF funds are a small component of the budgets of English universities, their cumulative impact on the behaviour of English universities has been significant. (PACEC, 2012) Despite the economic downturn, Higher Education Funding Council has maintained the HEIF funding at GBP 150 million per annum for the 2011-15 period.

Box 3.6. The Higher Education Innovation Fund in the UK

The Higher Education Funding Council (HEFCE) launched the Higher Education Innovation Fund (HEIF) in 2001 to support and develop a broad range of knowledge exchange activities that result in economic and social benefit to the UK. HEIF provides special funding to universities to support activities which increase their capability to respond to the needs of business (including companies of all sizes and sectors and a range of bodies within the wider community) where this will lead to identifiable economic benefits. Early rounds of HEIF built capacity and provided incentives for all English higher education institutions to work with business, public sector bodies and third sector partners, with a view to transferring knowledge and thereby improving products, goods and services. Following ten years of capacity building, from 2011 HEIF became performance-based and was awarded to 99 English HEIs.

Box 3.6. The Higher Education Innovation Fund in the UK (continued)

HEIF has gone through several iterations:

- Round 1 (AY2001-03): 136 applications for funding from 128 HEIs including 34 proposals from thematic and regional consortia involving several HEIs. Funding of over GBP 77 million to 89 applicants.
- Round 2 (AY2004-06): 183 applications for funding including 69 from consortia of HEIs. Funding of GBP 186 million allocated to 124 proposals, including 46 consortia, 22 new Centres for Knowledge Exchange established.
- Round 3 (AY2006-08): GBP 238 million allocated by combination of formula funding to all HEIs based on data collected via the mandatory Higher Education Business and the Community Interaction Survey (HEBCIS), and collaborative competitive projects. Three elements of the formula: *i*) potential and capacity building; *ii*) external income as a proxy for demand; and *iii*) activities not best measured by income. Allocation per institution GBP 200 000 to GBP 3 million. Accountability via submission of institutional plans and annual monitoring. 11 large scale projects including several HEIs and external partners from business and community organisations and continuation funding for Centres for Knowledge Exchange were also supported.
- Round 4: AY2008-11: Move to formula only allocations of GBP 150 million per annum over period, maximum annual institutional allocation GBP 1.9 million per annum in AY 2010-11. Formula allocations moderated by assessments of institutional knowledge exchange strategies and annual monitoring.
- Round 5: AY2011-15: Funding maintained at GBP 150 million per annum for the four year period, despite economic situation, reflecting minimum return on investment of GBP 6 for each HEIF GBP 1. Allocations are now performance based: institutions are eligible to receive an allocation if they exceed GBP 250 000 allocation threshold related to their external income earnings and the performance of the sector over all (as captured in HE-BCI survey). 99 institutions received allocations, as previously accountable by submission of institutional knowledge exchange strategies and annual monitoring.

Higher Education and Business Interaction Survey (HE-BCI)

HE-BCI covers a range of activities, from the commercialisation of new knowledge, through the delivery of professional training, consultancy and services, to activities intended to have direct social benefits. “Business” in this context refers to private, public partners of all sizes and sectors, with which HEIs interact in a broad range of ways. “Community” in this context refers to society as a whole outside the HEI, including all social, community and cultural organisations, individuals and the third sector. Data collection moved to the Higher Education Statistics Agency (HESA) in 2011.

Source: HEFCE (Higher Education Funding Council for England) (2012a), Funding for knowledge exchange - Higher Education Innovation Funding (HEIF), www.hefce.ac.uk/whatwedo/kes/heif/; HEFCE (Higher Education Funding Council for England) (2012b), Higher education-business and community interaction survey, www.hefce.ac.uk/whatwedo/kes/measureke/hebci/.

Other sources of funding for universities’ regionally relevant work are charitable donations, trusts, persons of wealth and alumni. The Basque universities have not yet taken action to diversify their funding streams through voluntary giving, for example, by engaging with their alumni. The Basque Country could consider mobilising universities to raise private funding. Recognising that the investment in the fundraising infrastructure can generate real rates of return, some countries, for example, Finland, Singapore and the United Kingdom have sought to stimulate this activity by matched funding schemes (see Box 3.7)

Box 3.7. The UK matched funding scheme for charitable donations to universities

In April 2008, the UK Government launched a GBP 200 million matched funding scheme for voluntary giving. The matched funding scheme began in August 2008 for a three year period. Funding was available to match eligible gifts raised by English higher education institutions and directly funded further education colleges. There were three levels of funding:

- First Tier: 1:1 private to public: intended for the least-experienced fundraising institutions and those looking to build capacity from a low base. Every GBP 1 raised will be matched in full.
- Second Tier: 2:1 private to public: intended for the majority of institutions with existing development programmes. Every GBP 2 raised will be matched by GBP 1.
- Third Tier: 3:1 private to public: intended for the most experienced fundraisers. Every GBP 3 raised will be matched by GBP 1.

Higher education institutions were able to request their own tier, with the exception of the Universities of Oxford and Cambridge, which were included in the third tier. All directly funded further education colleges wishing to participate in the scheme were automatically included in first tier. Each institution’s tier and cap level was confirmed by the Higher Education Funding Council (HEFCE) prior to the start of the scheme.

The following forms of giving were eligible for match funding: actual gifts of cash, gifts of shares, gifts from small/medium-sized charitable trusts and foundations, gifts through higher education institutions own non-consolidated development trusts, corporate gifts, and overseas gifts. Legacies and gifts in kind were not eligible for matching. Higher education institutions had the freedom to decide how match funding was spent.

Source: HEFCE (2008), “Matched Funding Scheme for Voluntary Giving 2008-2011”, Circular Letter, No. 11/2008, HEFCE, Bristol, www.hefce.ac.uk/pubs/circulars/2008/cl11_08/.

In the United States, the Regional Stewardship Initiative of the Commonwealth of Kentucky illustrates a comprehensive strategy to provide incentives for tertiary education institutions to support regional engagement (see Box 3.8). An application of this approach in the Basque Country could be the establishment of a special Basque public-private investment fund to build capacity within universities for regional engagement. It could also provide incentive funds to institutions and individual faculty members for regional initiatives, such as engaging faculty members and students in teaching and learning and applied research projects related to regional priorities.

Box 3.8. Kentucky Regional Stewardship

The goal of the Regional Stewardship Program is to promote regional or state-wide economic development, liveable communities, social inclusion, improved P-12 schools, creative governance and civic participation through public engagement activities initiated by university faculty and staff. To help accomplish this goal, campus administrators are expected to design and implement programmes that align institutional resources and infrastructure to support their missions as “stewards of place”, and to create partnerships and undertake engagement activities that address regional and state needs.

