How Higher Education Can Help Build Regional Knowledge Based Economies In Europe

University Partnerships For Prosperity

How Higher Education Can Help Build Regional Knowledge Based Economies In Europe

Final report of learning and outcomes from the UNICREDs project
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The triple helix: the interaction between Higher Education, the public sector and industry
Welcome

UNICREDS has been an exciting and challenging project for all involved. We have learnt a huge amount through the process of collaborating with a range of different regions facing similar, but not identical, problems. I believe that this guide brings fresh observations on, and insight into, the question of how triple helix partnerships can contribute to regional economic development.

Our objective when writing this final report was to challenge the thinking of regional stakeholders in terms of how to drive economic development in isolated regions. No matter what the GDP or whether your economy is underperforming, we firmly believe that with the right will collaborative partnerships between the public sector, Higher Education and business can reap great rewards.

Nicolas Wallet,
UNICREDS Project Manager
Parts of Europe have been marginalised by factors over which they have little or no control. In particular, they can’t help their geographical remoteness, and this, in turn, means they can’t hugely help the scarcity of their population, nor the lack of key elements of infrastructure. They’re simply too far from the levers of power to receive sufficient attention.

Other parts of Europe may have healthy populations, and indeed more infrastructure – notably in the form of a regional university – but they still languish economically and socially, for historical political reasons which have held back the regional will to affect change.

Over three years, the UNICREDS project sought to understand the current best practice for regions in developing knowledge-based economies. A premise that has underpinned this work has been that interactions of governmental, academic and business communities – the so-called triple-helix partnership – has synergistic benefits to help regions overcome some of their structural disadvantages.

UNICREDS partners didn’t work in isolation. They contributed to shared surveys, participated in focus group meetings – and importantly, they each provided examples of existing best practice from their regions. Some such examples responded to unique regional circumstances, but others lent themselves to wider applicability – and from these, lessons could be drawn, principles established, and recommendations made to national and pan-European administrations. The power of these recommendations is that they are not based on a single region’s experience, but on best practice established by a number of regions throughout Europe.

“"If HE works closely with businesses and communities, and with governments and administrations, it can not only transform regions – it can make that transformation sustainable. "
Key findings

» Higher Education (HE) best contributes to regional economic development when it works together with the public sector and regional business
» National policy should be encouraged by the EU to motivate and help universities to contribute to their regional development, in collaboration with regional government and businesses
» One size does not fit all. Models of collaborative HE within a triple helix environment from one region may need adapting to suit others. Flexibility is key
» The EU’s Smart Specialisation strategy, when applied to regions, has to be flexible, adaptive and spread any risk
» Connectivity is an additional critical element for the triple-helix development of an innovative business culture in isolated regions. Future policy-makers need to provide additional support mechanisms to overcome the distance (both geographical and cultural) between regional government, universities, regional businesses and communities

» Policy-makers need to recognise the vital role played by third sector organisations, as well as sometimes small numbers of businesses. Future policies must aim to engage with the most innovative among them to help them develop and prosper in these regions
» The majority of businesses in less developed regions are micro-businesses or SMEs. EU funding should be freed from conditions that have the unintended consequence of limiting access to small businesses
» In line with EU 2020 goals, Directorate General for Regional Policy (DG Regio) should accept the principle of the value of coherent packages of investment to stimulate HE capacity development from within National CSF Programmes
» Regions need the ability and support to bring together various forms of EU development funding into integrated investment packages
» The European Commission should develop explicit strategies for research capacity development in less developed regions, with a view to it becoming an integral part of Horizon 2020

This study contains many successful examples of collaboration between universities, industry and the public sector that have helped transform less developed regions. A story emerges from them. It is a story of collective determination: it says that if HE works closely with businesses and communities, and with governments and administrations, it can not only transform regions – it can make that transformation sustainable.
Partner Regions

Scotland, UK
University of the Highlands and Islands:
www.uhi.ac.uk

Cornwall, UK
Cornwall Council:
www.cornwall.gov.uk
Combined Universities in Cornwall:
www.cuc.ac.uk
Seinäjoki, Finland
City of Seinäjoki: www.seinajoki.fi
University Consortium of Seinäjoki: www.uces.fi
Frami Ltd: www.frami.fi

Northern Sweden
Council of Skellefteå: www.skelleftea.se
Regional Council of Västerbotten: www.regionvasterbotten.se
Akademi Norr Association of Municipalities: www.akademinorr.se

South Bohemia, Czech Republic
University of South Bohemia: www.jcu.cz
South Bohemian Regional Authority: www.kraj-jihocesky.cz

North Central Region, Bulgaria
Ministry of Regional Development and Public Works: www.mrrb.government.bg
Sofia University ‘St. Kliment Ohridski’: www.uni-sofia.bg

Hadjú Bihar, Hungary
University of Debrecen Centre for Environmental Management and Policy: www.envm.unideb.hu
Institution Maintenance Centre of Hajdú-Bihar County: www.hbmik.hu
Partner Regions

**Cornwall, UK**
- Distributed population with no major ‘urban’ area and only 1/3 of total population living in towns
- Decline of traditional industries has left dominant micro-business economic base
- Historical out-migration of talented young people
- Higher-level skills lacking in the workforce
- Need to improve business growth prospects

**Scotland, UK**
- Remote and sparsely populated region
- Propensity towards an aging population
- Historical migration to urban Scotland in order to participate in HE, with few returning
- Lack of large and medium-sized enterprises in the region - mainly populated by SMEs and micro-businesses
- Low level of university engagement with businesses in the region

**Vasterbotten, Sweden (North coastal and western inland part; Skellefteå, Akademi Norr)**
- Remote and sparsely populated region
- Historically, population had to travel up to 3½ hours to reach Higher Education Institutions (HEIs) – lack of education infrastructure closer to home
- Unwillingness to leave region to study – especially among women aged 25-40
- Need to reverse traditional negative attitudes to HE and academic study
- Increased demand for skills enhancement from industry and public sector

**South Ostrobothnia, Finland**
- Domestic-market-oriented rural region
- High number of small- and medium-sized enterprises with low intensity of research & development activity
- Need for life-long learning education aligned to the needs of the region’s employers
- Out-migration of talented young people
North Central Region, Bulgaria
» Transport infrastructure makes reaching universities difficult for some areas
» Low level of HE qualifications among regional employees compared to district centres
» Historical remoteness/isolation due to political factors during Soviet era
» Out-migration of talented young people
» Under-utilisation of existing universities to help economic development

North Great Plain Region, Hungary
» High unemployment rate and low activity rate
» Low utilisation of industry parks, low rate of industrial investments and low level of applied production technology
» Despite available opportunities and resources, social, cultural and particularly economic cooperation between regions in Hungary, and with cross-border regions, is weak
» Need for HE and research to focus on actual regional needs
» Establishing solid and continuous collaboration and communication between HE, public sector and business community is difficult

South Bohemia Region, Czech Republic
» University and HE in the region is concentrated mainly in České Budějovice and is poorly accessible from some remote (but large) areas of South Bohemia because of transport problems
» Poor telecommunications infrastructure and lack of skills in use of information technology
» Technical companies struggle to find skilled employees locally; this is a challenge for educational sector because of low level of technically skilled graduates
» Lack of coherent system for life-long learning
Clearly the key challenges outlined for each of the partner regions on the map on page 5 - 6 represent the distillation of a vast volume of analysis about the regions and what makes them culturally distinctive. The common experience for the UNICREDS partners has been that all the key actors in regional development need to be involved and engaged in this initial analysis, and need to share and agree ideas for the way forward.

From these analyses it is clear that the regions share some common ground, for example their remoteness from major centres, population demographics, and reliance on declining traditional industries. People living in these areas can find access to traditional university education difficult for geographic, financial, or social reasons. Of those who are able to move away from their region to study, only a small percentage will return there to find work. The partner regions also share a high proportion of sole traders amongst a dominant SME business base, making university collaboration with the private sector both complex and costly.

Two main groups of partners can be distinguished within the project. In one group we have the regions of Northern Scotland and Cornwall in the UK, South Ostrobothnia in Finland and the northern and western inland part of the Västerbotten region in Sweden. The other group consists of the regions of South Bohemia in the Czech Republic, the North Central region of Bulgaria, and the North Great Plain region of Hungary.

The “Northern” group comprises regions that are rather sparsely populated, with the exception of Cornwall, and which experience problems with economic growth and development conditions. This is, or was, to some degree attributed to a lack of a university in the region, or in a part of the region (as for Västerbotten). As a result of partnership cooperation, these regions have now established new multi-university campus platforms or learning centre networks and, in one case, the recent birth of a new university (University of the Highlands and Islands in Northern Scotland).
The regions in the Czech Republic, Bulgaria and Hungary are more densely populated and do not experience a lack of regional university infrastructure in the same way as the "Northern" regions. However, they do experience difficulties with effective collaboration with all of the actors in the region, especially given that working this way is not prioritised nationally – at least, not when it comes to project and initiative funding.

All the regions want to use, or are using, partnership working to help build a knowledge-based economy and drive better and faster economic development. They all believe universities should play a crucial role in this.

With their common experiences and differences, the partners set about learning from each other. The purpose of the UNICREDS project was to enable this transfer of experience and best practice among the partners, with the aim of creating a ‘toolkit’ of advice that could be used by other regions facing similar problems.

Author:
*Anders Norberg, Campus Skellefteå, Sweden*

"All the regions want to use, or are using, partnership working to help build a knowledge-based economy and drive better and faster economic development."
The key objectives for the three-year-long UNICREDS project were to share these experiences of successful collaboration between universities, business and government, in order to identify good practice and develop a transferable model and toolkit for regional economic development, which could be implemented in regional, national and European policy.

Central to our understanding of these collaborations was the triple-helix model, describing the interdependent relationship between university, government and industry in building a sustainable knowledge economy. While the triple-helix model is explained in more detail in “Getting Together”, it is important to note that it sets the context for collaborations in, and is integral to, the five-step model for regional development on which the UNICREDS project is based.
The five steps in this model have been explored through five workshops and conferences, which took place over the duration of the project, where each of the steps were discussed, experiences shared and good practice identified.

01. Geographic and community fit: design of a decentralised higher education model to meet specific physical and social characteristics of failing regional economies in peripheral areas;
02. Partnership development: universities and further/higher education institutions, local learning centres, regional authorities and the private sector working in partnership in isolated, failing or resource-poor regions;
03. Embedding economic and community benefits: embedding the benefits within the local economy and communities;
04. Nurturing innovation: nurturing an innovative business culture and reaching isolated groups;
05. Achieving excellence: building research and innovation capacity within the region to secure long-term sustainability.

The aim was that the good practices identified by the project partners would demonstrate and refine the five steps into a transferable model that could be used by other regions facing similar problems. The model and the good practice examples would also be used by partners in the Central European countries to develop Action Plans for their regions.

