

EU - DRIVERS

UNIVERSITIES' INVOLVEMENT IN REGIONAL
SMART SPECIALISATION STRATEGY

BACKGROUND REPORT

SECOND EU-DRIVERS ANNUAL CONFERENCE, BRUSSELS, 1 DECEMBER 2011



EU-DRIVERS
European Drivers for a
Regional Innovation Platform

UNIVERSITIES' INVOLVEMENT IN REGIONAL SMART SPECIALISATION STRATEGY

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THE EU-DRIVERS PROJECT

Universities are increasingly recognized as being drivers of the economic and social infrastructure in their region. There is growing awareness on how universities can contribute to regional innovation through collaboration with business, local and regional governments and other local actors. The Lisbon Strategy for Growth and Jobs, as well as the Modernisation agenda for Universities, has focused attention on the need to strengthen the 'knowledge triangle' of research, innovation and education. The recently announced EU 2020 Strategy by the European Commission highlights regional development and reinforces the focus on the need for innovation: "Knowledge is the engine for sustainable growth. In a fast-changing world, what makes the difference is **education and research, innovation and creativity**".

This rationale was at the start of the EU-DRIVERS Project, launched by the European Centre for Strategic Management of Universities (ESMU) and the DEAN network in 2009. The project is funded by the European Commission as a three-year (2009-2012) Structural Network project under the Lifelong Learning Programme. Its aims are:

- To create a regional innovation virtual community for exchanging good practices among all stakeholders
- To find solutions for improved regional cooperation between universities, private-sector companies and regional governments
- To enable the communication and dissemination of reports and recommendations through conferences and establish a close dialogue with EU authorities.

Some thematic areas

- Overcoming barriers and obstacles to regional stakeholder cooperation
- Financial sustainability of regional innovation projects
- Sharing physical space and equipment
- Strategic positioning

A network of expertise

- Senior university leaders
- Senior level experts on regional innovation
- Experts from regional authorities, chambers of commerce, private companies
- Close connection with the OECD-IMHE Project "Universities for Cities and Regions", and the European Commission

A multitude of regional players

- Regional and thematic university associations (ESMU – European Centre for Strategic Management of Universities; HUMANE – Heads of University Management & Administration Network in Europe; EFMD – European Foundation for Management Development; AMSE - The Association of Medical Schools in Europe; SEFI – European Society for Engineering Education; ACUP - The Catalan Association of Public Universities; BSRUN - The Baltic Sea Region University Network)
- Individual Universities (Aalborg University; Danube University Krems – University for Continuing Education)
- Regional development and funding agencies (EURADA - The European Association of Development Agencies)

Pilot Projects – some examples

- Regeneration of old mines (Limburg)
- Handling Pollution (Thessally)
- The Health Sector (Izmir, Turkey)
- Science Parks / Excellence Campuses (Malaga, Tarragona, Lisbon)
- Work with SMEs/ Leadership Academies (Surrey)
- ICT Clusters (North Denmark)

FOREWORD

In the field of regional development and in the field of universities' support to economic development, all the main barriers have been identified and described.

Today, the issue is not a lack of models, benchmarks, success stories, evidence of the usefulness of tools but about how:

- > to define the assets to rely upon,
- > to introduce them into an existing eco-system,
- > to translate them into:
 - realistic objectives
 - sound management
 - budget
 - evaluation criteria
 - reward system
 - organisational structure
 - stakeholders commitment
 - win-win networking activities.

There is a need to consider how to best involve universities in regional development. In this context, rather than representing businesses and universities as monolithic entities, it would be preferable to discuss market segmentation. On the other hand, it would be more cost-effective to help businesses buy services from universities instead of funding the latter to come up with services for SMEs. Demand-driven approaches are always more efficient than supply-led approaches! The former would also align perfectly with the concept of smart specialisation since it would strengthen business and academic capacities – as has been practised in Finland for almost 20 years.

Finally, worth noting is that the concept of smart specialisation strategies is linked to sector policies that need to be rooted in a regional context. This is not new per se as many regions have set up clusters – though some were only developed to leverage a bonanza effect. Universities will have a key role to play in this context in translating newly-developed or recently-captured knowledge for the benefit of regional stakeholders.

"In a nutshell, a smart specialisation strategy is an economic transformation agenda based on:

- *choices,*
- *competitive advantages,*
- *critical mass,*
- *collaborative leadership,*
- *connectivity,*
- *common sense."*

Adapted from a presentation of Mikel Landabaso of DG Regio on 28.10.2011

THE RELEVANCE OF THE SMART SPECIALISATION STRATEGY FOR UNIVERSITIES

Worth reminding that the S³ concept is the way regional authorities have to identify, assess and enhance their main distinctive assets and competitive advantages.

S³ will become one of the key ways to help regions and their stakeholders reach several objectives of the EU2020 Strategy. The major objectives of that strategy are indeed Smart Growth, Sustainable Growth and Inclusive Growth. Those objectives will be supported by 7 flagship initiatives presented in the table below:

SMART GROWTH	SUSTAINABLE GROWTH	INCLUSIVE GROWTH
Innovation "Innovation Union"	Climate, energy and mobility "Resource efficient Europe"	Employment and skills "An agenda for new skills and jobs"
Education "Youth on the move"	Competitiveness "An industrial policy for the globalization era"	Fighting poverty "European platform against poverty"
Digital society "A digital agenda for Europe"		

It is obvious that both the universities and the regional authorities will be key players in the implementation of most of those flagship initiatives and that they will have to partner in order to maximize the regional potential in the different fields.

Some of the elements of the EU2020 Strategy will require place-based approaches where universities, public authorities and private investors need to join forces/assets. Other elements which have no spatial components need nevertheless a strong engagement of regional stakeholders to maximize their benefits. Finally, the universities' modernisation agenda will of course have direct and indirect impacts on regional cohesion.

In today's economic context, whatever type of regional development strategy is designed by regional authorities, universities have a role to play thanks to their core activities, i.e. teaching, researching, magnet for talent and consumer centre.

In tomorrow's economy, universities will become even more relevant if they develop capacities in the field of knowledge dissemination, vocational training, social escalator, entrepreneurship and accelerator of the commercialization of new ideas, all concerns related to the EU2020 Strategy. In other words, the question is no longer whether universities should or not be part of a regional eco-system, but how universities can best contribute to that eco-system and thus to the regional S³.

This is also in line with two issues stressed in the European Commission's communication entitled "Supporting growth and jobs - An agenda for the modernization of Europe's higher education systems"¹, i.e. 2.4 *Making the knowledge triangle work: Linking higher education, research and business for excellence and regional development*; 3.3 *Putting higher education at the centre of innovation, job creation and employability*.

¹ Cf. Doc. COM(2011) 567 final: Supporting growth and jobs - an agenda for the modernisation of Europe's higher education system

INTRODUCTION

The current economic context is characterised by four important factors including:

- > globalised competition,
- > ever faster utilisation of knowledge to develop competitive products and services,
- > shrinking public budgets,
- > mastery of the entire product/service cycle from an innovative idea to its commercialisation.

Among possible regional responses, the EU Commission suggests exploring the avenue of smart specialisation strategies, i.e. developing and leveraging the regional potential. This requires harnessing local talent and knowledge, attracting foreign investors and talent and activating networks of key stakeholders. Universities and depending centres of excellence play a decisive role in this context.

While its realisation is not new, one must recognise the substantial and enduring asymmetry between hopes and reality and possibly even the gap between regional development policy designer perceptions and actual academic contributions to territorial development. Indeed, although many universities are already contributing to the development of their region, conferences, seminars and other meetings still often echo with discourses emphasising that academics use a "different language" than business, that they their scientific efforts on behalf of their region are inadequately recognised and rewarded, that they prefer to work with multinationals rather than regional SMEs, that entrepreneurship is insufficiently showcased to technology department students and teachers, that academics prefer fundamental research to applied research, etc. On this subject, what share of responsibility can be assigned to a lack respectively of know-how or dissemination?

As with any strategy rooted in a territory, success will self-evidently only come provided that all stakeholders agree a vision for the regional future and manage to pool their resources and know-how.

Therefore, it is useful to examine the role universities could play in implementing future smart specialisation strategies as one of the cornerstones of future regional R&D+I policies. Indeed, universities are at the core of the knowledge-based economy and can help businesses as well as strategy developers in a wide variety of ways.

Smart specialisation strategies can be defined as focusing public resources on a few activities/industries that have strong competitive advantages. Universities will be called upon to play an important role in this context as they both produce knowledge and are in a position to foster access to and dissemination and take-up of, knowledge. This role can thus be played by universities in highly R&D+I intensive regions and in regions that are less R&D+I capable.

Universities that have already built close ties with the different regional stakeholders are of course best able to join the smart specialisation strategy design and implementation process. Others will need to be encouraged, over the next 18 to 24 months, to increase their contribution in this area.

Worth underlying is that the efforts of universities to join this process will need to be supported from similar requests addressed to venture capitalists and civil society. This requires moving progressively from the triple- to the penta-helix concept.

1 SMART SPECIALISATION STRATEGY

1.1 THE THEORY

The concept of smart specialisation strategy can be defined as “an entrepreneurial process of discovery, identifying where a region can benefit from specializing in a particular area of science and technology”².

Some papers stress that

- 1) it pays off to focus efforts on a few areas rather than spreading resources over many areas;
- 2) most regions look to the same sectorial priorities (biotechnology, nano-technology,...) to sustain growth though they have little assets and chance to be world leaders;
- 3) three types of policy strategies can be developed: technological leadership, catching-up strategies and preventive strategies.

