

Connecting Universities to Regional Growth: A Practical Guide



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A guide to help improve the contribution of universities to regional development, with a view to strengthening economic, social and territorial cohesion, in a sustainable way

September 2011

PREFACE

The Europe 2020 strategy highlights the key role of innovation in contributing to smart, sustainable and inclusive growth. Regions are important sites for innovation because of the opportunities they provide for interaction between businesses, public authorities and civil societies.

In meeting major societal challenges, which have both a global and local dimension, universities and other higher education institutions have a key role to play in knowledge creation and its translation into innovative products and public and private services, a process that can engage the creative arts and social sciences as well as scientists and technologists. This role has been highlighted in the agenda adopted by the Commission in September 2011 for the modernisation of Europe's higher education systems.

A range of mechanisms are available to facilitate this translation process. These include advice and services to SMEs, the placement of graduates in these businesses, incubating spin-offs in science and technology parks, facilitating networks in business clusters and meeting the skills needs of the local labour market. All of these activities and many more can be supported under Cohesion Policy although the conditions of this may vary across regions according to the priorities and rules implemented by the managing authorities of the related operational programmes.

This EU Guide "Connecting Universities to Regional Growth" has been designed to enable public authorities to promote the active engagement of universities and other higher education institutions in regional innovation strategies for smart specialisation, in cooperation with research centres, businesses and other partners in the civil society. It can also be used by academic and economic partners to explore the benefits they can expect from working together for regional development. Moreover, this guide might support those interested in submitting an application to the RegioStars award 2013 on this topic, based on good practice co-funded by Cohesion Policy.

To maximise the effectiveness of universities in contributing to regional growth, the guide provides an analysis of their possible role and presents a range of delivery mechanisms. It explores how to overcome barriers, to build capacity and to implement partnerships and leadership processes to interconnect the partners in regional innovation systems. These issues are illustrated by practical examples and case studies taken from a range of sources and policy documents.

It is not an academic publication but a practical tool with recommendations, part of a series of guides prepared in the framework of the Smart Specialisation Platform set up by the Commission for providing methodological assistance and practical guidance to national and regional policy makers involved in designing and delivering innovation strategies for smart specialisation. It is intended to facilitate discussions between the stakeholders.

This guide will be useful for preparing the next programming period (2014-2020). Indeed, under the proposals recently adopted by the Commission for the future Cohesion Policy Regulations, delivery mechanisms presented here would continue to be eligible, including technical assistance, provided some conditions are fulfilled, such as an appropriate innovation strategy for smart specialisation.

All the regions can make the full use of the last years of the current programming period to test, improve and support delivery mechanisms presented here for better connecting universities to regional growth. Moreover, universities will appreciate the opportunities that their regions present for their activities as 'living laboratories' opened to international linkages.



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The texts of this guide do not bind the European Commission.

HOW TO USE THIS EU GUIDE

The following table outlines which kind of individuals and organisations may find this guide of use (“who”), the specific questions that they might have (“what”) and the sections of the guide where they may find some answers (“how”).

Who	What	How
Public Authorities	<i>What is the role of universities in regional growth?</i>	Section 1 provides an analysis of how universities can impact upon regions and how they can be mobilised for regional economic, social and cultural development
	<i>What are some of the mechanisms for involving universities in delivering regional growth?</i>	Sections 2 to 5 illustrate (using examples from around the EU) some of the potential delivery mechanisms that can be used to maximize the contribution of universities to regional growth
	<i>How can the barriers to mobilising universities be identified and overcome?</i>	Section 6 outlines the key challenges for regions in effectively mobilising universities and suggests how some of the barriers may be overcome
	<i>How can effective partnerships and strategies be created to maximise the relationship between universities and regions?</i>	Section 7 provides a set of practical tools and frameworks which can help in building partnerships in the region to design and deliver effective strategies
Universities and other research or academic partners	<i>What benefit can universities get from working with regional development partners?</i>	Section 1 positions the university in the regional development process and highlights the central role the university can potentially play
	<i>What specific activities can universities get involved in?</i>	Sections 2 to 5 provides an overview of some of the practical ways universities around Europe have been involved in regional development activities
	<i>How can universities improve their ability to engage with regional development actors?</i>	Section 6 gives an analysis of some of the key barriers (internal and external) that universities may face in developing their regional engagement agenda, with case studies used to illustrate how these can be overcome
	<i>What can be done to influence policy makers?</i>	Section 7 outlines a process by which universities can establish a clear role in the regional development and planning partnerships
Businesses and other commercial or social partners	<i>What are the benefits of cooperating with universities?</i>	Section 1 provides an overview of the role that universities can play in economic development, both as a passive and also as an active actor in the process
	<i>What specific activities can be used to leverage the resources of universities?</i>	Sections 2 to 5 highlight a range of examples of how universities can cooperate with private and civil society partners in order to deliver regional development outputs and outcomes
	<i>How can commercial and social partners maximise engagement in regional development and planning?</i>	Section 7 reinforces the importance of genuine partnerships and involvement from all parts of the economy in designing and delivering strategies that will maximise impact

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EXECUTIVE SUMMARY

Overview

This guide is intended to help the Managing Authorities of ERDF Operational Programmes improve the contribution of universities to regional development, with a view to strengthening the economic, social and territorial cohesion, in a sustainable way. While the primary target users of the guide are the Managing Authorities, it is expected that Regional Authorities and other bodies engaged with local and regional development will also find it of value.

It is anticipated that this Guide will be one of the resources in the European Commission's 'Smart Specialisation Strategies' (or 'S³') Platform, the establishment which was announced in the communication "Regional policy contributing to smart growth in Europe 2020". Its primary objective is to provide assistance to managing authorities in Member States and regions on how to optimise the impact of regional funding allocated to innovation.

The guide bridges three knowledge and policy domains – education, research and innovation - the so called knowledge triangle (as described in [Innovation Union](#)¹ [COM(2010)546]. Public authorities seeking to mobilise universities² in support of regional development need some knowledge of all three domains, in particular national and regional policy makers involved in designing and delivering innovation strategies for smart specialisation as well as Managing Authorities designated by the Member States for implementing the Operational Programmes of the Cohesion Policy³. The guide provides an introduction into these worlds but can only scratch the surface.

The guide seeks to:

- provide an analysis of how universities can impact upon regions and how they can be mobilised for regional economic, social and cultural development.
- illustrate (by use of examples from around the EU) some of the potential delivery mechanisms that can be used to maximize the contribution of universities to regional growth
- outline the key success factors in building university/regional partnership, particularly the drivers and barriers on both sides behind such partnership working and how these barriers may be overcome.
- position potential programmes and interventions within the framework for ERDF support

The scope of the work to produce this guide did not permit primary research methods to be deployed, and therefore the sources used to inform the content of the Guide are entirely secondary from articles and websites in the public domain which includes European Commission documents, documentary evidence from workshops, self evaluations and peer reviews. Learning from the following programmes was especially drawn upon; Reviews of Higher Education in City and Regional Development (OECD)⁴; European Drivers for a Regional Innovation Platform (European Centre for the Strategic Management of Universities (ESMU) for EU Lifelong Learning Programme)⁵; and Sharing Innovative Practices in University Management - Collaborative Research (European Universities Association (EUA) for DG Research)⁶.

¹ http://ec.europa.eu/research/innovation-union/pdf/innovation-union-communication_en.pdf#view=fit&pagemode=none

² This document defines the term "universities" as all higher education institutions, irrespective of their name and status in the Member States in line with the definition given in Delivering on the modernisation agenda for universities: education, research and innovation [[COM\(2006\) 208](#)]

³ For more about Regional Policy Programme http://ec.europa.eu/regional_policy/index_en.cfm

⁴ http://www.oecd.org/document/16/0,3746,en_2649_35961291_34406608_1_1_1_1,00.html

⁵ <http://www.eu-drivers.eu>

⁶ <http://www.eua.be/euima>

Context

Considerable effort has been devoted to the preparation of regional innovation strategies in which universities (as distinct from R&D organisations) are seldom mentioned – the focus has been on just one side of the triangle. While universities undertake research and can contribute to its development the guide situates this activity in the context of the other functions of the university, particularly teaching.

Furthermore the dominant paradigm has been one of a technology push, which has largely ignored the potential contribution of the Arts, Humanities and Social Sciences to regional development and innovation. Even the terminology and infrastructure of innovation has had a strong bias towards an assumption of a scientific or technological basis (e.g. many universities have “technology transfer offices”). Many of the examples used to illustrate points in this guide will reflect this dominant approach. However policy makers should consider how this might be challenged going forwards, and seek to embed the non traditional players in the innovation process in future programmes.

Universities in the round have potentially a pivotal role to play in the social and economic development of their regions. They are a critical ‘asset’ of the region; even more so in less favoured regions where the private sector may be weak or relatively small, with low levels of research and development activity. Successful mobilisation of the resources of the university can have a disproportionately positive effect on their regional economies and achievement of comprehensive regional strategies.

In order to effectively engage universities, public authorities need to understand the **principles** underlying why universities can be important agents in regional development. There is also a range of **mechanisms** available to support engagement, many of which are already being deployed. However it is the strategic coordination of these within a wider policy context that will produce the maximum impact.

It is important to recognise that there may well be a series of complex **barriers** and challenges to be overcome, both internal to the universities and in the wider enabling environment. If public authorities and the key regional partners understand the principles, practices and barriers and how to overcome them, the potential for maximising the contribution of universities is almost boundless. Achieving this is a long term objective and will require a staged approach moving from simple projects to more integrated collaborative programmes.

While this guide focuses on what the region can ‘get’ from its universities, it should be recognised that this is a two way process and the university benefits from its presence in the region as well. Universities should appreciate and maximise the potential of the opportunity that their region presents, not least as a ‘living laboratory’⁷ for their research.

⁷ More information on ‘living labs’ in a European context can be found here - <http://www.openlivinglabs.eu/>

Key findings and recommendations

Mobilising universities needs to be addressed in a 'holistic' way and not just by focussing on transactional interventions such as consultancy services for local companies. It is tempting to focus on transactional mechanisms as they have clear outputs such as the number of firms assisted. However they are less likely to have the longer term outcomes and impacts that can be achieved with 'transformational' and more developmental programmes such as contributing through teaching to a regional human capital development programme linked to research based support to firms in a key regional business cluster.

It is recommended that there should be an active attempt to a shift from 'transactional' to 'transformational' interventions with a greater emphasis on programmes rather than one-off discrete projects.

Transformational and holistic programmes are far more difficult to develop as the outcomes are often unclear from the start, so it requires a very strong partnership with vision and courage to undertake their development. This can only be addressed by an inclusive, empowered partnership of key people with the appropriate leadership skills.

It is recommended that a partnership is established in the region to specifically address the issues of engagement between universities and regions and particular attention is given to ensuring the sustainability of partnerships in the longer term, independently of funding cycles.

Investment in people development within the university and its regional partners will be critical, as the kinds of skills needed to undertake these transformational programmes are often in short supply, especially in less favoured regions. Leadership and boundary spanning skills are essential, as well as capacity to critically assess progress (both internally through self evaluation and externally through expert peer review processes).

It is recommended that Managing Authorities should assign funds from their technical assistance budgets to support this and universities, business communities and other public sector authorities should match this to demonstrate their commitment to the process by investing in their own development.

The work of the OECD in its Reviews of Higher Education in City and Regional Development, the EU-Drivers for a Regional Innovation Platform (European Centre the Strategic Management of Universities(ESMU) for DG Education and Culture) and the EUIMA Programme (European Universities Association (EUA) for DG Research) on Sharing Innovative Practices in University Management - Collaborative Research provide important guidance to this process, and it is interesting that many of the regions highlighted in this Guide have actively participated in one or both of these programmes.

It is recommended that Regional Partnerships consider participating in the OECD programme of regional reviews in order to help identify their current strengths and areas that may require capacity building and consider carefully the findings of EUA and ESMU programmes.

European funding programmes are often not seen as attractive to universities, who may have access to other sources of funding for their research activities which have higher intervention rates and/or seek outputs that are in tune with standard academic principles and practices. Furthermore the processes for costing overheads and academic time can be perceived as overly bureaucratic and complex, requiring the university to have specialist staff to manage applications and projects to ensure compliance with regulations.

It is recommended that some simplification and flexibility in implementing Cohesion Policy Regulations is considered and that Managing Authorities are actively encouraged to adopt a more flexible approach.

The approaches focused on in this guide to illustrate the principles within it are primarily drawn from existing mechanisms currently being deployed, and therefore there is a bias towards a linear, science driven and technology ‘push’ approach to innovation. However, there is a need for social and service as well as technological innovation, especially in addressing the Grand Challenges such as climate and demographic change which have regional as well as global dimensions and attempting to respond to the Lund Declaration⁸.

It is recommended that Managing Authorities and Universities adopt a broader definition of innovation to acknowledge the role that arts, humanities and social sciences can play, especially in responding to the ‘Grand Challenges’⁹ and develop mechanisms that draw on the expertise and contribution from these disciplines to issues like regional entrepreneurship, creativity and social inclusion which form key dimensions to territorial development in the round.

⁸ http://www.se2009.eu/polopoly_fs/1.8460!menu/standard/file/lund_declaration_final_version_9_july.pdf

⁹ Defined in the Lund Declaration as “areas such as global warming, tightening supplies of energy, water and food, ageing societies, public health, pandemics and security.”

SECTION 1 UNDERSTANDING THE ROLE OF UNIVERSITIES IN REGIONAL DEVELOPMENT

1.1 Tapping into the knowledge base about the role of universities in regional

There is a growing body of theory and practice about the role of universities in regional development. This has been summarised by OECD in its 2007 report Higher Education in Regions: Globally Competitive, Locally Engaged¹⁰. This has identified why regional authorities across the OECD countries are seeking to mobilise universities in support of their regional development strategies and why, for their part, many universities are engaging with the development of their regions (the drivers). A key message from OECD is that successful partnerships depend on both universities and regional authorities understanding each other's drivers. Too often partnerships fail because university managers do not understand the challenges of regional development and regional authorities do not understand the core mission of universities and the constraints within which they work. However, once mutual understanding is reached it is possible to put in place structures and procedures which overcome the barriers to collaboration. This mutual understanding can come from appreciation of some of the general principles as to *why* the universities in a region have the potential to contribute to its development and from case studies about *how* those principles have been translated into practice. Understanding principles as well as practice is important as it reveals that while there are some universal mechanisms that can be adopted across the whole of the EU in this area – what is actually effective is highly contingent on regional and national circumstances, including the region's industrial structure and governance, and how universities are funded and regulated within their national higher education system.

1.2 Why universities are important for regional development

At the most basic level, universities can be anchor institutions in local economies as major employers across a wide range of occupations, purchasers of local goods and services, and contributors to cultural life and the built environment of towns and cities. Regional investment in the infrastructure of a university to support its core business of research and teaching can therefore have a significant *passive* regional multiplier effect even if the university is not *actively* supporting regional development.

But what of the more active contributions that universities can make? This can be broken down into four areas – business innovation which is closely linked, although not exclusively, to the research function of the university, human capital development linked to the teaching function and community development linked to the public service role of universities. The fourth area is the contribution of the university to the institutional capacity of the region through engagement of its management and members in local civil society. These are the four areas covered in the OECD reviews of the universities and regions (Figure 1.1, HEIs acronym used for "universities"). Where these four domains are integrated, the university can be seen to be occupying a "proactive" and not just "passive" role in the regional development process.

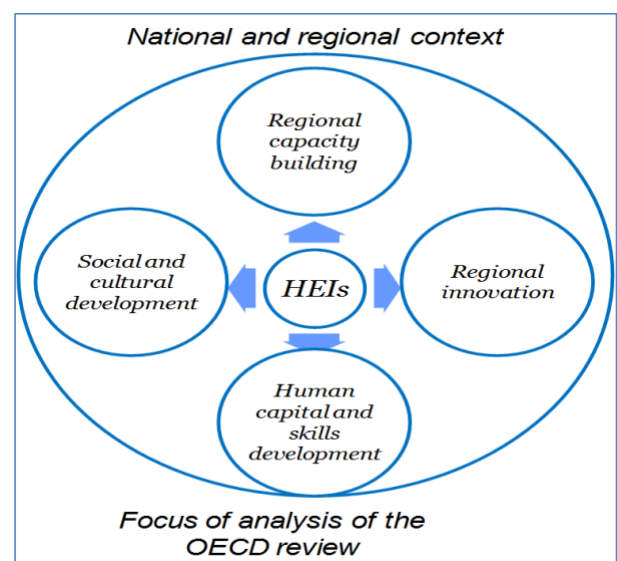


Figure 1.1 OECD analysis framework

¹⁰ <http://www.oecd.org/dataoecd/51/27/39378517.pdf>

1.3 Universities and regional innovation

The main focus on promoting the active engagement of universities in regions has been in terms of their contribution to Regional Innovation Systems (RIS). This has gained a new salience in the context of the advancement of the notion of regional “smart specialisation” as a future focus for European regional policy. According to McCann and Ortega-Argilés¹¹ smart specialisation “*envisages that the identification of the knowledge intensive areas for potential growth and development are related to the role of certain classes of players (researchers, suppliers, manufacturers and service providers, entrepreneurs, users) and the public research and industry science links. The players are regarded as being the agents who use the knowledge acquisition facilities and resources (human capital, ideas, academic and research collaborations) to scan the available local economic and market opportunities, to identify technological and market niches for exploitation, and thereby act as the catalyst for driving the emerging transformation of the economy*”. Universities can therefore play a key role in defining a regional smart specialisation strategy by contributing to a rigorous assessment of the region’s knowledge assets, capabilities and competencies, including those embedded in the university’s own departments as well as local businesses.

Historically public support for universities engaged in regional development has followed the US experience of Silicon Valley in focussing on high-tech knowledge areas like IT and bio-technology and fostering spin outs of businesses from research labs using science parks as a key mechanism. However, such initiatives often fail to recognise the time and place specific nature of the US experience making it difficult to transfer to long established European industrial or agricultural regions. In contrast the smart specialisation approach recognises the opportunities for technological diversification strategies of major locally embedded industries to which the university research base can contribute. This is not to deny the role of university spin outs adding to the body of entrepreneurial activity in the region and the attraction/retention of global businesses by the assets (physical and human) that the university has to offer.

1.4 Human capital and skills

Universities can act as a powerful magnet for attracting talented students and staff into the region from other parts of the country and even further afield. In addition, through their teaching at undergraduate and postgraduate level, universities have the potential to add to the stock of human capital by means of graduate recruitment into regional businesses, possibly following work placements as part of the student’s degree. More particularly, graduates can provide the gateway or connectivity through which knowledge exchange between researchers and businesses takes place. But all too often teaching programmes respond solely to student demand and a national labour market for graduates particularly when there is no clearly articulated business demand linked to regional innovation drivers. The consequence is often graduate emigration to more dynamic regions.

1.5 Social and economic development

It goes without saying that regional development is about social as well as economic cohesion within as well as between regions. Universities can play a key role in this domain through access programmes designed to widen local participation in higher education. In the process they can increase the supply of skilled labour as local recruits are more likely to remain within the region compared with those joining the university from elsewhere. Also as businesses undergo technological transformations current workers can upgrade their skills through university lifelong learning programmes. Last but not least a region’s population can be a “living lab” for researchers in the universities and business to identify new market opportunities and evaluate service as well as product innovation. Nowhere is this truer than in

¹¹ Philip McCann and Raquel Ortega-Argilés (2010). Smart Specialisation, Regional Growth and Applications to EU Cohesion Policy.

relation to those innovations relevant to sustainable development. In this domain as elsewhere academic interventions need to embrace the social as well as the technological.

1.6 The university drivers

There are many factors driving universities to engage with their regions. In terms of student recruitment, declining public funding for students is meaning more will have to be recruited locally. This may involve developing links with schools especially in relation to areas like science where there is often a shortage of good applicants. Demonstrating the local availability of science-based jobs is often important for such campaigns. In the national and international marketplace for students (and also academic staff) the need to promote and contribute through its campus to the attraction of the town or city as a place to live, work and study is a key driver for the universities. This may involve fostering the local creative economy. Finally, at the graduation stage, universities are often judged by the employment record of their students. Here work placements with local companies may increase the labour market prospects of the student.

In terms of research, science and technology policy at both a European and a national level is increasingly emphasising the importance of collaborative research between universities and the public and private sectors. So just as there are regional drivers for business to “reach in” to the universities, so there are drivers within universities to “reach out” to business. And because of the importance of face to face contact within such collaborations there is a strong case to be made for these links to be at a local level.

In the societal sphere regional engagement is an obvious arena in which universities can demonstrate their contribution to the public good – through such programmes as public lectures, concerts, museums, theatres, student community action and recruitment of students from disadvantaged social groups.]

1.7 Building regional capacity

The preceding discussion has highlighted the potential contribution of universities to regional development. Realising this potential is another matter as there are many barriers in the way. On the university supply side, higher education policy in most member states is “spatially blind” as is most research and innovation policy. Academics and their universities are rewarded on the basis of the scientific excellence of their research and where they collaborate with business there are strong incentives for this to be with leading companies in the field regardless of their location. While university technology transfer offices are dedicated to the commercialisation of research, including spin outs, they are generally not resourced to support regional development where the outcomes such as job generation may be outside the domain of higher education. The consequence of all of this is that the national and international rankings of universities are by and large correlated with the hierarchy of regions.