A wider aim of the project was also to feed into Europe's post-2013 agenda. In this way, the knowledge gained in the project would inform future regional policy and programmes on the key issue of cohesion through knowledge. This, in turn, would influence national and regional government policy in the development of collaborative approaches to support a sustainable economy based on research and innovation.
Getting Together
There is a fairly common consensus in Europe concerning the need for every region and every city to fit into and become competitive in the global knowledge economy. There are no ways back, no possibilities for permanent isolation and ignorance about what globalisation issues can mean for local economy and life. Most questions now have global dimensions. Competition is global even in areas we never thought were possible a couple of decades ago. In this competitive global environment, regional aims need to account for the globalisation of knowledge, and so building or re-building regional economies requires more qualified jobs and the need for education, research, entrepreneurship, cooperation, specialisation and innovation. Many regions feel propelled towards a need for game-changers as well, something new and different to develop as a regional speciality, which is relevant in a global perspective.

In all this, high expectations for regional economic development may be focused on or directed towards the university sector to supply an educated workforce and the research for innovations that are needed. But the universities will not achieve this in isolation; if left to their own devices they will often pursue their own slightly different agenda.

The key strands in regional economic development are widely accepted to be universities (or players in the HE sector), government, probably through regional or local representation, and industry or businesses operating in the private sector. The way these strands interact can have an impact on the potential of a region to find and sustain economic growth. The triple-helix model, which has been central in the description of the UNICREDS project, is based on the hypothesis that traditional bi-lateral relations between government and university, university and industry, and government and industry have been replaced by tri-lateral interactions between all three, and that “interaction among University, Industry and Government as relatively independent, yet inter-dependent, institutional spheres is the key to improve the conditions for innovation and sustainable development in a knowledge-based society” (Dzisah & Etzkowitz, 2008, p. 102). Today there is also talk about knowledge triangles, Smart Specialisation, entrepreneurial universities etc., but these are mostly versions of, or extensions to the same basic ideas. Universities and companies must cooperate, and the public sector must enable this, in order to find a sustainable way forward in a global knowledge economy.

That’s the theory, and it seems to fit well with the thinking behind, and strategic development of, national economic development planning. However – and this is one focus of the UNICREDS project – regions and sub-regions need to take the initiative on a regional level, while ensuring their thinking is integrated into national planning frameworks. New opportunities are more likely to become manifest when all three strands in the triple-helix model interact constructively for a regional common economic goal of sustainable growth. Examples of such opportunities include creating a positive environment for spin-out and spin-in companies, incubators, technology parks, intellectual property and technology commercialisation offices, networks of knowledge and more besides.
So far the collaboration and cooperation inherent in the interaction of the three strands in the triple-helix model has been deemed to be relatively equal, and it is here, perhaps, that we make our first challenge of the validity of the model in the context of sustainable regional development.

We are not suggesting that forming these partnerships is straightforward. We have already observed that many of our underperforming regions lack the presence of major industry or business, and indeed that the business base in these regions is often dominated by micro or SME businesses whose capacities to act in anything other than the day-to-day task of driving their businesses forward is limited by virtue of their size. In these circumstances, describing the “industry” sphere as an entity that can interact with dedicated departments of regional government or business-facing functionaries in universities is not realistic.

In the same vein, in some of our regions, the starting point has been a recognition that a lack of integrated HE infrastructure is contributing to deprivation of higher-level skills and opportunities in the workplace. Under these circumstances, clearly the “universities” sphere cannot start as an equal strand in the triple-helix model, as it is not yet in existence or not yet developed into a sufficiently coherent sector in the region.

Also, we shouldn’t make the mistake of thinking the strands of the triple helix are themselves homogeneous and coherent. The picture is more complex than the model might on the face of it suggest. In most instances there are partnerships to establish within each strand, as well as between the strands.
In the case of government, this may take the form of robust communication across departments in a regional office of government, so their thinking in this context is consistent across the institution, coupled with a clear structure that gives authority to a recognised leader in economic development policy.

In the case of industry, with the difficulties faced by a disaggregated and mainly small-scale industrial and business base, this may take the form of sector clustering organisations or business representative organisations such as Chambers of Commerce or Federations of Small Businesses. However, there is likely to be an issue here in that no matter how representative one of these organisations wishes to be, not all businesses will feel represented through them.

In the case of the university strand, we recognise that different universities can have very different foci. Some will be mostly teaching oriented, some research oriented, and some entrepreneurial. They may be a global player, or more regionally oriented. Furthermore, as is the case in a number of the UNICREDs regions, the HE infrastructure in a region may consist of different mixes of HE and Further/Vocational education institutions, public and private providers and types of programme, modules and training offered. We have also recognised that where HE structural developments have been progressed, they can be characterised in a wide diversity of formats and partnerships including single-campus central universities; multi-campus universities; multi-university campuses; partnerships with colleges and learning centres; non-campus distance learning universities, etc. This diversity of HE structures has in itself become a field of study (See “HE internal partnerships for regional economic development” section below).
Getting Together

HE internal partnerships for regional economic development

Within the UNICREDS partners who have more recently responded to the challenge of developing sustainable economic growth in their regions by investment in their Higher Education infrastructures, there have been different structures of collaboration depending on the regional circumstances. As a result of such collaborations and partnership cooperation, these regions have now established combinations of new multi-university campus platforms, multi campus distributed networks, learning centre networks, internet based cooperative networks and, in one case, the recent birth of a new university. Each of the examples below can be investigated fully through their own websites, but to provide a snap-shot:

**Akademi Norr, Sweden** formed a network infrastructure for higher education by each municipality having a learning centre. The municipalities joined forces to initiate, coordinate and implement higher education, to meet both needs of educated workforce in basic services, as well as for innovative company growth. The focus has most recently been on building the education infrastructure through a municipality based network of learning centres. These offer competence development in the workplace.

**Skellefteå, Sweden**; Campus Skellefteå is a multi-university campus which has about 2000 HE students per academic year. It was built and managed by the municipality of Skellefteå (72 000 inhabitants) responding to the fact that it does not have a university at site and it is two hours commuting time to any of the two nearest bigger university campuses. These two universities therefore collaborate to offer decentralised education at Campus Skellefteå, as part of their regional responsibility and for recruiting students. On this campus there is also a learning centre for distance studies, and higher vocational education and adult education run by the municipality. No written partnership agreement has ever existed, but there is active cooperation for offering education for primarily non-traditional students at Campus Skellefteå, and contributing to competence development and research connections for companies.
In Cornwall, UK, Combined Universities in Cornwall (CUC) is a partnership of six universities and colleges offering a coordinated range and depth of higher education in Cornwall: Consisting of The University of Exeter, Plymouth University, University College Falmouth, Peninsula College of Medicine and Dentistry, Cornwall College Group and Truro & Penwith College, CUC is an “unincorporated association with a constitution” aiming at developing and expanding higher education and research in Cornwall as an instrument for business regeneration and regional growth. The CUC flagship Tremough campus is a multi University Campus offering education, research and Innovation facilities managed by three of the CUC institutions. This acts as a focal point for a network of twelve campuses across Cornwall providing a geographically distributed, multi University access grid to the region’s enhanced education infrastructure.

University of The Highlands & Islands, Scotland, UK. The Scottish UHI Millennium Institute partnership recently reached a central goal gaining full university status (February 2011). Earlier partners, numbering thirteen colleges and research institutions, have become integral parts of the new university. The UHI Millennium Institute has had status as a higher education provider since 2001. The partnership began as a project in 1992, under the premise that successful regional development needed a strong research university presence to drive it. So what is now a fully fledged University in its own right evolved from a multi University partnership with numerous campuses distributed throughout the region.

South Ostrobothnia, Finland. The University Consortium of Seinäjoki (UCS) is a multi-university campus consisting of five universities or higher education institutions (University of Tampere, the University of Helsinki, the University of Vaasa, Tampere University of Technology and the Sibelius Academy). There are 5 other such consortia working in a similar way in Finland in regions earlier deprived of university education and research close by. From 2003, the UCS university partners also cooperate through a University research network called EPANET. A number of businesses also cooperate closely with EPANET and are major contributors to the EPANET budget.
In our experience, given the difficulties in engaging all strands of the triple helix, there is likely to be a need for one of the strands to take a lead in initiating interaction and collaboration, and this is most likely to be "government". This leading role may not continue to be a constant as collaboration progresses and each strand’s confidence in its place in the helix grows. A development cycle will form around the helix, providing structure to the strategically planned activities to bring about sustainable economic growth. It will be quite feasible for different strands in the helix to be more dominant at different times during this cycle and lead specific phases of activity.

We also recognise that each strand exists in a dynamic, ever-changing environment, and so it is to be expected that motivations for partners will change depending on external factors. This can lead to tensions, both within and between strands, but mutual understanding of these dynamic environments and a flexible approach to maintaining the momentum to work in partnership is key to securing success.

We should remember that while the triple helix is an idealised engagement model, not all of the strands will necessarily be actively engaged all of the time, and we have to be able to continue the momentum without being slave to the model. Indeed, there is an argument for an additional strand recognising the importance of community engagement in our more remote and sparsely populated regions, and the need for them to be even more connected to the strategies for growth for such remote regions. This need is sufficiently significant for us to have challenged the model itself. It should, perhaps, be reconfigured as a quadruple helix, specifically recognising the importance of the connected community strand. Our academic research has led us to believe that numerous other applicants of the model have adopted this approach, and other quadruple-helix models have evolved with different fourth spheres/strands. Therefore, rather than add to a growing, and possibly confusing trend, we have stuck with the original triple-helix model, at the heart of the overall aim and process of getting together. We have, however, placed significant importance on the need for robust connectivity into remote/sparsely populated/rural communities, which by their nature have more acute communications problems.

Given all the difficulties outlined above, regions may question the value of trying to form such partnerships. The reality, exemplified through the nine regional partners in the UNICREDS project, is that triple helix partnerships work. Some of the successes achieved through such partnerships within the UNICREDS regions have been presented as the best practice case studies in this report.

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Triple Helix model of University-Industry-Government relations, adapted from Etzkowitz & Leydesdorff, 2000
Getting Together

Best Practice

Rethinking universities’ regional presence

Bringing university education to central Finland

The provision of university education can be an essential element to the development of a region, not just academically, but economically and socially.

Over a long period, the region of South Ostrobothnia faced numerous disappointments in its bid to get an independent science university or college of its own. The university association established in the region lobbied hard for the founding of a place of learning in the Seinäjoki region. To begin with, the target was variable: anything from a multidisciplinary university to a single-faculty college with a specific profile would have been acceptable.

What transpired was an evolution, rather than a revolution. It began with summer-university education access, and then, over time, normal university courses were organised by the local association on an ‘open university’ model. Also seminars were organised linked to the regional economy and culture.