DG Regio suggests that the development of smart specialization strategies should aim at concentrating resources on the most promising areas of comparative advantage, e.g. on clusters, existing sectors and cross-sectoral activities, eco-innovation, high value-added markets or specific research areas³.

Some experts⁴ believe that *“as most regions and institutions cannot reach the frontier of science and innovation, they would be better to search for a suitable specialization in the global competitive landscape. It is most likely that this specialization will take place along applications, exploiting business segments, niches, or markets that require adaptation of general technologies to specific user needs”*. They add that *“the regions that are not leading in any science and technology field have in any case to increase their intensity of knowledge investments and intangible capital in the form of high education and vocational training, public and private R&D, other innovation activities assets. The question is whether there is something better to do than investing a bit biotechnology, a bit in information technology, a bit in nanotechnology. Is there not a better strategy for them than being subcritical and inefficient in allocating resources to those fields in which they will always be laggards? So a policy question of great relevance for any (or almost any) region/country in Europe is now: how should it position itself in the knowledge economy?”*

Others⁵ make a plea for regions working on constructing regional advantage by adopting *“a platform approach able to formulate dedicated and specific innovation support customized to different regions and sectors”*. Those platforms should be able to understand and support *“distinctive modes in which regional knowledge, creation, innovation and entrepreneurship occur”*.

This concept was born in the following Community context:

- Barca Report: “An agenda for a reformed cohesion policy”
- EU budget review.
- EU2020 Strategy
- Innovation Union
- “Regional policy contributing to smart growth in Europe 2020”
- “Knowledge for Growth” expert group set up by DG Research.

² Cf. Public Service Review: European Science and Technology - Issue 2: Research and investment overview: ERA: Entrepreneurial Regional Action , <http://tinyurl.com/ctadnmj>

³ Cf. Doc COM(2010) 553 final - Regional policy contributing to smart growth in Europe 2020

⁴ Cf. The role of Community research policy in the knowledge-based economy. Expert group report DG Research

⁵ Cf. Constructing regional advantage: principles, perspectives, policies. DG Research

The main thread of these efforts has been:

- > The need for the EU to support territorial public policies (place-based policy) while specifying a number of conditions and encouraging public debates at local level;
- > The need for the future strategic framework to help focus resources on a small number of priorities;
- > The need for specialisation to emerge from industrial momentum. Rather than imposing top-down strategies, smart specialisation requires businesses, research centres and universities to jointly identify both the most promising specialisation areas and the weaknesses that impede innovation⁶;
- > Starting in 2010: Member States should considerably improve their use of existing Structural Funds for research & innovation projects, helping people to acquire the necessary skills, improving the performance of national systems and implementing smart specialisation strategies and trans-national projects. This should also apply to the pre-accession funding for EU candidate countries. The Commission stands ready to assist and will use its regional research and cluster initiatives to support this change and establish a "smart specialisation platform" by 2012, including further support for the emergence of world class clusters. Further details are in an accompanying Communication. Member States should initiate the preparation of post 2013 Structural Fund programmes with an increased focus on innovation and smart specialisation. Future regulations governing the operation of the European Regional Development Fund should further commit substantial financial resources to support innovation initiatives within the regions of the European Union⁷.
- > Strategic intelligence is needed to identify the high value-added activities which offer the best chance of strengthening a region's competitiveness. To have most impact, R&D and innovation resources need to reach a critical mass and to be accompanied by measures to increase skills, education levels and knowledge infrastructure. National and regional governments should, accordingly, develop smart specialisation strategies to maximise the impact of Regional Policy in combination with other Union policies.

Smart specialisation strategies can ensure a more effective use of public funds and can stimulate private investment. They can help regions to concentrate resources on few key priorities rather than spreading investment thinly across areas and business sector. They can also be a key element in developing multi-level governance for integrated innovation policies. Moreover they have to be closely linked with other policy domains and require an understanding of regional strengths relative to other regions and of the possible gain for inter-regional and trans-national cooperation.

Rather than being a strategy imposed from above, smart specialisation involves businesses, research centres and universities working together to identify a region's most promising areas of specialisation, but also the weaknesses that hamper innovation. It takes account of the differing capacities of regional economies to innovate. While leading regions can invest in advancing a generic technology or service innovation, for others, investing in its application to a particular sector or related sectors is often more fruitful.

The sustainability of the strategy will depend on the timeliness and coordination of policy measures, and on governance, including ways of engaging stakeholders. It must include mechanisms for policy learning, in particular through peer reviews, involving public officials, practitioners and regional stakeholders. Smart specialisation needs to exploit regional diversity, stimulate cooperation across national and regional borders and open up new opportunities, by avoiding fragmentation and ensuring that knowledge flows more freely across the EU⁸.

⁶ Cf. <http://actu.epfl.ch/news/prof-dominique-foray-s-new-economic-concept-adopte/>

⁷ Cf. Doc. COM(2010) 546 final: Europe 2020 Flagship Initiative Innovation Union

⁸ Cf. Doc. COM(2010) 553 final: Regional Policy contributing to smart growth in Europe 2020

1.2 FROM THEORY TO PRACTICE

Putting into practice a concept developed by university professors and researchers often proves difficult, especially when it is rooted in human behaviours. Indeed, notions of “public policy” and “petty politics” are not necessarily interchangeable. There is not a single regional stakeholder who will ever oppose the sturdy notion of focusing public resources on action with strong added value... until final beneficiaries are chosen, that is, at which point often prevail such subjective considerations as saving existing jobs and activities within a clearly-defined labour pool or constituency.

Moving from theory to practice requires clarifying a range of issues⁹ including:

1. Will the smart regional specialization concept be understood as:
 - > a sectorial policy,
 - > an eco-system supporting innovation, growth and job creation, or
 - > an integrated approach through which an innovation eco-system supports high growth potential enterprises, sectorial niches and responds to societal expectations?
 - > a plan to provide more added-value support services to all regional stakeholders.
2. Who will make the strategic choices and how will the actors be associated?
3. How will the smart regional specialization be aligned with the new expectations in the field of societal challenges? In other words, is the concept just a way to support a growth agenda or can it also be a path for quality development based on sustainable and social development requirements?
4. What would be the scope of a smart regional specialisation strategy?
 - > support to endogenous development including through the support to start-ups and innovation,
 - > recruitment of new industry, talent and investors,
 - > diversification (product/service or geographical) of existing industry,
 - > upgrading existing mature industry,
 - > improving R&D and innovation infrastructures and networks.
5. What are the pre-requisites to build a smart specialisation strategy?
 - > assets and their contribution to regional competitive advantages,
 - > role and responsibilities (facilitate or participate) of all stakeholders,
 - > availability of expertise and quality of social capital,
 - > relationship with the external world,
 - > availability of incentives, financial and non financial ones,
 - > desired output and parameters for killing non performing initiatives,
 - > value of the proposition,
 - > cost/benefit of the different options,
 - > capacity to accelerate the introduction of innovation in the market.

⁹ Cf. Eurada: “Smart (regional) specialization strategy: What does it mean for RDAs?”

6. Who will be responsible for validating the relevance of the smart regional strategy? The dangers are:

- > Conservatism due to the influence of strong existing stakeholders¹⁰ and locally established lobby when it comes to the choice of the specialization topics and means to support the process;
- > Lack of strong prerequisites such as:
 - global vision of sector trends
 - equity capital value chain
 - skills/talent related to the strategy focus
 - social capital
 - administrative and institutional capital
 - sectorial value chain
- > Absence of territorial intelligence regarding
 - the enterprise pipeline
 - the knowledge cycle in a region
 - the innovation capability (technology breakthrough, non technology, knowledge absorber, ...)
 - sustainable funding
 - international cooperation
 - the strength of the support service value chain
- > Uniformisation of the focus. All the regions will look to the same sectors: automotive, aerospace, ICT, bio, nano, ...)¹¹

In other words, who will check if the smart regional specialization strategy provides satisfactory answers to the enterprises: "needs-demand-services" life cycle for public support services?

7. What is the critical mass to be taken into account both for the size of the geographical area and for the sectorial niche? For instance, will the flask sector in Bresle (F) or the second-hand books in Hay-on-Wye (UK) or Redu (B) be seen as the right size for the European Regional Development Fund (ERDF) attention?

8. What about the implementation paths of the strategy?

- > Which tools will be favoured: grants, equity, soft support, infrastructures?
- > Which option will be pushed: picking the winners (any potential beneficiaries with generic support services) or supporting the winners (targeted beneficiaries with high added value support)?

9. What will be the criteria to evaluate the soundness of the strategy ?

- > the process
- > the governance
- > the argumentation
- > the investment readiness and willingness, i.e. the gap between the expectations and the capabilities
- > the uniqueness of the strategy
- > the portfolio of activities supporting the strategy (value chain).

10. What will be the content of a smart regional strategy?

- > A talent pool that connects across sectors
- > An innovation infrastructure including physical infrastructures
- > Access to capital
- > A skilled workshop
- > A support system composed of high added value services/tools/delivery mechanism
- > A dynamic network environment
- > A knowledge entrepreneurship culture (knowledge absorption and dissemination leading to enterprise creation and development)

By nature, a smart regional specialisation strategy would provide access to technological and market intelligence and tangible benefits for all stakeholders.

¹⁰Cf. The car scrap recovery plans in 2008

¹¹ Cf. The regional impact of technological change in 2020

11. How to convince those regions with the lowest levels of R&D+I infrastructure and capacity that they can benefit from such a strategy?