On the teaching front student places are allocated on the basis of national rather than regional needs. While some countries have binary systems of higher education embracing universities and polytechnics, with the latter being more regionally embedded, the incentives for collaboration across the binary divide are limited. Last but not least university leaders may not have the authority because of national legislation around the governance of these institutions to mobilise resources to meet regional development needs.

On the regional demand side while a region might possess a strong university or universities there might be limited absorptive capacity in local enterprises, especially SMEs or the branches of multinational companies with no local in-house R&D. On the institutional side local governments may be fragmented and unable to act beyond their immediate boundaries. The entrepreneurial environment, including venture capital funding, may be inimical to university spin outs. In such circumstances the bundling together of demand for university services will be challenging.

Notwithstanding these barriers, and as the Barca Report¹² makes clear, the implementation of effective regional development strategies requires “the explicit spatial targeting of bundles of public goods tailored to the local context and specifically designed to foster local development by encouraging the maximum engagement of all stakeholders and parties in local development issues”. Universities working with regional authorities have the potential to move from being located in regions to being part of regions through contributions to the design and implementation of smart specialisation strategies in a local learning and capacity building process.

Universities can play a key role in helping public authorities build these strategies by enhancing the skills and competencies of their staff working in the field of economic development through consultancy services and training of graduates. This would involve university departments of economics, geography, planning, public administration and business management as well as those dealing with specific policy areas such as health, agriculture, environment and culture. A dedicated unit may be necessary to bring these academic skills together.

The OECD¹³ has established a mechanism for kick-starting such a learning process by means of a self-evaluation by universities and their regional partners of how well they are working together across all four of the domains discussed here. The self-evaluation is overseen by a partnership board and then the subject of an external peer review designed to assist the partnership with its future development, including moving from a project by project approach to a programme in which universities are major players in shaping the region’s development. A variant of this model could be adopted by European regions seeking to work more closely with their universities as key players in taking forward a regional strategy for smart specialisation (RIS3). The leadership role of the universities in this process might be recognised by the incorporation of university leaders into a high level Regional Knowledge Leadership Group responsible for the design and delivery of the strategy. Under this umbrella the region may wish to establish partnership sub-groups dealing with specific areas such as higher education itself, information society and sustainable development with each group recognising that universities can contribute to all of these knowledge domains.

¹²Fabrizio Barca (2009). An Agenda for a Reformed Cohesion Policy

¹³ <http://www.oecd.org/edu/imhe/regionaldevelopment>

1.8 The mechanisms by which universities can and do contribute to regional development

As highlighted earlier, there are a range of ways in which universities can and do contribute to regional development and smart specialisation. However within each of these roles there are a range of mechanisms which can be employed, either as individual projects or collectively as part of a wider programme or strategy to support a regional development agenda.

The following sections explore each of these under the four key areas through which universities most commonly engage in regional development (as depicted in figure 1.2);

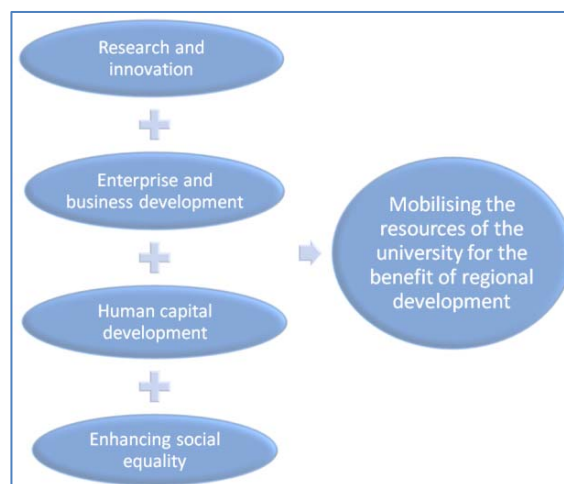


Figure 1.2 Four key areas for university engagement in regional development

- Enhancing regional innovation through their research activities
- Promoting enterprise, business development and growth
- Contributing to the development of regional human capital and skills
- Improving social equality through regeneration and cultural development

In reviewing these mechanisms it is important to make a distinction between the regional impact of ‘normal’ university activity financed as part of the core business of teaching and research and purposive regional interventions initially funded from a source outside higher education and then hopefully ‘mainstreamed’. As summarised in the table below Individual mechanisms can vary in their complexity. At one end of the spectrum are fairly straightforward ‘transactional’ services in response to a stated need or demand; at the other end of the spectrum are more developmental or transformational activities which recognise latent or unstated needs.

	‘Transactional’ services	Transformational activities
Type of need / demand	stated need or demand	latent or unstated needs
Type of approach	<i>output</i> driven approach	<i>outcome</i> driven approach
Type of objectives	clear objectives	less explicit objectives
Link to time	usually time bound	less clear timelines

Table 1.3 Transactional vs. Transformational Interventions

In considering these interventions it is important to recognise the challenge of appropriate indicators to measure their regional impact. Certain types of intervention may be preferred simply because it is relatively easy to count the **outputs** such as patents registered or new business spun out as a result of university research as compared with interventions that support capacity to build long term **outcomes** and which are more difficult to measure. Indeed, because there may be a national correlation between for example public inputs into research and outputs in terms of the licensing of new products, this does not necessarily mean that mechanisms have to be put in place at the regional level to expedite these

outputs. Investment to achieve longer term capacity to realise innovation outcomes through collaboration between universities and business may be more appropriate.

With these caveats in mind the following sections will draw on case studies of interventions from around Europe, some of which have been funded from EU support instruments, including Framework 6 and 7 programmes and Structural Funds of the Cohesion Policy (ERDF and ESF). All of these are concerned with promoting research, innovation, competitiveness, human capital or improved mobility. As these examples and 'case studies' can only provide a small taste of the complexity of the interventions being described, links to further information is provided where possible. The interventions are classified according to their potential to transform regional economies and the complexity of effort required for their implementation. Each group of interventions is introduced followed by a set of tables describing individual mechanisms, their potential impact on regional development and the challenges that may be faced in implementation and are illustrated by a brief example.

While this document seeks to provide some guidance on why and how universities can be more connected to regional growth through engagement with EU competitiveness and cohesion programmes, it is also important to recognise that there are issues in the policies and guidelines governing these funding instruments that may act as additional barriers to engagement and involvement of universities in regional development.

Feedback from both universities and managing authorities suggests that universities can be reluctant to commit to involvement in EU funded projects because of a perceived risk to the institution of 'claw back'. In particular Article 55 of the regulations (i.e. that any revenue generated from the investment has to be deducted from the overall budget) can act as a serious disincentive for universities from undertaking the more transformational and complex activities where the outcomes are less clear.

Furthermore, there is concern about the processes for costing overheads and academic time which are perceived as overly bureaucratic and complex, requiring the university to have specialist staff to manage applications and projects to ensure compliance with regulations. For some universities, particularly those who can more easily access funding elsewhere for their research activities, it is sometimes seen as simply 'not worth the bother', particularly when intervention rates are capped at 50%.

Managing authorities who wish to connect their universities more firmly in the regional development process, and particularly enhancing their contribution to regional innovation strategies for smart specialisation, could require some simplification and some flexibility in implementing Cohesion Policy Regulations. In the framework of the last years of the current programming period and of the future programming period, these issues are being and will be discussed in a partnership process involving the Commission and the relevant authorities in the Member States. Universities should also seek to contribute actively to this process.

SECTION 2 ENHANCING REGIONAL INNOVATION THROUGH RESEARCH

ACTIVITIES

2.1 Introduction

Research and development activities play a key role in regional development by providing the knowledge base that can underpin innovation. One of the most important ways in which a university can contribute to its region is through the ‘translation’ of its research (and that of others) into a form that can be taken up by regional actors in the private and public sector. The word ‘translation’ is associated with what is sometimes referred to as the ‘assisted linear model’ of innovation that starts with research. However it is important in designing interventions to recognise that university research can be drawn into the regional innovation process by demand from the regional public and private sectors for expertise relevant

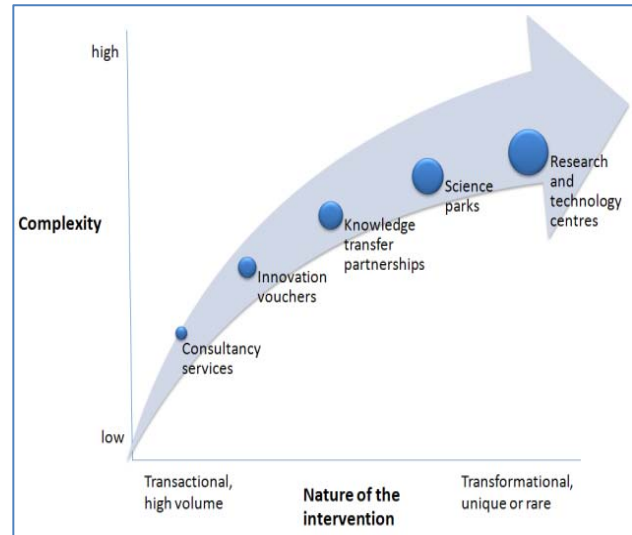


Figure 2.1 Enhancing regional innovation through research activities

to business and household activities. It is in this area that the skills of business schools and the social sciences and humanities can be mobilised – for example in relation to organisational innovation, social innovation and the public policy environment within which regional actors operate. In short the contribution of university research to regional innovation has to be seen as multi-disciplinary and iterative as well as linear.

Figure 2.1 suggests a range of mechanisms through which the translation process can take place ranging from the most simple such as the provision of consultancy services through to more complex links with nationally strategic research centres.

Starting with consultancy services and innovation vouchers, these are about unlocking the knowledge and expertise of the university for the benefit of local businesses. Consultancy services are usually delivered in response to a request from a business to support it with a specific project. The service will be delivered against a clear terms of reference and will be time bound with clear milestones and deadlines. Innovation vouchers are a bit more complex as they are geared towards stimulating demand for university research rather than a response to existing demand. Innovation vouchers support SMEs to purchase services for which the outcomes and process will be less clear. This can range from addressing problems in the business operations to helping unlock innovations in products or services. There have been a number of reviews of voucher schemes within the EU and beyond which can help in building a deeper understanding of this mechanism, such as the report Availability and Focus on Innovation Voucher Schemes in European Regions¹⁴ from DG ENTR.

¹⁴ http://www.europe-innova.org/c/document_library/get_file?folderId=122731&name=DLFE-6403.pdf

Knowledge transfer partnerships (KTPs) are about encouraging the mobility of human capital between the university and local businesses. Post graduate (often post doctoral) staff from the university work on relatively long term research projects (usually 1-3 years) within a local company and are overseen by commercial and academic supervisors. As well as the obvious benefits of diffusing research into commercial arenas, KTPs are also important tools in developing 'boundary spanning' skills among the people involved in the project which leads to improved relationships between the university and local companies and creates greater opportunities for future collaborations. Because of the reliance on human capital and 'soft skills' in the success of KTPs it is seen as a relatively complex but potentially transformational activity for the beneficiaries.

Science Parks and Research and Technology Centres require significant capital investment, but it is what takes place within them that has the potential to have a transformational impact. Science parks are generally established to house new and existing businesses in a 'hub', often with strong links to research centres and universities. They are aimed at supporting the exploitation of research that has already proven to have commercial applications. In contrast, Research and Technology Centres generally support technologies at a much earlier stage in development or technological 'readiness'. They provide a focus for the downstream investment in new technologies emerging from the research base in universities in order to bring them closer to market commercialisation and bridge the gap between research and its application as illustrated in Figure 2.2. Universities are therefore more likely to be involved in the activities of research and technology centres than science parks. There will tend to be a high level of public investment in the activities in such centres as they are seen as important players in supporting the development of national innovation and competitiveness and **may** also be assigned a regional role. It is worth noting The Smart Guide to Innovation-Based Incubators (IBI) published by DG REGIO in February 2010 as a useful supporting document in this area¹⁵.

In addition, the Europe 2020 strategy¹⁶ clearly signalled the importance of industrial competitiveness for growth and jobs as well as for Europe's ability to address grand societal challenges in the coming years. Mastering and deploying Key Enabling Technologies (KETs) in the European Union is central to strengthening Europe's capacity for industrial innovation and the development of new products and services needed to deliver smart, sustainable and inclusive European growth. The Final Report of the High Level Expert Group on KETs¹⁷ is a useful source of further information.

From this brief description it will be seen that these intervention types vary in their depth, complexity and the time it takes to establish and maintain them, and so it may be necessary for the region to think in terms of an evolutionary process building towards the transformational change.

When designing interventions it also needs to be recognised that the regional innovation systems is not a closed one, but operates in a wider national and even international context. So as well as promoting a bottom up process of developing partnerships and building relationships, it is also important to be aware of the top down, strategic influence of national and regional innovation policy.

¹⁵ http://ec.europa.eu/regional_policy/sources/docoffic/2007/working/innovation_incubator.pdf

¹⁶ http://ec.europa.eu/europe2020/index_en.htm

¹⁷ http://ec.europa.eu/enterprise/sectors/ict/files/kets/hlg_kets_report_en.pdf

Technology readiness

When considering research and innovation related activities it is important to consider the stages between basic research and 'market ready' products and services and recognise the danger of a 'missing link' between the two stages, where activities are too far from basic research to interest universities and too far from market to interest private companies (see Figure 2.2 below). This innovation chain will be sector specific and it is therefore important to understand the nature of each of the stages in relation to the industrial development policies of the region in order to determine where public investments might be needed.

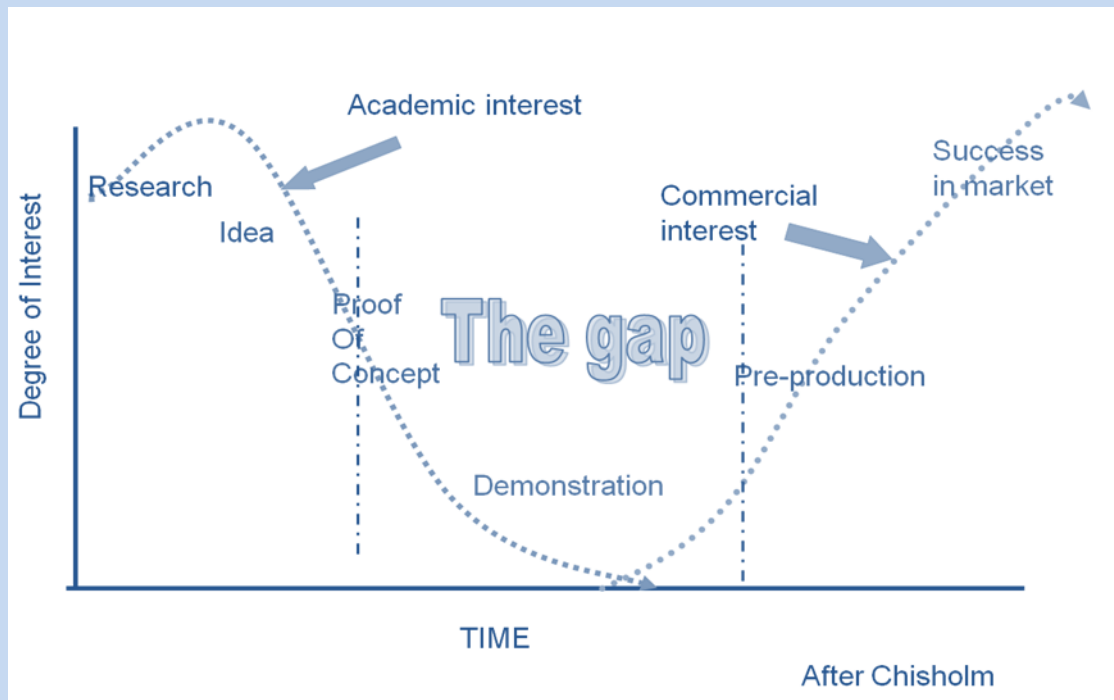


Figure 2.2 Technology readiness

One approach to analysing this chain is presented in a Communication from the Commission (coordinated by DG Information Society) Pre-commercial Procurement: Driving Innovation to Ensure High Quality Public Services in Europe¹⁸. Public procurements, including at pre-commercial stages, are highlighted in the EU 2020 strategy and related documents as instruments to be promoted in the framework of innovation systems.

¹⁸ http://ec.europa.eu/information_society/tl/research/priv_invest/pcp/documents/pcp_brochure_en.pdf

2.2 Consultancy Services

Description This is one of the most straightforward ways of encouraging business-university interactions. Universities will often have some kind of ‘business engagement’ office or centre, where businesses can request specialist support in overcoming what is usually an immediate problem which requires a short term solution. Projects are usually time bound, contract driven and with clear milestones, targets and costs. Regional, national or European funding mechanisms can be employed to subsidize the cost of the intervention.

Potential impacts for regional development It enables businesses to access the vast knowledge resources of the university and also helps to embed university expertise within the private sector, thus demonstrating impact of their research. Businesses that engage with universities are more likely to be innovative and growth oriented and therefore have the potential to make a greater contribution to their local and regional economy.

Issues and challenges Many businesses find it difficult to identify access points and route ways in to universities. Universities need to not only proactively promote their services to local businesses but also ensure that there are clear contact and entry points.

There is often a clash of cultures between the academic and private sectors, with businesses motivated by immediate solutions and returns in the short term, while university staff may be more motivated by longer term research outputs. Clear terms of reference must be established to ensure that expectations are shared and realistic.

Providing consultancy services is predicated on the assumption that businesses already know exactly what it is they need to overcome their problems and/or grow. In many cases (especially in lagging regions) there may be a lack of capacity within SMEs to effectively diagnose their own needs and identify possible solutions.

Case study *Active Technology Transfer, Steiermark Region, Austria*

The Steiermark region piloted a project in which SMEs not usually targeted by innovation policies were offered consultancy and technology transfer. Four partners, three universities and a private research body, worked together for this project, establishing a consortium to implement the project. Following the piloting of the project, a successor project, Technofit Pro, was implemented by the same partnership with similar objectives building on the experience gained under the ATT project. This successor project is co-financed under the mainstream Objective 2 programme of the region and is expected to be followed up again in the Steiermark Regional Employment and Competitiveness Operational Programme for 2007-2013.

http://ec.europa.eu/regional_policy/cooperation/interregional/ecochange/goodpractice/1knowledge/2links/at_att.pdf

2.3 Innovation Vouchers

Description Innovation Vouchers enable small and medium-sized businesses to buy specialist support from knowledge-based institutions. They differ from consultancy services as they are aimed at helping the development of new products, services and processes rather than solving existing problems in the business. In order to stimulate demand they are often heavily subsidised.

Potential impacts for regional development This is a more complex area than simply responding to a request for services as in the case of a consultancy relationship. Encouraging businesses to engage in innovation will be for many a step into the unknown. However we know from a range of measures and analysis tools that regions where there are high levels of innovation among businesses they are more likely to be successful than others. Universities with their research orientation and curiosity driven cultures have a large role to play in fostering innovation in their regions.

Issues and challenges For many businesses, particularly SMEs, coping with day to day operations takes up all of their time. Innovation can be seen as an esoteric concept and something of a 'luxury' when there are pressing commercial decisions to be made. Businesses often focus on the 'here and now', while investing in innovation is not only relatively expensive but can be very long term in its outlook.

University researchers may be focused more on academic outputs (e.g. publications, case studies etc.) and fail to 'sell' the benefits of engaging in innovation and research to businesses. Sometimes even the different language and terminology can be off putting.

Innovation fosters innovation. While there may be effective engagement between universities and businesses it is often the businesses with a track record of engagement with the university that come forwards. The challenge is how to promote innovation to the businesses that are least engaged (and therefore need it the most).

Case study *University of Tartu Institute of Technology, Tartu County, Estonia*

The Innovation Voucher Grant programme that opened in February 2010 is the simplest way for enterprises to launch co-operation with research institutions for the purpose of implementing innovative ideas. Estonia's small enterprises have received innovation vouchers from Enterprise Estonia for implementing 149 innovation projects. The total volume of grants financed from the European Regional Development Fund is now close to €600,000. Innovation vouchers have been used to implement a large variety of innovations. In addition, many of the projects focus on energy efficiency and on being environmentally-friendly.

http://hei.eas.ee/index.php?option=com_content&view=article&id=636:enterprise-estonia-gave-innovation-vouchers-for-149-small-enterprises-last-year-&catid=41:news

2.4 Knowledge Transfer Partnerships

Description Knowledge Transfer Partnerships (KTPs) are a tool primarily employed in the UK, where they have attracted significant national government investment. KTPs enable businesses with a strategic need to access a University's expertise and knowledge to improve their competitiveness, productivity and performance. The scheme involves a high calibre graduate (KTP Associate) working in a company with academic supervision. This often results in strategic advantages for the company; academic benefits to the University and valuable industrial experience to the Associate. Depending on the needs of the organisation and the desired outcomes, KTPs can vary in length from one to three years.