Development of these academic activities was based on regional demand. This led to the foundation of new permanent university units. At the beginning of the 1990s, regional activity was at last endorsed by national policy. The Seinäjoki University of Applied Sciences (at that time a polytechnic) was experimentally launched in 1993, and established on a permanent basis in 1995.

In the 1990s, university functions expanded from the open university model and from complementary education and higher level vocational education to research and development. The Institute of Rural Research and Education (University of Helsinki), founded in 1988, created a functional link to the region’s economic base, which is characterised by traditional rural food and metal production. Later research expanded to fields such as business administration and the application of new technology which could support the development of typical small and medium size enterprises in the region.
The involvement in the region of universities from elsewhere in Finland has grown, and by around 2010, there were six Finnish universities present and operating within the University Consortium of Seinäjoki. There are 17 research professors working in these university units, and around 80 researchers in total are working in groups led by research professors. The local political ambition had been to achieve 12 professorships, so the current outcome has been considered a triumph.

There are four focal areas of research, development and education in the University Consortium of Seinäjoki, and in each one of them post-graduate M.Sc. programmes are organised. Demographic development in the region of South Ostrobothnia has stabilised: a significant decline in population has halted as more people choose to stay. Indeed, the Seinäjoki area became the fastest growing city-region in the whole country in 2009. Also, the proportion of higher-level educated people has more than doubled in the Seinäjoki region during the first decade this century.

And the moral of this story is:
South Ostrobothnia’s journey to a stable university culture has been a long one. It is a testament to the benefits of an evolutionary approach, where early successes can be used to encourage engagement and involvement from an ever wider pool of participants.

More than anything, though, it is perhaps a testament to the patience, determination and enthusiasm of people who have the vision to see the benefits an academic tradition can bring.

"South Ostrobothnia’s journey to a stable university culture has been a long one and it is a testament to the benefits of an evolutionary approach."
Multi-university campus

Better together: universities in partnership create new shared campuses in remote regions

Many parts of Europe don’t have a university, and very good ones are even harder to find. What’s more, few new universities are being established, not just because of the costs involved but also because of other practical difficulties, including capacity building, marketing, and brand building. Added to this is the problem for new entrants of getting up to speed in what is an intensely and globally competitive market.

But none of these difficulties can defeat an argument in favour of making the effort. Quite simply, in a knowledge society, small towns and municipalities also need education environments. Universities deliver benefits that are social as much as economic, and they create and sustain a regional sense of self-worth. How, then, can difficulties be overcome, and benefits achieved?

The answer to a great extent can be found in identifying a good starting point. To create a local campus, a community doesn’t have to found a new university. It doesn’t even have to persuade one other university, already in existence, to establish a branch campus. There is another way, and it can be achieved when several stakeholders come together for the common good. These group members include the municipal and regional authorities, in cooperation with businesses and of course regional universities – not just one of them, but several. Educational establishments from even further afield can be invited to participate.

Their shared enterprise creates the prospect of being able to offer education not just to local people, but to national and international students also.

In this model, the owner of the campus (in most cases a town or a region) lets premises to universities, and aims to raise part-financing for ancillary services such as regional study counselling, library services, research labs, and the building of restaurants and cafeterias and so forth. Stakeholder universities are then encouraged to cooperate with, or at the very least tolerate, one another locally. Meanwhile, the campus owner and coordinating organisation aims to ensure the education on offer is both comprehensive, attractive and of high quality.

For this model to be a success, and to create new potential markets for universities that would otherwise compete, it’s important to engage students in the region who would not otherwise consider a university education, and to motivate them by offering access to jobs for which qualifications are necessary. Regional businesses have a role to play in this regard, and the impetus for them to participate in the scheme is of course the ultimate provision of a qualified and enthusiastic workforce.

The motivating factor for the universities is the prospect of reaching and attracting students that normally would be beyond their reach. This multi-university, shared-campus approach offers just this prospect. By working with municipal authorities and cooperating with regional businesses, they can achieve this without a significant investment in infrastructure.
And here’s the principle in practice:
It’s an approach that works. Campus Skellefteå in northern Sweden has grown from about 400 students in 1995 to about 2000 students in 2011, simultaneously serving the needs of the local workforce and of local business.

What’s more, multi-university campuses are growing in many other parts of Sweden. Campus Varberg, Campus Vänersborg, Campus Uddevalla and Campus Kiruna are just a few examples. In Finland, developments of this nature have government support and financing. Known as university consortia, examples include the Seinäjoki, Pori, Lahti, Mikkeli, Kokkola, and Kajaani campuses. In the UK, Tremough, Crichton and others have taken a similar approach.

Outside Europe, too, this model is being adopted. In developing economies in the Middle East it is a common solution to education diversification and to scaling problems: the Dubai Academic City, Education City Qatar and the new King Abdullah Educational Zone are all examples. In China, too, it’s proving attractive, and areas of Canada and the US have developments of their own.

In the knowledge society, a university campus is a positive development symbol for every municipality. But it’s more than just a symbol: it’s integral to the future of a region, not just socially and culturally, but economically too.
Theory and practice in South Bohemia, Czech Republic

Graduates are sometimes regarded as lacking in common sense. They know the theory, the argument goes, but they have no idea of its practicality in the real world.

It’s an unfair accusation, of course, because it wrongly assumes someone with an academic education is almost by definition divorced from reality. But it’s nonetheless true that everyone benefits from an opportunity to put new-found skills and knowledge to the test, to adapt them to circumstances, and perhaps to develop them in ways that hadn’t been envisaged.

In the Czech Republic, that’s just what has happened. The Agency of Professional Development (Agentura profesniho rozvoje – APR) provides students in the Faculty of Economics, University of South Bohemia with links between the theoretical knowledge acquired during their university education and the practical skills that are essential for graduate employability in skilled jobs. In doing so, it also facilitates their further career development.

The activities of the APR include:

» Career Start, helping students to find jobs before their graduation
» Professional fellowships, organised in cooperation with major companies in the region. Students receive a salary from the employer, and develop their experience, skills and abilities, build their business contacts, and prepare themselves for the world of work
» Career advice to improve communication and other ‘soft’ skills
» A manager shadowing programme, in which students develop skills and learn methods of decision-making and management by observation, discussion and participation in selected activities with managers and project teams. In return, students frequently suggest new approaches to solving problems – and managers can identify potential employees among them.

Major APR business participants and other stakeholders in the region include Bosch; Zeelandia; Schneider Electric; the insurance companies Česká pojišťovna and Kooperativa; AWD; OVB; and Local Action Group Strakonicko.
And the results have been:
In 2010, APR cooperated with Procter and Gamble in a comprehensive survey related to the competencies of almost 1000 USB students, and organised a workshop in Prague in which students from the Faculty of Economics discussed working for a multinational corporation, while another group met top managers in Prague.

Ceskoslovenska obchodni banka, a. s. (ČSOB), an international Czech bank, and VZP, the biggest health insurance company in the Czech Republic participated in a job opportunities exhibition and organised a series of lectures and workshops. The exhibition was organised with the cooperation of European Telecom Consulting and the job portal EURES.

PricewaterhouseCoopers organised a workshop on the testing of staff for manager positions. Food manufacturer Danone supported students’ participation in an international management competition.

Also, the Profesia job portal has collaborated with the APR in the development of a facility on the APR website, where current nationwide vacancies in economic roles are listed.

All in all, 16 major organisations, national and international, have worked with the APR to assist students. Bringing the story up to date, in 2012 3500 USB students attended the APR Careers Centre’s international work trade fair, and 22 offers of trainee programmes and graduate positions were created in the first half of the year. It all amounts to practical help for graduates who want to develop similarly practical skills – and to put their academic knowledge to work for themselves and for the community of which they are a part.
Getting Together

Best Practice

Sabhal Mor Ostaig (UHI Scotland)

Twin benefits: developing an economy and a community

Depopulation is an abiding problem for remote regions, and sometimes it can take a bold move to address it. That was certainly the view of Highlands and Islands Enterprise (HIE). Scotland’s National Centre for Gaelic Language and Culture is Sabhal Mòr Ostaig (SMO) – the only college of its kind in the world offering further and higher education opportunities through the medium of Scottish Gaelic. Since its foundation, it has become internationally recognised as a national centre for the Gaelic language and culture.

The College is an academic partner within the University of the Highlands and Islands (UHI), and choosing its location was influenced by HIE’s determination to sustain fragile communities and, in particular, to redress depopulation. Sleat, on the Isle of Skye, was one such area.

In fragile areas, population loss is not the only issue. Other problems include low incomes; limited employment opportunities; poor infrastructure; and remoteness. Over 56,000 people, or 13% of the Highlands and Islands population, live within such areas. HIE gives these the greatest priority, increasing intervention rates and supporting a broader range of projects than it would consider in the more prosperous parts of the region.

The decision to locate SMO in Sleat has paid dividends, not just in the uniqueness of the education it provides, nor just in the high quality of that education – but in associated areas, such as research, employment and the development of spin-off business initiatives in media, heritage and the arts.

And the results have been:
HIE is unique in the UK as an enterprise agency which is able to pursue not only economic but also community development.

Sabhal Mor Ostaig is a fine example of how this approach can work. Economically, it has made a significant contribution: it currently employs 93 full time and 105 part time staff, and of these 64% live in the parish of Strath, and 56% in Sleat itself. In 2009-2010, it generated an income of £5.4 million, of which 40% was the result of its own commercial activities, including the hosting of events and the accommodation, retail and catering opportunities they afforded.

The community benefits have been similarly impressive. SMO has brought people into the region: in just over three decades since its foundation, the local population has doubled after 70 years of decline. A community has not only been sustained, but enhanced – and given the nature of the college, with the benefits it affords to schools, churches, societies and recreational clubs, it’s clear the cultural life of that community has been enhanced too.
Seeing The Benefits
At the heart of the UNICREDS project is the issue of regional development, with a particular focus on the positive benefits HE can bring to local or regional economies and communities.

This begs a question: namely, what do we mean by ‘regional’ and ‘local’ in the context of the UNICREDS project?

Although there may be some flexibility, generally we use ‘regional’ as related to the EU definition of region (NUTS2). Furthermore, when concentrating on the benefits of HE for regional development, we refer primarily to those benefits that remain and become embedded in the local community and region. For most residents in a community, the term local is connected to the local labour market, in which local could be interpreted as being within commuting distance.

An important question for regional policy-makers and regionally oriented universities is whether the purpose of regionally located higher education is to educate the local population and provide them with the skills needed on the local labour market, or to contribute to bringing in students and highly educated people from outside? There are certainly several examples within the UNICREDS project itself where both strategies are pursued successfully at the same time.

We have recognised that where new HE structural developments have been progressed, they can be characterised in a wide diversity of styles (see Best Practice case studies in ‘Getting Together’).