In the case of these regions, specialisation will rest on non-technological innovation as well as knowledge and technology transfers. In general, these regions have potential in farming, tourism or alternative energy sources. Smart specialisation strategies may help them diversify and differentiate themselves.

There will be a need to strengthen the capacity of this category of regions to access, take up and disseminate knowledge. An essential requirement for this purpose will be to strengthen human capital and entrepreneurship.

12. How to avoid a smart regional specialisation process that leads to excessive concentration of resources? How to ensure that specialist bodies (clusters, innovation agencies, sector organisations, etc.) join the smart specialisation process?

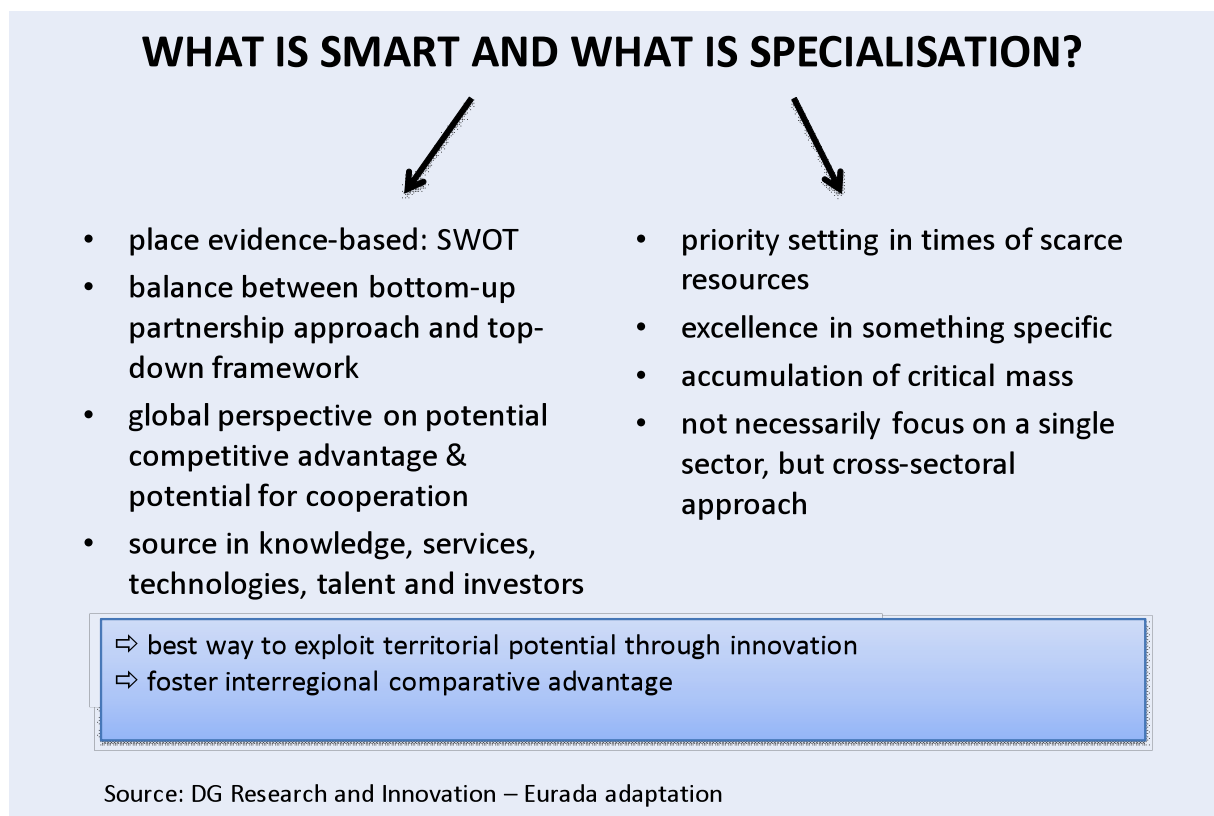
13. How does regional specialisation fit in with national priority choices?

14. What alternatives to such a strategy are there at present? What are the traits and consequences of "bad" specialisation?

15. How to consider social and environmental challenges in smart specialisation strategies?

Worth underlying once again is that the data to be collected and the choices to be made as part of the process leading to such a strategy require the involvement of as many relevant stakeholders as possible.

The chart below summarises the words "smart" and "specialisation" as used in the context of the term "smart specialisation strategy".



Ultimately, the steps below will need to be implemented in order to optimise smart specialisation strategy design:

- > assessing the smart specialisation potential including the innovation potential, sector or ecosystem size, the nature of existing or future competitive advantages, international positioning (“where are we?”);
- > identifying necessary additional tangible and intangible investment. Particular care should be given to investment needed to facilitate a junction between different business and knowledge areas (“where do we want to go?”);
- > implementing support services for businesses and key organisations involved in the entrepreneurship discovery process (“how do we get there?”);
- > identifying indicators and alternatives in case the objectives cannot be reached (“stop in time!”).

The four steps above need to be considered in line with the four possible avenues of an “entrepreneurial discovery” process defined by Dominique Foray¹², i.e.:

- turning traditional sectors into new competitive areas [Nord-Pas-de-Calais(F) in rail transport];
- modernising specialisation through new technology [Jyväskylä (FIN) in the paper industry with the integration of ICT, optoelectronics and nanotechnology];
- diversifying, based on existing specialisation [whale tourism in Husavik (IS) from fisheries’ experience; eco-building in Lower Austria (A)];
- radical change [Leuven (B) in microelectronics; Cambridge (UK) in biotechnology or Cantrabria (E) in marine science].

Worth noting is that of the four avenues proposed above, only the last one requires capacity in terms of technological excellence, whereas the other three call for the ability to absorb and use knowledge. Referred to as practice-based innovation¹³ in literature, this type of capacity is accessible to a larger number of regions provided that they are prepared and willing to make the investment.

1.3 S³ IN THE DRAFT COHESION POLICY REGULATION FOR 2014-2020

Article 17 of the draft common provisions for cohesion instruments¹³ presents the concept of ex-ante conditionalities which are detailed in Annex IV of the document. Reference is made to smart specialisation for the following two thematic objectives of the future Cohesion Policy, i.e.

- > Strengthening research, technological development and innovation (R&D target)
- > Enhancing access to and use and quality of ICT (broadband target).

For the R&D target, the European Commission describes the criteria fulfilment of the thematic ex-ante conditionalities as follows:

A national or regional research and innovation strategy for smart specialisation is in place and:

- > *is based on a SWOT analysis to concentrate resources on a limited set of research and innovation priorities;*
- > *outlines measures to stimulate private RTD investment;*
- > *contains a monitoring and review system.*

¹²Cf. Speech delivered at the conference on “Regions for Economic Change” on 23 June 2011.

¹³Cf. Speech delivered at the conference on “Regions for Economic Change” on 23 June 2011 by Prof. V. Harnaakapi, Lappeenranta University (FIN)

¹⁴Cf. Doc. COM(2011) 615 – Common provisions for the cohesion instruments

As far as the broadband target is concerned, the S³ description is:

A chapter for digital growth within the national or regional innovation strategy for smart specialisation is in place that contains:

- > *budgeting and prioritisation of actions through a SWOT analysis carried out in alignment with the Scoreboard of the Digital Agenda for Europe;*
- > *an analysis of balancing support for demand and supply of information and communication technologies (ICT) should have been conducted;*
- > *measurable targets for outcomes of interventions in the field of digital literacy, skills, e-inclusion, e-accessibility, and e-health which are aligned with existing relevant sectoral national or regional strategies.*
- > *assessment of needs to reinforce ICT capacity-building.*

1.4 THE S³ PLATFORM

In order to help regions understand the concept and prepare them to design a relevant strategy, the European Commission supports a S³ platform. The platform will provide a range of support services to the regions in a bottom-up voluntary approach. The support provided will range from a resource centre to guides through peer review exercises and working groups.

The information is stored in a website

<http://ipts.jrc.ec.europa.eu/activities/research-and-innovation/s3platform.cfm>

Interested persons can also informally exchange views on the S³ LinkedIn group.