Potential impacts for regional development KTPs are an important tool in disseminating research from universities into local businesses and communities. These ensure that maximum 'value' from the investment in research is embedded in the region. Researchers who are not subject to the day to day commercial pressures of running the business can be highly skilled in helping to identify and overcome endemic problems. Also universities may be working with a number of businesses in the same industry, so can diffuse learning between them. University researchers may be operating in a much broader geographic sphere than SMEs and therefore can bring global experience and expertise to help address local issues.

Issues and challenges Universities, especially those with worldwide reputations for research excellence in a particular industry or technology will be in demand by the leading businesses regardless of their location. It is therefore a dilemma of less favoured regions that their universities may be supporting business in more favoured regions, which have the capacity to demand and work with their researchers, to the detriment of business and economies in their own region. The huge challenge is how to increase the absorptive capacity within SMEs in less favoured regions for university research?

Case study Instituto de Tecnología Cerámica (ITC), Valencia, Spain

ITC is a mixed Institute created by agreement between the Ceramic Industry Research Association (AICE) and Universitat Jaume I (UJI) of Castellón. It was established in 1969 in response to the needs and demands of companies from the Spanish ceramic cluster and has, over the years, articulated a university–business cooperation system that has contributed significantly to the notable development of the Spanish ceramic tile manufacturing industry.

ITC has played a key role in this development by positioning itself as a business partner in the Spanish ceramic cluster network, a network mainly comprising SMEs, to generate the technology that, obtained either from undertaking the necessary R&D actions or transferred from other branches to the ceramic sector, is capable of providing new, socially useful products at competitive prices. ITC has successfully bid for FP and CIP funding to support its activities

<http://www.itc.uji.es/Paginas/default.aspx>

2.5 Science and Technology Parks

Description Science and technology parks are locations (physical or even virtual) that are established to provide a ‘hub’ for related business in a particular industry or sector. Features can include specialist management, incubation and business support, links to university and other research centres, shared resources and equipment and ‘soft’ support such as mentoring, networking, business counselling and so on. Supported through a variety of local, regional, national and European Union funds, the structure of science parks can vary and there is no common formula for ownership. Universities, local authorities, private companies and property developers can all be involved in different ways and to different levels.

Potential impacts for regional development Science parks usually have formal and operational links with centres of knowledge creation, such as universities, and create a mechanism to commercially exploit research being carried out there. Science parks are often built around an industry specialism that a region or area is trying to develop or exploit, and as such can act as a showcase for the region in marketing itself and attracting inward investment. The underlying theory behind Science parks is that there will be agglomeration effects from collocating research intensive businesses that will benefit the wider economy.

Issues and challenges Several detailed studies into the long term impacts of science parks have found that their success is to a large degree determined by the economic conditions of the wider region, and therefore are less likely to benefit regions with less favourable circumstances.

There is a real danger that constraints on public spending and the push to privatise public projects means that science parks may default to become just commercial business parks, losing the link between research and business and the developmental activities that are an integral part of the model.

Case study

Potsdam University, Brandenburg, Germany

Since the mid-1990s, the Science Park at Golm on the outskirts of Potsdam has developed into the largest and most important science and research centre in Brandenburg. Originally the site of Potsdam University, Golm now hosts three Max Planck Institutes, two Fraunhofer Gesellschaft Institutes, a business incubation centre (GO:IN) and many innovative enterprises. More than 1,300 scientists are working at the science park and the various university institutes have a total of 7,000 students. Many joint research projects have been funded under FP5, 6 and 7.

ERDF contribution to the development of the Science Park was EUR 74.3 million

<http://www.wisspark.de/>

2.6 Research and Technology Centres

Description Research and Technology Centres create a critical mass for business and research innovation by focusing on a specific technology where there is a potentially large global market and a significant national capability. They provide a 'translational infrastructure' to provide a business-focused capacity and capability that bridges research and technology commercialisation. They are generally focused on the exploitation of new technologies, through both established technology areas and in new, emerging technologies. Models across Europe include Technology Innovation Centres (TICs) in the UK, the Fraunhofer Gesellschaft in Germany and TNO in the Netherlands.

Potential impacts for regional development These centres are an important part of the innovation system, with potential to make a major long-term contribution to economic growth. They allow businesses to access equipment and expertise that would otherwise be out of reach, as well as conducting their own in-house R&D. They also help businesses access new funding streams and point them towards the potential of emerging technologies.

Issues and challenges In order to succeed, these centres need to be integrated within a national innovation system and strategy which pays appropriate attention to business requirements and the location of relevant expertise. There needs to be prioritisation and coordination at the national level, which may prove difficult to align with regional economic development strategies.

Regional and local policy makers will have to consider the impact and effect of national innovation strategies on their own development goals. One issue in particular is the impact of the presence of national innovation centres on the regional innovation system.

In an era of resource constraints difficult choices will have to be made about which locations would result in optimal impacts nationally. Recent studies suggest that the best use of public funding is when concentrated on a small number of elite, mission focused, national centres, and that funding needs to be sustained far beyond the normal 3-5 year cycle.

Case study *NanoFab, Venice, Italy*

The mission of NanoFab is to transfer technological knowledge and results of industrial research to firms, especially local companies, which may benefit from the application of nanotechnologies. The projects expected impact is to contribute to foster structural change in the territory's productive fabric and allow the local economy to move towards knowledge-based production. NanoFab carries out, promotes and coordinates, research and technological activities through its own structures and in collaboration with universities and other public and private bodies. It provides a diverse range of high level technological services in response to specific and complex demands. It has been created with an investment of over €25.5m co-financed by the European Regional Development Fund (ERDF), the Italian Government, Veneto region and VEGA (the science and technology park of Venice).

http://ec.europa.eu/regional_policy/cooperation/interregional/ecochange/goodpractice/1knowledge/1cluster/it_nano.pdf

SECTION 3 PROMOTING ENTERPRISE, BUSINESS DEVELOPMENT AND GROWTH

3.1 Introduction

This section focuses on the ways in which universities can contribute to the business and entrepreneurial environment. This includes activities which help build a more entrepreneurial culture (especially among students and graduates), efforts to stimulate business start up among graduates and staff, and measures which help build a more favourable business environment for both new and existing firms.

Enterprise programmes aimed at students have a number of possible benefits for the region. In some cases the focus is on teaching students to be more ‘enterprising’, which is helping them to develop life skills that will make them more productive and innovative in their future careers, whether in an employed or self employed capacity. This is good for the region regardless of the sector in which they work. ‘Intrapreneurs’ (i.e. people who behave entrepreneurially within an organisation) are just as important for regional development as entrepreneurs.

As well as the case study of graduate enterprise activity highlighted in this section it is also worth noting additional examples which are presented in the DG REGIO brochure Regional Policy for Smart Growth in Europe 2020¹⁹.

Many universities offer short term placements with local SMEs as part of their enterprise activities. This is beneficial in a number of ways, not least by giving students an insight into the workings of the SME which may result in them being more inclined to stay in the region and work in an SME rather than be attracted to large corporate firms (who may be located elsewhere), so this can help retain talent in the region. For the SMEs, they can benefit from someone bringing new skills, insights and approaches to the business (which might not have employed graduates normally) and also gain an important link back in to the university, which might make the business more likely to engage in the future. For the region more generally a new generation of ‘boundary spanners’ emerges – in other words, people who understand and can operate in both the academic, public sector and business worlds, and even across the triple interface of the sectors.

But in addition to promoting the development of entrepreneurial skills and providing students with an opportunity to try the entrepreneurial ‘experience’, universities often contribute to the development of the business base in the region by supporting staff and students to start a business. These are important contributions to the local economy as evidence shows a positive correlation between levels of academic

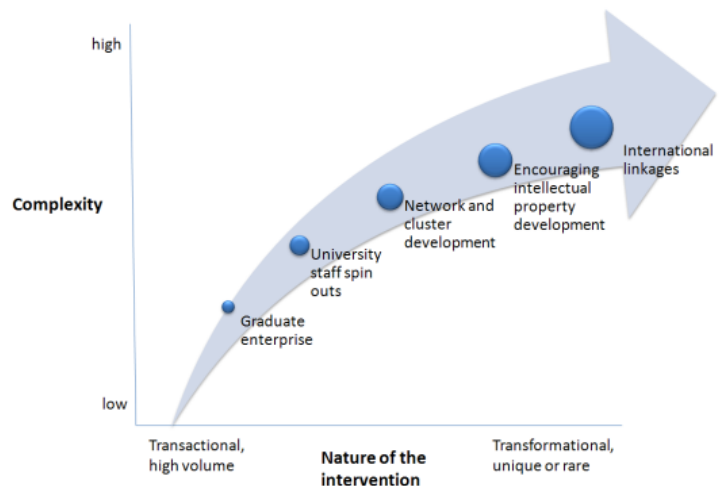


Figure 3.1 Promoting enterprise, business development and growth

¹⁹http://ec.europa.eu/regional_policy/information/pdf/brochures/rfec/2011_smart_growth_en.pdf

achievement and the likelihood of starting a ‘high growth’ business. Furthermore academic ‘spin outs’ are an important mechanism for the diffusion of research and innovation into the local economy and of course ensuring that talent and intellectual property remains in the region.

Spin ‘outs’ versus spin ‘offs’

The terms ‘spin out’ and ‘spin off’ are often used interchangeably, and sometimes different definitions are applied to the same term. For the purposes of this document the term ‘spin out’ is defined as a new entity formed by staff from a parent organisation (in this case, a university) which is based around some form of asset (technology, intellectual property) that was developed while staff were employed by the university. The spin out is entirely independent of the university financially and legally. However in some cases the university may take an equity stake in the company (for example, in return for releasing intellectual property) or there may be licensing agreements between the two organisations.

A ‘spin off’ on the other hand is defined here as a part of a business that is separated from the parent company in order to allow it to grow and develop more freely. While the spin off operates at ‘arms length’ from the parent company, (it may have new premises, staff, branding etc.) it is still essentially owned and controlled at source, and the parent company has a vested interest in its success.

Figure 3.2 Spin outs vs. spin offs

Universities are often well placed to observe the emergence of new clusters in a region through the networks they form when working with companies on research programmes (for example, in Framework programme activities). The University can therefore act as a catalyst or facilitator in the development of network and cluster organisations. These are particularly important as they can aggregate demand from a number of firms for innovation and thus strengthen the ties between university research activity and commercial exploitation. However universities can go beyond this by becoming committed players in clusters and promoting cooperation between clusters, from a European perspective of regional development. The report Assessment of the impact of the Regions of Knowledge’ programme²⁰ carried out by Technopolis for the Commission (DG Research and Innovation) contains some very interesting case studies and analysis of the ‘transformative’ role that cluster development and cooperation can play in regional development terms.

By their presence in a region and through their research activities universities can also stimulate the development of intellectual property among businesses in the region as empirical evidence shows a positive correlation between numbers of people with higher education in a region and patent applications. Furthermore universities can play an important role in ‘demystifying’ intellectual property (IP) protection for companies through training and awareness raising. The European Patent Office (EPO), in cooperation with National Patent Offices (NPOs), promotes IP teaching in universities, the development of IP teaching tools and the partnership in IP related areas between universities and companies²¹. However, although the situation is improving, the promotion of technology transfer in

²⁰http://ec.europa.eu/research/evaluations/pdf/archive/other_reports_studies_and_documents/assessment_of_the_impact_of_the_regions_of_knowledge_programme.pdf

²¹ <http://www.epo.org/about-us/office/academy/areas/academia.html>

Europe is, to a large extent, hindered by a lack of incentives in terms of regulations, financial support and intermediate organisations. The situation is different in the United States, where the expansion of technology transfer has been linked to rules ensuring full ownership by the universities of research results, which puts them truly at the heart of the innovation production process and gives them a genuine incentive to optimally implement their results (following the example of the Bayh-Dole Act, which is not the case in Europe).

Promoting technology transfer through intermediate organisations: a new tool in France

To speed up technology transfer from university poles in France, private associations are being set up called SATT (Sociétés d'Accélération du Transfert de Technologies). They will be in charge of gathering patents from universities and some research organisations and responsible for ensuring the interface between French public laboratories and industry. SATT will work for universities and research establishments with the following objectives: maturation of research; transforming scientific discoveries into applications; creating public-private research projects or accompanying the creation of start-ups. SATT should play a key role to enhance the business development of the universities.

<http://www.gouvernement.fr/gouvernement/des-societes-de-transfert-de-technologies-au-coeur-des-universites>

Many universities operate in an arena that reaches far beyond their regional or even national borders. This may be through attracting students from other regions and countries by the provision of high quality and specialised teaching programmes, and/or by working with other researchers (academic or private) around the world on collaborate research projects or as consultants. These internationally linked universities are a huge asset for their regions if these linkages can be harnessed for the benefit of the development of the region, either in attracting investment, linking local companies to international research excellence and expertise or attracting talented individuals to the region to work or study at the universities.

However the 'flip' side of this is that researchers tend to be spatially blind when it comes to their work – they want to collaborate with the best people and companies, wherever they are located. In regions where there is little R&D activity and where the business base is primarily comprised of micro and small enterprises, regionally based world class researchers will be inclined to look for partners in other places, causing knowledge and innovation to spill away from their own region.

Again these measures range from the straightforward and transactional through to the long term and transformational, which depend on the ability of the university to capitalise on its external linkages and synergies with other areas of activity.

3.2 Graduate Enterprise (training, placements, new firms)

Description There are generally three main thematic areas deployed by universities to support entrepreneurship among students and recent graduates;

- training in the skills of ‘being enterprising’
- providing business experience through placements in local SMEs
- supporting them in the creation of new ventures and the exploration of new business opportunities. This support can include things like
 - Assistance with compiling a business plan
 - Free office space and equipment
 - Free access to meeting and administration areas
 - Specialist industry advice from business mentors
 - Grants and financial assistance

Potential impacts for regional development Universities that are actively promoting and supporting entrepreneurship amongst students and graduates are supporting their local and regional economies two key ways; firstly by adding to the pool of businesses in the economy; and secondly, by retaining high skilled individuals in the region.

Issues and challenges It is important to ensure a close cooperation between the universities, the private sector and authorities responsible for delivering regional strategies to ensure there is coordination. Otherwise there can be resentment and tensions if graduate businesses are seen to displace or distort existing businesses and markets.

In addition, there may be a benefit to regional policies and strategies to create a common thread between graduate enterprise and broader sector development activities. For example a region which is aiming to become a global leader in ICT might want to encourage graduates to consider starting businesses in this industry rather than another less strategic one.

There also needs to be strong links between support for graduate enterprise development and the ‘mainstream’ support to businesses in the local area, otherwise new graduate businesses may find themselves isolated once they move on from university incubation support.

Case study *Adam Mickiewicz University Foundation, Poznań, Poland*

The Adam Mickiewicz University Foundation has been promoting entrepreneurship among students and university staff since 2000 through its Poznań Science and Technology Park. The Foundation has actively encouraged the setting-up of new firms through, for example, business plan competitions. In 2005, ESF started to support its activities and co-funded two editions of the competition in the Wielkopolska region: An idea to start a new business and Promotion of academic entrepreneurship. The competition included a consultancy stage with 116 admitted participants. There were 28 contest winners, all of whom started their own businesses.

http://ec.europa.eu/employment_social/emplweb/esf_projects/project.cfm?id=13638&lang=lt

3.3 University Spin Outs

Description 'Spin outs' is a term used to describe a process by which employees identify an opportunity to commercialise elements of the research or knowledge base within the university. Usually the desired outcome is the establishment of a new, independent enterprise, though it may retain strong links back into the university it originated from. There may also need to be legal frameworks governing the future exploitation of the research, ownership of intellectual property rights etc. Many universities and regions look to the Massachusetts Institute of Technology (MIT) in the USA as one of the most successful models of how spin outs have contributed to the development of a world class knowledge based economy in its surrounding area.

Potential impacts for regional development Spin out companies are seen as almost unambiguously beneficial for their regions. The received wisdom is that these companies are innovative, high-tech, growth orientated and generally embodying all the desirable traits of the 'knowledge economy'. They are also seen by some policy makers as a relatively cheap way to promote the development of their economies, as the knowledge and human capital is already present in the region.

Issues and challenges However these characteristics are not common to all spin-outs, but tend to be based on stylised facts derived from a relatively limited number of high profile regions with successful spin-outs rather than a predictable outcome for any situation.

In order to achieve significant impacts on the regional economy, spin outs need to have world class resource of commercially exploitable research which needs to be linked to a larger strategic trajectory nationally or regionally. Spin outs themselves are rarely sole actors of change.

There may be opportunity costs in involving academics in commercial endeavours, diverting them from their core activities of teaching and research.

Case study *The 'Technoinkubator' of the Krakow Technology Park, Poland*

One component of the € 4,000,000 investment (of which € 3,000,000 was ERDF) in the development of Krakow Technology Park is the establishment of a Technology Incubator for academic entrepreneurs, to foster the creation and further development of companies in the advanced technology sector.

As well as providing facilities such as high quality office space, office equipment and meeting and seminar rooms, the Incubator also offers a range of services including:

- Access to a database of valuable contacts for new enterprises;
- Assistance in finding potential business partners;
- Help in identifying sources of funding for business start-up and development.

http://ec.europa.eu/regional_policy/projects/stories/details_new.cfm?pay=PL&the=51&sto=1496&lan=7®ion=ALL&obj=ALL&per=2&defl=fr

3.4 Network and Cluster Development

Description Networks and clusters development initiatives are concentrated on encouraging and supporting inter-firm collaboration, institutional development and support in targeted industrial sectors. The sectors are usually targeted at those that offer the most local economic development potential. Where the local economy has existing clusters this may provide a more targeted approach to improving economic development activity by leveraging resources in the direction of greatest potential return.

Potential impacts for regional development Cluster development can help identify a region's economic strengths, identify realistic ways to shape the region's economic future and help distinguish itself from other regions. It creates synergies within sectors, as local firms trade with each other, collaborate on projects and provide a platform for shared marketing activities. There can be other less direct benefits for the region as well. Networks and cluster groups provide a medium for intelligence gathering about the sector for regional policy makers. For example, networks and clusters have been pivotal in developing demand led skills strategies in some local areas and regions. Effective network and clusters can develop and grow with minimal ongoing public investment, as companies are willing to pay for membership of groups which bring tangible benefits.

Issues and challenges Network and cluster development is not about 'picking winners', though this at times seems to have been a driver behind some public initiatives. Research in the area is clear that clusters can rarely succeed if they are not formed around an already existing critical mass of businesses that have a common business objective or need.

Another common error is to adopt a 'one size fits all' approach, or try to import a successful model from another place or industry. It is important to take a tailored approach to the particular challenges and characteristics of each industry. Some clusters may value a strong formal industry organization and cooperate very closely on issues of market development, while others may rely on less formal collaboration.

Case study *Aalborg University , North Denmark Region, Denmark*

The overall aim of the BrainsBusiness initiative is to ensure that North Denmark can maintain its leading position within ICT through its ICT cluster. The initiative focuses on strengthen the cluster both internally and externally and maintaining a strategically focus on ICT as the sector with the highest growth potential. The initiative seeks to develop tools to underpin the triple helix collaboration and strengthen the impact of the ICT cluster on the local industry and economy.

http://www.brainsbusiness.dk/en/the_north_denmark_ict_cluster/

3.5 Encouraging Intellectual Property Development

Description Intellectual property (IP) refers to discoveries, creations and inventions for which a set of exclusive rights are legally recognised. Patents are one of the more common frameworks for establishing exclusivity and protection of a new invention. Patenting and IP protection aim to ensure a fair return to the inventor for their investment in the research and development of new knowledge and technologies.

Potential impacts for regional development Patenting and IP protection are vital ways to foster continued national innovation. Research shows a positive correlation between high levels of patent applications and regional and national economic growth. IP protection is an important source of revenue for many research institutions, and a stimulus to further research and innovation and to science/industry partnerships.

Issues and challenges However, patenting and IP protection has become an expensive industry in its own right, to the point where protecting a technology may cost more than the technology can return. It diverts efforts that should be put into disseminating new knowledge into, often fruitless, legal entanglements.

Patents are frequently taken out when a commercially shrewder course would be to be first to market. IP has also become a tradable good in ways that do not reflect the true value of the knowledge to humanity, but rather its value to financial speculators.

In an era of growing 'social' and 'open' innovation facilitated by new technologies, some critics of IP protection believe it conflicts with the principle of the free and rapid sharing of human knowledge. It is argued that IP protection may exclude large portions of humanity from the benefits of science, retard its delivery or price it beyond their reach, distort the focus of public good research from what benefits society to what is profitable for a few, and help undermine community trust in science.

Case study *The Portuguese Institute of Industrial Property (INPI)*

The Portuguese Institute of Industrial Property (INPI) launched an ERDF co-funded project (2001-2007), the UIPP Project, which was aimed at bringing the National Patent Office closer to companies and universities. It provided services to researchers and students as well as to SMEs for pre-diagnosis of IPR needs. Eligible costs included training, awareness activities and seminars, IPR advertising and dissemination, technical assistance and advice by specialists. UIPP promoted partnerships and established a network between 2 business associations, 10 universities, 7 technological centres and 3 science and technology parks. Between 2001 and 2007, the number of hi-tech patent applications to the EPO per million inhabitants increased from 0.4 to 7.5 in Portugal (European Innovation Scoreboard).