Underpinning the work of encouraging the main helix strands to act effectively together within regions to create sustainable economic growth is the belief that HE, wherever located, can be a strong and flexible driver of economic growth. During the work of the UNICREDS project we have sought to identify the ways in which these sustainable benefits are manifest, and how they become embedded or become part of the culture of a region. Indeed, a large number of economic and community benefits have been identified, and the overview provided here (far from comprehensive) specifically illustrates the wide range of benefits that investing in HE brings to regional development.
## Overview of benefits of HE

### The economic benefits of Higher Education:

- Direct and indirect contribution of teaching and learning activities on the economy
- Direct and indirect economic impact on other (commercial) university activities
- Purchase of goods and services by Higher Education Institutions (HEIs)
- Spending of wages of university staff
- Spending of students

### The labour market, business and public sector development benefits:

- Providing students with the skills and knowledge that contribute to their future employability
- Improved productivity through highly skilled graduates and innovation
- Students working part-time
- Knowledge transfer and commercialisation
- Creation of new businesses through spin-offs from research and other innovation and valorisation activities
- Provision of learning opportunities through life-long learning
- Tourism visits from friends and family

### The benefits for the local community:

- Raising aspirations of young people through higher education
- Preparing students for life as active citizens in a democratic society
- Widening participation in HE by under-represented groups
- Reduction of brain-drain and reversing it into brain-gain
- Direct and indirect contribution of education, research and other university activities to society
- Direct interactions – through provision of public space; fostering a cultural infrastructure
- Social capital through volunteering activities of staff and students
### Benefits of higher education in the UNICREDS regions

#### a generic summary

<table>
<thead>
<tr>
<th>Economic benefits</th>
<th>Community benefits</th>
</tr>
</thead>
</table>
| » More competitive regions  
» Knowledge-intensive business growth in university areas  
» General regional business growth  
» Transformation of low/reducing value traditional economies into more competitive, growth economies  
» Transformation of role of traditional university through greater engagement in more competitive regional economy | » Serving traditional community needs: teachers, nurses, engineers, etc  
» Provide choice such that young people are not forced to move away to study higher level skills  
» Increasing population, by means of university attendance  
» Keeping population when traditional low-tech jobs disappear  
» More jobs  
» Offer young people the opportunity to study and remain in the region |

We have recognised that we cannot simply prescribe solutions to other regions facing issues of economic underperformance and/or social isolation. We can, however, describe the problems we have faced, and we can illustrate some of the best ways we have used our resources to tackle those problems (see Best Practice case studies).

So far we have outlined some of the benefits that are apparent in regions with accessible HE facilities. Previously we suggested that our own partnerships in UNICREDS bear witness to the strength of strategic collaboration between industry, government and university. These collaborations have helped to secure integrated economic growth in regions based on knowledge.

However, the UNICREDS project regions face difficulties of remoteness and of a lack of connections beyond strategic intent. In order to harvest the benefits described previously, the seed of triple-helix collaboration that provides the strategic intent needs to germinate into whole fields of working partnerships. Such working partnerships must embrace all key actors, communities, education providers, businesses and everyone affected by a particular strand of work. Only through such inclusivity will the right connections be made to secure the engagement of critical partners.

The whole process should be self-perpetuating. As soon as working partnerships succeed, the news of the success will spread. Partnerships that started top-down will start to grow bottom-up, from the grassroots of regional communities. The connectivity achieved will be one of the most significant agents of culture change required to sustain economic growth based on knowledge in isolated regions.

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Seeing The Benefits
Best Practice

Municipality partnering in knowledge development for a region

Unity and evolution: coming together to develop education, business and beyond in northern Sweden

Small municipalities in rural areas have small resources but big needs for becoming or staying competitive in a global knowledge society. Businesses in these areas are also often small and can be isolated from major supply chains. If there is no local academic infrastructure, it’s even harder, because triple-helix developments aren’t possible.

Akademi Norr is an association of 12 municipalities in a sparsely populated area of northern Sweden. One of the member municipalities is situated on the coast, while the other 11 are inland communities. The association has a development department, a political steering group and a network of learning centres. As a group Akademi Norr can negotiate much more effectively with universities for the provision of education.

Akademi Norr also pools its efforts in negotiations with government and regional authorities for development projects and funding. In addition, the group can play to its strengths and make optimum use of the resources it shares.

During its 10 years of existence Akademi Norr has cooperated with 15 universities or HE institutions in local education provision in various specialised areas of education and research, educating many regional and often non-traditional student groups who have stayed in the region, contributing to growth of businesses and the local economy, or answering the requirements of local public service.

The partnership is constantly expanding and becoming stronger. It began just with the aim of improving the provision of education, and now it also works actively to develop business and to cooperate in providing public services to the citizens of northern Sweden.
And the moral of this story is:
The focus of groups such as Akademi Norr is to increase cooperation and build functional partnerships with business and working life. The key factors for success in creating a strong, durable and successful regional partnership are to achieve a mutual understanding of needs, to cooperate in real projects, and to arrive at a consensus in decisions and an understanding that benefits cannot always be equally distributed.

The goal is to build new and active local partnerships to create bridges and an understanding of the importance of the knowledge economy and life-long learning. In this partnership the role of local centres of learning, and their proactivity in the community, is crucial.

The success of the Akademi Norr initiative is a testament to the commitment of its participants. Together, they created interesting meeting places. Together, they arranged seminars and assisted business in the survey of future competence requirements. Together, they acted as brokers of the education being made available.

And together, they have formed and sustained a model for business development in a remote region that represents an outstanding example of best practice for others to follow.
Seeing The Benefits

Best Practice

Specialist teaching and research hubs

**Targeted development: matching education and research to individual locations**

The traditional university campus model, with one centralised site, is not ideal for regions with broad expanses of sparsely populated land. What’s needed is an approach that spreads the benefits of research and development across as much of the region as possible. What’s even better is a strategy that not only distributes knowledge, but does so in a targeted way, developing skills and creating commercial possibilities in those parts of the region for which they are most appropriate.

The University of the Highlands and Islands (UHI) has done just this. It’s created specialist teaching and research hubs in specific remote geographical areas. For instance, marine renewables are the focus for UHI’s partners in Orkney and Caithness, while fisheries are concentrated in UHI in Shetland and environmental sciences in Oban. Each area selected for the location of a research presence must be fully assessed to ensure the research centre fits the needs and the uniqueness of the area and its economy and builds on existing infrastructure where possible.

This approach succeeds in its aim to provide greater access to focused and relevant higher education and research to the highly dispersed population of the Highlands and Islands. More than this, however, it also strengthens and develops the existing colleges and research institutes into a cohesive university, bringing people, facilities and resources into the region. This, in turn, helps to create a higher wage economy and higher GDP, as a result of the research, knowledge transfer and higher skills in teaching and training a university can provide.

The main stakeholders in this initiative are the UHI; the public sector (regional and local); the business sector around which the research is centred; and the remote and rural local communities in which research centres are located. UHI is funded by the Scottish Funding Council (SFC), and has also been assisted historically by Scottish Government, Local Authority and Millennium Commission funding. EU Structural Funds (ERDF and ESF) have played a critical role in building infrastructure for new higher education and research provision.
And the results have been:

One of the main outcomes for UHI has been the identification of factors that will enable the university to sustain its success – and perhaps even to share those benefits with others. The selection of key staff at the outset was one such factor. Another was the importance of matching research to the local area and industry – collaboration of this kind made spin-out activities relevant and hence made a significant economic impact. Also, it was important to achieve a high score on the Research Assessment Exercise, because it was by these means that long-term funding was secured.

In 2000, UHI was confirmed as a Higher Education Institution and was awarded University title in 2011. A recent independent report estimated the quantifiable economic impact of UHI based on the direct benefits on the local economy as ~£246 million GVA and 3,813 full time equivalents in the UHI operational area.

In terms of direct income at local level, as a result of research alone, a unit such as that located in NAFC Marine Centre or the Environmental Research Centre can bring in around £1 million per year in direct research income alone.

Taking in all the associated activity, this rises to about £25 million per year GVA. A number of benefits have given rise to others. For instance, a significant growth in employers and purchasers in many areas has in turn led to the development of a skilled workforce. Local businesses have informally exchanged knowledge and expertise – and the secondary but significant benefit here has been new discoveries, new ideas and new technologies.

It’s the third pair of economic benefits, though, that offers the greatest prospect for sustainability. The project has seen the area become a locus for co-ordinating local activity. This in turn has provided an anchor around which other regional clusters can form – and grow.
New education access via blended learning

**Blended online learning overcomes time and distance**

In some parts of Europe, difficulties of time, place or both make university education a challenge. Participating in a campus-based course may not be an option, and learning at a distance has its own problems: students may feel disengaged, and discontinue with their studies as a consequence.

An alternative is ‘blended learning’, in which students’ private study is supplemented by group activities using modern telecommunications as a medium of engagement. That’s a path being taken in parts of Northern Sweden, with encouraging results.

If access to a university campus isn’t easy, the main alternative of distance learning presents its own problems. It often has a low degree of guidance by teachers, and this lack of interaction is compounded by a similar inability to engage with one’s peers. The result is often that drop-off rates are high, and graduation rates are low.

Blended online learning, using digital learning platforms and combining them not with classroom lectures, but with video conferencing, webinars, chat, IP telephony and the like, boosts accessibility to courses. It also simplifies the logistics: students at a distance or with time obstacles can now not just engage with one another, but participate in the same teaching group as campus students.

This approach is developing rapidly in some rural areas. An audit at Umeå University, Northern Sweden, in March 2010 showed many departments were using blended learning as a vehicle for education. Most such departments also said they were building it into teacher training, and that they could see it use developing and consolidating into what might one day become a standard practice.

Key factors for success in this approach will be the universities’ planning ability; the resources they put into teacher training and support; the will to cooperate with other organisations such as local government; and, importantly, the capacity to think of themselves in a different way – no longer merely as a campus-based centre of learning, but as a hub serving a wider community in a number of accessible ways.

**And the moral of this story is:**
Blended online learning helps universities fulfil their role as a provider of enhanced learning for the regions they serve, widening its variety and increasing access to it.

Non-traditional students are able to participate in education alongside more traditional students. A wider range of courses is made available, and local study groups become part of a combined bigger teaching group. Universities find greater opportunities to recruit students, to address the implications of a demographic dip in youth numbers, to streamline their methods of education distribution, and to remove the status difference between campus youth education and distance learning.
And the results have been:
University subjects can be pure or applied. Each has its place, and also its adherents. In areas where economic development is particularly desirable, it’s a good idea to solicit the opinions of local government and business organisations, and see what they think will be most beneficial.