The S³ platform's "back office" comprises:

- [a team of experts coordinated by the EU Joint Research Centre – Institute for Prospective Technological Studies located in Seville \(E\);](#)
- [a steering team composed of EU Commission staff from different DGs;](#)
- [a mirror group composed of 19 members, of which 4 representatives of universities](#)

An S³ practical guide will be produced. It will focus on:

- > Smart Specialisation Strategy: the policy rationale
- > The process: developing the governance bodies for a RIS³ strategy
- > The potential steps to design a RIS³ strategy
- > Peer review and monitoring of the strategies
- > Policy instruments and components/branches of the knowledge tree
- > Annex: case studies¹⁵

Additional guides will help stakeholders define their focused role in the S³:

- > The Smart Guide to Innovation-Based Incubators (IBI)
- > Connecting Universities to Regional Growth

The guide on connecting universities to regional growth will present up-to-date information regarding the following issues:

- > Understanding the role of universities in regional development
- > Enhancing regional innovation through research activities
- > Promoting enterprise, business development and growth
- > Contributing to the development of regional human capital and skills
- > Improving social equality through community development and "place making"
- > Barriers, challenges and enablers to effective engagement of universities in regional development
- > Processes and practical mechanisms to build capacity and incentives for universities and regions to work together

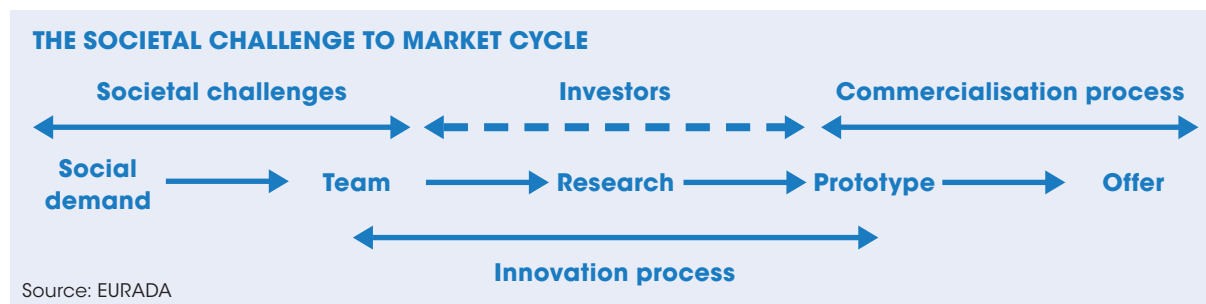
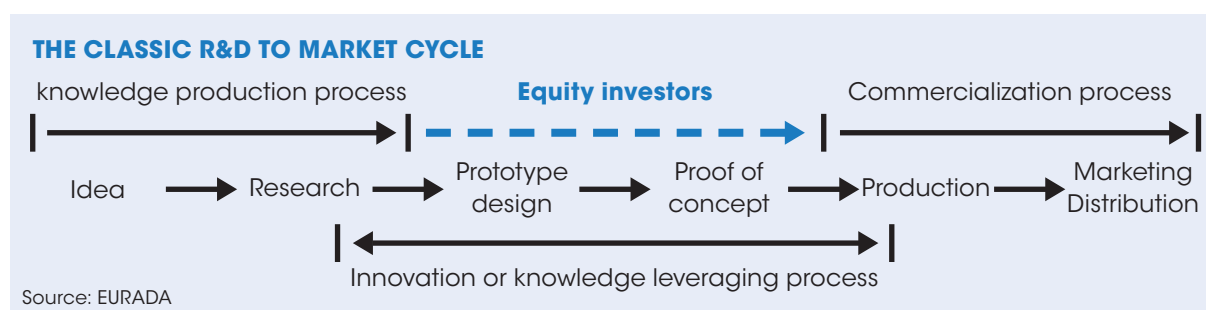
¹⁵Dominique Foray (Ecole Polytechnique de Lausanne, CH), John Goddard (Newcastle University (UK), Kevin Morgan (Cardiff University, UK), Philip McCann (University of Groningen, NL)

2 CHALLENGES FOR REGIONS

2.1 REGIONAL INNOVATION ECO-SYSTEM

Not all EU regions have R&D+I infrastructure networks and capacities or equally adept public policies in support of R&D+I activities. Neither do they all have technological knowledge-intensive international connections.

This is shown, if needed, by the RIM (Regional Innovation Monitor)¹⁶ and RIS (Regional Innovation Scoreboard)¹⁷ studies. Data from both is useful in identifying the parameters to be considered as well as the weak links of the regional R&D+I value chain. This value chain can be presented in three distinctive parts: knowledge production, utilisation and commercialisation, and be applied to the two different paths to innovation: (1) the technology-driven path and (2) the societal change driven one.



In the first path, funding supports R&D activities which may or not, most often not, result in market products/services. The second path identifies a societal problem to be solved within a market.

It emerges from the data of both of the above-mentioned reports that regions have assets they can leverage in all – or alternatively in just in one or more – segments of this supply chain.

Based on eight performance indicators, the 2010 Regional Innovation Monitor¹¹ report, which seeks to compile as much information as possible about regional innovation policies, ranks regions in the seven categories below:

The first group of regions is labeled 'Balanced innovating regions'. The mean score for each innovation performance factor is above the average of all 203 regions. In particular, 'innovative entrepreneurship' is above average, but this is mainly due to the relatively high R&D expenditures at institutes of higher education. This group of 42 regions includes regions in the Netherlands, Belgium, Denmark, North Germany, South United Kingdom, and some regions in Austria and Italy.

¹⁶ www.rim-europa.eu

¹⁷ www.proinno-europe.eu/page/regional-innovation-scoreboard

Group 2 consists of 49 'Knowledge-absorbing regions'. Most regions in this group are located in Eastern Europe and southern Italy. On average all three factors of innovation performance patterns are below the average of all EU regions, but especially for 'Innovative entrepreneurship', which is lower than in any of the other groups. The share of innovators, both technological and non-technological, is small and the high score on non-R&D innovation expenditure signals that innovation is mostly the result of absorbing already existing knowledge.

Group 3 is labeled: 'Public knowledge regions'. They are characterised by a very high score on the factor 'public knowledge'. The average R&D expenditures in government research organisations (as % of GDP) are higher than for any of the other groups and the average share of tertiary educated is equally high as for the group of 'high-tech business innovating regions' (Group 6). The average score on the other two factors are slightly below average, but on none of the eight indicators this group shows a major weakness. The 21 regions in this group are scattered across Europe, including many capital regions such as Madrid, Rome, London, Berlin, Prague, and Bucharest, but also regions in Eastern Germany, Scotland and Southern France.

Group 4 is named: 'Knowledge-absorbing innovating regions' because they have the highest average score on 'innovative entrepreneurship'. In particular, the share of both technological and non-technological innovators is high. This group has on average the lowest score on 'technological innovation': business R&D and patenting is very low, while the non-R&D innovation expenditures (as % in turnover) are higher than in any other group. Similar as for the second group, innovation is mostly the result of absorbing already existing knowledge. These 19 regions are mostly located in Portugal and Greece.

Group 5 has been labeled 'Industrialised innovating regions'. The score on 'technological innovation' for this group is above average, but 'innovative entrepreneurship' is below average. Overall there are no really weak or strong scores on any of the eight indicators. Many regions of this group are located in France and Spain; also included are Irish regions, some in Sweden and early industrialised regions in Germany and the United Kingdom.

Group 6 is named 'High-tech business innovating regions'. This is the most innovative group of regions. Particularly high is the factor 'technological innovation', and all its major components: patents and business R&D are much higher than in any other group and this group has on average the lowest share of non-R&D innovation expenditures. On average 'innovative entrepreneurship' is also high, but not as high as for the group of 'knowledge absorbing innovation regions'. The score on 'public knowledge' is above average, but government R&D expenditures are clearly below the average of the group of 'public knowledge regions'. The 12 'high-tech business innovators' are located in South of Germany, most of Finland, some regions in Sweden, East of England (United Kingdom) and North Brabant (The Netherlands).

Group 7 is labeled 'Business innovating regions' because on average these 11 regions score well on both 'innovative entrepreneurship' and 'technological innovation' but they have the lowest score on the factor 'public knowledge'. Both the low performance regarding government R&D expenditures and tertiary education contribute to the low score on this 'enabling' aspect. The score on 'innovative entrepreneurship' is high; the share of SMEs introducing technological innovations is on average even higher than in any other group. The performance on the factor 'technological innovation' is above average. The regions of this group are located in Northern Italy and in Austria.

The 2009 Regional Innovation Scoreboard¹² report aiming to provide an assessment of regional R&D+I performance on the basis of 29 indicators assigns EU regions to five categories, i.e.:

- high innovators
- medium-high innovators
- average innovators
- medium-low innovators
- low innovators.

EU-DRIVERS

The table on the next pages crosses regional data from two reports. This enables regional players to plot their position in the European R&D+I system and think about the types of policies to be deployed in order to strengthen or change their innovation ecosystem and leverage their present starting situation to enhance or generate competitive advantages.

	RIM1: Balanced innovating regions	RIM2: Knowledge-absorbing regions	RIM3: Public knowledge regions	RIM4: Knowledge-absorbing innovation regions	RIM5: Industrialised innovating regions	RIM6: High-tech business innovation regions	RIM7: Business innovating regions	Regions not used in RIM typology	
RIS Low Innovators		<ul style="list-style-type: none"> cz04 - Severozápad hu22 - Nyugat-Dunántúl hu31 - Észak-Magyarország hu32 - Észak-Alföld it6 - Cantabria it6 - Sardegna pl1 - Łódzkie pl31 - Lubelskie pl32 - Podkarpackie pl33 - Świętokrzyskie pl34 - Podlaskie pl41 - Wielkopolskie pl42 - Zachodniopomorskie pl43 - Lubuskie pl52 - Opolskie pl6 - Kujawsko-Pomorskie pl62 - Warmińsko-Mazurskie ro11 - Nord-Vest ro12 - Centru ro31 - Sud-Muntenia ro41 - Sud-Vest Oltenia ro42 - Vest sk02 - Západné Slovensko sk03 - Stredné Slovensko sk04 - Východné Slovensko 	<ul style="list-style-type: none"> ro22 - Sud-Est 	<ul style="list-style-type: none"> es43 - Extremadura hu33 - Dél-Alföld 					
RIS Medium-low innovators	<ul style="list-style-type: none"> gr6 - Atiki it61 - Toscana it62 - Umbria 	<ul style="list-style-type: none"> cz03 - Jihozápad cz05 - Severovýchod cz07 - Střední Morava es53 - Illes Balears hu21 - Közép-Dunántúl it63 - Marche it64 - Campania it65 - Puglia it66 - Basilicata it67 - Sicilia pl22 - Śląskie pl51 - Dolnośląskie pl63 - Pomorskie 	<ul style="list-style-type: none"> pl12 - Mazowieckie ro32 - Bucuresti-Iliav 	<ul style="list-style-type: none"> gr12 - Kentriki Makedonia pl11 - Norte pl15 - Algarve pl16 - Centro pl18 - Alentejo 	<ul style="list-style-type: none"> cz08 - Moravskoslezsko es11 - Galicia es12 - Principado Asturias es13 - Cantabria es23 - La Rioja es41 - Castilla y León es42 - Castilla la Mancha es61 - Andalucía es62 - Región de Murcia es7 - Canarias fr3 - Nord-Pas de Calais pl21 - Mazopolskie 				
RIS Average innovators	<ul style="list-style-type: none"> cz06 - Jihovýchod it63 - Liguria it64 - Friuli-Venezia Giulia nl12 - Drenthe nl34 - Zeeland 	<ul style="list-style-type: none"> de6 - Sachsen-Anhalt hu1 - Közép-Magyarország it64 - Lazio sk01 - Bratislavský kraj 	<ul style="list-style-type: none"> cz02 - Střední Čechy fr22 - Prov. Auvergne fr6 - Triaño pl17 - Łódzkie 	<ul style="list-style-type: none"> es24 - Aragón es52 - Com. Valenciana it60 - Border, Midlands and Western uk1 - Northern Ireland 			<ul style="list-style-type: none"> it63 - Veneto 	<ul style="list-style-type: none"> de22 - Niederbayern de61 - West-Ems de61 - Koblenz de62 - Trier ee - Estonia fr2 - Bassin Parisien fr5 - Ouest fr6 - Méditerranée fr61 - Haut-Normandie + Valle fr62 - d'Alsace fr63 - Abruzzo + Molise si01 - Vzhodna Slovenija 	