<http://www.innovaccess.eu/documents/20081211brussels/11-Dinis.pdf>

3.6 International Linkages

Description As with other types of institutions, universities are increasingly operating in a globally competitive marketplace, both in terms of student recruitment and attraction of academic staff. This has led to a growth in international partnerships and collaboration also has a knock-on impact on staff who are likely to be required to be more internationally mobile if involved in research projects or teaching programmes, which could include exchanges or periods teaching overseas. Many universities now have a clearly articulated international strategy which aims to explicitly acknowledge this trend and capitalise on the benefits of these linkages for student recruitment, research and teaching.

Potential impacts for regional development A globally connected university acts as a ‘window’ on the region, and builds and enhances the image and reputation of the region to the wider world. This can benefit the development of the region in a number of ways; connecting people from all over the world into the region which can act as a vehicle for future cooperation; attracting researchers from around the world who will contribute to the development of new technologies which may result in new, innovative spin out firms being established; act as a lever for international investment as firms grow around areas of international specialism and expertise.

Issues and challenges The flows can work in both directions – just as universities can attract intellectual and human capital into a region, equally their scientific and technological expertise can leak out of the region to other places.

Case study *Knowledge Economy Skills Scholarships (KESS), Wales, UK*

Managed by Bangor University on behalf of the HE sector in Wales and part funded by ESF, the Knowledge Economy Skills Scholarships programme (KESS) currently has 302 doctoral and masters level research projects in collaboration with companies across the convergence region of Wales. With its focus on developing higher-level skills in the region and boosting the research and development capacity of businesses, KESS is reaching an international audience both through its company links and the quality of research being undertaken. KESS is helping welsh universities, businesses and students compete on a world stage through:

- Providing the higher-level skills and international networks that enable welsh businesses to increase their R&D muscle and compete in a global market;
- Scholars showcasing their collaborative research at international conference in the Americas, Australasia and Europe;
- Exchanging best practice in collaborative doctoral research through the European Industrial Grad School Network (E-IGS)
- Enabling access to international training opportunities for the scholars on the scheme and widening the horizons of collaborating companies.

<http://www.higherskillswales.co.uk/kess>

SECTION 4 CONTRIBUTING TO THE DEVELOPMENT OF REGIONAL HUMAN CAPITAL AND SKILLS

4.1 Introduction

The development of skills and knowledge assets in the workforce is, for many regions, one of the most critical tools in achieving their regional innovation strategy for smart specialisation objectives. Evidence from the OECD and others supports a strong correlation between productivity growth and educational achievement. Therefore regional actors and agencies in both the public and private sectors value the presence of universities in their regions and often seek ways to maximise their role in the development of the human capital of the region, both in building the skills of the indigenous population and also acting as an attractor of external talent.

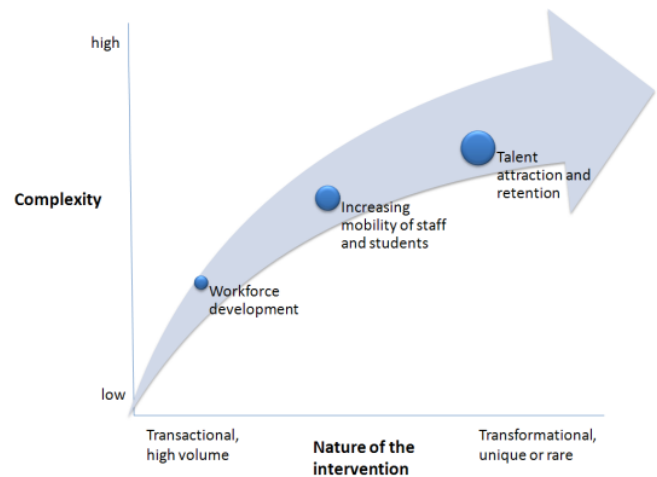


Figure 4.1 Development of regional human capital

While a universities' core activity is teaching, students might be from outside the region and even from other countries, and indigenous students might not stay in the region after graduation. It is therefore not realistic to expect universities to design teaching programmes only around regional needs. However at the same time they are a great resource in building human capital, so it is critical to find ways of encouraging them to participate in the process.

There is often a miss-match between the demand for and supply of skills in the local economy, which can have a negative effect on economic development and innovation potential. Design and provision of training programmes in direct response to employer needs can have a significant impact on the regional economy. However this requires moving beyond traditional delivery models to tools such as distance learning, on-site teaching, modular programme design, new approaches to accreditation and better use of private sector in design and delivery of training programmes. In order to deliver effective workforce development there needs to be good labour market intelligence and future skills needs forecasting. This requires strong partnership working between universities, employers and other learning organisations, which should be facilitated by the public sector.

Promoting exchanges between university staff, students and SMEs can be an extremely effective way of not only exposing the SMEs to benefits of employing graduates, but also helps build linkages and breaks down barriers between the university and the private sector which may lead to future collaborations in other areas (e.g. research, consultancy). There can be potential for real transformative effects as SMEs are exposed to the knowledge assets of the university via its staff and students.

The presence of universities in a region, particularly ones with a high profile nationally and internationally, can act as a real 'magnet' for talent. This can be in the form of students, but also academic and research staff who come to work in the institution. Where the research expertise of the university maps onto the sectoral specialisms of local industry this can create a powerful 'hub' for innovation activity.

There are also proactive programmes aimed at retaining graduates in the region, something which is of critical importance in regions where higher level skills are in short supply. Universities can also be agents in attracting former students back to a region via their alumni networks. These people can be even more valuable in human capital terms than retained graduates, as they bring new experiences, knowledge and networks from their time away from the region.

4.2 Workforce Development (skills development programmes)

Description Workforce development projects are skills development programmes which are designed to meet the needs of the employer (by meeting a current or future business need); the employee (in terms of their career progression and professional development); and the region (by ensuring the right skills exist to build regional advantage in line with smart innovation strategies). For this reason Universities need to be highly flexible in how courses are designed and delivered to ensure they are relevant for both the targeted industry and its employee.

Potential impacts for regional development Workforce development programmes can have a profound effect on the region by exposing people to skills and knowledge they would not otherwise have access to, improving links between universities and business and involving universities in the development of specific key sectors in the regional economy. Connections with the university can help to raise the profile of regional sectors and clusters as they become more connected to the university and its networks beyond the region. As workers become more skilled they are more valued by employers – not only can this attract new companies to the region but also makes them more ‘sticky’ as they are reluctant to lose the workers they have invested in training.

Issues and challenges Rapidly changing economic conditions can make ensuring the long term value of workforce development difficult, especially in areas of rapidly changing technology. Skills learnt today might be obsolete in a short space of time, making employers reluctant to invest.

There is a challenge in balancing the needs of individual employers and employees for tailored solutions with the need to achieve economies of scale. While there is a need to ensure that programmes are sustainable to deliver, they should not lose their relevance to the businesses.

Ensuring the future skills needs of the region are addressed is more difficult than responding to immediate needs, and requires a high degree of public investment in intelligence gathering and forecasting, as well as means of persuading universities and employers to respond.

Case study Open University of Catalonia (OUC), Spain

The current high levels of competition and technological, economic and business complexity mean that training has to involve specific contents and skills for each business and sector, and to adapt to the characteristics of each organisation. OUC’s International Graduate Institute’s learning model offers companies and institutions the ideal e-learning system, in terms of both quality and performance, which allows for the simultaneous training of geographically dispersed groups; enables the training of highly mobile groups; focuses on professional competencies; is highly flexible, segmented and customised; improves efficiency of investment in training.

<http://www.uoc.edu/portal/english/>

4.3 Increasing Mobility of Staff and Students (internship and placement)

Description Mobility programmes are those which encourage movement of university staff and students between the university and the public and private sector in the region. In some cases there may also be staff from other sectors posted to the university, but this is often rare and tends to be on a more 'ad hoc' visiting basis (e.g. some business schools have 'entrepreneurs in residence').

Potential impacts for regional development As with most interventions, mobility programmes can have a number of effects for the region. Firstly it can increase employability, particularly in the case of students, by giving them 'hands on' experience in the workplace. Secondly it promotes knowledge transfer, and 'unlocks' some of the intellectual assets of the university for the benefit of the host organisation. Thirdly it can help to build 'boundary spanning' skills, especially among academics, which in turn can create opportunities for future collaborations by breaking down barriers between the university and other sectors.

Issues and challenges One of the most significant challenges to the success of mobility programmes, particularly for senior academic staff (who are probably the most valuable to industry) is that career progression routes in universities, especially the most research intensive ones, can act as a discouragement to mobility. Career minded staff are better off staying within the university and helping it to achieve its academic outputs if they want to progress within the institution as this is often valued more highly than engagement activities.

Where there is a lack of alignment between the research and teaching specialisms of the university and the sectoral specialisms of regional businesses, mobility programme will be less likely to succeed. Businesses will see students and staff as being of little relevance to their operations, and people within the university will not be motivated to move out if there is no link with their research field.

Case study *Graduate Advantage, West Midlands Region, UK*

Graduate Advantage is a Graduate Placement Service, which sees the West Midlands universities working together with small companies, to achieve the aim of creating 100 new jobs in the region and help over 200 businesses, through 1,200 internship opportunities. With £1.6 million from the European Regional Development Fund (ERDF) and matched with funding from the region's universities and the private sector, the 3-year service will look to keep graduates in the region, with a long term goal of boosting business performance to help the economy.

<http://www.graduateadvantage.co.uk/>

4.4 Talent Attraction and Retention (incoming mobility, fellowship)

Description Talent attraction and retention refers to interventions aimed at enticing individuals with specific skills and attributes to move in to, return to, or remain in the region. These approaches are increasingly replacing inward investment as a key task of regional agencies. Incentives can vary from tax breaks to support schemes for academic career development.

Potential impacts for regional development Impacts can be powerful, as there is a clear link between presence of highly skilled people and regional growth. Clear targeting of people with specific sectoral skills can help build up a critical mass, which in turn can act as an attractor of other individuals and businesses.

Issues and challenges Interventions need to be carefully designed. Different types of migrant will respond to different incentives, so it is important to be clear who is being targeted and why.

Policy makers need to work very closely with their universities, businesses and other sector based institutions when designing programmes to ensure there is coordination of efforts, otherwise the effects will be diluted or even cancel each other out.

Talent attraction policies need to be customised at the local level – there is not a ‘one size fits all’ approach and success in one region is unlikely to be directly replicated elsewhere as its success is highly dependent on local conditions.

Case study *SoMoPro, South Moravian Region, Czech Republic*

SoMoPro is a regional grant programme, which aims to attract foreign researchers to work and undertake research training in a research institution in the South Moravian Region for the period of 1 to 3 years. SoMoPro is co-financed by Marie Curie actions (COFUND) in the period 2009 to 2013. Researchers applying to this programme need to identify and develop a research training project that will provide the means to significantly advance in their career. A fundamental concept underlying this action is that of advanced training and life-long learning. In essence, the fellowship should enable the researcher to progress in the development of his/her career and should not represent a temporary solution. The fellowship is expected to be a part of a structured, long-term professional development plan that is coherent with past achievements and clearly defines the future aims of the researcher.

<http://www.jcmm.cz/en/somopro.html>

SECTION 5 IMPROVING SOCIAL EQUALITY THROUGH COMMUNITY DEVELOPMENT AND 'PLACE MAKING'

5.1 Introduction

The concept of universities being 'of service' to their local communities is not a new one. In fact in the case of the US 'land grant' universities and the English 'civic' universities founded in the 19th Century this was core to their purpose. Universities in general, regardless of their history and mission see some kind of contribution to social and cultural development as part of their role.

It is well evidenced that societies where the gaps between the wealthy and least well off are narrowest and there is above average participation in higher education and cultural activities, they are most likely to also experience stable and

sustainable economic growth. Universities have a key role to play in this process as they find ways to unlock their intellectual and financial resources for the benefit of wider society.

One of the greatest resources a university has is its people, not only in terms of staff but also the thousands of students who attend it each year. These are people coming often from far flung places, with a wide range of experiences and knowledge, with energy and enthusiasm that can be harnessed in ways that may be beneficial to the wider community. Many universities run student volunteering programmes, where students participate in community based projects and programmes. These activities can potentially improve skills of students, connect the university to its community and help overcome specific social issues affecting the local area.

In less favoured regions in particular, there is a danger of universities becoming 'cathedrals in the desert', populated by high achieving people from other regions who move away again as soon as they graduate and so create little benefit to the local population. Working with their regions, universities can help to address the substantial issues of worklessness and low skills in the population, primarily through activities aimed at widening access, in other words, raising aspirations and participation in higher education among local people.

Universities can make a significant impact on their regions through delivering culture based learning programmes, infrastructure (e.g. museums, galleries, music venues) and building infrastructure that improves and enhances the local area which in turn makes it more attractive to indigenous and migrant populations alike. While these activities might be undertaken as part of the institutions core mission of research and teaching, in less favoured regions in particular where public and private funding is limited, universities can 'steer' investments in ways that can have a beneficial impact beyond the immediate campus.

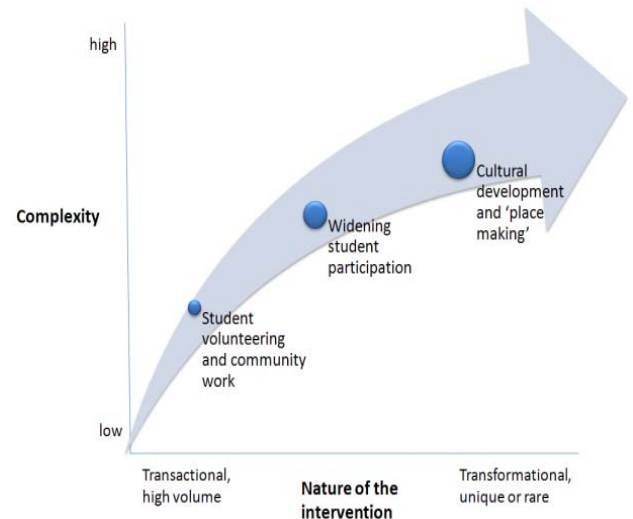


Figure 5.1 Community development and 'place making'

5.2 Student Volunteering and Community Work

Description Many universities offer programmes that enable students the opportunity to get involved in activities beyond the remit of their academic pursuits and ‘give something back’ to local communities. The objectives of these programme is often to create more rounded individuals by helping them build problem solving skills which in turn enhances their chances of future employment.

Potential impacts for regional development Well thought out programmes will not only deliver the objectives of improving student skills, but also help to mobilise the student population to address wider societal problems. This can also help in making connections between universities and local areas which may result in future mutually beneficial partnerships.

Issues and challenges The primary motivation behind these programmes is usually one of enhancing the student experience and therefore making the university a more attractive option in an increasingly competitive higher education ‘market’. The danger is that local communities are not involved in the design of volunteering programmes and that they are not matched to meeting genuine needs.

Interventions may be short term in nature with limited scope for follow up activities or linkages to wider development programmes. In this case the impact will also be limited and local communities might become cynical about the involvement of universities and students in their activities.

Case study *Project SAUCE, Pan European*

The project SAUCE (Schools at University for Climate and Energy) contributes to the aims of finding ways to act responsibly with regard to natural resources by developing energy education in primary, secondary, and higher education. Using student volunteers, seven European universities and the Berlin Energy Agency have joined forces to develop and promote university programmes for schools as an innovative educational tool aiming to make younger generations adopt intelligent energy behaviour. SAUCE is supported by the EU Programme Intelligent Energy Europe. This programme aims to promote energy efficiency and renewable energy sources to encourage people to produce and use energy in more intelligent ways and increase the use of renewables.

<http://www.schools-at-university.eu/>

5.3 Widening Student Participation to under-represented social groups

Description Widening participation programmes aim to address the discrepancies in the take-up of higher education opportunities between different social groups. Under-representation is closely connected with broader issues of equity and social inclusion, so success in this area will impact positively on social justice and economic competitiveness. Activities are often focused on raising aspirations among target groups by exposing them to the university to make it more 'accessible'.

Potential impacts for regional development Regional strategies for economic growth need to also ensure that the benefits of growth are not only felt by an elite few but by society as a whole, regardless of gender, age, social class, ethnicity or disability. By taking positive action to close the gap in participation universities can help to ensure that the whole region can be part of and benefit from economic development which will ensure a more sustainable future for all.

Issues and challenges Low participation rates are often a symptom of more deep rooted problems of low skills, endemic and multi-generational worklessness and social exclusion. Widening participation programmes are only one aspect of what needs to be a strategic and collaborative approach to overcoming these complex problems.

Universities often lack a systematic approach to widening participation which is further diminished by financial pressures and competition which drives them towards the most able students rather than those with greatest need.

Some commentators go as far as to question the ethics of widening participation programmes, claiming it promotes a narrow, middle class concept of 'success', and claiming that gaining a higher education alone will not address the gap in attainment later in life.

Case study *UCC PLUS+, Cork, Republic of Ireland*

UCC PLUS+ was established in 1996 as part of a new nationwide infrastructure initiated by the Higher Education Authority (HEA) to tackle the inequality of access to higher education. The goal was to attract and retain disadvantaged students in third level education. The UCC PLUS+ programme has a system of pre-entry and post-entry supports available to students. These include second level aspiration raising activities, a financial bursary, extra tuition, one on one meetings and ongoing social support from staff. UCC PLUS+ is funded by the Higher Education Authority, Department of Education and Science and the European Social Fund. In addition, private donors have provided the UCC PLUS+ programme with essential funding for programme activities and student bursaries.

<http://www.ucc.ie/en/uccplus/>

5.4 Cultural Development and 'Place Making'

Description This looks at the ways in which universities can contribute to the cultural development of the area through promoting cultural activities and infrastructure, but also more generally by enhancing the amenities in the area through investment in capital development projects. Universities are often a key partner in the development of museums, galleries, theatre, art studios and galleries, and there may be strong links back to the research expertise of the university which helps promote the area as a cultural centre.

Potential impacts for regional development Richard Florida²² has led the debate for many years on the impact of cultural activities in a region in proposing that the presence of a 'creative class' who are attracted by the presence of cultural assets can act as a boon to economic development, innovation and tolerance.

The investments made by universities in developing creative and commercial 'hubs' can act as an attractor of further private sector development to commercial businesses, something of particular importance to less favoured regions where public funds may be limited.

Issues and challenges A focus on cultural and creative activities can be perceived as 'elitist', with new hubs seen as only relevant to a small minority. Few universities and regions have been effective at using sporting activities in the same strategic way as they have collaborated on cultural development, but sport may have more potential to 'reach out' to a wider section of the population.

Strong partnerships between the university, public and private sectors is essential to ensure that projects and investments complement and enhance each other and that economies of scale are maximised.

Case study *Universeum, Gothenburg, Sweden*

Universeum is Scandinavia's largest science centre, located in the heart of Gothenburg. Since opening in 2001, the centre, which offers unique experiences and activities such as challenging, experimental exhibitions in exciting, vibrant environments, has had over 4.5 million visitors, half of whom are children and adolescents. The Universeum was founded by Chalmers University of Technology, the Gothenburg Region Association of Local Authorities (GR), the University of Gothenburg and the Western Sweden Chamber of Commerce. Currently, the Universeum operates in the form of a limited company, owned by the Korsvägen Foundation. The members of the Foundation represent the broad national interest of the business. Universeum is an arena for meetings between schools, companies and the research community. By working together with partners, implementing school programmes, future days, special exhibitions, seminars and other activities, Universeum provides space for creativity and new initiatives and encourage the curiosity of young people and encourage the desire to learn more.

<http://www.universeum.se/index.php?lang=en>

²² Richard Florida [The rise of the creative class](#) (2002)

SECTION 6 BARRIERS, CHALLENGES AND ENABLERS TO EFFECTIVE ENGAGEMENT OF UNIVERSITIES IN REGIONAL DEVELOPMENT

6.1 Introduction

As has been demonstrated in the previous sections, there are a number of ways in which universities can contribute to the development of their regions strategies for innovation, growth and sustainable development. The case studies highlighted testify to the fact that much activity is already taking place across Europe, in many cases supported by European structural funds as well as national, regional and local funding instruments.

However in order for the benefits of these mechanisms to be maximised, it is necessary for them to take place within a coordinated framework that seeks to derive greatest effect from the mobilisation of a region's universities. As was shown from the depiction of the different intervention types along axes of increasing complexity, the more transformational the project, the greater are the barriers to its effective deployment.

The mechanisms described in the previous four sections can be delivered as individual, stand-alone projects, as a component of a wider strategy or programme or within a development framework which has been agreed collectively by the regional actors. The latter is the ideal and will ensure maximum impact but is very difficult to achieve as there are many barriers to overcome and there are few good practice examples to draw on.

These barriers can be either internal to the institution and its capacity to 'reach out' to the wider region (i.e. supply side) or the capacity and willingness of the public and private sector actors in the region to

'reach in' to the university to seek expertise and knowledge that can contribute to regional growth and development (i.e. demand side). The experience and competence of both the region and the universities is likely to be more limited in building consensus at a strategic, potentially transformational level in comparison to the experience of delivering stand alone projects and specific interventions.