The programme provides three forms of funding incentives to institutions: *i)* infrastructure funds to support the development and maintenance of organisational structures, personnel, information systems and community relationships directed toward the identification of regional needs, opportunities and stewardship priorities; *ii)* regional grant funds to support comprehensive university efforts to build intellectual capacity in stewardship priority areas (to qualify for regional grant funds, each institution must submit a strategic plan for stewardship activities and a priority area proposal to the state Council on Postsecondary Education); and *iii)* the stewardship initiatives pool to support specific public engagement activities at the institutions that improve economic prosperity, quality of life, or civic participation in the region or state, while furthering the goals and mandates of the state’s public agenda to increase the educational attainment of the state’s population.

Source: Kentucky Council of Postsecondary Education “Kentucky Regional Stewardship”, http://cpe.ky.gov/policies/budget/reg_steward_program.htm.

Incentives for university staff

The management and assessment of tertiary education staff performance is an important issue for the Basque Country in ensuring relevance of, and return on investment in tertiary education. This section evaluates the current mechanisms that the Basque Universities have available to steer their staff to

excellence and quality outputs in research, teaching and third mission. Each of the Basque universities has a different culture and ways of encouraging high performance in research, teaching and third mission activities.

UPV/EHU

Universities that want to mobilise their staff for excellence and high quality outputs in research, teaching or third mission (industry collaboration, knowledge transfer, or regional and local development) need to ensure that these aspects are taken into consideration in the recruitment, hiring and reward systems as well as human resource development. Rewards and incentives make it possible to change behaviours and ultimately attitudes and values among the university staff.

The management and assessment of staff performance in public universities in Spain reflects the fact that the university academic and research staff are mainly civil servants. Civil servants must by law be more than half the total number of full-time academic staff at each university. Civil servant university professors are regulated by the national government, although they are employed and paid by the university they work in (which is under the jurisdiction of its autonomous community). Non-civil servant staff is divided into several categories, which may vary across autonomous communities. Some have permanent labour status (since 2002), while others are on fixed-term contracts. The regulations also provide for other categories such as associate teachers (who are external professionals hired for specific teaching assignments) and visiting or emeritus professors. Since 2001, non-civil servant staff needs to undergo an assessment and accreditation evaluation (undertaken by ANECA or the regional quality assurance agency).

UPV/EHU is a traditional public university that has a lack of well functioning mechanisms to reward and steer staff towards excellence in research and teaching, let alone research, education and service related to meeting the needs of industry and society. The staff members at UPV/EHU are mainly civil servants with salaries and rewards defined by Spanish higher education legislation, although additional remuneration can be agreed in the Basque Country. Setting the limits for additional remuneration is the responsibility of the Basque Government's Universities Directorate (The Law 3/2004), whereas UPV/EHU Social Council determines the individual amounts of remuneration.¹ Academic staff is appointed on civil service contracts that largely require them to focus their work on teaching. The key tasks of the university staff are defined as teaching, research and management while the third mission is not included in the list. Promotion and additional payments depend on research performance and publication, but there is little sanction against those who do not engage in research or

enhancement of quality in teaching, and none for those who do not engage in outreach.

Additional payments for UPV/EHU staff are based on a complex set of metrics that provide a suboptimal mechanism for incentives and rewards. Decision on additional payments are based on points earned for a variety of activities covering teaching (50%), research (45%) and managerial (5%) responsibilities over a period of several years, whereas the third mission activities, service and regional engagement are not included in the criteria.² While the UPV/EHU's *claustró* could decide to include work other than teaching, research and management for the tasks of full-time teaching staff, and as part of the criteria for evaluation and remuneration, this has not been taken up on the agenda so far. The points system takes into account a wide range of activities including publications and research income generation, but lacks subjective assessment of quality or sanction for staff not participating. The points system can also support a tendency towards collecting points rather than focusing on excellence, relevance and impact.

At the same time UPV/EHU professors have an opportunity to supplement their salaries much more generously than in many other countries where academic staff is expected to generate income from industry. UPV/EHU's academic staff can generate additional funds to support their research or supplement their salaries through the Euskoiker Foundation, established by UPV/EHU with the three provincial governments and three regional chambers of commerce to bring together companies and academic staff in small research projects, to develop proposals and to provide administrative support for the projects. Through this mechanism, UPV/EHU professors are potentially able to supplement their salaries by up to EUR 127 127 in a year, although this must come from several separate projects (each project is limited to a EUR 15 713 payment). This is a generous arrangement compared to many other countries where academic staff is expected to generate income from industry to support their own salaries and research costs.

Staff incentives in private universities

The two private universities in the Basque Country have developed their own incentive systems using their greater leeway to decide on their governance and management systems. Private universities have their own staff categories, but need to follow the national regulations for example in quality assurance: since 2002, private university professors have been accredited by the national quality and accreditation agency (ANECA) or by the regional quality assurance agencies.

The University of Deusto has developed an incentive system which is based on individualised annual plans and objectives negotiated between staff and deans. If agreed targets are achieved, then additional payments are made. This allows greater flexibility, given that Deusto is more focused on meeting local needs than achieving high status publications. Contacts with the business world are rewarded based on the external funding the staff member brings into the university.

Mondragon University's management and staff reward systems reflect the university's strong industry links. Mondragon University's staff management mechanisms come from the corporate world, with workloads and performance targets agreed upon between staff and managers. Annual appraisal, financial rewards as well as peer pressure are important mechanisms for ensuring performance. Mondragon University's co-operative governance has further implications to staff obligations and rewards. (see Box 3.9).

Box 3.9. Reward system in a co-operative university: Mondragon University

Mondragon University is part of the Mondragon Corporation's co-operative system where each employee is an owner and has a personal economic stake in the future of their co-operative. Before becoming a member of the co-operative the employee must make a payment of at least one year's salary (average of EUR 14 000-15 000) to the co-operative. Within Mondragon University faculties, which each function as a separate co-operative, the reward system has been modified to reflect the fact that the university is a non-profit institution in order to ensure that the university members to have the same rights as the members of other co-operatives. The university reward system allows for members to receive a small percentage of their annual salary (3-6%) at the end of the year if the faculty has a large enough financial reserve to pay for it. Otherwise there will be no bonus. If the faculty experiences losses, they can be "covered" with part of the members' capital. In cases where a co-operative faces extensive financial difficulties, it may use the money in members' capital accounts to cover its expenses.