It’s not always easy, and in some quarters outdated thinking must sometimes be overcome, but the benefits are indisputable. The University of Rousse’s initiative created 46 new jobs, 15 of them for people in difficult social situations, and the triple helix of which it is part is now embarking on a new project with the enthusiastic support of all participants.

With the concept established, integration into local business and government is faster now. What’s more, the initiative is being seen as a model for the development of a collaborative business culture in other parts of Bulgaria – and links with businesses in Romania are also being discussed.

The University of Rousse’s initiative created 46 new jobs, 15 of them for people in difficult social situations.
Previous sections of this report have focused on the nature of the triple-helix partnerships, particularly those between the public sector and the universities, and how to embed the benefits of this type of activity into the local economy and community. This section will look at the interface between universities and the business sector, and how all the triple-helix partners can work together to nurture an innovative business culture within remote and isolated groups. By this, we mean people and communities who are isolated for geographic, social and economic reasons, or for other reasons such as knowledge field or level.

One of the project’s main aims was to try to learn how regions can develop an innovative business culture. By this, we mean “the way we do things” among businesses, social enterprises and communities, resulting in the continuous development of new products, processes and business systems utilising knowledge, expertise and technology from all available sources.

Cultural change is always difficult to achieve, and for remote and isolated areas the challenge is even greater. It must also be stressed, however, that it is not just the business culture that needs to be nurtured to allow local communities to become more innovative and have a positive impact on the economy. In order to create an efficient regional innovation system, one must also address the culture within the public sector and the universities.

Drivers to increase the degree of innovation in our communities have come from EU, national and regional authorities. For example, the European Union has stated its intention to “commit to creating a true ‘Innovation Union’ by 2020 by taking collective responsibility for a strategic, inclusive and business-oriented research and innovation policy, to tackle major societal challenges, raise competitiveness and generate new jobs.” This policy sets out to involve all participants and all regions in the innovation cycle: “not only major companies but also SMEs in all sectors, including the public sector, the social economy and citizens themselves (‘social innovation’); not only a few high-tech areas,
but all regions in Europe and every member state, each focusing on its own strengths (‘Smart Specialisation’), with Europe, member states and regions acting in partnership. This overlaps with the current drive within the EU towards territorial cohesion.

However, as pointed out by Richard Lambert, the former director-general of the Confederation of British Industries (CBI) in the UK, the real challenge in developing a regional innovation system may not be about how to increase the supply of innovative ideas from the universities or other sources into business. Instead, “the issue is about how to raise the overall level of demand by business for research from all sources.”

In order to gain a better understanding of the main issues involved in striving to nurture an innovative business culture in isolated groups, a number of analytical tools were employed. These included a survey questionnaire of each UNICREDS partner region and two separate focus group meetings (which included all the UNICREDS partners). In addition, each partner provided examples of existing good practice in this area, as well as key policy recommendations.

The main consensus from the questionnaire results was that a much greater effort was required from strategy makers to fully understand the needs of local businesses and communities in isolated areas. Respondents thought those tasked with policy formation should ensure that regular two-way communication (face to face wherever possible) become the key tool for developing innovation systems, and that all participants are made fully aware of the opportunities and benefits of innovative practices, collaboration, cooperation and innovation project funding.

When individuals from all sectors and from across the UNICREDS partner regions were asked for their key advice for policy-makers that would help support better links between triple-helix partners, the main points that came through in priority were:

» Increased communication
» Increased awareness-raising and demand-stimulating activities
» A better understanding of local business/community needs
» Increased cooperation, collaboration and financial assistance
If we are to create a step-change in business research and innovation, the importance of two-way communication cannot be overstated. It is required not only to better understand business needs, but also to get a much greater input from business in regional strategic research and innovation planning processes.

For remote and isolated areas, effective communication is an even greater challenge because of the distances (both geographical and in some cases cultural) between the different strands of the triple helix. This makes the task of pulling the strands together even more challenging, and the need for active engagement essential. In this regard connectivity is the key to ensuring remote and isolated communities have equal access to the opportunities provided by a regional innovation system.

Connectivity encompasses all the things needed to ensure the same degree of communication, demand stimulation and innovation support is made available to isolated communities as that enjoyed by more central areas closer to regional research and innovation hubs. This includes good ICT infrastructure, transport links, etc. and a much greater coordination effort through catalytic organisations, technology translators and boundary-spanning activities. Therefore, to be fully effective in these areas, much more time, effort and resources are required to pull the strands of the helix together in order to overcome the barriers created by isolation. It is suggested that connectivity is an additional critical element in the triple-helix development of isolated areas.
A number of good practices were identified from across the partner regions, and these were further analysed by the focus groups.

The main reasons suggested for why good practices were successful included:

- An understanding of local needs
- Demand-led activities i.e. being business-driven
- The philosophy that communication is key
- The importance of spending time listening
- The need for collaboration and partnership
- Joint funding opportunities.

The reasons provided as to why some initiatives were less successful were:

- Too much top-down thinking
- Lack of time for activities to bed in – 10+ year strategies are needed, but the political cycle is shorter
- The difference in culture between the university and business communities
- Universities have not traditionally had to engage with local issues

Many of the good practices uncovered were shown to fit with local needs, and their success was accredited to having understood some of the barriers and issues involved. This led to the design of support mechanisms based around a local demand-led and business-focused approach.

A major barrier for many research institutions has been the lack of incentive for academics to engage with businesses. In one of the universities within the CUC partnership, Cornwall, UK, this has been acknowledged, and new staff contracts have been introduced which specifically include working with businesses as part of the job descriptions.

This may appear to be a small change, but it could have a major impact on business engagement and therefore business culture in the region.

Another barrier has been found to be the lack of demand-led and business-focused funding schemes. In Sweden this was addressed through a funding scheme based on business R&D needs that provided “research cheques” to companies to help buy in university expertise in order to develop business-led ideas for new products and processes. The company could apply for up to 50% of the costs of the project within the confines of the decided budget.
Other programmes, such as UHI’s HI Links project in the Highlands and Islands of Scotland, showed ways in which a more innovative culture could be introduced to remote rural and isolated businesses. For example, bringing relevant university experts to business sector focused events (with specific relevance to the economy of that particular remote and rural locality) allowed face to face interaction and also assisted in raising awareness of the benefits that could be gained from collaborating with universities to develop new business ideas, products, processes and business systems. Prior to this most businesses in these areas did not consider universities as a business resource. They were also not previously aware of the availability of public sector funding to finance such collaborations.

This raising of awareness of the opportunities provided by university/business collaborations was seen as one of the first steps in encouraging many of these companies to begin climbing the innovation ladder. Subsequent steps included, for example, initiating short feasibility studies similar to the Swedish “research cheques” (e.g. Business Innovation Grants from Highlands and Islands Enterprise), short follow-on development projects (e.g. Scottish Funding Council Innovation Vouchers and follow-on vouchers) and longer research and development (R&D) projects (e.g. the UK Government’s Knowledge Transfer Partnerships (KTP) (1-4 year projects) right through to close-to-market schemes, such as Scottish Enterprise’s Proof Of Concept funding and the Scottish Parliament’s smart awards.

Therefore, the UNICREDS project has provided a number of examples of the types of programmes, activities and strategies required to achieve a culture change through increased communication, awareness raising and collaboration between triple-helix partners. This has so far only been on a small scale for a few sectors and isolated businesses. However, policy-makers need to acknowledge that for this to have a truly region-wide economic impact, this type of demand stimulation and innovation-nurturing activity will need to be made available to all sectors and all companies.

This idea of changing the culture among all businesses in a region in order for innovation of all types to flourish, and leaving the market to pick the winners, is one which might be seen to conflict with the proposed new EU endorsed plan for developing research and innovation through Smart Specialisation Strategies (RIS3). This strategic process aims to create a number of focused research and innovation centres of excellence around growth sectors and technologies.

However, if EU and national policy-makers really want to nurture a more innovative business culture in all small and micro-businesses as set out in the EU “Innovation Union” vision, it is essential that basic innovation support is made accessible to every business, and not just a few companies deemed to have a high growth potential in a few hand-picked sectors.

It is suggested, therefore, that regions employing Smart Specialisation strategic processes must build into their strategies the need to raise the level of innovation and business R&D in all companies and sectors, while at the same time providing specific support for those sectors and technologies that currently are thought to have regional
meaning business

strengths and global growth potential. Otherwise, regions run the risk of over-specialisation, while at the same time weakening their ability to adapt to changing world markets and opportunities.

Moreover, there may be an additional danger, for remote and isolated areas, that the economic benefits of these new specialist centres may be restricted to a small number of high-tech companies and to the geographical locality surrounding the innovation centre. Strategy makers for such regions should therefore strive to include models that aim to spread the research and innovation activity across the region, for example via a “hub and spokes”, a network or a nodal model.

A much greater strategic effort will also be required to optimise the opportunities and benefits of these new innovation hubs by making them much more widely accessible to businesses across a region, wherever they may be located. This equal access could be achieved through enhanced connectivity between the innovation centres and the region’s businesses through targeted awareness-raising and demand-stimulating programmes and projects.

Having assessed best practice and some of the barriers and difficulties faced by isolated groups, it is appropriate to revisit the triple-helix model to analyse whether it fully describes innovation in remote or isolated areas.

Connectivity is an additional critical element for the triple-helix development of an innovative business culture in isolated regions.

One point to emerge was that in some of the more isolated areas there may not actually be that many businesses present, and it may be that community organisations play a more prominent enterprising role – in effect, as we have seen earlier in this report, adding another strand to the triple-helix model.

However, the critical point emerging is that, regardless of the number of strands making up the helix, mechanisms and systems need to be built into any initiative to pull these strands together so that the innovation system can fully develop. This we have termed connectivity, and overcoming the barriers created by isolation so it can become fully effective will require time, effort and resources. This includes good ICT infrastructure, transport links and a much greater coordination effort through catalytic organisations, technology translators and boundary-spanning activities.
It is worth reiterating, therefore, that connectivity is an additional critical element for the triple-helix development of an innovative business culture in isolated regions. This concept was found to align with a recent article in the Sunday Times, which looked at how human culture has evolved over the past 100,000 years. The article concluded with the statement “the idea that successful innovation depends less on how clever you are than how connected you are seems just as relevant today as it was 100,000 years ago.” (M. Thomas, The Times (London), Eureka published 06 June 2012).

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The private sector in each of the UNICREDS Partner regions was included in an online questionnaire. When businesses were asked what they thought was required to help nurture a more innovative business culture the key responses were:

### Increased communication:

» A need for much greater level of awareness-raising activities on the support and funding opportunities available for new business ideas
» Policy-makers need to make a much greater effort to fully understand the needs of local businesses

### Policies and programmes should be put in place to create and support entrepreneurs

» Increased funding and support for innovation
» Decrease bureaucracy
» Improved infrastructure:
  » Transport
  » Communications
» More boundary-spanning individuals, groups and activities are needed to create and support links between businesses and universities
Meaning Business

Best Practice

HI Links

Supporting research and development in the Highlands and Islands of Scotland

In some regions, the level of R&D in business is low, and connectivity between businesses and the science base in universities is poor.