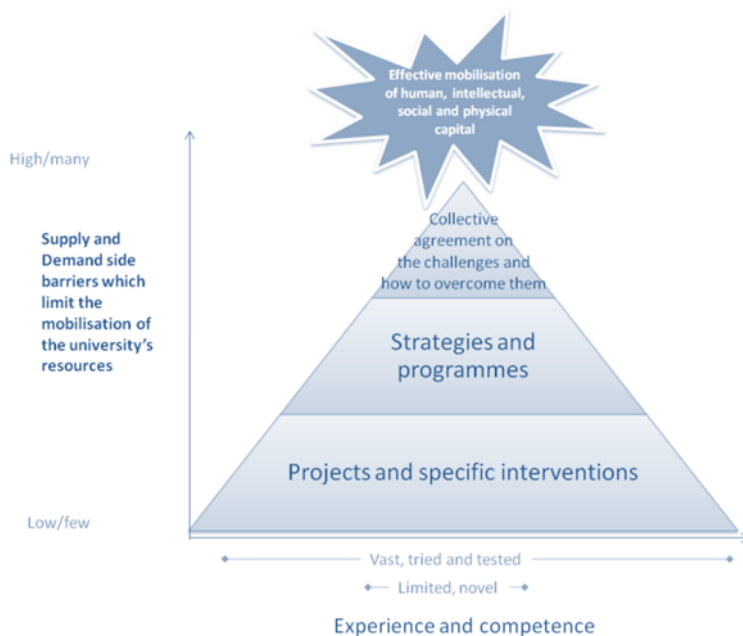


Figure 6.1 Barriers increase as activities become more transformational

Figure 6.1 suggests that as regions move from stand alone projects and interventions through to more coordinated strategies and ultimately a shared agreement across the partnership about what the challenges are and how they can be overcome, the barriers increase and experience of

successful delivery is more limited. However, the potential 'prize' of reaching this point is the effective mobilisation of the human, intellectual, social and physical capital of the regions' universities.

6.2 The nature of supply and demand side effects

In order to effectively support the development and implementation of 'smart specialisation' strategies, regions and their universities will be required to work together to implement increasingly complex and transformational programmes and strategies (as opposed to more transactional and short term interventions).

As well as ensuring a 'supply' of the mechanisms that can contribute to the regional development process, enabling this shift will require an understanding of the 'demand' side of the economy for innovation and new types of interventions. This is especially critical in less favoured regions where the innovation gap is bigger, as not only is *investment* in innovation lower in less favoured regions but also the *capacity* to absorb innovation is lower. Therefore policies that merely promote further investment in supply side interventions in universities will almost certainly fail to achieve the goals of a smart specialisation strategy, as they do not address the underlying issues that impede the ability of regions and universities to effectively collaborate to translate research and knowledge into innovation and growth. Furthermore in less favoured regions investment in the supply side interventions without addressing demand side problems may even have a direct detrimental effect on the relative position of the economy as research findings spill over into more favoured regions where absorptive capacity is higher and thus demand is greater.

Barriers and enablers can be grouped into the following themes, and each can be assessed from an internal perspective (i.e. supply side) or as it pertains to the external environment (i.e. demand side).

- Perceived institutional purpose
- Channels of engagement
- Funding sources
- Operating principles
- Industrial composition
- Link between systems
- Collaborative capacity and skills

Table 6.2 summarises the conditions under which these barriers tend to manifest themselves, and whether the effects are caused by issues with the demand side or the supply side. In Section 6.3 the barriers/enablers are then looked at in more detail with reference to five case studies where regions have successfully addressed the challenges and optimised the impact of their universities on regional development.

	Can be an internal barrier when	Can be an external barrier when
Perceived institutional purpose	Research and knowledge development activities are disconnected from regional development objectives and are driven by the pursuit of peer reviewed academic outputs	The region does not see universities as relevant or central to its regional development strategies; senior managers in the public and private sectors do not see the universities as a regional asset
Channels of engagement	Universities lack the mechanisms to effectively engage with the 'outside world' or activities are hived off into special purpose vehicles and not seen as 'core' activity	Lack of effective 'bridging' institutions between academia and the private sector to 'reach in' to the university
Funding sources	Universities focus research in areas where research grants are easier to win rather than regional priorities; structural funding programmes are seen as high risk due to regulations and intervention rates	Lack of capital for firms to invest in R&D activities; short term funding cycles limit the ability to invest in 'translational' organisations to help convert research into a foundation for industrial specialism
Operating principles	Academics see themselves as 'critical observers' rather than actors in the process of regional development; focus is on achieving peer accolades rather than solutions to 'real world' problems	Public and private sectors are alienated by academic language and work patterns; there is suspicion of the motivations of universities and whether they are 'in' the region but not 'of' the region
Industrial composition	Academic teaching and research profile of the universities in the region does not mirror the industrial ambitions of the region	The local economy is built around declining industries and populated by small companies with little sectoral critical mass
Link between systems	Universities are part of national higher education system so have little incentive or scope to respond to regional need	There is a conflict between national innovation and competitiveness and territorial development policies; Lack of regional voice or autonomy in decision making; lack of regional leadership and/or consensus on the challenges
Collaborative capacity and skills	University staff have no time or encouragement to engage with regional programmes; Lack of 'boundary spanning' skills in the university; lack of leadership to drive change	There is limited absorptive capacity within local businesses; there is a lack of mechanisms to aggregate demand; Private sector senior managers don't give consideration to their role within the region; lack of boundary spanners in the public and private sectors; lack of consensus on what the issues are and how to overcome them

Table 6.2 The nature of the barriers

6.3 The Case Studies

Five detailed case studies have been drawn upon to inform the lessons learned and suggested ‘good practice’ that will be outlined in the rest of this document. These were selected as ‘exemplars’ of where universities and their regions have effectively collaborated in a systematic and strategic way to either overcome a set of challenges or capitalise on opportunities for innovation and growth. The case studies have been selected for their variety both, in terms of focus and location, in an attempt to demonstrate that ‘smart’ collaboration between universities and regions is not limited to the most favoured regions or can only take place in regions with ‘traditional’ university structures. The case studies are briefly summarised below, and further details are in the Annex at the end of this document. All the cases highlighted refer to continuing and ongoing work unless otherwise stated.

<p>Karlstad University in the Swedish Region of Värmland</p> <p><i>Fostering network and cluster development</i></p>	<p>Värmland is a region undergoing long term structural change from ‘old’ manufacturing and engineering industries to a more knowledge based economy. This case study looks at a particular project, SLIM II (Systematic Leadership and Innovation Management), funded through local and European structural funds, which supported the development of effective business networks and clusters to help promote existing and new collaborations between businesses using the university to coordinate and build linkages. The explicit acknowledgment by the regional authority of the university as a key player was one of the primary drivers of the success of the project which ran from 2009 to 2010.</p>
<p>Newcastle University in the North East of England</p> <p><i>Linking university research to industrial opportunity</i></p>	<p>Over recent years the North East of England has capitalised on its engineering and manufacturing heritage, has restructured its economic profile and moved towards a more diverse and competitive economy by stimulating growth of emerging sectors including low carbon, renewable energy, plastic electronics and industrial biotechnology. Using national and European funding instruments, the Regional Development Agency decided to invest in five “centres of excellence” in areas where there was proven research strength in universities and industrial opportunities which had been identified. This was a key element in the implementation of the ‘Strategy for Success’, which was launched in 2001. By focussing on areas of engineering where the exploitation of the research base is not characteristically via spin-outs but by the scale up of laboratory processes, this case study highlights the role of <i>external</i> agencies providing this capacity rather than <i>internal</i> intermediaries like university technology transfer offices.</p>

**University Rovira
i Virgili in the
Spanish Province
of Tarragona**

*Using internal
policies to
promote
cooperation*

The Tarragona petrochemical industry is considered the most important chemical hub in southern Europe and the Mediterranean area. It represents 25% of the Spanish chemical industry and generates 44% of all plastics produced in Spain. Rovira i Virgili University have taken the lead in a strategic initiative to support innovation in the industry through its Tarragona Region of Knowledge Office, which has within its main objectives to support fundraising for innovation and R&D projects in companies and to promote territorial strategic projects for companies and for institutions. A key enabler of this deep involvement of the university in the economic development of its region is the R&A (research and academic) Staff Commitment Agreement, an instrument for human resource management which allows staff to agree a portfolio of teaching, research and services/administration activities based on their individual skills and the collective mission of their research groups and the university as a whole.

**Combined
Universities in
Cornwall (CUC) in
the South West of
England**

*Investing in an
innovative
approach to
higher education
to stimulate
growth in a
geographically
peripheral region*

Cornwall is situated in the far South West of England, some three hours from the nearest major city. The peripheral nature of the region and poor connectivity have often created an image of a good place to visit rather than a good place to do business. Not surprisingly, this has resulted in a seasonal dependency on low skilled jobs and a lack of high value and larger, international businesses. Combined Universities in Cornwall (CUC) is a partnership of six universities and colleges working together to give more people the chance to study in Cornwall, and to use university level education to help local businesses and communities to thrive. Investment in the Combined Universities in Cornwall has been one of just a few major strategic investments made by the structural funds programmes, along with infrastructure and fast broadband. The rapid rate of growth of the Cornish economy and specific indicators such as the rate of growth of knowledge-intensive industries has been a mark of the success both of the overall programme and of the CUC investment in particular. Convergence investment in CUC has focused on supporting important new industries including environmental technology, healthcare and digital media, and underpinning enterprise and innovation skills, matched to an analysis of the competitive opportunities available to the region.

**Krakow
University and
Malopolska
Region in Poland**

*Using higher
education
strengths to
attract investment*

Malopolska is located in the south-eastern part of Poland and is bordered by Slovakia to the south. The regional capital and largest city is Krakow. The Malopolska economy is one of the most diversified of Poland's regions. In its Regional Innovation Strategy Malopolska targets IT and ICT industries as potential growth areas. Krakow in particular has been very successful in using its historical strength as a centre of higher education to adapt to and enable new economic opportunities by attracting and retaining foreign investment to the region. The size of the graduate pool in a wide range of disciplines, particularly in the disciplines of computing science, accounting and management, make it an attractive destination for software and business process outsourcing companies.

6.4 Overcoming the barriers - lessons from the case studies

6.4.1 Perceived institutional purpose

It is interesting to note that some of the most progressive practices can be seen in the newer Higher Education Institutions, who are actively responding to the challenges facing their region. Older institutions, particularly those who define themselves in terms of research excellence can often find themselves 'locked in' to the pursuit of outputs that maintain or enhance their position in national or international league tables with scant regard to regional needs. There is a real danger that as these newer institutions mature and seek to attract high calibre staff and students that they too become increasingly concerned with the measures of research excellence at the expense of their regional mission. However, in recent years universities have increasingly acknowledged their role in the development of their regions, partly due to increased competitive pressures and the need to demonstrate value and worth to the region, but also in response to the need for better engagement with wider society in order to contribute to the 'grand challenges' facing humanity in the 21st Century. For example, **Newcastle University** in its mission statement aspires to be "*a world-class research-intensive University*" but also to "*play a leading role in the economic, social and cultural development of the North East of England*".

It is also important to note the role of the demand side in addressing this barrier. Where the wider region does not see its universities as central and core to addressing its future development, the good intentions of the university alone will not overcome this. In the case of **Värmland and Karlstad University**, it is interesting to note how the positive regional outcomes have been driven by the prominence the region had given to the role of the university in its regional strategy and the prominence given to the region in the University's teaching and research mission. Similarly for the Combined Universities in Cornwall, the strong role played by regional stakeholders in establishing the initiative is continued through Cornwall Council's active membership of the CUC Steering Group and Executive.

6.4.2 Channels of engagement

Clear access points and communication channels between the sectors is important. A university may have a strong desire to engage with the region and contribute meaningfully to economic and social development through its research and teaching activities, but there may be a barrier in physically 'reaching in' to the university as well as the university failing to effectively 'reach out'.

In the **University of Karlstad**, a cluster room was established on the campus to enable engagement between SMEs, students and academics. Even more importantly entrepreneurs who had not traditionally engaged with the university were specifically targeted. This approach was shown to have increased trust and proactive collaboration between the actors, which is evidenced by the number of follow on projects and activities that happened as a result.

The example of the **North East of England and Newcastle University** showed how investing in 'centres of excellence' designed explicitly to complement the research specialisms of the university not only addressed the supply side of this barrier but also enabled the demands of industry and the region to be aggregated and articulated resulting in the university making structural changes in response.

6.4.3 Funding sources

The higher education sector in common with the public and private sectors is facing enormous challenges arising from the effects of the 2008 global economic crisis. Levels of public funding of higher education have been reduced in many countries, and some are looking to a more 'market driven' approach which in turn places significant competitive pressures on universities. Among the highly regarded universities, this may lead to a 'risk averse' approach to new mechanisms or initiatives, as they increasingly retreat back inside the academy to concentrate on their 'core' missions of teaching and academic research.

Sources of funding and their regulations and guidelines are also important. Universities are familiar with and are structured to meet the requirements of national and international research funding grants. However European Structural Funds (ERDF and ESF) can be seen as a high risk proposition due to an emphasis on outputs and results that are not linked to the core mission of universities and to intervention rates at programme level up to 85% in Convergence regions and up to 50% in other regions. Funding for research through framework programmes can be more attractive as it (currently) has an intervention rate of up to 75%, with some activities even eligible for 100% funding. In addition the application process is more in tune with academic practices (e.g. peer review etc.). However there is a slight paradox at play in the sense that the programmes which depend on the existence of absorptive capacity in companies to participate attract higher intervention rates and are more attractive to universities, while the types of activities that would *build* regional capacity are more likely to fit within the less appealing (in terms of intervention rates) for structural and cohesion funding programmes.

There are also funding barriers affecting the demand side. Difficult economic conditions mean that firms have less capital to invest in innovation, and therefore the research outputs of the university will be less demanded by actors in the external environment. Likewise the public sector may need to curtail investment in research centres and other 'translational' institutions, which in turn might restrict the regional demand for research activities.

In the case of the *Combined Universities in Cornwall* this barrier was overcome by the creation of a strong partnership between the various funding programmes at the local/regional level which resulted in the creation of a 'Higher Education Commissioning Framework' that ensured all investment was focussed on a set of thematic areas which had been agreed following a process of independent economic analysis. Funding mechanisms with national operational programmes (such as ESF) were even able to join in the process by agreeing local investment frameworks.

6.4.4 Operating principles

There can be at times a 'culture clash' between the university and the public and private sectors, which acts as a further barrier to engagement and effective partnership working. Academics might deliberately seek to distance themselves from involvement in hands-on regional development by positioning themselves as 'critical observers' of the process rather than taking an interventionist approach. Even where there is a desire to participate in the process, this can be hampered by internal issues such as reward and progression structures, which can often act as a disincentive to getting involved in activities other than 'pure' academic work. However some universities have started to look at ways of overcoming this issue and *Rovira I Virgili* is certainly one which has been at the forefront of developing a highly innovative approach through the development of its 'Staff Commitment Agreement'. This is essentially a

human resources management tool which enables staff and their departments to create a balanced portfolio of activities between teaching, research and other activities.

Externally, the world of academia can be perceived as existing in an 'ivory tower' by the public and private sectors. Businesses find academic language and working practices alienating and off putting, and fear the ability of university staff to function in the 'real world' where action is valued above reflection. The Public sector, particularly at local and regional level, can be suspicious of the motivations of universities, fearing that they pursue academic excellence at the expense of a territorial focus which would benefit the region. In *Malopolska region in Poland* the creation of an ICT Cluster project which brought together the key private, public and higher education partners in the region to work towards a set of mutually beneficial objectives for the development of the sector in the region has gone a long way to break down the barriers between the different sectors.

6.4.5 Industrial composition

The connection between the academic profile of universities (subject mix) and the sectoral structure of their regions will have serious consequences for their desire and ability to work together. In some regions, universities will have been established in direct response to the industrial needs of the surrounding territory. However this may have reflected an industrial heritage that is no longer relevant to the region (e.g. ship building, mining, heavy engineering). In other cases universities might see themselves as players in a national or even international marketplace, and design their 'offer' around responding to market demands for skills and research rather than any connection with the regions in which they are located. One way this was overcome in the *North East of England* was by a strategic investment by the Centre for Process Industries (one of the five 'centres of excellence') in the creation of a senior academic post in chemistry at *Newcastle University*, where the university had strengths in chemical engineering but not in the industrial bio-technology and catalysis fields.

On the other hand, universities may have been proactive in changing their areas of focus and specialism to better meet the needs of 21st century students and businesses, but find themselves in a region where the private sector has not made the same adjustments. Businesses that are 'locked in' to old structures and ways of working will be less inclined to engage with universities, especially as they see the universities increasingly focus on 'new' sectors and technologies. In the case studies, *Malopolska and Krakow University* is a good example of how a region and its university have worked together to drive changes in the industrial composition, which has resulted in a mutually beneficial relationship where the university attracts and supplies high quality graduates for the city's growing IT sector while the growing businesses generate demand for the universities intellectual resources. Both together have created a critical mass of talent and investment which have in turn helped to drive the regional economy.

6.4.6 Link between systems

While many older universities were established to meet the needs of their immediate hinterlands, since the middle of the last century many countries have adopted national approaches to higher education which has resulted in universities being sucked into a national system which provides little scope or incentive to 'regionalise' their activities or areas of focus in terms of research and teaching.

Likewise for the public and private sectors, the extent to which they have autonomy and control over competitiveness and territorial development policies will determine the extent to which they can place demands on their universities. Where the region has the ability to design and fund regional development strategies there will be a greater likelihood of the inputs of universities being sought out.

Agreement between national, regional and local decision-makers was key to the successful establishment of the *Combined Universities in Cornwall*, and to its subsequent growth. Local policy-makers committed to a long-term strategy of investing in higher education through the Objective 1 and Convergence programmes, but essential match funding was required from national government, from the national Higher Education Funding Council in the form of both capital and funded student places, and from the Regional Development Agency, all of whom backed the local strategy with substantial investment in building physical and human capital. As a result, centres of excellence in the environment, human health and creative sectors have been established and are now competing internationally for research funds and future students while also meeting ambitious targets for regional business and community engagement.

6.4.7 Collaborative capacity and skills

The university will be hampered in its ability to work with regional partners if there is restricted capacity for academic staff to engage with regional interventions. This may be because there is a high degree of emphasis placed on academic outputs which have no resonance regionally, or because mechanisms for reward and recognition place no value on engagement.

In cases where there is the desire and encouragement for university staff to work with businesses and public sector bodies in the region, these efforts may be frustrated by a lack of capacity in the region to absorb the significance of research and apply it to their organisations. This might be because the industrial composition of the region is primarily in low tech, small scale industries or where businesses are larger, they do not include the research and development function in their regional operations.

Even in cases where there is a strong overlap between the economic development objectives of the region and university research, and the capacity to collaborate exists on both sides, effective engagement will still be under threat unless the *skills* necessary for effective collaboration²³ are in place.

Furthermore there may be other external constraints placed on the potential for collaboration. For example in some member states there may be legal restrictions on university/business cooperation.

²³ EUIMA “Collaborative research” is a two-year project (to 2012) which will contribute to the development of monitoring tools and indicators for the assessment of university-based collaborative research. In addition, the project will aim at identifying the necessary requirements and adjustments that universities need to make in terms of human resource profiles (researchers, managers, etc.) to take forward and support the development of collaborative research and increase the attractiveness of university careers, both in research and in managing the partnership. The project builds on experience from previous and current EUA work looking at building strong relationships between universities and industry for doctoral education and the professional insertion of PhD holders ([DOC-CAREERS](#) & the current project [DOC-CAREERS II](#)) as well as at the exchange of best practice in collaborative research through the [Responsible Partnering](#) Initiative. Following the EUA study “[Regions of Knowledge](#)”, the project will address the specificities of regional contexts.

CASE STUDY – VUB CROSSTALKS, BRUSSELS, BELGIUM

VUB CROSSTALKS is a unique kind of academic and corporate networking launched by Vrije Universiteit Brussels in 2003 and is still operating today. Working bottom-up and interdisciplinary, CROSSTALKS wants to create a new dynamic of knowledge exchange through thematic encounters, beyond specific disciplines and with the active participation of key players from all levels of society. An open and collaborative approach is crucial in every CROSSTALKS initiative, ranging from small scale professional workshops to big public events. The CROSSTALKS format encourages constructive dialogues on policy probing issues, engaging academic researchers, scientists, artists, corporate leaders, and creative entrepreneurs in the discussion. Current projects are tackling Smart Logistics, Energy Efficiency, Sustainability and Changeability, Prosperity without Growth?, Bridges over Troubled Water, Cleantech and Transparency in Healthcare. The results of these events are wrapped up in a series of inspiring publications, giving an impetus to future collaborations in research and development.