Box 3.9. Reward system in a co-operative university: Mondragon University (continued)

As part of co-operatives' commitment to solidarity, most co-operatives limit remuneration differences to approximately 1:6, but in the case of Mondragon University the difference is 1:3. The lowest wage is set at the average for the region. The top salaries are much lower than the compensation for equivalent responsibilities in conventional firms. The co-operatives also form an all-inclusive solidarity group made up of all four co-operatives that comprise the university. This group has a "solidarity instrument" that helps co-operatives facing financial difficulties. Every year, 15% of the profit or less of each of the faculties goes into a fund that is distributed among all three co-operatives according to a specific formula.

Source: Wright, S., D. Greenwood, R. Bodden (2011), "Report on a Field Visit to Mondragon University: A Cooperative Experience/Experiment," *Learning and Teaching: The International Journal of Higher Education in the Social Sciences*, 43/3, pp. 38-56.

International experience

Because of the key role that UPV/EHU plays in the Basque Country due to its size and importance as the region's only public university, it is important to create stronger incentives to encourage its staff to pursue excellence in teaching and research, on renewing and strengthening research capabilities and R&D activities, and enhancing third mission activities. One way of facilitating this is to ensure that employment and human resource management practices allow segregation of roles among higher education staff, with different kinds of workloads and reward systems.

In general, universities that wish to emphasise the third mission can use criteria for faculty promotion and tenure that emphasise for example:

Research on issues relevant to the region, giving more emphasis on application, synthesis and integration than to discovery of new knowledge.

Service to the community, while requiring evidence that contributions to the community and the region are documented and externally validated.

Collaboration between the universities (and higher vocational institutions) in the Basque Country.

Given the need to strengthen the efforts in improving the excellence and relevance of research and education, the Basque universities could find inspiration not only by better sharing the good practice examples in the Basque University System but also by learning from innovations within the public university system in Spain. The University Rovira i Virgili (URV) in

Catalonia has developed a strong research base but is also renowned for its broad outreach agenda including technology transfer, industry skills development and cultural outreach in communities. URV has not only created incentives to encourage faculty contributions beyond the conventional arenas of research and teaching, but also created methods to evaluate those contributions. The URV system allows segregation of roles among higher education staff, rewarding excellence in research, teaching, knowledge transfer and management. See Box 3.10

Box 3.10. University Rovira i Virgili: Creating incentives for faculty participation in third mission activities

The University Rovira i Virgili in Tarragona has an active third mission agenda, including entry points for small and medium-sized enterprises (SMEs) to the university knowledge base, social and cultural programming in 22 cities in southern Catalonia and active participation in fostering a knowledge based petrochemical industry cluster in the sub-region.

Contracts for the university faculty emphasise the importance of and give value to faculty participation in these outreach efforts and allow for different staff profiles (i.e. facilitators in the learning process, knowledge generators, service providers) in order to ensure that high staff performance, collaboration with colleagues. The university faculty contract has been re-organised around a system with a ten-point base (Research and academic staff agreement) that direct faculty & administrative efforts to achieving mutually accepted individual, departmental, school and university goals, in line with the university mission. All faculty are expected to undertake research and to teach, with the minimum contractual obligations constituting six of the expected ten points. To reach the expected ten points, faculty can contribute in a variety of ways, according to their interests, expertise and position, by focusing on administrative tasks, research activities, innovative teaching or outreach. For some faculty, this may mean giving presentations in programmes in which the university is developing a presence. For others, it may mean working with a small and medium-sized enterprise (SME) to implement a technology transfer or technology commercialisation project. For other faculty, reaching the ten points may mean additional research and publication.

Box 3.10. University Rovira i Virgili: Creating incentives for faculty participation in third mission activities (continued)

The goal of this governance strategy is to set a base expectation for faculty performance in core activities. This evaluation method also creates the flexibility to allow faculty to contribute in arenas related to the university's goals to expand its third mission activities. All of the criteria for performance constitute a unit contributing to the ten-point base are publicly available and the activities of each faculty member toward achieving the base standard are available to all members of the department. The goal of the university in developing this evaluation programme is to create a more transparent and accountable university. In future, it would be useful to give better visibility for the university expertise.

Source: OECD (2011), *Higher Education in Regional and City Development: Catalonia, Spain 2011*, OECD Publishing, <http://dx.doi.org/10.1787/9789264089006-en>.

Governance and decision making systems in universities

To ensure long term sustainability, the Basque universities will need to prioritise programmes, create greater efficiency in their operations, reach new markets, use technology to cut costs, build brand recognition and demonstrate greater value in terms of graduate employment, knowledge transfer and responsiveness to the needs of their key stakeholders, particularly the population, industry and society in the Basque Country. Any efforts to introduce greater efficiency and prioritisation of programmes are likely to run into opposition from staff members, unless the university leaders have the capacity to gain collective ownership and buy-in for the changes. This section looks into the capacity of the Basque universities to achieve collective buy-in by focusing on the governance, leadership and decision making in two institutions: UPV/EHU as the biggest and most important player in the Basque University System, and the co-operative Mondragon University.

Public university governance in Spain and UPV/EHU

UPV/EHU plays a key role in the Basque University System because of its massive size and role as the only public university in the Basque Country.

As an exception in the Spanish public university landscape, UPV/EHU has a decentralised organisation and management model where the three campuses of Alava, Bizkaia and Gipuzkoa are autonomous in relation to the central administration (see Box 3.11). This facilitates close local links with the provincial governments but may also have adverse effects on central

administration's ability to exercise strategic leadership or influence important horizontal areas.

Box 3.11. UPV/EHU multi-campus governance model

UPV/EHU has three campuses located in the three Basque provinces (Alava, Bizkaia and Gipuzkoa) in the main cities of Vitoria-Gasteiz (administrative capital of the Basque Country), Bilbao (the biggest city in the region) and San Sebastian/Donostia.

The multi-campus university structure is based on a decentralised organisation and management. Each campus has a significant autonomy in their budget and institutional relations and is closely linked to the local needs. Each campus is led by a Vice Rector who is a member the UPV/EHU Governing Council. The campus functions include relationships between the centres, departments, institutes of research of the university and the promotion of the relations with other institutions. The campus activities are developed in co-ordination with the general governing units of the whole university.

In addition to the Basque Government support, the Provincial Councils support campus-specific initiatives. The close relationship with regional institutions supports local strategic development and implementation (Strategic Plan of Donostia-San Sebastian and the strategic plan of Gipuzkoa).

To ensure its long term sustainability, UPV/EHU faces a challenge of rationalising duplicate departments operating across all three campuses, modernising the traditional management of a multi-campus university and improving the university staff performance management with a greater focus on the quality of outputs in research, teaching and third mission activities. Efforts to enhance efficiency, cut cost and prioritise programmes require that the UPV/EHU's leaders have the capacity to gain collective ownership and buy-in for these changes.