	RIM1: Balanced innovating regions	RIM2: Knowledge-absorbing regions	RIM3: Public knowledge regions	RIM4: Knowledge-absorbing innovation regions	RIM5: Industrialised innovating regions	RIM6: High-tech business innovation regions	RIM7: Business innovating regions	Regions not used in RIM typology	
RIS Medium-high innovators	<p>ba1 - Bruxelles-Capitale</p> <p>ba2 - Vicoms Gevest</p> <p>ba3 - Région Wallonne</p> <p>de1 - Schleswig-Holstein</p> <p>de9 - Thüringen</p> <p>de11 - Groningen</p> <p>nl21 - Overijssel</p> <p>nl23 - Flevoland</p> <p>nl31 - Utrecht</p> <p>nl32 - Noord-Holland</p> <p>nl33 - Zuid-Holland</p> <p>nl42 - Limburg</p> <p>se33 - Övre Norrland</p> <p>ukc - North East</p> <p>ukr - Yorkshire & Humber</p> <p>ukl - South West</p> <p>ukl - Wales</p>		<p>ca01 - Praha</p> <p>de4 - Brandenburg</p> <p>de5 - Bremen</p> <p>de8 - Mecklenburg-Vorpommern</p> <p>es13 - Comunidad Madrid</p> <p>fl13 - Itä-Suomi</p> <p>ukl - London</p> <p>ukm - Scotland</p>	<p>es21 - País Vasco</p> <p>es22 - Com. Foral Navarra</p> <p>es51 - Cataluña</p> <p>fr1 - Ile de France</p> <p>ie02 - Southern & Eastern</p> <p>se21 - Småland med öarna</p> <p>se31 - Norra Mellansverige</p> <p>se32 - Mellstra Norrland</p> <p>ukf - North West</p> <p>ukg - East Midlands</p> <p>ukg - West Midlands</p>		<p>ie21 - Lombardia</p> <p>ie26 - Emilia-Romagna</p>			<p>at1 - Österreich</p> <p>at2 - Südbösterreich</p> <p>at3 - Westösterreich</p> <p>de24 - Oberpfalz</p> <p>de27 - Oberfranken</p> <p>de73 - Gießen</p> <p>de78 - Kassel</p> <p>de92 - Hannover</p> <p>de93 - Lüneburg</p> <p>de94 - Düsseldorf</p> <p>de95 - Münster</p> <p>de96 - Delmeid</p> <p>de97 - Arnsberg</p> <p>de98 - Chemnitz</p> <p>de99 - Leipzig</p> <p>fr4 - Est</p> <p>fr6 - Sud-Ouest</p> <p>fr7 - Centre-Est</p> <p>lu - Luxembourg</p> <p>sl02 - Zahodna Slovenija</p>
RIS High innovators	<p>de6 - Hamburg</p> <p>ukl - South East</p>		<p>de3 - Berlin</p>			<p>fi18 - Etelä-Suomi</p> <p>fi19 - Länsi-Suomi</p> <p>fi1a - Pohjois-Suomi</p> <p>nl41 - Noord-Brabant</p> <p>se11 - Stockholm</p> <p>se12 - Östra Mellansverige</p> <p>se22 - Sydsverige</p> <p>se23 - Västsverige</p> <p>ukn - Eastern</p>	<p>de11 - Stuttgart</p> <p>de12 - Karlsruhe</p> <p>de13 - Freiburg</p> <p>de14 - Tübingen</p> <p>de21 - Oberbayern</p> <p>de25 - Mittelfranken</p> <p>de26 - Unterfranken</p> <p>de71 - Darmstadt</p> <p>de91 - Braunschweig</p> <p>de92 - Köln</p> <p>de93 - Rheinhesen-Platz</p> <p>de94 - Dresden</p> <p>dk - Denmark</p>		
Regions not used in RIS typology	<p>at11 - Burgenland</p> <p>at13 - Wien</p> <p>at22 - Steiermark</p> <p>at33 - Tirol</p> <p>de9 - Niedersachsen</p> <p>de6 - Rheinland-Pfalz</p> <p>at01 - Rheinland</p> <p>at02 - Spessart</p> <p>at03 - Sydostmark</p> <p>at04 - Mittelfland</p> <p>at05 - Nordfildland</p> <p>fr41 - Lorraine</p>	<p>bg31 - Severozapaden</p> <p>bg31 - Severen Isentralen</p> <p>bg33 - Severozapaden</p> <p>bg42 - Juzhen Isentralen</p> <p>fr2 - Alsace</p> <p>fr11 - Abruzzo</p> <p>fr12 - Wallise</p>	<p>bg91 - Yugozapaden</p> <p>de4 - Sachsen</p> <p>fr2 - Midi-Pyrenées</p> <p>fr61 - Languedoc-Roussillon</p> <p>fr83 - Corse</p>	<p>gr21 - Ipealios</p> <p>gr22 - Ionial Nisia</p> <p>gr23 - Dytiki Ellada</p> <p>gr24 - Sterea Ellada</p> <p>gr25 - Peloponnisos</p> <p>gr41 - Noreio Aigalo</p> <p>gr42 - Norio Aigalo</p> <p>gr43 - Kifisi</p> <p>pt2 - Região Autónoma dos Açores</p> <p>pt3 - Região Autónoma da Madeira</p>	<p>de6 - Baden-Württemberg</p> <p>de7 - Bayern</p> <p>de7 - Hessen</p>	<p>de6 - Nordrhein-Westfalen</p> <p>fr21 - Champagne-Ardenne</p> <p>fr22 - Picardie</p> <p>fr23 - Haute-Normandie</p> <p>fr24 - Centre</p> <p>fr25 - Basse-Normandie</p> <p>fr26 - Bourgogne</p> <p>fr42 - Alsace</p> <p>fr43 - Franche-Comté</p> <p>fr51 - Pays de la Loire</p> <p>fr52 - Bretagne</p> <p>fr53 - Poitou-Charente</p> <p>fr61 - Aquitaine</p> <p>fr63 - Limousin</p> <p>fr71 - Rhône-Alpes</p> <p>fr72 - Auvergne</p> <p>fr62 - Provence-Alpes-Côte d'Azur</p> <p>gr1 - Anatoli Makedonia, Thraki</p> <p>gr3 - Dytiki Makedonia</p> <p>gr4 - Thessalia</p>	<p>at12 - Niederösterreich</p> <p>at21 - Kärnten</p> <p>at2 - Oberösterreich</p> <p>at22 - Salzburg</p> <p>at4 - Vorarlberg</p> <p>ie2 - Valle d'Aosta</p>		

2.2 MOBILISING REGIONAL ASSETS

The process leading to a regional specialisation strategy obviously needs to carry out the following actions:

- an inventory of resources,
- a SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis,
- GOPP (Goal-Oriented Project Planning),
- formulating the vision and strategy.

To assess the regional economy, i.e. take stock of its key assets, there is a need to put in perspective the quality of key factors including:

Important Factors	Key Elements
Physical infrastructures	Utilities, telecommunications, transport
SME support infrastructures	Incubators, real estate, technical centres, research centres
Intangible / social capital	Networks, clusters
Financial capital	Loans, guarantees, equity, business angels, grants
Knowledge capital	Research programmes, innovation support schemes, entrepreneurship, universities, technological transfer officers, ...
Institutional and administrative capital	Entrepreneurship culture, friendly economic growth support attitude
Quality of life	Education system, cultural and natural assets, health, sustainable development
Human capital	Skills, talent attraction/retention, productivity, creativity
Attractiveness capacity	FDI performance
Business and economic climate	Unemployment rate, export/import trends, start-up creation rate, business failure rate,...
Territorial intelligence	Foresight, proof of concept, pre-competitive public procurement, technology watch, market intelligence, ...
Entrepreneurial capital	Business creation rate, number of technology start-ups, number of gazelles, percentage of enterprises having international activities
International capital	Firms engaged in transnational activities: export, R&D projects, joint venture. Inter-connection with world class knowledge centres. Call to peer reviewers outside the region.