6.5 Conclusion

How individual universities and regions have overcome the barriers to joint working and the outcomes that have been achieved is clearly illustrated by the OECD Reviews of Higher Education in City and Regional Development. Three of the case studies of individual universities and regions referenced here (Karlstad University and Värmland in Sweden, Newcastle University and North East England and Rovira i Virgili and Catalonia) participated in the OECD review process. Indeed in the case of Karlstad University and Värmland it is acknowledged that the self evaluation for OECD and the subsequent peer review played a key role in building the partnership between the University and the region. The following section therefore draws on the OECD experience to recommend a process through which regions and universities might go about building capacity for joint working. For a fuller understanding of how this process has worked and the outcomes that have been achieved the reader is **strongly recommended** to read the OECD Peer Reviews of Catalonia, North East England and Värmland via the links below:

Catalonia <http://www.oecd.org/dataoecd/28/36/46826969.pdf>

North East of England <http://www.oecd.org/dataoecd/16/54/35889695.pdf>

Värmland <http://www.oecd.org/dataoecd/27/23/36731313.pdf>

SECTION 7 PROCESSES AND PRACTICAL MECHANISMS TO BUILD CAPACITY AND INCENTIVES FOR UNIVERSITIES AND REGIONS TO WORK TOGETHER

7.1 Establishing a regional higher education partnership

This section outlines a process by which public authorities, business and universities can come together to better understand the regional demand and university supply barriers outlined in the previous section and shape appropriate mechanisms to overcome the barriers through the design and implementation of programmes that interconnect the three partners.

At the heart of this process must be a critical evaluation of the ability of the region's public institutions and private businesses to articulate a demand for and capacity to absorb university expertise. If this capacity is not in place public investment in university research for supposed regional benefit and higher level skills for the regional labour market will have limited impact, indeed may well leak out of the region.

The process of building this capacity for three way working proposed here is an elaboration of one used by OECD for its reviews of higher education and regional development in 24 regions in 18 countries– a process which for example made a significant contribution to building and sustaining the Värmland (Sweden) and Karlstad University partnership described in Section 3.

The OECD process was not explicitly linked to public intervention as articulated by the requirements of the European Structural Funds. The extent to which individual European regions wish to initiate a process of engaging universities in regional development alongside or as part of the preparation of strategies for the next programming period will need to be decided. Article 11 "Partnership" of the General Regulation concerning Cohesion Policy [Council Regulation (EC) No 1083/2006, OJ L 210, 31.07.2006, p.25] requires the Programme Managing Authorities to include "... *the most representative partners at national, regional and local level... in accordance with national rules and practices...*". Certainly, representatives of the Higher Education sector should be taken into consideration. However, a process with a specific partnership structure for connecting universities to regional growth may be necessary if there is a danger of universities being 'crowded out' by the large number of other actors involved in drawing up the operational programme. Given the resources required in the process stages outlined below, managing agents could use technical assistance funding from the current programme to build the necessary capacity to mobilise higher education.

The suggested stages for building the partnership are as follows:

1. National and regional managing agents for the structural funds establish a Regional Learning Group (HE) (RLG (HE)) composed of **leaders** of HEIs in the region, the public and private sectors.
2. The RLG (HE) oversees a self-evaluation of collaboration against a template provided by the Smart Specialisation Platform and informed by Community Strategic Guidelines and the national Strategic Reform Plan. This will need to take account of appropriate indicators of the innovative performance of the region.
3. The RLG (HE) invites an international peer review team composed of experts and policy makers drawn from the fields of regional development **and** higher education and identified by the Platform to assess the self-evaluation through meetings with university, public and private sector representatives from the region and nationally.

4. A peer review report is published and the RLG (HE) facilitates debate around its developmental (not judgemental) recommendations for action regionally **and** nationally.
5. Ongoing monitoring and evaluation of the actions taken in response to the recommendations are overseen by the RLG (HE)
6. An updated evaluation is undertaken for a follow up international review after 2/3 years to ensure a dynamic learning process for all of the partners.

In terms of financial support to the partnership and its activities, the Cohesion Policy support to operations of "Technical Assistance" could be used in this context provided it is included in the related Operational Programmes.

The following paragraphs suggest some of the challenges that may be revealed by the above process. While these may include structural obstacles to strengthening the partnership between universities, business and public authorities in the region, the process that is outlined can contribute to the identification and personal development of current and future leaders who are able to work across the boundaries of all three sectors and facilitate an ongoing learning process for themselves and the partnership as a whole.

The formation of a high level Regional Learning Group (HE) is fundamental to the process described above. The RLG (HE) should seek to link the intellectual leadership that **all** parts of higher education in the region as institutions can bring to both the political and managerial leadership of the region. More specifically:

- **Political leadership** – refers to the work of those people elected to leadership positions by the citizenry. These are, by definition, political leaders. Thus, all elected local councillors are political leaders, acknowledging that different councillors carry different roles and responsibilities and will view their political role in different ways.
- **Managerial leadership** – refers to the work of public servants appointed by local authorities, central government and third sector organisations to plan and manage public services and promote community wellbeing. These officers bring professional and managerial expertise to the tasks of local governance.
- **Intellectual leadership** – refers to the resources that leaders in universities working with others can contribute to the development of the region. These leaders can, and often do engage as individuals in conducting research or supporting particular communities or enterprises. But typically this is uncoordinated and highly distributed across the leadership hierarchy in universities. As a consequence these individuals are likely to be working (often very effectively) in isolated silos and can be difficult to locate.

The Regional Learning Group (HE) will need to be supported by a co-ordinator or co-ordinators whose role is to mobilise resources and ensure a connection between individual SC members and their own organisation to ensure follow through and vertical and well as horizontal connections. An early task would be locating all higher education institutions in the region along the lines suggested in the table below and assessing the extent to which these could be considered as an interconnected regional higher education 'system'.

It is also important to understand the role of the European Institute of Innovation and Technology (EIT) and of the Knowledge and Innovation Communities (KIC) in fostering EU wide innovation and 'smart' growth, particularly in terms of how these might relate or link to regional programmes. Regional authorities involved in designing and delivering innovation strategies for smart specialisation should work together with the academic partners in the KIC co-location centres which are in their region, if any, and/or develop partnership with regions hosting co-location centres.

European Institute of Innovation and Technology (EIT)

The European Institute of Innovation and Technology (EIT) is a highly autonomous EU body set up in 2008.²⁴ It supports currently 3 Knowledge and Innovation Communities which are operational since 2010 and which are set up with a time horizon of 7 to 15 years. KICs integrate partners from business, higher education and research in a structured entity with a results-oriented agenda each led by a CEO. Each KIC is organised around a small number of physical co-location centres spread across Europe (5 to 6 per KIC, in total 16). Co-location has been a key condition in the call for proposals for KICs which defined co-location centres as nodes where people can be brought together to work for significant periods of time.

Based on the current experience, a co-location centre can be described as:

- bringing together education, research and innovation activities addressing strategic areas of innovation and societal challenges;
- based on close proximity allowing for face-to-face interaction and regional synergies; • featuring higher education as a particularly important part of the EIT/KIC co-location activities with the promotion of education programmes around technology, entrepreneurship and technology transfer skills plus cross-disciplinary study programmes;
- being (usually) a separate legal entity with its own management comprising a Director and an executive team;
- being (in most cases) a hosted centre in a higher education institution and supported by technology transfer organisations present within the HEIs;
- a geographical node where all or large part of the innovation web can be found in close proximity providing a centre of gravity to the innovation activities carried out in that node.

The collaborative environment of the KICs and their physical co-location centres offer opportunities for shared activities in the fields of education, innovation and research. Initial results from the existing co-location activities indicate strong potential in the fields of entrepreneurship and knowledge sharing. With view of entrepreneurship, there is evidence that co-location centres can accelerate growth in start-up activity providing a further boost to the impacts associated with entrepreneurial skills. Individuals within a co-location centre are able to use the expertise, infrastructure and capital to gain better awareness of market risks and opportunities. In terms of sharing and exchange of knowledge, co-location centres accelerate knowledge externalities and spill-overs.

On the basis of co-location centres, the EIT incentivizes strong connections between regional hubs of excellence in Europe. The links between the co-location centres are driven by strong leadership, an ambitious portfolio of tasks including higher education activities and clear decision making mechanisms. European value added is created through the co-location centres working together within a KIC.

²⁴ See for more on EIT: <http://eit.europa.eu/> and for the KIC and their co-location centres respectively: <http://www.kic-innoenergy.com/>, <http://eit.ictlabs.eu/> and <http://www.climate-kic.org/>

7.2 A framework for mapping the regional higher education system

Using the framework below, the group should attempt to ‘map out’ where the various higher education institutions in their region are positioned in terms of their degree awarding ability and research activities. When populating this framework the group should also consider;

- To what extent are the institutions part of local, regional or national higher education systems
- Where there is research activity – what are the sources of funding, and how do activities play in to regional and national innovation systems
- Who does what? What are the overlaps between institutions? How could these be enhanced? Are there any gaps in regional HE provision? How might these be filled?
- It would also be useful to map the linkages between the institutions and business. Are there any legal or formal mechanisms to link between the institution and the private sector? What (if any) channels exist to share information about the needs of businesses in the region with regards to education and learning and allow business to have a ‘voice’ in curriculum design? To what extent have universities in the region changed or adapted their activities in response to private sector demand?

	Does not conduct any research activity	Main focus is on applied research in a specific technological field, possibly in connection with businesses	Research intensive – conducts curiosity led research in a range disciplines
Awards higher degrees (Masters and PhD)			
Awards its own degrees			
Awards degrees of other institutions			
Does not award degrees			

Table 7.1 A framework for mapping regional HE systems

7.3 Assessing the connectivity of the universities to the regional public and private sector

The self-assessment commissioned by the RLG (HE) should embrace the contribution of research to business innovation, teaching and learning to human capital development and university engagement with community and place development and the degree of interconnection between all three strands of activity. In particular it should identify progress along the spectrum from **transactional to transformational interventions**. In assessing the **complexity of interventions** this analysis will inevitably need to take account of the extent to which individual universities are **connected** to the region's public institutions and representatives of the private sector. If there is disconnection in

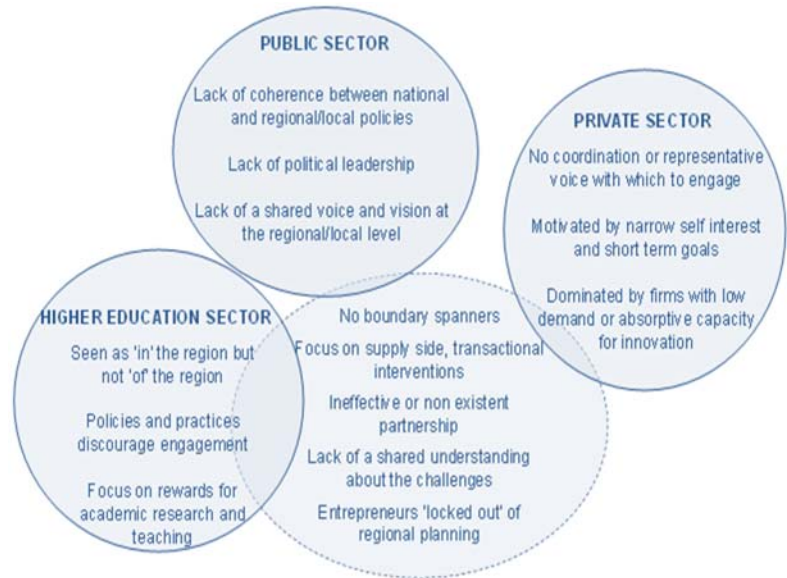


Figure 7.2 The 'disconnected' region

the partnership overseeing European programmes this will need to be confronted if higher education's contribution is to be effectively mobilised. So in evaluating the place of HE in the region it will be necessary for all of the partners to address the issues and identify steps that could be taken to draw each sector together in order to move towards the **connected region** where universities are key players.

More specifically, building the partnership with universities will be assisted by the extent to which:

- The public sector speaks with one voice in their understanding of the issues facing the region and how to overcome them, and has the mechanisms and political will to build consensus
- The private sector has a coherent and representative voice – for example; through business associations, networks or cluster organisations – and the willingness to work beyond the parameters of the narrow self-interest of their business/sector.
- There are synergies between the intellectual assets of the region's universities and the needs of business in developing innovation capacity.
- The universities in the region see themselves as being 'for' the region and not just 'of' the region and are willing partners in the process.

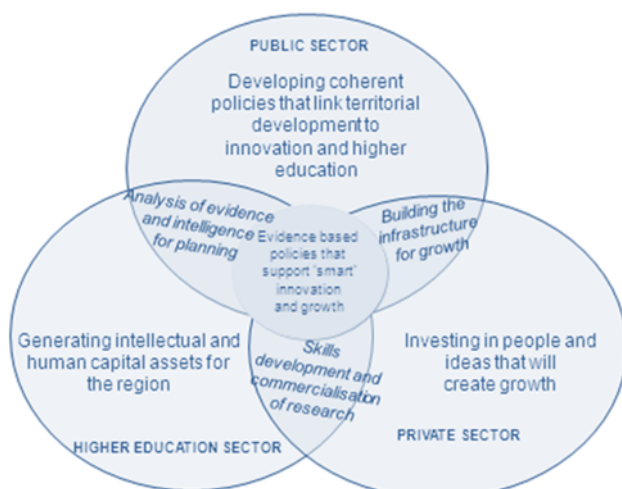


Figure 7.3 The 'connected' region

The appraisal of the degree of connectedness of the three parties within the region will need to take account of the influence of national policies and the extent to which national higher education and science and technology policy may or may not have a territorial dimension. Likewise a range of other policies impinging on local and regional authorities may be 'spatially blind' and work against building links between universities and the region. It is important that these challenges of multi-level governance are recognised in the review process so that as Figure 7.3 suggests, mechanisms are established to bridge the levels. Indeed with its activities

spanning local, national and international arenas as well as numerous governmental functions from business, skills, environment, health and well-being, the university can play a key role in regional joined-up governance.

The strength and degree of connectedness within and between the three pillars of higher education and the public and private sectors will vary across the regions of Europe and this will have implications for **how regional investment in HE related activities is prioritised**. For example some Less Favoured Regions may have academically strong universities but capacity in the local private sector to absorb this knowledge may be limited. In this situation the priority should be to enhance the ability of local businesses to **reach into** the universities by targeted investment in instruments like innovation vouchers available to SMEs. By way of contrast the challenge facing more successful regions may be to encourage universities to **reach out to** local as well as global business. In both situations there may be a need to exploit the complementary strengths of research intensive universities and universities of applied science given the latter's likely stronger involvement with SMEs and the former's global linkages. Also in the light of possible limited expertise of the public sector in less favoured regions in facilitating research and innovation it may be necessary to invest in intermediate organisations with a clear mandate to foster the connection of universities to local business. In short given the likely variations in connectedness between the three pillars in European regions there can be **no one size fits all** formula emerging from the evaluation process outlined above.

Developing a universities and regions learning system

Figure 7.4 summarises a staged process of capacity building linked to the steps outlined above. It should start with a description of the current regional economic and institutional situation and then move on to scenario building where university experts address such questions as:

- What are the economic, technological, environmental and societal opportunities and challenges facing the region?
- What are the latent assets (physical and human) of the region **and** within its universities that together can be mobilised to realise the potential and meet the challenges?
- What steps need to be taken to move towards desired scenarios, for example of green growth?

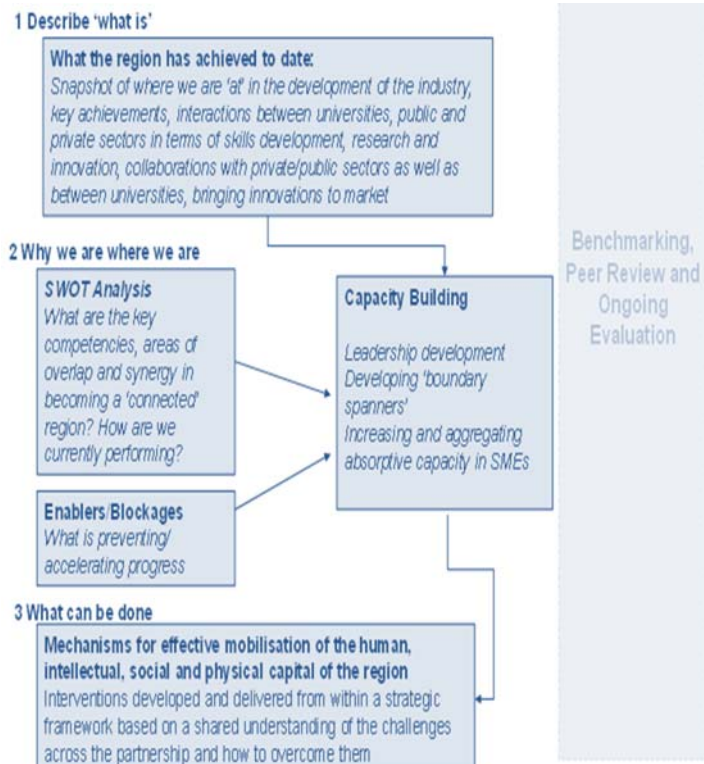


Figure 7.4 Developing a regional learning system

While such an approach will be familiar to public authorities responsible for territorial development it may well be new ground for universities. Their participation in the process alongside the public and private sectors will enhance their understanding of the regional drivers and facilitate the mobilisation of their intellectual resources to shape the future of the region and monitor and evaluate progress against international benchmarks.

This initial exercise should then inform a SWOT analysis of the connectedness of the universities to the region which specifically identifies the drivers and barriers to greater connectivity. From this explanatory analysis, interventions can be designed to increase the capacity of regional business to take advantage of the expertise of HE (for example through graduate placements in SMEs).

CASE STUDY – AVEIRO REGION, PORTUGAL

The University of Aveiro and the association of the eleven municipalities of the region, with about 375,000 inhabitants, decided to take a bold step by traditional standards: they established a partnership for the design of a regional development programme, going beyond the role of piecemeal consultancy work and aiming at a joint approach to regional development. In fact, rather than hiring a group of academics as consultants, this initiative had a dual aim. The first was to mobilise the diversity of disciplinary knowledge existing in the university to help address the problems and expectations of the different municipalities and the regional community as a whole; the second was to set in motion the process of creating a shared understanding of regional development dynamics and challenges, which indeed could and should lead to a re-interpretation of needs and expectations.

7.4 Selecting, designing and assessing interventions

Earlier sections of the Guide introduced a number of mechanisms which can connect universities to regional development and Section 6 identified some of the barriers to their effective implementation. As part of the process of building capacity to work together, the partners will need to selectively fund mechanisms that strengthen the connectivity of universities **in** the region **to** the region. In areas of weak connectivity, characteristically the Less Favoured Regions, it may be necessary to start with less complex, transactional and time limited projects which help build capacity before moving on to more complex and potentially transformational programmes which have longer term outcomes and fewer immediate and easily measurable outputs such as new business starts. Nevertheless the Regional Learning Group (HE) will need to ensure that initiatives that are funded address any structural obstacles that may be embedded in the strategies, policies and practises of a university before supporting a particular activity such as subsidised university consultancy or investment in a laboratory /science park. Put another way, the **conditions** for effective regional impact must already be in place or part of the funded programme of activity.

Summary of mechanisms

The following table reviews the mechanisms described in the earlier sections in terms of the conditions likely to influence their effectiveness starting from the transactional and moving to the more transformational. The Table does not directly refer to the basic teaching and research activities of the university as the mechanisms described have to be embedded in (and change) these core activities. However if the academic profile of the university (subject area) reveals key knowledge domains relevant to the particular specialisms of the region then it may be necessary for the regional authorities to invest in selected academic positions and infrastructure such as laboratories 'upstream' but with the proviso that the appropriate university policies and practises surrounding these investments are in place.