Academic leaders of UPV/EHU, as Spanish public universities in general, need to face a complex governance and cumbersome decision making system. Spanish law regulates the governance public universities in great detail. It determines the establishment of collegiate governing bodies at all levels of the university: the Social Council, the Governing Council, the University Assembly (*el Claustro*), and the School and Faculty Councils. It also establishes individual governing roles within the universities (Rector, Vice-Rector, Secretary General, Manager, Dean and Directors of Schools, Institutes and Departments). The Governing Council, which is chaired by the Rector, has up to 50 members, including the Secretary General, the Manager, the Vice-Rectors, representatives of the Deans and Directors and representatives of the university community. The University Assembly (*el*

Claustro), which is also chaired by the Rector, has up to 300 members, comprising of the Secretary General, the Manager, and representatives of all the groups within the university community. The *Claustro* is responsible for approving university statutes as well as appointing professors and electing the Rector, although the 2007 University Act opened the possibility of the Rector being elected directly by the university community.

The Spanish public university governance system gives a major role to academic staff, but limited influence to external partners, despite the existence of the Social Council with its majority of external members. The Social Council is the body intended to represent the public interest in the university but in practice its role and impact seems to remain insignificant in many public universities in Spain. Social Council has the majority of its members external to the university, representing the cultural, professional, economic and social interests of the region. The Rector, the Secretary General, the Manager, a representative of the academic staff, a student representative and a member appointed by the Governing Council are also members of the Social Council, which is chaired by an external member.

Leading research universities globally are seeking ways to better manage their resources. In Europe, many countries have reformed their university governance in order to equip them with stronger decision making capacities and to make them stronger and more accountable to the society (see Box 3.12). While this reform has not taken place in Spain, UPV/EHU and many other Spanish public universities could make progress by taking better advantage of the scope of manoeuvre in the current university legislation. The Spanish university legislation leaves individual university statutes a margin of manoeuvre: for example it does not absolutely define the size for all governing bodies, nor on the way to select leaders of faculties, departments and schools. Most Spanish universities, including UPV/EHU have, however, opted for complex governing bodies, with *Claustros* of 50 members and burdensome election procedures to identify the leaders. This translates the Rector's election process into a university-wide procedure for choosing leaders for all structures which may not be the best process for finding the right skills competencies for leadership.

Box 3.12. University governance reform in European universities

Over the last ten years, a strong movement has taken place across Europe to change university governance and management by making institutions more responsive, autonomous and accountable to their stakeholders. The goal of these changes is to endow universities with governance mechanisms that make them capable of taking the right decisions for their institution and implementing them in a timely manner. University governance models inspired by the corporate sector have become more common in many European countries. These models typically have three levels of governance:

- The Board, in which stakeholder representatives participate, whose competencies include strategic decision making and the responsibility for appointing the Rector or President.
- The Rector or President, whose competencies are those of the chief executive officer.
- A Management Council presided over by the Rector, whose membership is limited to a small number of appointed members who are chosen by the Rector.

In many cases the Rector appoints the Deans of Department Heads who have been nominated by a search committee.

This model centralises decision making power in the Rector and his or her team. It makes the Rectorate responsible for defining the style of management for the institution and for establishing adequate participation mechanisms. It depends heavily on the personal leadership of the Rector to guarantee the institution's mobilisation. It facilitates streamlined process of strategic decision making and implementation. It also allows institutions to adapt to changes with greater ease and speed, enabling them to make necessary reforms.

It is not easy for universities to determine the correct degree of centralisation for decision making and implementation. Given the characteristics of a university as an organisation, a well co-ordinated decision making process across the institution might work better than strong centralisation.

Governance of private universities

The governance models of the private universities in Spain and the Basque Country allow for a greater flexibility than that of the public universities. Nonetheless, representation of the universities' different groups must be ensured in all of the internal governing bodies, including a satisfactory gender balance among representatives. Bodies responsible for academic matters should have a majority of teaching and research staff.

The two private universities in the Basque Country have each developed their own governance and decision making systems that facilitate collective buy-in and ownership. Mondragon University's co-operative governance system (Box 3.13) and modern business management approaches helps the university to adapt to changes by engaging the entire university community and key stakeholders in decision making which ensures institutional buy-in. The four faculties are all self-sustainable co-operatives (or a foundation as is the case of the Gastronomy Faculty), led by Deans in charge of academic development and general directors responsible for management and fulfilment of the objectives in the management plans within the framework of the university strategies and objectives. The University of Deusto's size, private university status, shared ethical base and governance system with strong influence to external partners facilitate decision making and collective buy-in.

Box 3.13. Mondragon University and co-operative governance

Mondragon University is a non-elitist co-operative university and part of Mondragon Corporation, which was created in 1956 and currently the largest business group in the Basque Country and the seventh largest in Spain. Mondragon Corporation combines the core goals of internationally competitive business with the use of democratic principles, advancement of its workers and a commitment to job creation and social development. In 2011, the corporation had over 83 500 employees (8.9% of all the workers in the Basque Country) across the world, including 94 production plants and 281 firms and co-operatives. The 2011 total revenue of EUR 14.8 billion is drawn from its co-operatives in finance, industry, retail and knowledge sectors.

Mondragon University is a co-operative university, which is based on a legal model of a co-operative enterprise. The university is made up of five co-operative entities, each with their own legal capacity. These include four co-operatives, each of which "owns" one of the university's four faculties. The fifth co-operative, Mondragon Unibertsitatea S.Coop., is a "second-order co-operative" made up of the other co-operatives, as well as some additional companies and institutions.

Box 3.13. Mondragon University and co-operative governance (continued)

All the five co-operatives have the standard co-operative management bodies: the General Assembly, the Advisory Board and the Board of Directors. The General Assembly holds supreme power for each of the co-operatives. At the annual General Assembly, all members have an equal vote on the annual business plan, which includes investment decisions, remuneration to the worker-owners and other central business decisions. The Advisory Board is the representative, government and management body and is chosen during its General Assembly through the democratic election. The Board of Directors is the governing board to which the Advisory Board delegates the task of operational management, subject to monthly supervision of the Governing Council and to annual approbation by the General Assembly. The University's Board of Directors consists of the Chancellor, the Vice-chancellor, Deans of the four faculties (who also serve as general managers of their co-operatives), the General Secretary and the Financial Manager. The University's strategic plan and management plan are drawn up on an annual basis. Faculty Deans and the university Rector exercise the functions of the Chief Executive Officer of their respective centres. Under the supervision of the Advisory Board, the faculty Deans, the Rector and the Boards of Directors are responsible for the management and achievement of their annual goals, which are measured by both qualitative and quantitative indicators.