In the remoter regions of Scotland this was certainly the case, and so the University of the Highlands and Islands (UHI) actively involved itself first, in raising awareness of the availability of such expertise, and second, in projects designed to provide support and transfer knowledge to business activities. These included new and existing product and service development, providing advice, marketing activities and making equipment and facilities available for use.

An example is UHI’s HI Links project. Initially a Scottish Government SEEKIT project, HI Links has since been funded by Highlands and Islands Enterprise and by the European Regional Development Fund. Designed with direct input from all three parts of the triple helix, it has been highly business focused and entirely demand led, rather than being led by a university/technology push.

HI Links also reached beyond the local university, giving businesses a choice: all 20 Scottish universities were given the opportunity to compete to work with companies on individual business development ideas, and the decision rested with the business, not with any one university. If the right expertise couldn’t be found in Scotland, an international solution was sought.

To ensure initiatives delivered front-line benefits, it was decided that any foreground intellectual property would belong to the business. The availability of small scale feasibility funding (up to £5,000) was also found to be extremely important in stimulating demand. In a region like this, the continued operation of just a few such enterprises could make a vital difference to a community’s survival.

And the results have been:
All kinds of businesses benefited, in all kinds of sectors. HI Links worked with more than 500 of them, resulting in 58 new products, 20 new processes, two licensing deals, two spin-out companies and ten follow-on research and development projects. In all, the initiative has helped to create an estimated £20 million worth of potential new sales.

HI Links has outperformed around 20 of the country’s top university business engagement teams and was rated by the ERDF as an exemplar of best practice in rural innovation in Scotland for 2010.

An evaluation of the HI Links project was undertaken on behalf of Highlands and Islands Enterprise in 2008. This found that the project generated £1.8 million for HIE, supporting 31 jobs and generated £2.9 million nationally, supporting 56 jobs.

The evaluation has estimated that this impact could increase significantly, as the future GVA impact is estimated to be £7.1 million, supporting 138 jobs.
Best Practice

Unlocking Cornish Potential

Graduates for Cornwall’s businesses

Students raised in rural communities are frequently tempted to leave the area as soon as they graduate, so as to develop a career path in a region where the economy is more established. The net effect, of course, is to create a vicious circle: if graduates don’t stay, how is the region going to capture their talent and grow to a point where it can compete with other parts of the country?

That’s exactly the problem addressed by the Unlocking Cornish Potential (UCP) programme. UCP aims to bring measurable improvements to the efficiency, competitiveness and growth potential of Cornish SMEs by subsidising the placement of recent graduates living in the county in local companies for 12-month specialist business development projects. The project matches the skills of the graduate with the business development needs of the SME, and provides a range of high quality, subsidised or free specialist support services to ensure the successful delivery and achievement of the business development activity. The project provides Cornish SMEs with a flexible, low-risk and cost-effective route to undertaking a business development project, and is committed to making a substantial contribution to sustainable business growth.

Previous business development projects have included marketing, ICT systems development, website and e-commerce development, product design and business systems development. The project provides graduates with work experience relevant to their qualifications, creating genuine career options and contributing significantly to the likelihood of their staying in the county.

UCP provides graduate training supported by academic mentors with expertise relevant to the business project. It also provides comprehensive, professional support to SMEs in the development of innovations backed by sound technical and market knowledge. The project builds upon and maintains the relationships that CUC (Combined Universities of Cornwall) partner institutions have with Cornish SMEs, improving cross-referrals across the partnership and enhancing the graduate-based business development and support programmes available.

UCP is part-funded by the European Social Fund through the Convergence programme.

And the results have been:
Between September 2007 and June 2010, 571 graduates had been placed with local businesses through UCP. The average estimated additional turnover of businesses after the first 12 months of employing a UCP graduate has been £128,737.

Case studies from businesses and graduates supported by UCP can be found at www.unlockingcornishpotential.co.uk.
Meaning Business

Best Practice

Establishment of a Knowledge Centre at the University of Debrecen

Regional Knowledge Centres – the way forward in creating an innovative business culture and reaching isolated groups

How do you create a centre of excellence that delivers on a local business level? And how can this become a template for similar developments nationwide?

In Hungary, those were the questions the ‘Pazmany Peter’ Programme, as it was known, set out to answer. By creating 19 Regional Knowledge Centres (RKCts), the aim was to provide hubs for research, development and technological innovation that would foster regional economic development. The University of Debrecen was one of them, and between 2004 and 2008 undertook a regional facilitating role, identifying promising R&D activities, finding local markets for them, creating frameworks for knowledge transfer and protection of intellectual property, and publicising its work within the university to attract more participants and so maintain momentum.

The consortium established to support the Debrecen RKC comprised private and public organisations, including local entrepreneurs, regional enterprises and national or international businesses, as well as the local municipality, Hajdu-Bihar County Council and the North Great Plain Regional Development Committee.

Debrecen RKC’s approach brought together various university departments in targeted research programmes. The private sector participants had an important ‘client’ role in setting the research agenda.

The five main research programmes comprised:

» New approaches for diagnosis and therapy of metabolic syndrome covering the highest morbidity diseases
» Foundation of an agro-biotechnology enterprise in the environs of the university: from genomics to the product
» Industrial level development of drug candidates and functional foods and safety pharmacology services in a research unit at the university
» Biomedical measurement methods and nanotechnology
» Technology transfer, utilisation of research results

And the results have been:

Implementing the five research programmes cost €6.3 million in national co-financing and €3.7 million of locally sourced funding. In return, results generated by the RKC included 110 new technologies, 38 new elements of intellectual property, and six new spin-off companies, delivering in all an average annual growth of 55% of net income per company. In addition, Richter Gedeon Plc, a major Hungarian pharmaceutical company, established a new biotechnology plant, creating 110 new jobs in Debrecen.

Qualitative benefits have accrued, too. The work of the RKC required it to develop mechanisms for managing innovations and evaluating projects, and to create a knowledge and technology transfer office, which subsequently became a model for similar developments elsewhere in Hungary.
And the moral of this story is:
The Debrecen Knowledge Centre offered a stimulating environment for innovative contributions to the competitive development of the region’s economy. The most important lessons learned for using it as a model that could be replicated elsewhere include the following:

» The need to match research and innovation to the needs and interests of regional businesses, both large and small
» Universities need the wherewithal to facilitate advanced research, as well as to willingness of different departments to collaborate and, in doing so, to develop new working methods
» The future should be addressed in the midst of the present, so benefits are sustained beyond the end of the project
» A supportive overall policy framework is needed.

“The Debrecen Knowledge Centre offers a stimulating environment for innovative contributions to the competitive development of the region’s economy.”
Aiming For Excellence
Regions can no longer rely on stability in existing or traditional areas of economic activity. We live in a world of dynamic technological advancements where the marketplace for new technology and skills is global. Regions wanting to grow their economies need to be able to use or advance the boundaries of current technology and be able to feed this with appropriately skilled people. However, regions start at a position of disadvantage relative to strongly supported urban or well-connected centres of growth. This means that regions have to strive that much harder to achieve excellence in driving innovation, harnessing the regional scope for R&D, and servicing business with skilled human resources. Nor can isolated regions afford to accept “ordinary” as good enough. Given their disadvantages, they have to aim not simply higher, but for excellence, in all aspects of developing their economy.

In “Getting Together” we first encountered the difficulties regions face in building triple-helix collaborations. With R&D this can be even more evident, as different strands of the triple helix will have different priorities e.g. businesses need research that will help them grow/ make a profit, universities need global recognition for their research in order to achieve research excellence, while public sector organisations want regionally relevant research. This creates tension and often makes holding discussions between the key players, and agreeing the way forward, a demanding and long-term process.

Research may take shape in three ways. First, there is business-needs-led research, which is clearly in the control of businesses themselves. If good connections have been established between HE and the businesses, there is every likelihood that they will form partnerships to help meet business research needs. Second, as touched on above, universities need to conduct research which will give them the opportunity to exploit national and international research funding and earn them recognition as centres of excellence. Third, regional resources deployed under the leadership of regional government can be exploited to drive collaborative research between universities and businesses, focused on regional economic priorities.
Regionally relevant R&D is sometimes led by business, but our experiences show that the limited scale of business infrastructure in our regions means that often many businesses do not have the capacity to conduct their own research. Therefore, universities still need to play an important role, as in these circumstances they are often the only source of research capacity available to companies. There is therefore a strong need for collaboration between the universities and businesses. Sometimes this may happen organically, but more often than not a catalyst will be needed. This is where the public sector can take a lead role, using the resources at its disposal to bring HE and businesses together. This calls for active, open-minded, committed participation and for investment in public sector skills to ensure that their expertise and processes are excellent.

The “Meaning Business” section above touched on the issue of Smart Specialisation Strategies and highlighted the importance of nurturing an innovative business culture throughout a region, alongside a focus on specialisms. Development strategy has been seen to be effective when it is aligned with a Smart Specialisation process, but there remains a need to make sure there is the flexibility to create this underlying innovative environment.

“Achieving excellence” is very closely related to specialisation of economic activity in regions. Being internationally competitive in some fields of research or business requires focusing on those fields. Focusing refers to targeting investment, ensuring that supporting infrastructure is in place, creating networks and providing the underlying skills base. This thinking evolves into Smart Specialisation, but such specialisation also contains risks. The current economy is extremely open and increasingly volatile. A region needs to be guarded against losing its competitiveness for a number of reasons. For example, if its “excellence” or line of specialisation is too narrowly focused, the risk to success is greater. Similarly, if a specialism is not embedded strongly enough in the region its enduring support, and hence sustainability, is threatened. Also, if the field of specialism is in an area of intense competition with other regions, its uniqueness will be challenged and therefore its sustainability is at risk.

Thus, regions need an adequate mix of economic- and expertise-based specialisation and diversification. They need the ability to create new or modified fields of excellence if needed. In this respect, the Smart Specialisation strategies must take care to preserve and develop a culture of innovation in more than one key area of expertise. These strategies therefore need to be clever and flexible to bring real benefits to regions, spreading those benefits across more than a few hubs and definitely not relying on just one specialist area. This needs to be coupled with an underlying culture of innovation among HEIs and businesses in pursuit of regional excellence, as outlined in “Meaning Business”.

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Fitness for purpose: usability testing of Finnish innovation

The best way to test the usefulness and practicality of a new product is to put it in the hands of the kind of people for whom it’s intended. That was the logic behind the Agro Living Lab (ALL) project in the Seinäjoki region of Finland.