Source: EURADA

To help regions identify their starting point, i.e. their position prior to implementing a smart specialisation strategy, the European Commission has developed a self-evaluation tool addressing the features of effective R&D+I system at both national and regional level. This tool was published in the document entitled "EU 2020 Flagship Initiative: Innovation Union"¹⁸. The text of this tool appears in annex 1.

To monitor strategy implementation, it may be useful to present the contributions expected from and tasks to be performed by individual key stakeholders in the form of a diagram as below.

¹⁸Cf. Doc. COM(2010) 546 final: Europe 2020 Flagship Initiative Innovation Union

S³ BLUEPRINT



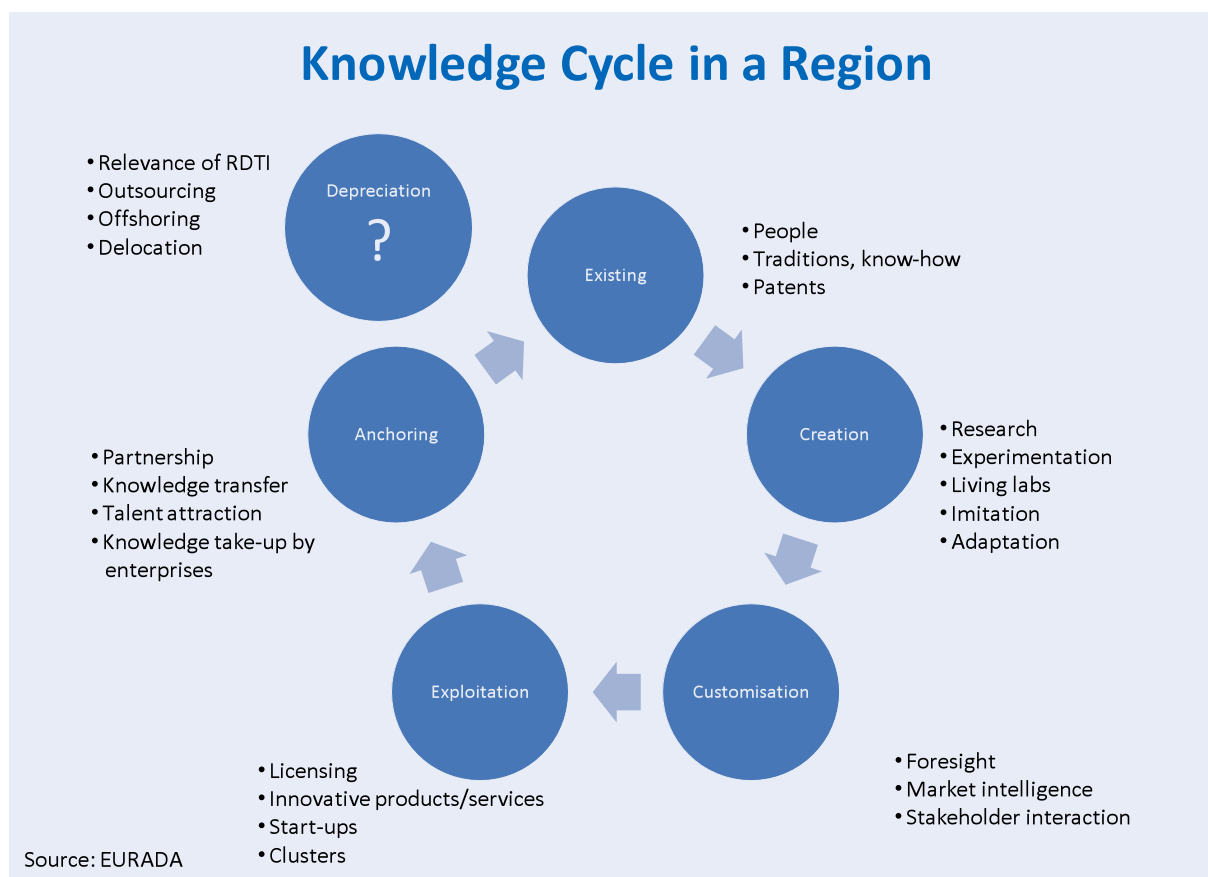
Source: EURADA

During the SWOT analysis, it would be useful to develop a dashboard of regional business types that use public business support services, whether generally or for specific sectors (see the table below). This dashboard was presented at various seminars whose participants all recognised that while they did not have such a tool, most regional businesses receiving public funding fit towards either the top or bottom of the table – i.e. to the detriment of mature entrepreneurial growth companies which are nevertheless the drivers of regional economic development.

THE ENTERPRISE PIPELINE ASSESSMENT MATRIX

Life cycle	N° of enterprises		Nature of the public support							
	N°	Trends	Soft business support	Finance	Infrastructure	Skills	Social capital	Market intelligence	Research & innovation	Networking
Pre-venture										
Existence / Start-up										
Early growth										
Expansion										
Maturing										
International relocation										
Re-engineering process										
Decline										
Pre-failure / Closure										

As for the chart below, it seeks to measure regional dynamism when it comes to developing and utilising knowledge. It also addresses the issue of the lapsing nature of the regional knowledge stock – and possibly capacity. Worth underlying in this respect is that much like the car industry never emerged from among horse-drawn carriage manufacturers, traditional industrial regions (e.g. Lorraine, Midlands, Wallonia, etc.) have not become leaders in new materials.



3 CHALLENGES FOR UNIVERSITIES

3.1 UNIVERSITIES' CURRENT CONTRIBUTION TO REGIONAL DEVELOPMENT¹⁹

In addition to their role in training and educating students, universities are in theory able to make a major contribution to regional development through their actions relating to:

> Entrepreneurship, via activities such as:

- Promoting entrepreneurship;
- Developing new businesses (spin offs);
- Collaborative R&D+I projects;
- Offering high added-value services;

> Leveraging knowledge from:

- Marketing project outcomes;
- Technology transfers;
- Small business consulting;
- Placing talented people in SMEs;

> Managing local infrastructure including:

- Preincubators;
- Incubators;
- Science/Technology parks;
- Laboratories shared with regional players;

> Stimulating R&D+I activities

> Economic coordination by means of active participation in structures such as:

- Clusters;
- University/SME interfaces;
- Seed capital funds;

> Development of public-private partnerships

> Attracting and retaining talent

To maximise the academic contribution, there is undoubtedly a need to set up a platform where stakeholders can exchange ideas. Such a platform would need to operate like a matchmaker or broker.

In addition to the interventions described above which are of an endogenous nature, there is a need to consider the role of regional universities in terms of:

- Promoting internationalisation by transferring the regional know-how to operators in other regions and countries;
- Supporting areas that do not have a university, notably by conducting research activities on their behalf.

Finally, also worth mentioning is that regional development has become the subject of university research efforts. It is therefore useful to try to ascertain whether the outcomes of this work are relevant for practitioners in regional development.

¹⁹ Cf. report worked out by the Round Table of Practitioners in Economic Development entitled "The Quest for Regional Excellence: RDA-Regions-Enterprises/University relations"

3.1.1 ENTREPRENEURSHIP

Promoting Entrepreneurship

This can be achieved in two different yet complementary ways, i.e.:

- Integrating business development and management courses in the curriculum of different categories of colleges and universities including science and technology departments;
- Providing entrepreneurship training.

Notable examples of action taken by universities include:

- Business plan competitions;
- Targeted training schemes;
- Specific seminars;
- Multidisciplinary workshops aimed at solving real problems of local enterprises;
- Enterprise creation experiences during school holidays.

Promoting this activity by universities requires consideration of different target audiences both within and outside universities themselves as well as of the types of companies in need of support (high-tech businesses, traditional companies with a potential for innovation, etc.).

If most experts believe that "entrepreneurs were born entrepreneurs", there is a need to teach entrepreneurs how to become good managers and so to provide them with sound bases so that their enterprises are able to grow and develop.

Business Development

Some universities provide direct specialist support to students and teachers who are in the process of setting up their own businesses. Such assistance may take one or more of the following forms:

- Financial support: loans, equity investment;
- Technical assistance: advice, tutoring, provision of infrastructure, etc.
- Support to or valorisation of intellectual property right;
- Incubation;
- Validation of entrepreneurial project (proof of concept, spin-off support fund).

To this end, some universities manage seed capital funds of varying size or grant repayable advances to students/researchers with a business project.

Supporting Regional SMEs to Growth

Some universities are able to support the growth of existing regional businesses, mainly from activities including:

- Consulting or contractual R&D activities;
- Provision of qualified staff for know-how and technology transfer (teachers, researchers or students);
- Access to laboratories;
- Popularisation of knowledge, both in technology and management.

Regional intermediary bodies have an important role to play in order to maximize the use of university expertise by SMEs. They can indeed:

- a) translate SME needs into the language understood by academics and researchers and write typical cooperation contracts,
- b) undertake a segmentation of the regional SME fabric vis-à-vis their potential interest in partnering with universities; this segmentation might be the following : high tech SMEs, potential innovative SMEs, classic SMEs or enterprises with or without founders having studied in high schools. An appropriate approach should be designed for each segment.
- c) Stimulate the clustering of SMEs requiring assistance from universities or research centres. Groups of SMEs are more comfortable to partner with universities than an SME alone.