Source: Mondragon Corporation (2009), "2009 Annual Report," Mondragon Corporation, www.mondragon-corporation.com/language/en-US/ENG/Economic-Data/Yearly-Report.aspx; Mondragon Corporation (2011), "2011 Annual Report," Mondragon Corporation, www.mondragon-corporation.com/language/en-US/ENG/Economic-Data/Yearly-Report.aspx.

Conclusions and recommendations

The Basque Country's special autonomy and control over its direct spending have provided a beneficial framework for the development of active policies and strategies that support comprehensive regional development that relate to skills, innovation and industry. As a result of the special autonomies and the foresight of the government, the Basque Country has excelled in making skills, research and innovation for industry development a central pillar of its economic development and prosperity. The Basque Government has created a well developed system for tertiary education in terms of planning, co-ordination, analysis, goals setting, prioritisation and consensus building. It has developed coherent plans for the university and the vocational education sectors, established well articulated goals and made efforts to introduce better co-ordination. It has gained

notable success in uniting the key stakeholder groups and leveraging co-operation across agencies and institutions.

Despite many achievements, the Basque tertiary education system remains weakly integrated. The three components of tertiary education – the university system, higher vocational education and specialised higher education – remain isolated from each other in terms of strategy, policy design and procedures. The Basque University System and Vocational Education System continue to exist as separate systems with a lack of collaboration, shared learning and pathways. There are also significant barriers among the institutions within the University System.

The Basque Government has recognised the importance of collaboration and cross-governmental action in tertiary education. This work has begun with the development of the III Vocational Education Plan which for the first time engaged a broad representation across the Basque Government. Furthermore with the overarching PCTi 2015 the government has aimed to integrate different policy areas that link to innovation, such as tertiary education and research, health, employment and competitiveness. These efforts should be continued and stepped up to develop stronger connections and synergies. Stronger intra-governmental collaboration is needed within the Department of Education, Universities and Research, where currently higher vocational education is the responsibility of a different Vice-Ministry than university education.

The Basque Government has made progress in steering the University System and university to become more responsive to the needs of the Basque society and industries and to focus on the pursuit of excellence in research, teaching and third mission. The University Plan funding model has potential for a more robust tool for steering the universities and to improve their accountability. A more pronounced result-based funding element, stronger accountability schemes and benchmarking tools with appropriate comparators in the EU and OECD countries and regions could be considered. UPV/EHU's reward scheme for academic staff reflects the Spanish higher education legislation where teaching, research and management are the key tasks of the university staff rather than the third mission. The current statutes of UPV/EHU remain prescriptive, constraining the university's management and innovation potential. Due to the lack of collaboration between UPV/EHU and the private universities, there is also limited shared learning within the Basque University System which features some of the most innovative examples of management and staff reward system in Spain.

Finally, with the economic crisis and the ageing of the Basque society, the Basque universities face a critical juncture where they may need to make

a fundamental change in their business model by diversifying their funding streams and becoming more strategic in their allocation of funding. Any efforts to introduce changes in the status quo will require strong capacity of the university leaders to achieve collective buy-in.

The OECD review team suggests that the following measures are taken to enhance capacity building for regional development in the Basque tertiary education system:

The following measures would build capacity for regional development:

Recommendations for the central government

- Review the terms and conditions of service and the civil service status of professors to ensure that they do not discourage engagement and act as an impediment for modernising the public university sector.
- Take steps to modernise university governance, by examining the experiences of the European countries that have undertaken this change in recent years. To remove the barriers for universities' engagement in regional and local development and other entrepreneurial activities, consider replacing the collegial bodies (with elected rectors and deans) with a dual structure with appointed leaders and boards including external stakeholders. Endow universities with increased institutional autonomy over financial, estate and human resources.

Recommendations for the Basque Government

- Develop a co-ordinating structure and appropriate mechanisms to articulate a long-term vision and strategy for human capital and skills development stretching from primary education to tertiary education and lifelong learning. Outline clear qualitative and quantitative goals and policies, and confirm the respective contribution of individual institutions (or types of institution), building relationships among the different components of the education sector. Establish an information system to monitor the performance of the Basque tertiary education and benchmark its progress with appropriate comparators in Spain, OECD and EU countries and regions. This requires: *i*) robust data on the status of the Basque country's human capital, *ii*) a policy audit to identify barriers to meeting needs, *iii*) Basque/Spanish policy to foster

tertiary education institutions with multiple, complementary missions aligned with regional needs, and *iv*) possible revision of student selection, finance policy (institutional, regional and national student support) and governance/regulation.

- Develop data and information on: *i*) educational attainment rates benchmarked to country-level achievement, the OECD and EU averages and the best-performing OECD and EU countries and regions, *ii*) migration by educational level and age, *iii*) tertiary education participation rates (socio-economic status and age groups including youth, adults etc.), *iv*) robust information on which institutions serve the region’s population, *v*) labour market needs, *vi*) degrees awarded by the Basque tertiary education institutions and *vii*) functioning pathways between and among tertiary education institutions, as well as other levels of education.
- Ensure that the key development plans for the Basque Country are implemented in a flexible way but with co-ordination at all levels of organisation.
- In broad collaboration (with universities, HVET institutions and key stakeholders of the industry, labour market and society) develop a Basque Skills and Innovation System connecting the government-driven strategies and bottom-up initiatives, to guide the development of the overall tertiary education system and to optimise its impact on the region.
- Improve lateral co-ordination between universities and HVET institutions and the Basque Government’s different areas of responsibility. Develop a forum to enhance the dialogue between universities, HVET institutions and the Basque Government, linking the various departments/ministries. Devise a programme to link the University Plan with the Vocational Education Plan. Raise funding for this programme from the University and Vocational Education Plans after their mid-term evaluations and revisions. Ensure that the new programme addresses the needs of a more diverse student population, recognises prior learning and experience, develops flexible learning paths and supports mobility between the University System and Higher Vocational Education Systems.
- Make a long-term commitment to tertiary education backed by a sustainable financial expansion plan. A two-pronged strategy could be articulated and implemented to achieve this goal: *i*) mobilise an increasing share of public expenditures for tertiary education in the budget and *ii*) encourage resource diversification in the universities.