For three years between 2009 and the end of 2011, ALL aimed to involve not just government but local businesses and local citizens in the creative process of developing new products and technologies specifically in the agriculture and forestry industries. The location was ideal: Seinäjoki and South Ostrobothnia have a well-established research infrastructure in those sectors, and also are significant regions for Finnish food production and processing.

For local businesses, the aim was to achieve efficiency and cost savings for product development and increase customer satisfaction. For end-users, farmers and contractors, the aim was of course to produce useful and usable products and services.

Stakeholders in the project included Frami Ltd, a specialist business consultancy; the University of Helsinki; the Ruralia Institute, specialists in rural areas and agricultural technology; and Seinäjoki University of Applied Sciences, which provided expertise in agriculture and forestry. The project was financed by the European Agricultural Fund for Rural Development (EAFRD) through local authorities, municipalities in Seinäjoki and Härämä regions, project partners and business.

The results have been:
The Agro Living Lab project achieved ten notable successes, including usability evaluation for a yield meter and the use of environment research for wireless measuring equipment. The network of ‘real users’ engaged in trials included 200 farmers in South Ostrobothia. As a result, ALL was identified as a key project by the Finnish Ministry of Employment and Economy.

And the moral of this story is:
The ‘real user network’ worked well, but it took a while for participants to understand and engage with the concept. Also, its voluntary nature made it difficult to maintain its momentum. What’s more, the project-based nature of the funding made post-programme sustainability difficult.

Replicating the model provided by ALL would require a reasonable degree of expertise in agriculture and relevant technology. It’s also important that all parties understand the aims of the project and share an enthusiasm for it.

However, with these things in place, the Agro Living Lab project has shown it’s possible not only to renew traditional agricultural business but to extend and innovate within it. The positive feedback obtained from companies and end-users alike is more than sufficient to encourage further development of the concept.
Best Practice

Marine renewable energy sector - PRIMaRE in Cornwall

A global need – and a regional opportunity

Climate change has combined with dwindling energy resources to create significant issues, not merely for individual countries, but for the world as a whole. That’s why the development of viable and sustainable energy alternatives has become of increasingly urgent interest.

It’s a problem – but in one of the less economically developed parts of Europe, it has also proved an opportunity. The partner institutions of the Combined Universities of Cornwall (CUC) have established The Peninsula Research Institute for Marine Renewable Energy (PRIMaRE), bringing together 15 world-class academics, 60 international researchers and world-class facilities to accelerate the development of technology and address these critical challenges.

PRIMaRE supports a knowledge and technology transfer team that works with businesses to channel research needs and to support high quality job creation across the region. To do this, it supports businesses in the improvement of their designs and in collaborative work to solve critical issues, such as offshore device deployment, connection to the National Grid and durability in a harsh operational environment.

The initiative has attracted £7.3 million of investment from regional government through the South West Regional Development Agency. The HE Institutions leading it have been willing to channel their research development into the marine renewables sector, and are already working at the leading edge of marine, solar and geothermal renewable energy technologies and their social and policy implications. This inter-university collaboration boasts one of the highest concentrations of marine renewables expertise anywhere in the world.

And the results have been:

The triple-helix cooperation between universities, government and has begun to catalyse major private sector opportunities in the region. A significant example is Wave Hub, a major marine renewable energy infrastructure facility for local private enterprises to test wave energy devices before full commercial production.

Marine renewable energy research and development in Cornwall will continue and expand beyond PRIMaRE, facilitated to a large extent through the newly established Environment & Sustainability Institute (ESI), at CUC’s Tremough campus. The aim of the ESI is to create a world-class research centre in the field of environment and sustainability that will act as a driver of growth of the knowledge economy of Cornwall & the Isles of Scilly, creating job and gross value added, and contributing to a vision for Cornwall as a low carbon economy.
Aiming For Excellence

Best Practice

The South Ostrobothnian University Network – Epanet

Opening doors between universities and SMEs

Usually, it’s larger enterprises that understand the value of developing relationships with universities. They recognise the business potential, and they have the added advantage of being familiar with the mechanisms by which such developments are created and sustained, because they have sufficient resources to explore them. Generally, smaller businesses don’t have similar knowledge or resources, and so haven’t developed a tradition of engagement with academia.

It was this vacuum that University Network Epanet aimed to fill. The initiative started as a project in South Ostrobothnia, Finland in 2001, and brought together six universities, local administration and development organisations with the aim of lowering the boundaries between the academic world and the region’s SMEs. South Ostrobothnia is characterised by the high number of small and micro-sized enterprises specialising in the processing of wood, metal and food.

The aims of University Network Epanet were to establish a network of applied research work in the region; to activate research projects; and to allow the local community of researchers and of development agents to enlarge their functions.

In spring 2001, the first Epanet agreement was signed by five of the region’s universities. A few years later a further university joined. These institutions came together with regional government departments including economic development teams, and also with local businesses, industry organisations and technology centres, creating a classic triple-helix model.

Research fields were selected that would make the best contribution to the development of South Ostrobothnia, with a preference for nationally new, interdisciplinary, applied subjects. Five categories were ultimately chosen: material technology, information technology, economics and business administration, food industry, and welfare. Funding has been provided by public sources at regional and national levels and by the European Regional Development Fund. It’s also been provided by over 100 private enterprises. Some of them have company-specific or product-specific objectives, while others make the investment in a bid to keep in touch with the latest academic developments, or to grow their sector, or their region as a whole.

And the results have been:
Every single professor-led research team has delivered tangible benefits, and in a number of usefully different ways. Some researchers have been continuing their advanced studies, while others have engaged in specific product development projects.

The result is that the economic outlook for the Seinäjoki region is now very positive. The population rate is growing – and what’s more, young well-educated people are moving in to the region.
PHARMAPOLIS Triple helix partnership in the pharmaceutical field

**Developing a key industry sector in Hungary**

Focusing on an industrial sector on which a region already has a basis on which to build can provide a significant head start in triple-helix initiatives.

In Debrecen in Hungary, one of the principal sectors is the pharmaceutical industry. An important stakeholder enterprise in that field is the Richter Gedeon Pharmaceutical Company.

A key element of the City Council in the economic development of this Hungarian region is the Municipality of Debrecen. In 2005 it joined forces with the University of Debrecen, and several small and medium enterprises under the auspices of the Chamber of Commerce and Industry of Hajdú-Bihar. Together, they established a company called Pharmapolis Debrecen Ltd to promote industrial networking between stakeholders in the pharmaceutical industry. This, together with Richter Gedeon, formed an industry cluster with sufficient mass to develop the momentum needed for sustainable economic development.

The initiative, known as the Pharmapolis Innovative Pharmaceutical Cluster, conducted closely aligned research and development activities, particularly in clinical areas. Its objectives were several in number. First, it aimed to improve innovation in the Hungarian pharmaceutical industry, especially in areas of high potential added value, so as to help it to compete effectively in export markets. In doing this, it hoped to contribute to pharmaceutical innovation in Europe as whole, working within the framework of European Technological Platforms.

A further objective was to strengthen the ability of key cities in the region to develop and support business environments and general competitiveness. Finally, and with broader horizons in view, the plan was to use this exercise in cooperation as a template for further local collaboration projects involving industry, city councils and universities in competitive development.

And the results have been:

The Pharmapolis project was a classic three-way partnership: between the local municipality, the local university and local business – in this case, the pharmaceutical industry.

All three elements of this triple helix remain active participants. Together, they conduct high-level clinical research, which is already strengthening the region’s competitiveness in the sector and improving its economic prospects. This has benefits not just in the middle term, but for the long-term economic and social potential of the North Great Plain Region of Hungary.
Action Plans
To secure the sustainable economic, social and cultural development of a region requires extraordinary investment in resources. The availability, quality and characteristics of these investments strongly define the development potential.

As stated in “Partner and Challenges Overview”, there are two main groups of partners within the UNICREDS project; the “Northern” group (Scotland and Cornwall in the UK, South Ostrobothnia in Finland and the northern and western inland part of the Västerbotten region in Sweden) and the “Central European” group consisting of the regions of South Bohemia in the Czech Republic, the North Central region of Bulgaria, and the North Great Plain region of Hungary.

This latter group is not isolated in the same way that the “Northern” group is – they have numerous, well-established higher education institutions providing a wide range of education – however Bulgaria, the Czech Republic and Hungary face similar difficulties in terms of the role of higher education in regional development. Unlike the “Northern” group, these three countries have not as yet established widespread, strong and efficient triple helix partnerships. Their universities are, for the most part, “old model” centralized structures, which need better connections to regional government and to the surrounding business environment.

As their regional circumstances are broadly similar, these partners have formulated regional Action Plans to promote the concept of partnership working in the triple helix model, in order to drive economic development. These plans are intended to create a way forward for triple helix collaboration in the regions and incorporate learnings from the UNICREDS project and incorporate Best Practice experience from the partners where relevant.
These Action Plans have three major sections:

» A description of the current situation (national and regional policy context, legislations, strategies, regional project materials including all the ‘5 steps’ examined as part of the UNICREDS project). This section of the Action Plan defines the problems to be addressed

» The second part of the plan formulates the proposed actions and specific measures (analysis and prioritization) in accordance with regional priorities, goals and objectives

» The third section includes the framework for implementation (stakeholder involvement, roles and responsibilities, funding opportunities, monitoring and evaluation, timeframe)

The specific tasks and actions included in the Action Plans highlighted the most significant needs of these three countries and where extraordinary investment would best be focused.

All three emphasised the importance of improving communication between the triple helix actors. This on-going and effective communication between triple helix partners has been highlighted previously in this report and is essential for effective collaboration.

The Czech region, for example, struggles with low level of language skills of graduates and poor IT infrastructure, although it is able to provide easy access to a wide range of higher education courses. Its Action Plan underlines the fact that more needs to be done to integrate the motivations of the three triple helix stands.

In the Hungarian region, the University of Debrecen offers an excellent level of HE and has also established strong partnerships at local, regional, national and international level. However, more work is needed to help align the higher education offer with regional demand. In the North Great Plain region of Hungary the UNICREDS project has already provided the opportunity to initiate communication between all strands of the triple helix. Representatives of the university, the government and the business sphere met several times, discussed their opinions and started to create a mutually beneficial partnership. The main obstacles to this are a low level of interest among businesses as regards collaborating with the university, the availability of relevantly skilled labour and the fact that the benefits of university level education are not widely acknowledged in the region.

The Bulgarian Action Plan identifies the need for investment in management to complement stronger engagement between businesses, public sector and academic institutions. It has additionally focused on the physical distribution of HEIs to enable better regional economic access to higher educational resources.

All three also emphasised the need for a higher education and research capacity that is better adapted to regional and local economic needs. These regions share with all
of the UNICREDS regions the need for a balanced approach between achieving excellence in research and innovation, but at the same time making it regionally relevant.