3.1.2 KNOWLEDGE EXPLOITATION

Commercialisation of Research Project Results

In theory, there are different ways of commercialising research project results:

- Licensing new technology patents;
- Transferring technology;
- Developing businesses.

Technology and Know-How Transfer

Transferring technology is a complex process relying on factors that are both internal and external to universities. Knowledge transfers from universities to enterprises can more easily be achieved through staff placement or by a better access to experts.

According to D. Palminteri²⁰, internal factors mainly include leadership, incentives and recognition, the history and quality of relations between businesses and universities as well as the existence of an entrepreneurial culture. As for external factors, they notably relate to the presence of business angels and seed capital funds, the availability of incubators and laboratories, consultancies and managers and the dynamism of networks.

Universities often face the following dilemmas:

- Using university resources for commercial purposes;
- The conflict between their duty to publish and publicise research outcomes and commercial businesses' requirement for confidentiality.

Some universities have nevertheless managed to strike the right balance between academic excellence and the pursuit of commercial objectives with the outcomes of research projects.

Fostering student creativity

University training systems need to embrace the reinforcement of student's creative potential so as to improve their employability with innovative businesses. This is undoubtedly preferable to the option of specialising educational systems according to individual sector strategies.

3.1.3 MANAGING LOCAL INFRASTRUCTURE

Quality local infrastructures are of course essential to develop a regional economy based on knowledge and technology. Some regions have used ERDF funds to build incubators and science parks which have helped the transformation of their industrial fabrics. The Structural Funds have been used to build sectorial research centres in areas such as biotechnologies, aerospace industry or ICTs by combining investment in buildings, equipments shared between universities and enterprises, and human capital. These centres have now access to the research framework programme of the European Union.

Pre-Incubation

Universities can play a decisive role in the pre-incubation process in that they have both the infrastructure capacity and the human resources entrepreneurs need to deliver technological development and to obtain business development advisory services.

Incubators

Universities can manage incubators. The latter play a driving role in spinning off start-ups from university knowledge. In order to maximise the regional impact of university incubators, the implementation of complementary services with the other regional actors should be favoured.

²⁰ Cf. Accelerating Economic Development through University Technology Transfer in Economic Development America – Winter 2005

Technological Parks

The presence of a university near technological parks is a precondition of their effectiveness and efficiency. As in the case of incubators, the quality of partnerships between universities and the regional fabric is a guarantee of success.

Joint Laboratories with Local Players

Equipment costs are becoming more and more expensive and so are no longer affordable by many SMEs. Therefore, new partnerships have to be developed in order to help local enterprises access top quality equipment. In some regions public authorities are investing in modern expensive equipment and put them at the disposal of SMEs and universities in a time sharing system. Some large industrial groups do sometimes the same.

Collaborative Centre for Technology Convergence

Technology development requires more and more interdisciplinary approaches. Universities and other regional actors can cooperate to build collaborative centres to foster technology convergence.

3.1.4 STIMULATION OF R&D+I ACTIVITIES

Numerous universities are implementing joint research programmes with enterprises. These are often projects led by large enterprises. Financial incentives should be put in place so that universities can help regional SMEs solve their concrete problems.

3.1.5 DRIVING THE REGIONAL ECONOMY

Regional public authorities should more and more involve universities in foresight scenarios to build their future. Indeed, emerging knowledge requires new policies. Involving universities in those scenarios will help them subscribe to the long-term vision of the regional development.

Clusters

Universities should be regarded as key partners of any initiative to set up or drive clusters. The most famous clusters include a university that understood the mutual benefits of membership of the regional actors' network established.

The University/Business Interface

As previously indicated, the presence of a dedicated university unit dealing with relations between academia and businesses is vital to the former's contribution to regional economic development. To be efficient, such interface needs dedicated employed staff who must understand the enterprises' and entrepreneurs' needs and concerns. The staff employed in such interface must be able to detect innovations which can be put rapidly to the market. Such expertise is often scarce in most European universities when comparing the US.

University Seed Capital Funds

As in the case of other local tools, universities should be able to rely on regional public authorities and RDAs in order to contribute to the initial capital of their seed capital funds.

3.1.6 SETTING UP PUBLIC-PRIVATE PARTNERSHIPS

Universities may have an important role to play as catalysts of public-private partnerships aimed at consolidating the presence of large companies in their region.

3.1.7 TALENT ATTRACTION

RDAs and regional authorities should promote the University to foreign talent or to natives who have been migrating in other excellence centres, as they do to FDI. In order to do so, they should work together in assessing the advantages that the University can offer to exogenous talents and businesses. They also could help local University to organise and participate in events of the “World MBA Tour” type.

Universities should work with Regional Development Agencies (RDAs) to establish good relations with the best talented foreign students so that they bring their knowledge in case they remain in the region or they become “regional ambassadors” in case they return in their countries. In order to achieve that goal, RDAs should create good hosting conditions and provide working experiences in local enterprises for such foreign talents.

3.2 MOBILISING UNIVERSITIES’ ASSETS

So far, public authorities have favoured the so-called “technology push” approach, which is rooted in the belief that by pumping financial resources into research, innovation—leading to growth—is bound to happen. This being said, Europe seems to be trailing other (group of) countries when it comes to turning research outcomes into products and services that are endorsed by the market. Today this model is increasingly being challenged and replaced by a “demand pull”. This novel approach requires both reinforcing managerial skills relating to innovation in products, services, processes and business models and mobilising seed capital including business angels (informal venture capital). This approach enables problems and client needs to be solved (open innovation, demand-driven innovation). University capacities are essential to put such a strategy in place and should more often be challenged to provide solutions to issues facing local businesses. Universities should also be called upon to popularise new knowledge in the field of smart specialisation.

It goes without saying that universities and research centres need to be involved in the process leading to the development and implementation of any smart specialisation strategy.

On account of their varied contribution to regional development as described above, universities should be encouraged to – or failing such encouragement, take the initiative to – showcase their know-how and expectations in the form of an S³ Blueprint (see section 2.2 above).

Universities should also be able to better leverage the opportunities offered by the ERDF in terms of support for research, innovation and entrepreneurship activities. This type of investment will prove more than useful in delivering a regional S³.

For example, actions including those presented below²¹ were recently funded by the ERDF.

- > Building / upgrading infrastructures and equipments
- > R&I projects for turning knowledge into new products, processes and services (e.g. incubators)
- > Participation to networks and clusters
- > Services provided to HEIs²²: advice IPR (patenting)
- > Services provided by HEIs: training, consultancy
- > Incoming and outgoing mobility fellowship schemes, inside/outside the region
- > Placement of HEIs graduates in businesses
- > HEIs managers: e.g. incubators, clusters, networks
- > Specific team in HEI: R&I projects, training, advice
- > Individual researcher/student: R&I project, placement and mobility schemes
- > Advisory service providing assistance to HEIs
- > SMEs receiving vouchers and subcontracting to HEIs.

²¹ Source: Pierre Godin, DG Regio, European Commission

²² HEI = Higher Education Institutions

Universities and regional stakeholders should work together in order to develop synergies between the various EU schemes²³ (FP7 – 7th Framework Programme, CIP - Competitiveness and Innovation Framework Programme, ERDF – European Regional Development Funds, ESF – European Social Funds, EIF – European Investment Fund, EIB – European Investment Bank,...) as well as national ones.

A partnership should be developed between regional authorities in charge of S³ and universities for the purpose of lobbying ERDF management authorities to fully convince them of the role of universities in regional development. Realising the importance of universities' role in regional development, the European Commission, as already mentioned, has published a report entitled "Supporting growth and jobs: An agenda for the modernisation of Europe's higher education system", in which it is stated that "Europe's future capacity for innovation will depend upon high education institutions fully embracing their role within the knowledge triangle, alongside business and non-university research organisations"²⁴.

If we recognize innovative SMEs by the fact that they are able to manage one or more of the following activities²⁵

- finance R&D (internal or outsourced) activities,
- acquire a license to exploit a technology or a process,
- protect a patent, a trade mark, a model or a design,
- develop for a customer a product, a process or a technology,
- introduce on the market a product/service/process not yet proposed by a competitor,

then universities have a chance to help them in various ways close to their core businesses.

There would obviously be a need to avoid excessive specialisation of universities. Rather, the challenge would be to both provide students with training that meets corporate requirements and ensure that knowledge can indeed be utilised by businesses.

23 See. Final report of the Synergies Expert Group, June 2011

24 Doc. COM(2011) 567 final: Supporting growth and jobs – an agenda for the modernisation of Europe's higher education system

25 See Oséo (FR): ETI annual survey, 2011

3.3 TOWARDS AN ECOSYSTEM FOR THE COMMERCIALIZATION OF NEW IDEAS

The S³ will be a success if and only if it successfully supports the commercialisation of new ideas through innovative products/services either in the market economy or as a response to societal changes. This requires an ad-hoc eco-system in which universities and their connected infrastructures (incubator, science park, technology transfer office, equity capital, networks...) play a critical role.

To help each university and its regional stakeholders benchmark its assets and practices with one of the world most dynamic commercialization regional eco-systems, we have reproduced below a mapping of the MIT Ecosystem (Cambridge, USA).



Source: Allen J. Dines, University of Wisconsin – Madison

This mapping shows how the MIT ecosystem contributes to the four pillars of such system, i.e.

1. the idea fabrics
2. the incubation
3. the development/maturation of the entrepreneurial project
4. the access to the local and global market

RECOMMENDATIONS

Based on the above analysis, we suggest a series of actions to be undertaken by university leaders and regional authorities to ensure their commitments in the drafting and implementation of a S³.