- Continue to develop the funding model of the Basque University System to improve the quality, relevance, accountability and efficiency of the universities. The funding system could create stronger incentives for universities’ local and regional development in the form of long term core funding (which could be allocated by a formula against outcomes) and additional strategic incentive-based funding schemes. The funding system could include: *i*) formulae for block grant funding with higher weights for enrolment of students from special populations (students from lower socio-economic and/or migrant backgrounds) or for enrolments in academic programmes related to regional labour market needs, *ii*) eligibility for additional funding could be contingent on evidence of regional engagement and focus, requirements that institutions collaborate in order to obtain funding (with the minimum requirement of at least two Basque universities and one higher vocational training centre) and to provide matching of funding obtained by universities from contracts with regional employers for education and training services. Consider establishing a special regional investment fund (funded from public and private resources) to support building university capacity for regional engagement and provide incentive funds to institutions and individual faculty members for regional initiatives. These could emphasise increasing tertiary education access for the region's target populations, engaging faculty members and students in teaching/learning and applied research projects related to regional priorities.
- To ensure return on public investment and stronger accountability, improve mechanisms for following-up and monitoring the success of their programmes at the universities and university system level. Strengthen evidence-based decision making by focusing on a dashboard of key performance indicators to assist management and steering of the universities. Avoid accountability burden and over-emphasis on what can be measured (e.g. patents, licenses and spin outs) rather than what matters (e.g. creativity or social innovation) and lagging indicators (what has happened) rather than leading indicators (e.g. building capacity to act in the future). Continue efforts to develop a robust information system to monitor the performance of tertiary education and benchmark its progress with appropriate comparators in the EU and among other OECD countries.

Recommendations for the universities and HVET

- UPV/EHU – Consider changing the university statutes to enable a more agile decision-making structure, to reduce collegiality where it is not needed and to empower academic leadership and management. Improve the system of remunerating and rewarding staff to develop greater incentives for excellence and relevance of research, teaching and third mission activities.
- Review staff recruitment, hiring and reward systems so as to include the regional development agenda. Create mechanisms to systematically monitor and evaluate the activities in this area, to share good practice within their institution and within the university system.

Notes

1. According to a proposal from the UPV/EHU Governing Council that was awaiting validation by the Basque University System Quality Evaluation Agency (Agencia de evaluación de la calidad del sistema universitario Vasco) during the OECD review visit (September 2012), it would be the responsibility of the UPV/EHU Social Council to assign the individual amounts of remuneration.
2. A detailed list of the activities considered for a remuneration reward under the categories of teaching, research and management can be found on the website of UPV/EHU (UPV/EHU, 2006).

Annex 3.A1. Higher vocational education in Spain: co-ordination and legal framework

Higher vocational education in Spain is typically provided in centres based in both public and private schools, as well as through distance education. Private provision of higher vocational education may be publicly subsidised. The legal framework for vocational education in Spain includes several laws and royal decrees (see Box below). Higher vocational education encompasses a series of modular training programmes (*ciclos formativos de grado superior*) that vary in duration (one or two years). These programmes comprise different theoretical and practical areas of knowledge, last between 1 300 and 2 000 hours, and include work placements as part of 350-750 hours of the training.

Higher vocational education is co-ordinated by the Vocational Subcommittee of the Sectoral Educational Conference, a body that co-ordinates educational policy across the autonomous communities. In addition, the General Council for Vocational Education (CGFP, Consejo General de la Formación Profesional) acts as an advisory body for public authorities on issues related to vocational education, including at the tertiary level. The CGFP includes the chairman (who alternates every year between the Minister of Education and the Minister of Labour and Social Affairs), four vice-chairmen and a total of 77 members. One third of its membership represents the central government, one third represents the autonomous communities, and one third represents business organisations and trade unions. The CGFP receives technical support from the National Institute of Qualifications (Instituto Nacional de las Cualificaciones, INCual), which is responsible for defining and updating the National Catalogue of Professional Qualifications and the Modular Catalogue of Vocational Education.

Box 3.A1.1. Legal framework for Vocational Education

Law 1/1990 for the General Management of the Education System (*Ley de Ordenación General del Sistema Educativo*, LOGSE) reorganised the education system, reformed vocational education and promotes a favourable social perception of vocational degrees.

The Organic Law for Qualifications and Vocational Education (Law 5/2002, *Ley Organica de las Cualificaciones y de la Formación Profesional*), created a national system of qualifications and vocational education, the National Catalogue of Professional Qualifications (*Sistema Nacional de Cualificaciones y Formación Profesional*), and laid the foundations for an integrated concept of vocational education.

The Organic Law of Education 2/2006 (*Ley Organica de Education*), regulates vocational education based on the National Catalogue of Professional Qualifications and specifies that higher vocational training is part of Higher Education.

Royal Decree 1538/2006 established the structure of vocational education inside the education system.

Royal Decree 395/2007 integrated vocational education and continuing education into a single system and regulates training for the job market.

Royal Decree 1224/2009 regulates the procedure for the evaluation and accreditation of competencies acquired through work experience.

Source: Consejo Vasco de Formación Profesional (2012) III Plan Vasco de Formación Profesional (III Basque Vocational Training Plan) (2012), Descarga de Normativa, www.lanbideheziketa.euskadi.net/es/normativa.php.

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Annex A. Review Team Members

Jaana Puukka is an international higher education expert, currently serving the OECD Education Directorate as a project manager and analyst in the Policy Advice and Implementation Division. She joined the OECD Programme on Institutional Management in Higher Education in 2005 to lead the OECD multi-annual activity in Higher Education in Regional and City Development which has involved reviewing the impact and engagement of higher education institutions in more than 30 cities and regions in over 20 countries. She has co-ordinated three subsequent rounds of reviews and personally led more than 15 reviews – Andalusia (Spain), Berlin (Germany), Bio Bio Region (Chile), the Basque Country (Spain), Catalonia (Spain), the Free State (South Africa), the Galilee (Israel), Lombardy (Italy), the Paso del Norte region (US/MX), the State of Penang (Malaysia), Southern Arizona (US), the State of Victoria (Australia), Wroclaw (Poland) – and has been the lead author for these reviews as well as for the reviews of State of Parana (Brazil), the State of Veracruz (Mexico) and Antioquia (Colombia). She has provided policy advice to national and sub-national governments and tertiary education institutions worldwide. She is the co-author and editor of the OECD publication “Higher Education and Regions – Globally Competitive, Locally Engaged” (OECD, 2007), the editor of the “Post-secondary Vocational Education and Training: Pathways and Partnerships” (OECD, 2012) and the forthcoming publication “Higher Education in Cities and Regions – For Stronger, Cleaner and Fairer Regions”. Before joining the OECD, Puukka was engaged in higher education and local and regional development in Finland as a national and local government adviser, programme manager, practitioner and evaluator. She has held management, expert and advisory positions in the higher education sector, and has worked in university internationalisation, institutional evaluation, regional development, PR & communication and stakeholder management. Her corporate sector experience comes from the biomedical industry.