For example Czech partners plan to increase the collaboration between research institutions and widen the fields of research, which currently only focus on natural sciences. In common with the other Action Plan regions research results are currently published to promote excellence but are not strongly linked to regional needs.

Hungary has a potentially successful national innovation system feeding from its research output; the North Great Plain region has its own Regional Innovation Strategy, while at local level the Technology Transfer Office of the University of Debrecen supports the commercialisation of research. Clusters in more fields (pharmaceutical sciences, food industry, IT, etc.) have also been established. In order to make the innovation process more successful, the region has highlighted the need for the creation of regional/local innovation networks. It has also targeted widening the innovation approach of local government actors (development and public administration).

Bulgaria also recognises in its Action Plan the need for investment in both excellence and regional relevance in its R&D. This will include stimulating new educational programmes, as well as formulation of special innovation clusters. In order to connect these better to the regional economies surrounding the existing, irregularly distributed centres of Higher Education, Bulgaria has also recognised in its Action Plan the need for infrastructural investment to provide better regional accessibility to Higher Education.

For example the North West region has only one university focused on medical science and is deprived of a multi-profile university. To fill the higher education gap seen in the North West region, the good practice of multi-institutional campuses, as applied by other UNICREDS partners, is being proposed.

A “multi-institutional campus” (MIC) is a local platform for education and research activities for more than one university, and often also contains vocational and adult education, development projects, high-tech and start-up companies, etc. It is a modern solution when universities are not identified with one place only, their home campus, but are regionally, nationally and internationally active and mobile in various ways. Examples in the UNICREDS project include Campus Skellefteå (Sweden) and Tremough Campus (Cornwall). Both of these are situated in cities or regions that are far from older university campuses, but where there was a demand for local and regional university presence in order to develop a competitive knowledge economy. The solution is used to fill holes in the university geography infrastructure, to create better differentiation in regional education offerings or to scale up local education very fast to keep in pace with regional business growth. It is a good alternative compared to establishing a university from scratch, which is currently impossible in Bulgaria due to national policy frames and economic reasons.
In order to implement the proposed actions and measures in the Action Plans, it is essential for all three countries to define the roles and responsibilities of different actors and to provide a detailed timeline to achieve the identified goals.

Clear identification of sector and regional demands is needed as a starting point and regional strategic planning documents, as well as higher education strategies, should be considered as the basic framework of economic development in the three countries. The academic partners in this process need to be active, not only in the formulation phase of these documents, but during the implementation and evaluation phases as well.

For example the Czech partners have focused on the improvement of the research and innovation capacity of the South Bohemian region in the development of their regional development program 2014-2020. This has involved triple helix partners working together in regional strategic planning in a way previously not undertaken.

Similarly in Bulgaria, the focus is on the substantial but as yet unrealized potential of the universities and HEIs to drive regional economic development. The aim is that the goals, measures and actions of the Action Plan will be integrated into the strategic planning documents for the next programming period.

In case of the North Great Plain region of Hungary, the Action Plan proposes that internationally recognized research and innovation potential should be used in a more beneficial way for the region. In order to increase the region’s competitiveness in the future, the plan focuses on improving the frequency and quality of existing collaborations (triple helix actors) and aligning science, technology and innovation policy measures with higher education issues and regional business needs.

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Conclusions

Finding:
HE works most effectively in regional economic development when it works in collaboration with public sector and business. A range of evidence in the many Best Practices from the different partner regions supports this. The public sector needs to lead in establishing a vision and ambition for regional economic development.

Reflection:
This is a replicable and dynamic process. It needs ongoing tailored support through a range of funds – not just in infrastructure via regional development structural funds.

Finding:
The UNICREDS project has demonstrated success in specific locations with different collaborative models of HE. We do not assume the HE collaborative models are rigidly transferable. We need flexibility in adopting these models to suit the circumstances of different regions.

Reflection:
While whole models of HE collaboration have been tailored to suit specific regional circumstances, the components of their success provide a flexible “toolkit” offering guidance and examples of what others have done successfully. Regions can pick and choose components that are right for their circumstances.
Finding:
The triple-helix model is an abstract and general theory. It has provided a useful base for our thinking about how the key strands in regional economic development come together. In practice, the interactions between and among those strands are far more complex than the model suggests. However, all the evidence collected from the partners suggests that such partnerships are key to developing sustainable economic growth in regions.

Reflection:
Given the specific challenges of isolation in our regions, there is a pressing need to make extraordinary efforts to intertwine all the strands in a community. We therefore need to add connectivity to the model of interaction to make it really work in a region. The model then needs to use the connectivity to achieve flexibility, allowing the strands to create a shared vision and nurture a culture of innovation.

Finding:
Regions operate in a competitive environment. The EU encourages competition and Smart Specialisation is going to sharpen this further: in short, all the regions with the same Smart Specialisation will end up competing with each other. Notwithstanding this pressure, to be effective the project has concluded that Smart Specialisation strategy, applied to regions, has to be flexible, adaptive and spread any risk.

Reflection:
Regions can gain a competitive advantage through cooperation and pooling resources among all strands of the helix. For example, universities can create multi-institutional campuses, the public sector can provide incubation facilities for start-up businesses, and businesses can collaborate via forums such as Chambers of Commerce to give them a more powerful voice in regional decision-making. Competition may be inescapable in this global era, but regions should strive to achieve “coopetition”, a mix between cooperation and competition, to achieve success.
Lessons For Policy
Our findings and reflections throughout the duration of the project have informed the following EU policy recommendations:

Application of Smart Specialisation strategies to isolated regions

- The EU Commission needs to scrutinise National Smart Specialisation strategies to make sure they are suitable for their lagging/less developed regions. Regions need flexibility to make Smart Specialisation work effectively, and care needs to be taken that EU or national policy and direction on Smart Specialisation doesn’t force regions down economic growth strategy routes that are too risk-loaded.
  - **Mechanism:** To be implemented through Commission monitoring of ex-ante conditionality on Smart Specialisation and specific negotiations for member state Partnership Agreements. Also, to be promoted as good practice by the Smart Specialisation support unit in Seville.

- Future policy-makers need to recognise the importance of connectivity in isolated regions and provide additional support mechanisms in order to overcome the distance (both geographical and cultural) between regional government, universities, regional businesses and communities.
  - **Mechanism:** Future funding programmes should provide a flexible range of support for the additional effort and capacity required in isolated regions to bridge communications gaps.

- Regions need support to establish and sustain an underlying culture of innovation. For isolated regions especially, policy-makers need to recognise the vital role small numbers of businesses play in sustaining these fragile communities. Therefore future policies must aim to engage with a range of key innovative businesses to help them develop and prosper in these regions, not only those aligned to a Smart Specialisation strategy.
  - **Mechanism:** To be implemented through Commission monitoring of ex-ante conditionality on Smart Specialisation and specific negotiations for member state Partnership Agreements, paying particular attention to not increasing the risk to business growth in isolated regions by forcing too narrow a business sector focus. Also, to be promoted as good practice by the Smart Specialisation support unit in Seville.

- National policy should be encouraged by the EU to motivate and facilitate universities to contribute to their regional development in collaboration with regional government and businesses and their goals for regional economic growth clusters.
  - **Mechanism:** To be implemented through Commission monitoring of ex-ante conditionality on match funding criteria.

- The UNICREDS project has demonstrated in a number of regions across Europe how investment in innovative models of Higher Education, designed to suit the region, can have a catalytic effect on economic growth and sustainability. It follows that some new convergence regions will need support for university infrastructure.
Lessons For policy

Flexibility to make integrated HE capacity investments in regions from CSF programme

» Mechanism: DG Regio should allow structural fund support in Convergence Regions for HE infrastructure, and back this up with supporting funds in Transition Regions.

» The project partners believe that DG Regio should accept the principle of the value of coherent packages of investment to stimulate HE capacity development from within National CSF Programmes. We expect that DG Regio will see this as such a good fit with EU 2020 goals that regions and member states do not each have to argue the individual case.

» Mechanism: DG Regio guidance notes on eligibility for funding.

» Regions need the ability and support to bring together ESF and ERDF (and perhaps EAFRG) into integrated investment packages. The rationale for this is that substantial evidence now exists for the added value of HE investment to stimulate regional development, including but not limited to UNICREDS partners. When the UNICREDS pioneers started (including UHI and CUC) it was not easy convincing the Commission that such investment was a legitimate use of ERDF and ESF. Streamlined decision-making between funds in this area (as envisaged through the CSF) will make strategic planning of such initiatives more attractive.

» Mechanism: Future funding programmes envisage delegation of bundles of activity to specific delivery partnerships. It would be helpful if flexibility in contracting such bundles was established, such that the Commission could encourage establishment of triple-helix type HE partnerships/Universities to deliver these for UNICREDS-type initiatives as lead applicants as well as public sector.

» The Commission should avoid over-prescriptive specification in CSF and ensure member states do not “gild the lily” in their own Partnership Agreements. Funding should be freed up from any constraints or conditions which have the unintended consequence of limiting access to small businesses. Examples would include higher skills funding that only applied to whole qualifications and not to bite-size modules, or criteria for eligibility for funding that didn’t recognise the immature and risky (or even unformed) nature of many small start-up businesses. The rationale behind this is that regions like those within the UNICREDS partnership tend to be over-dominated by very small businesses, and lack large corporate businesses. This is correlated with lack of experience of HE and a lack of capacity to engage, so HE needs to be able to entice business engagement with low-risk and flexible approaches. Over-specification of targets or eligible activity in programmes mitigates against this. Inadvertent insistence of focus on “Lisbon-compliance” in wealthier member states has in some cases had this unintended consequence.

» Mechanism: We would ask the Commission to avoid over-prescriptive specification in CSF. The Commission should exercise control parameters to ensure member states do not “gild the lily” in their own Partnership Agreements.
Linking research excellence with capacity development

» We want the Commission to develop explicit strategies for research capacity development in less developed regions, with pathways for this research to become embedded in Horizon 2020 as and when it proves its maturity. We would like to see investment, either through Horizon 2020 or DG Regio, to enable research in less developed regions to be networked with mainstream Horizon 2020 projects to bridge from capacity development into excellence: There is a risk that the focus on research excellence concentration in Horizon 2020, and in many member state strategies for research development, could lead to an exodus of research from less developed regions as an unintended consequence. Smart Specialisation requires this thinking at regional level, but at the moment all the risk in terms of subsequent research funding is borne by project delivery partners (institutions). Investment in research capacity would be more attractive if there were a clear stepped pathway through to Horizon 2020 engagement.

» **Mechanism:** Policy supported with access to investment, either through Horizon 2020 or DG Regio, to enable research in less developed regions and networking/links with mainstream Horizon 2020 projects to bridge from capacity development into excellence
Further Information

All the UNICREDS partners contributed significantly to the development of the themes examined over the duration of the project. The following were involved in drafting this final report:

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