Mechanism	Most effective when	Least effective when
1. Less complex, tend to be transactional and timebound with clear outcomes		
Consultancy services	High levels of demand among local businesses, ability to absorb and understand research, clear access points to request university expertise, strong links between university research specialisms and local industry focus	Local businesses have limited absorptive capacity, unclear access points, inflexibility and lack of understanding between the private sector and universities
Student Volunteering and Community Work	There is an understanding of the power of 'living laboratories' in driving social innovation, makes linkages to local private sector solutions to societal challenges, engages local communities effectively which leads to increased demand for teaching and research, makes links between academic research within the university and public policy and practice	Designed primarily to enhance the student experience, local communities are guinea pigs rather than active participants, no mechanisms for follow up once the project is finished, poor links to the academic research base
Graduate enterprise programmes	Programmes have good links to 'mainstream' business support in the region so there is a clear 'move on' strategy for graduate businesses, graduates are encouraged to consider businesses which link back to teaching and research strengths of the university	Businesses started are low growth, 'lifestyle' businesses with little added value, they cause displacement and distortion effects on existing regional businesses, there is no alignment between the university programme and local/regional business birth strategies
2. More complex, outcomes are longer terms and less tangible		
Staff spin outs	Universities incentivise and support staff to spin businesses out, regulations around ownership of IP are not onerous, spin out companies are in technology areas where there is already a regional critical mass of companies and expertise	Universities see spin outs as a threat and high risk activity, academics are preoccupied with teaching and research, regional industrial clusters do not map onto university research specialisms
Workforce Development	Responds to current and future employer demand in terms of achieving 'smart' regional specialisation and innovation strategies, mechanisms are in place to encourage private sector engagement in programme design and delivery, university staff are well connected to local employers and local businesses can easily engage with universities, links with further education and vocational programmes	Emphasis is on delivering off-the-shelf rather than bespoke training, driven by the needs of large employers rather than SMEs, lack of sustainability in delivery models when public funding ends, driven by national rather than regional objectives, inflexible models for course accreditation

Staff Mobility	Synergy and overlaps exist between university research and private sector R&D programmes, university policies encourage and reward collaboration, secondments and other vocational activities	Research overlaps are with companies outside the region, policies and procedures act as a barrier, universities are overly protective of perceived 'IP'
Widening Student Participation	There is a clear focus on driving a local skills development, talent and potential is defined in a broader sense	There is intense competition among universities to attract the 'best' students, league table positions are seen as critical, academic achievement is valued above local impact
Exploitation of IP	Universities have an open innovation policy, there are good collaborative links with local firms especially in areas of future growth	IP is jealously guarded and is expected to become a 'cash cow' for the institution, there is a focus on working with the best companies regardless of their location, quantitative measurements (e.g. patent applications) are more important than outcomes
3. Highly complex activities with potential for transformational change		
Research and Technology Centres	There is a strong link between regional and national innovation policy, objectives and activities, the centres exploit the innovation assets of the region while acting as a channel for national and international linkages, funding strategies are long term	The triple helix partnership is weak or disconnected, national and regional policies are not aligned, short term funding cycles and uncertainty about future public investment drive centres to work with the private sector on 'near to market' technologies rather than seeking to work with universities further down stream on new technologies
Network and Cluster Development	Genuine relationships already exist between the university and businesses in a particular sector or industry, the university seeks to 'add value' to the network through its research or teaching expertise, there are people in the university and private sector who can understand each other	They are predicated on a strategy of 'picking winners', there is little perceived added value from membership, it is seen as a 'talking shop' or becomes dominated by the agendas of a few companies or individuals
International Linkages	Universities research strengths and academic profile internationally acts as a 'hook' for inward investment and helps tie companies down in the region, universities work with the public and private sectors in showcasing the region around the world	Research is conducted in isolation from regional development strategies, there are no joint working agreements in place within the 'triple helix', links with companies and researchers outside the region are only pursued for the objective of academic excellence
Talent Attraction and Retention	The university has a national or international reputation for excellence in teaching which attracts students from other regions and countries, there is a strong and specialised industrial base for graduates to move into, there are minimal constraints on graduates taking up employment in the region (e.g. visa restrictions etc.), university specialisms make the region an attractive place for world class students and academics to come to	The university does not exploit its alumni network to connect talented people to businesses in the region, the core mission of the university is to ensure optimal job outcomes for its students regardless of the location of opportunities, universities in the region lack distinction in the disciplines that are most needed for the regional economy to develop
Cultural Development and 'Placemaking'	Investments in buildings, activities and other infrastructure by universities help to foster a creative and cultural 'buzz' which makes the region attractive to other talented individuals	The region is perceived as a cultural 'desert', or one where intellectual and cultural pursuits are only for the benefit of the 'elite', cultural buildings and activities are difficult to access by outsiders and there is little diffusion of benefits into local society

Table 7.5 Summary of mechanisms

7.5 Ex ante evaluation of impact

Table 7.5 can be seen as a way of assessing and understanding the individual interventions and how and when they might work. The questions below will help the Regional Learning Group (HE) to assess the extent to which they are achieving the 'higher level' strategic objectives of mobilising the university and overcoming barriers to effective engagement.

Fundamental to this approach is the building of formative and ongoing evaluation which encourages and enables partners to make adjustments to mechanisms while they are being deployed. The evaluations should therefore be dynamic and ongoing, embedded within the process and not just *ex-post*. Key questions to answer about each intervention might include;

- Will it create new or strengthen existing mechanisms for cooperation between businesses (through networks and clusters), sectors and universities
- Will research/technology resources and infrastructure be used to more effect?
- Will synergies and coherence between projects, programmes and policies improve?
- Will it improve conditions for entrepreneurship, incubation, spin out and spin off?
- Will it enhance human capital in the region, either through encouraging mobility of professionals across the innovation domains, skills development or the attraction and retention of skilled migrants to the region?
- Will it simplify pathways for industry to access innovation assets in the universities?
- Will access to finance and investment be improved?
- Will additional investment be attracted to the region?
- How will projects and programmes support the region to address societal challenges?
- Will there be increased cooperation between universities and businesses in the region, especially with indigenous SMEs?
- Will it ensure clear champions emerge within each of the partners?

These are tough questions and delivering projects and programmes that provide affirmative answers to them requires people who can span the world of HE, business and public authorities. Developing such **boundary spanners** can be achieved by selecting individuals from all three sectors who are contributing to the any of the transformational and complex projects described in Section 3 and developing their skills through action learning. This action learning should form part of a Place Based Leadership Development Programme overseen by the Programme Monitoring Committee - and linked to the Smart Specialisation Platform to ensure the sharing of experience across Europe.

Figure 7.6, derived from the work of the UK's Leadership Foundation for Higher Education, describes a possible **Place Based Leadership Development Programme** which

regions may wish to adopt. Under such a programme regions and their university partners would identify a transformational programme they have invested in and select key actors from inside and outside of HE charged with delivery of the programme. Leadership development would be through each actor bringing



Figure 7.6 Model for a place based leadership programme

substantive knowledge ('know what'), networks ('know who') and skills ('know how') to the initiative and explicitly sharing these with the programme team. A facilitator then ensures the sharing process and the enhancement of the skills of the individual, particularly their ability to take back their learning into the university, the public sector and the private sector.

THE WAY FORWARD: UNIVERSITIES AND SMART, SUSTAINABLE AND INCLUSIVE REGIONAL GROWTH

This Guide has indicated a direction of travel for universities and regional authorities wishing to work together. Each region and each university will be at different points on what will hopefully be a journey of discovery of what they can offer each other in steadily strengthening partnerships. Experts working within the university can play a key role by providing intellectual leadership that can point to the direction of travel in terms of smart, sustainable and inclusive growth strategies to which their institution can formally contribute through transformational programmes that draw on the university's teaching as well as its research and outreach work.

In terms of sustainable growth, universities as regional anchor institutions will need to pay attention to their own carbon footprint but also mobilise a wide range of disciplines to inform the policies and practices of regional businesses, public authorities and households. Similarly, inclusivity will involve the university opening out all its programmes to excluded social groups and fostering a culture of lifelong learning in the region

The regionally engaged university can bring this diverse activity together by corporately responding to major EU societal challenges and in this way act as a bridge between the global and the local. Tackling these challenges will involve working with business and the regional community in the co-production of knowledge in living laboratories that foster social as well as business innovation and plugging into European policies regarding, for example, the digital and green agendas, entrepreneurship and social innovation. But to realise this potential to change the world outside of academia, universities will need to develop themselves as learning organisations by investing in their own human capital, particularly in those performing a boundary-spanning role.

Furthermore, enhancing the universities' capacity to reach out to regional business and the community will fail if sufficient capacity for innovation is not in place within the region. This will be a particular challenge in some less favoured regions where investment in the capacity of business, community organisations and public authorities to reach into universities will be required. This may involve regional public authorities encouraging co-operation between different actors in the higher education sector (universities, polytechnics, research and special purpose institutions, community colleges) to establish an appropriate division of labour that plays to the strength of each.

To realise this potential will require regional agencies to think in terms of building a regional higher education system that is part of a broadly based ecology of innovation. Building links in these systems will be as important as strengthening the individual nodes like universities. At a very practical level the universities should be actively involved in shaping and managing the implementation of regional smart specialisation strategies.

In order to achieve this, the following actions are recommended:

- There should be an active attempt to a shift from 'transactional' to 'transformational' interventions with a greater emphasis on programmes rather than one-off discrete projects.
- A partnership is established in the region to specifically address the issues of engagement between universities and regions and particular attention is given to ensuring the sustainability of partnerships in the longer term, independently of funding cycles.
- Managing Authorities should assign funds from their technical assistance budgets to support capacity building within the partnership. Universities, business communities and other public sector authorities should demonstrate their commitment to the process by investing in their own development.
- Regional Partnerships should consider participating in the OECD programme of regional reviews in order to help identify their current strengths and areas that may require capacity building and consider carefully the findings of EUIMA and other related programmes.
- Some simplification and flexibility in implementing Cohesion Policy Regulations is considered and Managing Authorities are actively encouraged to adopt a more flexible approach.
- Managing Authorities and Universities adopt a broader definition of innovation to acknowledge the role that arts, humanities and social sciences can play, especially in responding to the 'grand challenges' and develop mechanisms that draw on the expertise and contribution from the arts, creative industries etc.

Case Study 1

Karlstad University in the Swedish Region of Värmland

Stimulating innovation and cooperation through network and cluster development

About Värmland

The Swedish region Värmland is three hours drive to the west of Stockholm and to the east of Oslo. The region has a population of 273,000 and the capital city Karlstad a population of 85,000. The region is undergoing long term structural change from an old economy based on timber, steel and paper manufacturing and engineering workshops to an economy based on innovation, IT, knowledge and services. Nevertheless, the importance of manufacturing industry to the region is still significant. Promoting innovation in both manufacturing and service sectors is a pertinent agenda. The Swedish innovation system has been internationalising with many of the big companies being part of multinational companies. This provides a challenge for the development of the regional economy in terms of engaging different interests and nature of 'local' companies, including both multinationals and local small and medium enterprises (SMEs).

Recognition of the need for structural change and the renewal of the economies in the region resulted in a political agreement among the municipalities in 2001 which established a joint regional authority to promote development in the fields of environment, infrastructure, industry and commerce, education, healthcare and culture. The newly created regional authority recognised an opportunity for a new approach to regional development and decided to concentrate its support on cluster development.

About Karlstad University

Karlstad University is one of the youngest universities in Sweden. gaining university status in 1999. It has 12,000 students and 1,000 staff. According to its prospectus, Karlstad University seeks to contribute to the development of knowledge both at the international, regional and individual level. To achieve this teaching and research is underpinned by a close dialogue with private companies and public organisations. Karlstad has an explicit aim - "to become one of the best universities in Europe with regard to external cooperation" (source website - [PUT IN LINK](#))

The University has strong connections in its research and teaching with regional innovation business clusters. This is reflected in many dual professorial appointments funded jointly by the region and the University, research funding partnerships, professional up-skilling programmes, degree programmes including work-based learning, and close matching of university courses with regional needs.

The University continues to develop research centres and research with the capacity to enhance innovation as part of the "modern university". Among others, one of the most notable is the Service Research Centre (CTF) – one of the world's leading interdisciplinary research centres focusing on service management and value creation through service. CTF, has, for example, over 50 researchers drawn from business administration, working-life science, sociology and psychology.

Systematic Leadership and Innovative Management - SLIM II

SLIM II was launched in 2009 with total funding of €2.1 million, of which €1.05 million ERDF. It promoted existing co-operation and looked for ways to expand it. A total of 700 companies (with 60,000 employees) in 15 clusters participated in SLIM II. The clusters covered sectors from ITC and services sectors to strong traditional industrial sectors like steel and engineering and pulp and paper. Two examples, 'The Paper Province' and 'Compare' are

Compare

Compare, which stands for Competence Area, conducts business and competence development within IT and telecom (ICT). It was founded in 2000 by 7 IT companies. An example of what can be created by cooperation between the Compare companies, the University of Karlstad and the local authority is the establishment of Compare Test lab, a high-tech centre for the independent testing of software. By 2010 Compare had grown its membership to 105 companies in, representing around 80% of the IT companies in the area. The organisation now has a staff complement of 8 employees

The Paper Province

The Paper Province coordinates and develops cooperation between the players in the paper and pulp industry in Värmland, the northern part of Dalmland and the County of Örebro. It was started as a local project by 7 companies in 1999 and became a business association in 2003. In 2007 it was recognised as one of the top EU Cluster in High Innovation Regions. By 2010 it had grown to 98 member companies (1,7 billion EUR in total turnover). It has a staff of 8 employees and a turnover of 0,8 Million EUR (2009).

presented in the boxes below.

The cluster companies were encouraged to intensify and widen their networking. The project created contacts with the companies across the clusters and looked for new companies to join. The project also linked the clusters and universities. This was important as many entrepreneurs were not used to approaching researchers while the universities were focussed on their scientific priorities. SLIM II brought the actors together face-to-face and built acquaintance and mutual trust. Joint projects with the clusters involved 3,000 students and 590 companies.

A cluster room was established at the Karlstad University to facilitate meetings between SMEs in the clusters and students and researchers at the University. This was to lower the barriers to work with the academic world. It targets the entrepreneurs who were not familiar with the university environment. A total of 182 meetings were organised involving 260 researchers, 420 students and 225 company representatives. Many other events (around 950), e.g., breakfast/lunch meetings, guest lectures, business meeting events as well as projects and study visits were arranged.

Researchers and students were offered the opportunity to do research on real cases in companies, potentially leading to work opportunities. The university also developed shared views with the clusters on research needs which fed through to innovations in companies and subsequently the regional economies.

The project created new contacts and increased mutual trust and social capital between different actors. It provided ideas for joint cross-sector activities between the cluster companies and the university faculties. The project greatly benefitted the Karlstad University which has become an important player in the development of

the region. As a concrete outcome, the University of Karlstad established a Research Institute of Innovative Leadership (RIIL) independently of the project to provide research knowledge to companies in the region. The companies reported in general an increase of 30% in sales, an increase of 50% in co-operation with the university and 35% with other companies as well as a 15% increase in employment (around 1,800 new jobs in companies in the 12 clusters). 80% of the companies in the Clusters stated that they aimed to grow and 70% believed that participation in the clusters to lead new products and services.

The project also created a significant change of attitude within the university, with much greater interest now shown by researchers and students in cluster and regional development. The university is now looking also outwards instead of focusing only on scientific ambitions. The change of attitude was evidenced in a study conducted jointly by the university and external consultants in 2010.

Enablers

- An acknowledgement by the University that regional engagement can enhance the core missions of teaching and research (e.g. the region as a laboratory, a provider of work experience for students and a provider of financial resources to enhance global competitiveness). This enhanced development of mechanisms to link teaching, research and third task activities that cut across disciplinary boundaries.
- The fact that Region Värmland's strategy has explicitly been to strengthen collaboration within and between key regional actor organisations and the University in the context of the region's competitive strengths. This has been achieved by establishing the appropriate and agreed regional and university infrastructure.
- Reaching a critical mass of companies proved to be precondition for effective cluster development. This project showed a need to involve the emerging enterprises and services in the clusters, recognising that involving services is more difficult than manufacturing companies, where their position in the production chain is easier to identify.

Barriers

- Changing academic culture
- Integrated human resource development strategy across all sectors
- Ensuring consistency between National policy in regional development and higher education and Region Värmland's approach based on innovation, human capability, dialogue and collaboration, internationalisation and university/ region engagement.
- Understanding that co-operation processes cannot be directly transferred to other regions, but need to be adapted to the prevailing circumstances, which requires in-depth understanding of the regional contexts (and high levels of regional intelligence).

Sources:

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- SLIM 2 Final report
- 'Made in Sweden; Cluster cooperation in Northern Central Sweden' Assessments 2009 <http://www.varmland.se/en/abo>
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ut-varmland/varmland-innovation-system

Case Study 2

Newcastle University in the North East of England

Helping to stimulate economic revival by building relationships between a research-intensive university and strengthening an established industrial production complex – the process industries – and building a new complex based upon historic regional assets – new and renewable energy.

About North East England

The North East is the smallest of England's nine administrative regions in terms of population (2.6 million) and, with the exception of London, is the smallest geographically (8,592 square km). The region's economic history over the past 100 years has been mainly characterized by decline from an industrial powerhouse, with thriving coal mining and shipbuilding industries, into a lagging region with high unemployment and declining productivity relative to the UK average.

Over recent years, through targeted interventions, the North East has capitalised on its engineering and manufacturing heritage, has restructured its economic profile and moved towards a more diverse and competitive economy, with world class capability and assets stimulating growth of emerging sectors including low carbon, renewable energy, plastic electronics and industrial biotechnology.

This has largely been driven by the establishment in 1999 of the Regional Development Agency (RDA) One North East, which had a remit to further the economic development and the regeneration of the region by promoting business efficiency, investment and competitiveness, creating employment and encouraging and enhancing the relevant work skills in the population. One North East increasingly saw universities as playing a key role in this mission, and this was explicitly articulated in the Regional Economic Strategy for the North East, which sought to place 'universities and colleges at the heart of the region's economy'.

In 2010 the new coalition government announced their intention to abolish the RDAs in England (with the exception of London), and replace them with local enterprise partnerships. Responsibility for funds such as ERDF which had previously been administered regionally will transfer to central government.

About Newcastle University

Newcastle University was born out of the need to support the newly emerging industries of the 19th Century and to sustain a healthy population to work in those industries, with departments focusing on various areas of engineering – marine, electrical, civil and chemical, together with agriculture and medicine. The establishment of the independent University of Newcastle upon Tyne in 1963 was followed by a significant expansion of higher education in the UK. In Newcastle, this expansion coincided with a major programme of urban redevelopment, part of a national attempt to revive the flagging economy of the North East. An alliance between the then deputy vice chancellor and the civic leadership resulted in the consolidation of the present campus as part of a vision of "Education upon Tyne", a vision which anticipated later notions of the knowledge or service based city. In physical terms, it embraced the polytechnic, Civic Centre, University and Royal Victoria Infirmary sites. As a result, unlike many other civic universities, Newcastle was able to expand in situ and develop a single-site city centre campus. Newcastle strives to be a world-class research-intensive university, to deliver teaching and facilitate learning of the highest quality and to play a leading role in the economic, social and cultural development of the North East of England. The vision is of Newcastle as a 'civic university' - one with a global reputation for academic excellence but responsive to helping the city and region overcome the societal challenges of the 21st Century.

The 'Strategy for Success'

The establishment of the North East agency (ONE North East) fundamentally changed the terms of engagement for the region's universities. Its first Regional Economic Strategy recognised the need to rebuild the economy around knowledge based industries, and consequently "placed universities at the heart of the regional economy". This exhortation was translated into a "Strategy for Success" hubbed around five "centres of excellence" designated to operate between business and the research base in the universities. These were focused on areas where there was proven research strength in universities and identified industrial opportunities, alongside investment funds to assist in catalysing new ventures and growth of existing small to medium sized businesses. These included a New and Renewable Energy Centre (Narec) based at the Port of Blyth where there had already been some public investment in testing facilities for on-shore and off-shore wind, a Centre for Process Innovation (CPI) based on the former ICI research site at Wilton on Teesside, and a Centre for Emerging Nanotechnology Micro and Photonics Systems which was subsequently incorporated into CPI. While there were some research strengths in Newcastle University, these were spread across several schools; in contrast its strongest and most focussed areas in terms of established research institutes were in the medical sciences where the region lacked an indigenous industrial base. However the RDA did decide to invest in this area in and close to the University and teaching hospital within the City of Newcastle itself, with a view to establishing a new industrial base through spin-outs and the attraction of inward investment. The decision to establish intermediate organisations with their own facilities outside of the University and the city was sector specific and related to the degree of research focus within the University relevant to these areas.

CPI The initial remit for CPI was as a translational vehicle. The objective was to create technology platforms so that the sector skills, knowledge and expertise of industry and academia could come together in collaborative projects. As far as the regional universities are concerned, it was recognised that Newcastle was exceptionally strong in chemical engineering but not in chemistry, where the main academic excellence in the region was in Durham University. To enhance Newcastle's strengths in chemistry, CPI used funds from the RDA to enable the Newcastle University to appoint a senior academic into its School of Chemical Engineering and Advanced Materials to develop the skill set around industrial bio-technology and catalysis, areas highly relevant to the technical changes underway in industry on Teesside. Likewise RDA investment in facilities in the School of Electrical, Electronic and Computer Engineering enabled it underpin CPI work in plastic electronics. So there was upstream investment in the science base.

Narec If the establishment of CPI could be seen as a defensive investment designed to secure the future of the established chemical and process industry in the region, Narec was an offensive investment seeking to build a new industrial sector. Narec brands itself as "the national centre for the UK dedicated to achieving the development, demonstration, deployment and grid integration of renewable energy and low carbon generation technologies". It covers wind energy, marine renewable, electrical networks and distributed energy. Narec's business model involves identifying individual academics, finding out what they are doing that is of interest to the centre and its customers, and what capacity it has to offer them. One area of Narec's activities is to run seminars, workshops and conferences and supply chain events to make companies aware of the opportunities in the centre. Academics from the region's universities contribute to these events, which are often highly focussed on particular areas. So an event on tidal device blades might bring in experts on materials, the water column and water flow. Narec then brings business development expertise to the events. The University has endeavoured to pool its expertise to provide a better interface to Narec. It has established the Sir Joseph Swann Centre for Energy Research with a mission to provide an intellectual lead in the pursuit of the low-carbon economy of the future, by developing new technologies that reconcile human needs for energy conversion and use with social and ecological needs.

Enablers

A restructuring of Newcastle University in 2001 was undertaken to create a stronger steering core designed to enable the university respond corporately to external opportunities in terms of engagement with business and the public authorities. A Deputy Vice Chancellor was given specific responsibility for city and regional engagement embracing both teaching and research including the academic services which support this activity.

Both Narec and CPI were established by ONE North East as private not for profit companies with regional innovation objectives written into their memorandum and articles of association. The company boards included university members in their individual capacity and CEOs with private sector research leadership appointed.