Bonifacio Agapin is a consultant in the OECD in the Policy Advice and Implementation Division. He joined the OECD Education Directorate in

January 2010 and has supported different strands of work, such the Quality in Teaching Project, the Centre for Effective Learning Environments (CELE) and Higher Education and Regional and City Development. Prior to joining the OECD, Agapin worked in the US public education sector as a Foreign Credentials Evaluator and as a Postgraduate Student Counsellor in the UK.

Maria Helena Nazaré is the President of the European University Association and former rector of the University of Aveiro in Portugal. Nazaré began her academic career in Mozambique, in 1973, lecturing at the University Eduardo Mondlane. She gained her PhD at King's College London in 1978. In 1986, she took up the leadership of the research group in Spectroscopy of Semiconductors in the Department of Physics at the University of Aveiro. Nazaré has a strong higher education management experience given her institutional, national and international positions. Rector of the University of Aveiro since 2002, she was the Head of Department, between 1978 and 1980 and again between 1988 and 1990, Vice-President of the Scientific Council in 1990-1991 and Vice-Rector until 1998. Member of the Research Working Group of the European University Association, and member of the EUA Institutional Evaluation Pool, since 2004, Nazaré has participated in the evaluation of many universities in Spain, Turkey, Palestine and Slovenia. She is the chair of the Portuguese Rector's Conference Committee for Research and Knowledge Transfer and a member of the administration board of Portugal Telecom.

David Charles is Professor of Regional Economic Development and Policy at the European Policies Research Centre, University of Strathclyde. He was previously Dean of Research and Development at Curtin Business School, Curtin University in Australia and Professor of Business Innovation at Newcastle University Business School in the UK where he was director of the research centre on Knowledge, Innovation, Technology and Enterprise (KITE). He has led over 70 research or consultancy projects funded by research councils, the EU, OECD, national government, regional and local agencies and other public bodies, and has over 140 publications (books, chapters, articles and reports). His work on universities and regional development has included leading an eight-country EU Framework Programme project on this topic (UNIREG) along with a number of other projects for national government bodies, regional agencies, university associations, and OECD. Most recently he was co-investigator on an research council project on universities and disadvantaged communities. David has also led a number of studies on regional innovation policy and innovation in clusters for the EU, OECD and regional development agencies. In recent years he has been working on projects on science cities,

open innovation in Scottish SMEs and the development of smart specialisation strategies.

José-Ginés Mora is Visiting Professor at the Institute of Education, University of London. His research is focused on Higher Education and he is author of more than 220 publications. He is an expert in European higher education, higher education management, quality assurance, economics of education and higher education financing. He is external advisor of the Spanish Ministry of Innovation and Science, member of the Bologna Follow-Up Group, former Deputy-Chair of the Governing Board of the Institutional Higher Education Programme (IMHE) of the OECD, former President of the EAIR (the European Higher Education Society), and ex-member of the Steering Committee of ENQA. He is associate editor of *Tertiary Education and Management* and member of the Editorial Boards of *Higher Education Policy*, *Higher Education in Europe*, *Higher Education Quarterly* and *Higher Education Management and Policy*, and ex-Joint Editor of the *European Journal of Education*. He has worked as consultant for higher education matters for several governments and international organisations, such as European Commission, World Bank and OECD.

Annex B. The review Visit Agenda

OECD review visit to the Basque Country, 2-7 September 2012

Sunday 2 September

- 20:00** **OECD review team internal meeting**
- 21:00-22:30** **Meeting the regional coordination team**
- Pedro Luis Arias, Vice Minister of Universities and Research
 - Maite Martinez, Naider

Monday 3 September

- 9:00-10:00** **Overview of the Basque Country economic development and forecasting. Meeting with Lanbide (Basque Employment Service) and CES (Economic and Social Council)**
- Javier Ramos, General Manager at Lanbide
 - Juan M^a Otaegui Murua, President
 - Leire Ozerin, Projects and Reports Manager, CES (Economic and Social Council)
- 10:15-12:45** **The Basque Government**
- Pedro Sanchez, Lanbide Information and Training
 - José Asua, Director Knowledge Transfer in Health
 - Suriñe Gómez, Director Universities in the Basque Country
 - Begoña Ochoa, Director Science Policy in the Basque Country
 - Pedro Luis Arias, Vice Minister of Universities and Research

- 13:30-14:30** **Students of University of Deusto**
- Participants: Student Delegates
- 14:45-15:45** **University of Deusto top management/leadership**
- Jaime Oraá, Rector
 - Roberto San Salvador del Valle, Vice-Rector of Communication, Multilingualism and Social Outreach
 - Begoña Arrieta, Vice-Rector of Academic Organization and Innovation
 - José Luis del Val, Vice-Rector of Research, Innovation and Transference
 - José Javier Pardo, Vice-Rector of Campus of San Sebastian and Identity and Mission and Academic Staff
 - Alvarado da la Rica, Vice-Rector of International Relations
 - José Luis Avila, Dean of Faculty of Law
 - Vicente Vide, Dean of Faculty of Theology
 - Ines Jacob, Dean - Faculty of Engineering
 - Antonio Yabar, Dean of Faculty of Economics and Business Administration
 - Josu Solabarrieta, Dean of Faculty of Psychology and Education
 - José Angel Achon, Dean of Faculty of Social and Human Sciences
 - Eugenio Viyuela, Director-General of Functional Areas and Services
- 16:00-17:00** **University of Deusto: Access, success and employability of students**
- José Bezanilla, Technical Unit of Innovation and Quality (Unidad Técnica de Innovación y Calidad, UTIC)
 - Jesus Pando, Technical Unit for Postgraduate Programmes (Unidad Técnica Académica de Postgrados, UTAP)
 - Isabel Parrondo, Student Affairs
 - Nekane Garatea, Students Office (Deusto Ikaslebulegoa)
 - Javier Cuñado, Deusto Alumni Office
 - Dona Fernandez, Deusto Campus

- 17:00-18:00** **From knowledge production to innovation & jobs: RDI and knowledge transfer (**
- Tontxu Campos, Deusto Entrepreneurship Centre
 - Fernando Diez, DARC – Deusto Advanced Research Centre and Deusto Foundation (Fundación Deusto)
 - Toñi Caro, DARC – Deusto Advanced Research Centre
 - Raul Onaidia, Deusto Entrepreneurship Centre
 - Eva Ausin, Deusto Foundation (Fundación Deusto)
 - Cristina Sanchez, DARC – Deusto Advanced Research Centre
 - Garbiñe Henry, Deusto Social Innovation

Tuesday 4 September

- 9:30-10:30** **The University of the Basque Country Leadership**
- Iñaki Goirizelaia, Rector
 - Carmelo Garitaonandia – Vice Rector of the Bizkaia Campus
 - Itziar Alkorta – Vice Rector of Quality and Innovation
- 10:30-11:30** **Meeting: University of the Basque Country: Access, success and employability of students**
- Julian Aguirre, Director of University Access
 - Mari Carmen Agirre, Alava Campus Orientation Technician
 - Idoia Fernandez, Director of Education Advice Services
 - Alfonso Devalillo, Director at Institutional Assessment and Quality Service
 - María Saiz, Director of External Relations at Bizkaia Campus
 - Edurne Simón, Director of External Relations at Alava Campus
 - Marian Iriarte, Director of External Relations at Gipuzkoa Campus

- 11:30-12:30** **From knowledge production to innovation: RDI and knowledge transfer**
- Iñaki Largo, Director of Relations with Industry
 - Javier Muniozgueren, Managing Director at Euskoiker Ainhoa Aizpuru, Bic
- 12:30-13:30** **Euskampus**
- Igor Campillo, Director Euskampus Foundation
 - Amaia Maseda, Vice Rector of Social Responsibility and Universal Scope
- 13:45-14:45** **Lunch with UPV/EHU Students**
- 14:45-15:45** **University of the Basque Country and contribution to society**
- Juan Ignacio Perez, Director of the Scientific Culture Chair
 - José Luis de la Cuesta, Director of Summer Courses of Donostia-San Sebastián Campus
 - Carmelo Garitaonandía, Vice-rector of the Bizkaia Campus
- 16:15-18:00** **Thematic meeting: The Basque Country HE system and employment generation: Preparing for new and changing jobs, adult education, reskilling and up-skilling**
- Jon Bilbao, Director, Labour Relations, Confebask
 - Carlos Pereda, Training and Employment Technician, Confebask
 - Roberto San Salvador, Vice Rector Communications, Deusto
 - Jon Uriguen, Local Deputy of Innovation, Gipuzkoa Provincial Government
 - Josu Riezu, Financial and HR Director, Engineering in Alternance (Ingeniería en Alternancia IMH – AFM)
 - Idioa Peñacoba, Mondragon University
 - Maria Sainz, UPV/EHU
 - Juan Castro, Director, Innovation and Technology of SPRI
 - Xabier Sabalza, Director, Innovation Trade and Tourism

Wednesday 5 September

- 10:15-11:15** **Quality, innovation and entrepreneurship in vocational higher education: Tknika**
- Jose Manuel Oskoz, Director
 - Austin Aguirre, Coordinator, Training
 - Samuel Triguero: Coordinator, Management Area
 - Ion Labaka, Coordinator, Technological Area
 - Jose Luis Fernandez, Motivator, International Management
 - Victor Arias, Motivator, International Management
 - Aitor Orbegozo: Electronic Engineer
- 11:15-12:15** **Higher VET Teachers**
- Jose Ignacio Fernandez, AEG
 - Asun Alonso, AEG
 - Carlos San Juan, Diocesan
 - Jorge Mancisidor, Goierri Eskola
 - Susana Espilla, Zubiri Manteo
 - Jone Etxebeste, Zubiri Manteo
 - Maria Jose Irastorza, CEBANC
 - Ruben Guenetxea, Don Bosco
 - Armando Martinez, Don Bosco
- 12:15-13:15** **Higher VET Students**
- Gonzalo Vargas
 - Katixa Martinez, AEG
 - Mikel Bergara
 - Eduardo Montero
 - Xabier Osa: Zubiri
 - Xabier Sanchez : Zubiri
- 13:45-15:00** **Basque Culinary Center, Mondragon University**
- Joxe Mari Aizega, Director, Basque Culinary Center

- 15:15-17:00** **Thematic Meeting: The Basque Country HE system’s role in RDI System**
- Scientific Policy Director / Viceminister of Education of Basque Government
 - Manuel Carreiras, BCBL Director
 - Begoña Ochoa, Scientific Policy Director, BG
 - Jose Maria Pitarke, CIC NanoGUNE Director
 - Jose Luis de Val Roman, Vice Rector of RDI
 - Carlos Garcia, Mondragon University
 - Joseba Jaureguizar, Tecnalia
 - Iñaki Largo, UPV/EHU
 - Ione Isasa, UPV/EHU
 - Javier Laucirica, IK4

Thursday 6 September

- 9:45-10:45** **Mondragon University: Top leadership and management**
- Josu Zabala, Rector
 - Altuna, Vice Rector
 - Idoia Peñacoba, General Secretary and Financial Director
 - Lander Beloki, Dean, Engineering School
 - Bixente Atxa, Dean, Polytechnic School
- 10:45-11:45** **Mondragon University: From knowledge production to innovation and jobs: RDI and knowledge transfer**
- Jon Altuna, Vice Rector
 - Carlos Garcia, R&D Manager at EPS
 - Saioa Aranando, Scientific Coordinator, Mondragon Innovation and Knowledge (MiK)
- 11:45-12:45** **Mondragon University: Access, success and employability of students**
- Jon Altuna, Vice Rector
 - Mikel Mesonero, Academic Responsible for Faculty of Business
 - Pili Sagasta, Academic Responsible for Faculty Ed Dept.
- 12:45-13:45** **Mondragon University Students**

- 13:45-14:45** **Mondragon University and contribution to society –services**
- Jon Altuna, Vice Rector
 - Eduardo Beltran de Nanclares, Director, Innovation and Technology
 - Xabier Gorritxategui, Nometech
- 16:00-17:45** **Internationalising the Basque Country**
- Jon Altuna, Vice Rector, Mondragon University
 - Miriam Peñalva, Vice Rector, International Affairs UPV/EHU
 - Asier Aloria, Training Director at Confebask
 - Victor Arias, Tknika
 - Garbieñe Larrano, Innobasque
 - Gotzoa Bernaola, Innobasque
 - Begoña Extrebarria, English Lang Promotion at Global Promotions
 - Aranza Vigiola, Confebask
 - Toñi Caro, University of Deusto
 - Nekarna, University of Deusto

Friday 7 September

- 9:00-13:00** **OECD review team meeting**
- 13:15-15:45** **OECD review preliminary conclusions and roundtable discussion**
- OECD Team
 - Steering Committee
 - Guest Agents:
 - Carlos Pereda, Confebask
 - Leire Ozerin, CES
 - Jon Altuna, Vice Rector Mondragon University
 - Jon Urigüen, Gipuzkoa Provincial Government
 - Jose Luis Fernandez, Tknika
 - Pedro Luis Arias, Basque Government
 - Gotzon Bernaola, Innobasque
 - Victor Arias, Tknika
 - Roberto San Salvador del Valle, Vice Rector of Communication, University of Deusto
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