Over the period 2002-7 the RDA invested tens of millions of pounds in CPI and Narec. This was made up of core running costs and project funding, chiefly for the installation of specialist equipment. With this scale of budget, the centres were able to employ specialists who could not be afforded or rewarded appropriately by a university technology transfer office which by definition had responsibility for the commercialisation of the whole spectrum of university research. The Centres were also able to acquire equipment that could neither be afforded nor accommodated on campus.

Barriers

In creating CPI and Narec the RDA recognised the need to establish them as institutions in their own right and having an economic impact as a consequence of that – as anchor institution in their own localities. While building links between business and regional universities was part of the original rationale for the centres the metrics to measure the extent and significance of the contribution of the universities via the centres to regional innovation have proved problematic. The centres had to fit into a nationally determined model of regional outputs such as job created, which were laid upon all RDAs by central government in part to meet state aid rules, which were tangential to the core mission of the University.

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- <http://www.uk-cpi.com/>

Case Study 3

University Rovira i Virgili in the Spanish Province of Tarragona

A model of university-industry collaboration around research-based human capital development in the chemical industry.

About Tarragona

Tarragona is a province of eastern Spain, in the southern part of the autonomous community of Catalonia. It has a population of 888,895 (2008), of whom about one-fifth live in the capital Tarragona. The province has 183 municipalities. The Tarragona petrochemical industry is considered the most important chemical hub in southern Europe and the Mediterranean area. It represents 25% of the Spanish chemical industry and generates 44% of all plastics produced in Spain. It is home to around 30 companies in the industry, who employ some 10,000 people directly and 30,000 indirectly, utilising more than one million square metres of dedicated industrial space.

Catalonia's various sub-regional levels are taking different initiatives to support innovation in a broad sense, seizing opportunities from Spanish and Catalan policy. The tools most commonly used are incubators and science or technology parks. Higher education institutions are often the leaders in these local initiatives and some adopt a highly proactive approach. One of the most notable examples from the region is the University Rovira i Virgili.

About the University Rovira i Virgili (URV)

URV is a public university founded in 1992 from previously existing university faculties and schools. It offers 52 programmes of study across the different disciplines to over 12,000 students. In terms of its research strengths, URV had EUR 17 million in research grants from different sources in each of the last several years (approximately 10% of URV revenues), including grants from leading EU, Spanish and Catalan programmes. URV also stands out for its high level of citations in Spain, particularly in its centres for Chemistry (fifth), Clinical Medicine (second) and Engineering (fourth).

The vision of the university is to constitute an international pole of knowledge that, from its strategic position at the meeting of the Mediterranean arch and the Ebro valley and its specialisation in a set of scientific fields, contributes decisively to the involvement of Catalonia and Spain in the cultural, social and economical development of the world, more specifically:

- To improve regional organisation and widen participation in higher education
- To encourage critical thought, freedom and pluralism
- To provide life-long quality education and training
- To generate growth
- To promote responsible and sustainable human development in southern Catalonia, through independent research and the transmission and application of knowledge
- To emphasise the universality of knowledge and internationalisation

The University has also taken the lead in a strategic initiative to support innovation through its Tarragona Region of Knowledge Office, which has within its main objectives to support fundraising for innovation and R&D projects in companies and to promote territorial strategic projects for companies and for institutions. A Socioeconomic Committee led by URV and including many other regional stakeholders (employers, unions, chambers of commerce, and the Port of Tarragona) has put together a strategic plan for the area that takes into account the latest approaches to the importance of a territory for effectively supporting an innovation system. URV is also active in supporting knowledge clusters in the Tarragona province through its teaching, research centres, science and technology parks, and other institutions. Those clusters include: chemistry and energy; nutrition and health; heritage and culture; tourism and leisure; and oenology. Investment in the related science and technology parks has totalled EUR 39 million.

University/industry collaboration projects

URV operates under the Spanish higher education legislation which regulates universities' governance, recruitment system and salaries. Despite these constraints, the university has been able to develop several mechanisms to mobilise itself for regional development.

In meeting its vision and mission, the university has set specific milestones in the development of scientific policy. It has a strategic research plan, a strategic teaching plan, a postgraduate policy and teaching-research alignment, and strategic plans for third mission and internationalisation.

There is joint strategic planning with regional economic actors, including trade unions (UGT, CCOO and Unió de Pagesos); employers' associations (Foment del Treball (CEPTA) and PIMEC (SMEs)); chambers of commerce (Tarragona, Reus and Valls); and the Port of Tarragona.

The Campus of International Excellence Southern Catalonia (CEICS) represents the strategic union of different organizations and structures involved in teaching, research, knowledge transfer and the productive sector in southern Catalonia. The driving force behind this group is Rovira i Virgili University. The CEICS organizes its activity in five specialized sub-campus: Chemistry and Energy, Nutrition and Health, Tourism and Leisure, Heritage and Culture, and Oenology

Campus of International Excellence Southern Catalonia – CEICS (Tarragona)

The Universitat Rovira i Virgili played a leading role in the Campus of International Excellence Southern Catalonia (CEICS) initiative, which was subsequently awarded the status of European Campus of International Excellence by the Spanish Government. The CEICS is a collaboration between a group of knowledge agents and the administrative, industrial and business sectors from the southern region of Catalonia and aims to create an international hub for the promotion of the knowledge society and economy. To do so, it aims to promote excellence in teaching, research and knowledge transfer in conjunction with the principal manufacturing sectors and through the establishment of international agreements.

In particular URV has established a long-term co-operative relationship with the chemical industry in Tarragona that incorporates both research and human capital development programmes that are relevant to the industry needs. Faculty are allowed to spend time working in local firms during their leave and have on-going relationships with the firms. There are strong alumni connections and students participate in internships and coop programmes within the local firms. Both advanced technical vocational skills and higher degree based skills such as in engineering are designed in co-operation with the local industry representatives.

Enablers

The R&A (research and academic) Staff Commitment Agreement takes the form of an instrument for human resource management and a key element in the strategy for improving the university's quality. It focuses on improving the overall process of planning and management of R&A Staff activities. The development of the commitment agreement includes planning, monitoring and ending phases.

The R&A Staff Commitment Agreement is designed to steer faculty and administrative efforts toward the achievement of mutually accepted individual, departmental, school and university goals and objectives, according to the mission of the university. The agreement also emphasises the collective character of the overall task of a department; teaching, research, transfer of knowledge and service and administration. The agreement explicitly allows for professors with different profiles to reach their full potential based on their individual skills and by working with their colleagues and in accordance with the mission of the department and the university.

The agreement is an online document that brings together all the activities developed by the R&A Staff and allows the university to maintain a current and permanent record of its activities, structured around five areas:

- Teaching
- Research
- Transfer of Knowledge & Technology
- Service & Academic administration
- Personal Development

Barriers

The university is changing from a closed system towards an open organization which needs to interact with private and public institutions and with the society. This change is a big challenge for the system and requires some "top down" measures to organise and evaluate the management of collaborative research projects, such as collaborative research contracts; promoting interdisciplinary expertise (inter- and intra- universities/companies) and negotiating shared IP Rights.

Sources

- OECD review of regional innovation – Catalonia
- Executive Report – First EU-DRIVERS Conference, Barcelona, 17 November 2010 16
- Presentation to EUIMA Conference Tampere
- OECD Higher Education in Regional and City Development Catalonia, Spain 2010

Case Study 4

Combined Universities Cornwall and the English County of Cornwall

Developing Higher Education to drive smart specialisation in Cornwall and the Isles of Scilly

About Cornwall

Cornwall is situated in the far South West of England, some three hours from the nearest major city (Bristol) and four from London. With a rising population of 537,400 in mid-2010, Cornwall & the Isles of Scilly currently benefits from a major European investment through the Convergence Programme 2007-2013. This programme aims to transform the traditional rural economy of Cornwall and the Isles of Scilly into a high-growth and knowledge based economy.

The Cornish economy has been characterised by low levels of productivity and modest levels of growth over a number of years, although this differs somewhat between sectors. Overall however, the peripheral nature of the region and poor connectivity have often created an image of a good place to visit rather than a good place to do business. Not surprisingly, this has resulted in a seasonal dependency on low skilled jobs and a lack of high value and larger, international businesses.

Cornwall's strengths are that it is a region with an innovative small business community, having strong sectors in the creative industries, green technologies and services, agri food and ICT. The ongoing Convergence funding continues to improve productivity and increase the Gross Value Added through these growing knowledge based industries and by improving the business infrastructure through investment in transport and superfast broadband.

Following the demise of the old regional governance structures in England, Cornwall and the Isles of Scilly have been in the forefront of establishing a new business-led public-private Local Enterprise Partnership to provide strategic leadership in the areas of economic development and business growth. Although at an early stage, the plan is that this partnership will have an important role in influencing the shape of any future investment programmes for the region.

About the Combined Universities Cornwall

Combined Universities in Cornwall (CUC) is a partnership of six universities and colleges working together to give more people the chance to study in Cornwall, and to use university level education to help our businesses and communities to thrive. The partnership comprises two major national Universities, a specialist Arts institution and specialist Medical and Dental College, and two Colleges of Further Education. Each institution develops and delivers University-level education but, through the partnership, they are committed to co-operation to drive local economic development.

The original rationale for the investment in higher education capacity was to drive long-term cultural change in the region, to raise levels of skill and aspiration, and to retain more young people in the local economy. The CUC partnership was founded in 2000 and took advantage of EU investment through Objective 1 to grow taught higher education provision (3-year degrees and 2-year foundation degrees) from a very limited 2,500 full time equivalent places in 2000 to nearly 8,000 now. During that period, young people's progression from school to higher education has risen in the region faster than in the rest of the UK.

Investment in the Combined Universities in Cornwall has been one of just a few major strategic investments made by the structural funds programmes, along with infrastructure and fast broadband. The rate of growth of the

Cornish economy and specific indicators such as the rate of growth of knowledge-intensive industries have been a mark of the success both of the overall programme and of the CUC investment in particular.

Developing higher education and innovation commissioning frameworks for the Convergence Programme

At the start of the Convergence ERDF programme, there was clear commitment in the regional Operational Programme (OP) to focusing investment on transformational change and the growth of high-value business, through investment in four main areas: Innovation and R&D; Enterprise and Investment; Transformational Infrastructure; and Unlocking the Economic Potential of Place.

In Cornwall the Convergence ERDF programme operates on the basis of commissioning key strategic investments. Although a few of these were specified in the OP, in most areas further work was required to get from the aims set out in the OP to a set of delivery projects which would realise these aims. This provided an opportunity to consider, at strategic level, what investments should be commissioned to build further on the success of CUC in driving regional growth.

At the same time, the Convergence ESF programme, although working through a national Operational Programme, agreed a local Framework which included a substantial element of investment in higher education and higher level skills through CUC. The stage was therefore set for a complex piece of strategic analysis to work out where this investment, across both programmes, should best be applied.

A clear focus for innovation and research investment quickly emerged by considering together three key dimensions of this question:

- High growth, high value sectors in Cornwall with identified potential to grow and where knowledge and innovation have a part to play in driving this growth; and
- Areas of curriculum specialism which were either existing strengths of the partner institutions or which there was a realistic prospect, given investment, of developing and sustaining in Cornwall; and
- Areas in which complementary investment and assets would be made to reinforce the impact of Research and Innovation investment.

Linked Innovation and Research assets in Cornwall in the Environment and Sustainability

Higher Education research investments

- Environment and Sustainability Institute (ESI)
- Peninsula Research Institute for Marine Renewable Energy
- European Centre for Environment and Human Health

Related assets (actual, planned or sought)

- Wave Hub and Fabtest (national wave energy offshore testing facilities based in Cornwall)
- Tremough Innovation Centre (co-located with ESI)
- Marine Energy Park (part of a national initiative)
- Ecotown (testbed site for major sustainable housing development)
- Eden project

Skills and research development

- Foundation degree, undergraduate and postgraduate programmes in renewable energy
- Targeted collaborative research with business
- Targeted business support and graduate placement to develop renewable energy and low carbon business opportunities

We made progress on this through an iterative process of independent economic analysis, strategic planning and analysis by institutions and the higher education national funding council, consultation between the Convergence programme and Higher Education partners, and consultation with the local and national specialist business communities. What we were seeking was a few areas in which we could make a number of related investments that could generate significant critical mass, enabling Cornwall to achieve a leading position.

This led to the preparation of a “Higher Education Commissioning Framework” which specified, amongst other things, that HE investment should be focused in the thematic areas of the Environment and Sustainability, the Environment and Human Health, and the Creative (Digital and Design) sectors, and in underpinning this with a range of services and programmes to develop enterprise and innovation, funding for collaborative research studentships between HE partners and business, and an intensive scheme to place graduates in employment in local businesses. In each areas of specialism, investment was made not just in research facilities and staff but also in knowledge exchange workers – those who could proactively build links between the research base and local business. The inter-relationships between investments is illustrated below for just one of these areas, the Environment and Sustainability:

It is early days to report the outcomes of this investment as facilities are still being constructed and new staff being appointed. However, we have already for example attracted more than £30m in additional research funding investment, which is a promising beginning.

Enablers

- Diversity of CUC partnership bringing together world-class research, strong industry links, innovation expertise and vocational skills provision to provide a well-rounded approach
- Early acceptance by both Convergence programme partners and HE that the strategy of focused investment in a few major themed areas was the right one, and a relatively swift and uncontroversial agreement of what those area should in principle be
- Leadership by the Convergence partnership, Cornwall Council and the emerging Local Enterprise Partnership, and the support of the former Regional Development Agency and the national Higher Education Funding Council, all of whom understood and bought into the vision of using higher education as a key driver of growth

Barriers

- Lack of strong existing expert business base in several target areas increased risk and made a proper level of business consultation about some elements of the strategy difficult. This was particularly true in the case of the Environment and Human Health where our strategy was to gain early-mover advantage in this emerging new field
- Radical change to programme governance structures since 2010 has threatened some discontinuity, particularly to our ability to bring ESF higher level skills investment to the table in the way originally intended by the programme. Loss of Regional Development Agency creates a need to grow local capacity to drive this and any future programmes
- For institutions, the recent major shift in UK government funding of mainstream higher education – away from institutional grant-aid and towards a system of government-backed student loans – has utterly changed the financial and business models that apply to the universities’ when viewed as very large social enterprises. This again increases risk, but also by increasing national pressure on institutions to widen HE participation and achieve good employment rates for students, in part strengthens the alignment of institutional priorities with the economic priorities of European regional development programmes.

Case Study 5

Krakow University and Malopolska Region in Poland

Building on the research and teaching strengths of the University to attract inward investment and stimulate indigenous enterprise in a growing sector

About Malopolska

Malopolska is located in the south-eastern part of Poland and is bordered by Slovakia to the south. The regional capital and largest city is Krakow. The Malopolska economy is one of the most diversified of Poland's regions. The employment rate is above the national average and the unemployment rate is one of the lowest in the country, though youth unemployment is an issue as in the rest of Poland.

Malopolska has above average employment in agriculture (23% in 2006). Employment in industry is around the national average, the most important industries being traditional heavy industries, including steel, heavy chemical, mining and metal industries, though a number of new industries are emerging, including industries associated with the information economy – cable, telecommunications, computing and pharmaceuticals. In its Regional Innovation Strategy Malopolska targets IT and ICT industries as potential growth areas. Malopolska is an observer member of IANIS+ (an information society network programme under the Innovative Actions of the Structural Funds.)

Krakow in particular has been very successful in using its historical strength as a centre of higher education to adapt to and enable new economic opportunities by attracting and retaining foreign investment to the region. The size of the graduate pool in a wide range of disciplines, particularly in the disciplines of computing science, accounting and management, make it an attractive destination for software and business process outsourcing companies. Over the past decade several large high-tech corporations have built a significant presence in Krakow, including IBM (finance and accounting services as well as software development), Google, Motorola and Sabre. The business processing outsourcing sector includes companies such as Cap Gemini, KPMG and Shell's Shared Service Centre. According to the Malopolska Regional Development Agency, Krakow has been ranked as second only to Warsaw in attractiveness to technology and outsourcing businesses.

However Malopolska has not just been successful at attracting overseas investment, but also fostering indigenous enterprise. One of the biggest software companies in the region is ComArch, founded in 1993 by professor Janusz Filipiak, a tenured scientist on leave from AGH University of Science and Technology. The company has gone on to build up an international network of subsidiaries which employs almost 3,500 people worldwide and has a turnover of more than \$200m.

About AGH University of Science and Technology

AGH University of Science and Technology is the second largest technical university in Poland, located in Kraków. The university was established in 1919, and was formerly known as the University of Mining and Metallurgy. The University has almost 20,000 academic staff and over 35,000 full and part time students, of which more than 2,000 are postgraduates and over 750 are doctoral students. There are more than 2,000 staff involved in research activities, of which 500 are pursuing independent research.

The university has an active portfolio of collaborations with a range of partners nationally and internationally. It has over 370 agreements of direct collaboration with partners in Europe, North and South America, and Asia and

over 100 agreements with research and scientific units in Poland. The university also proactively engages with the private sector, and has almost 250 agreements with industrial partners, including large international corporations.

Domestically AGH cooperates closely with other universities as well as public administration and local self-governing units. They participate in many domestic and international scientific and technological consortiums and platforms and joint organizational initiatives such as: research centres, centres for the development of technologies, intercollegiate laboratories, and others. One of the projects AGH is currently supporting is the Małopolska Cluster for Information Technologies, which is supported by national and European funding.

Małopolska Cluster for Information Technologies

The cluster's mission is:

"Supporting the development of IT, through the creation of networks of enterprises, local authorities, universities and institutions of the business environment"

The ICT sector is undoubtedly a potential source of job creation in the Malopolska Region. The various regional planning documents reaffirm the importance of fostering its development. For instance, the Regional Innovation Strategy has set itself the goal of "creating the conditions for development in the sector of information and communication technologies (ICTs) further upstream of industry and businesses". The Development Strategy for 2007-2013 targets increased investment in research into ICTs and application of innovative methods within the regional economy.

One of the mechanisms to achieve this is the Malopolska IT Cluster project is intended to make Malopolska the ICT hub for Central Europe and help create quality jobs in the region. The project was developed following the identification of weaknesses in the structure of the ICT sector and particularly the absence of links between research establishments and businesses. In July 2006, regional players in the sector decided to tackle this by creating a cluster whose main objective is to establish an "efficiency-enhancing, value-adding environment, facilitating collaborative research relationships, knowledge and technology transfer, raising competitiveness of existing IT companies and effective support for new IT investments, optimal distribution of public funds on boosting research and innovation, and, last but not least, securing the steady inflow of highly qualified manpower in the region."

The structure currently draws together 25 partners including companies like ComArch, Solidex and Ericpol Telecom, as well as institutional partners such as the Marshal of the Malopolska Region, the AGH University of Science and Technology, and the Jagiellonian University of Krakow.

The main goals Main goals of the project

- building a network of connections between companies related to The IT industry and universities teaching their future employees
- promoting cooperation between companies, universities and authorities in order to enhance the region's future competitiveness.
- preparing initiatives beneficial to further development of the IT business in Malopolska (especially in terms of small and medium enterprises)
- promoting Malopolska as a competitive European region.

Enablers

While the indicators for ICT ownership and usage in Poland as a whole lag behind most of Europe, Malopolska was at the forefront nationally of developing online public services and promoting technology uptake among municipal staff. As early as 2003 more than 80% of municipal staff had their own computer terminal. This early adoption in the public sector has led to a positive and proactive approach to ICT policy development.

The regional authorities of Malopolska have been both ambitious and consistent in the emphasis on ICT development in their strategic planning. The action programmes for 2000-2006 and 2007-2013 have given prominence to developing the 'information society' and also seek to tackle all the issues involved – infrastructure and equipment, fair access, private and public sector issues etc.

The public authorities have led the development of an inclusive approach to designing and implementing ICT policies, which has succeeded in getting many of the key public, private and higher education partners engaged in the process. The success of this approach is evidenced by the creation of the Council for the Information Society in Malopolska in April 2004 which has played a prominent role in ensuring the cohesion of the implementation of projects and programmes.

Barriers

The emphasis on building a strong regional partnership and consensus on the challenges and how to overcome them has meant that for the most part, the barriers to success have been external. The first is the relatively poor position of Poland as a whole when it comes to information society indicators, particularly in terms of private ownership of ICT equipment and broadband infrastructure. On many of these measures Malopolska in general and Krakow in particular outperform the national indicators, however if Poland is perceived by potential investors as a 'low tech' society, this may have consequences for the ability of Malopolska to market itself as an ICT hub.

The other challenge is the competition from other growing regions of Poland and the rest of Europe and the wider world, particularly places with a large, cheaper and well educated labour supply. The global downturn has not only curtailed new investments, but also means companies are highly price conscious when it comes to locating their businesses. Service sector businesses such as software development and business processing outsourcing companies are far more mobile than 'traditional' capital intensive industries, and therefore cities and regions have to work hard to maintain their attractiveness, particularly to foreign firms who may lack the additional 'stickiness' of indigenous firms to their location.

Sources:

- IRIS Europe - Analysis of ICT policies in the Malopolska Region
- <http://www.agh.edu.pl/en/university.html>
- "Małopolska - the IT hub in Central Europe. The ways of supporting creation of quality jobs in the region" Office of the Marshal of the Małopolska Region – Kraków (Poland).
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