1. Stress testing relations between universities and the regional economic fabric. Such a test should include the following parameters:

a) Governance

- academic representation on the boards of regional bodies including development agencies, innovation agencies, clusters, incubators, tech centres, regional venture capital funds, vocation training agencies, etc.;
- representation of regional development bodies on university boards;
- mainstreaming of a regional development objective in university mission statements.

b) Regional support for university

Nature of funding granted by regional bodies to universities in areas including:

- infrastructure
- equipment
- funds promoting spin-offs or start-ups
- vouchers given to SMEs to buy services from universities
- deployment of strong value-added support services including: proof-of-concept, investment readiness, IPR valorisation, etc.
- provision of customised continuous training in support of cluster policies.

c) University support for regional businesses

Nature of the services provided by universities in areas including:

- business development
- transfer of knowledge and technology
- placement of experts in SMEs
- joint R&D+I projects
- continuous training.

2. Analysing academic needs with a view to strengthening the contribution of universities to regional development.

3. Measuring the impact of university interventions on smart specialisation strategy delivery through indicators addressing the number of:

- start-ups
- licenses granted to regional companies
- technological dissemination or service innovation seminars provided by university personnel
- university students and teachers placed in companies on expert assignments
- vocational training lessons given.

4. Enhancing a culture of commercialization of new ideas by supporting an ad-hoc ecosystem.

5. Drafting and monitoring a regional action plan based on the European communication entitled "supporting growth and jobs: An agenda for the modernization of Europe's higher education system".

ANNEX I

SELF ASSESSMENT TOOL: FEATURES OF WELL PERFORMING NATIONAL AND REGIONAL RESEARCH AND INNOVATION SYSTEMS

1. Promoting research and innovation is considered as a key policy instrument to enhance competitiveness and job creation, address major societal challenges and improve quality of life and is communicated as such to the public
 - > Public action in all relevant policy areas including education and skills, the functioning of product and service markets, financial markets, labour markets, entrepreneurship and the business environment, industrial policy, cohesion/spatial planning, infrastructure/ICT as well as taxation and at all levels, is designed and implemented in a strategic, coherent and integrated framework geared towards fostering innovation and strengthening the knowledge base and fundamental research.
 - > Where policies and funding are focused on specific priorities, these are increasingly oriented towards addressing major societal challenges, such as resource efficiency, climate change, and health and ageing, and towards deriving competitive advantage from finding new solutions to tackle them.

2. Design and implementation of research and innovation policies is steered at the highest political level and based on a multi-annual strategy. Policies and instruments are targeted at exploiting current or emerging national/regional strengths within an EU context ("smart specialisation")
 - > An effective and stable centre-of-government structure, typically steered by the top political level, defines broad policy orientations on a multi-annual basis and ensures sustained and properly coordinated implementation. This structure is backed up by networks involving all relevant stakeholders, such as industry, regional and local authorities, parliaments and citizens, thereby stimulating an innovation culture and building mutual trust between science and society.
 - > A multi-annual strategy defines a limited number of priorities, preceded by an international analysis of strengths and weaknesses at national and regional level and of emerging opportunities ('smart specialisation') and market developments, and provides a predictable policy and budgetary framework. The strategy duly reflects EU priorities, avoiding unnecessary duplication and fragmentation of efforts, and actively seeks to exploit opportunities for joint programming, cross-border co-operation and exploiting the leverage effects of EU instruments. Bilateral co-operation with non-EU countries is based on a clear strategy and, where possible, is co-ordinated with the other EU Member States.
 - > An effective monitoring and review system is in place, which makes full use of output indicators, international benchmarking and ex-post evaluation tools.

3. Innovation policy is pursued in a broad sense going beyond technological research and its applications
 - > A broad concept of innovation - including innovation in services, improvements of processes and organisational change, business models, marketing, branding and design - is actively promoted, inter alia through more interdisciplinary work involving groups of users or consumers as important constituencies of open innovation.
 - > Supply and demand-side policies are developed in a consistent manner, building on and increasing the absorptive capacity of the Single Market.

4. There is adequate and predictable public investment in research and innovation focused in particular on stimulating private investment
 - > It is recognised that public funding assumes an important role in providing a high quality knowledge infrastructure and as an incentive for maintaining excellence in education and research including access to world-class research infrastructures, building regional S&T capacity and supporting innovation activity especially during periods of economic recessions. As a consequence, public investments in education, research and innovation are prioritised and budgeted in the framework of multi-annual plans to ensure predictability and long term impact, and drawing on the Structural Funds where appropriate.
 - > Public funding aims at leveraging greater private sector investments. Innovative financing solutions (e.g. public-private partnerships) and the use of tax incentives are explored and adopted. Reforms are implemented to reflect changing conditions and ensure optimal returns on investments.

5. Excellence is a key criterion for research and education policy
 - > Research funding is increasingly allocated on a competitive basis and the balance between institutional and project-based funding of research has a clear rationale. Institutes are evaluated on the basis of internationally recognised criteria and projects are selected on the basis of the quality of proposals and expected results, subject to external peer review. Funding to researchers is portable across borders and institutes. Results of publicly funded research are protected and published in a way that encourages their exploitation.
 - > Higher education and research institutes enjoy the necessary autonomy to organise their activities in the areas of education, research, and innovation, apply open recruitment methods and to draw on alternative sources of funding such as philanthropy.
 - > The legal, financial and social frameworks for research careers, including doctoral studies, offer sufficiently attractive conditions to both men and women in comparison to international standards, especially those in the US. This includes favourable conditions for reconciling private and professional life and for professional development and training. There are incentives in place to attract leading international talent.

6. Education and training systems provide the right mix of skills
 - > Policies and incentives are in place to ensure a sufficient supply of (post)graduates in science, technology, engineering and mathematics and an appropriate mix of skills among the population (including through strong vocational and education and training systems) in the medium-to-longer term.
 - > Education and training curricula focus on equipping people with the capacity to learn and to develop transversal competences such as critical thinking, problem solving, creativity, teamwork, and intercultural and communication skills. Special attention is paid to address innovation skills gaps. Entrepreneurship education and training is widely available or included in curricula. Partnerships between formal education and other sectors are actively promoted to that end.

7. Partnerships between higher education institutes, research centres and businesses, at regional, national and international level, are actively promoted
 - > Where possible, research efforts are accompanied by instruments to support the commercialisation of innovative ideas. Policies and instruments such as innovation/knowledge clusters, knowledge transfer platforms, and voucher systems, are in place to encourage co-operation and knowledge sharing and at creating a more favourable business environment for SMEs.
 - > Researchers and innovators are able to move easily between public and private institutes. There are clear rules on the ownership of intellectual property rights and sharing and support systems are in place to facilitate knowledge transfer and the creation of university spin-offs and to attract (venture) capital and business angels.
 - > There are no obstacles to setting up and operating transnational partnerships and collaborations.

8. Framework conditions promote business investment in R&D, entrepreneurship and innovation
 - > Policies to promote innovation, entrepreneurship and enhance the quality of the business environment are closely interconnected.
 - > Favourable conditions are in place to foster a growing and robust venture capital market, especially for early stage investments.
 - > Consistent with the Small Business Act for Europe, the rules for starting up and running a business are simple and designed from an SME perspective. The legal framework is transparent and up-to-date. Rules are properly enforced. Markets are dynamic and competitive. Willingness to take risks is promoted. Insolvency regulations support the financial reorganisation of enterprises. There is no discrimination against entrepreneurs who may have failed the first time around.
 - > An efficient, affordable and effective system for the protection of intellectual property is in place, which fosters innovation and preserves investment incentives. The market for innovative products and services is kept constantly up to date by means of an efficient standard-setting system.

9. Public support to research and innovation in businesses is simple, easy to access, and high quality
 - > There is a limited number of well targeted, clearly differentiated, and easy to access support schemes consistent with support available at EU level and that address well identified market failures in the provision of private funding for innovation.
 - > Funding support is tailored to the needs of companies, particularly SMEs. The emphasis is placed on outputs rather than on inputs and controls. Bureaucracy is kept to a minimum, selection criteria are straightforward and time to contract and to payment are as short as possible. Funding schemes are regularly evaluated and benchmarked against comparable schemes in other countries.
 - > National funding is allocated through international evaluation procedures and encourages trans-national cooperation. Rules, procedures and time-tables are aligned in order to facilitate participation in EU programmes and co-operation with other Member States.
 - > Specific support is often available to young innovative companies to help them commercialise ideas rapidly and promote internationalisation.

10. The public sector itself is a driver of innovation
 - > The public sector provides incentives to stimulate innovation within its organisations and in the delivery of public services.
 - > Active use is made of public procurement of innovative solutions in order to improve public services, including through dedicated budgets. Tenders are based on output-based performance specifications and contracts are awarded on the basis of qualitative criteria which favour innovative solutions such as life-cycle analysis, rather than lowest price only. Opportunities for joint procurement are exploited.
 - > Where possible, government-owned data is made freely available as a resource for innovation.

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ACRONYMS

CIP	Competitiveness and Innovation Framework Programme
EIB	European Investment Bank
EIF	European Investment Fund
ERDF	European Regional Development Fund
ESF	European Social Fund
ETI	Entreprise de taille intermédiaire Medium-size enterprise
FDI	Foreign Direct Investment
FP7	7th Research and Development Framework Programme
GOPP	Goal Oriented Project Planning Planification de projet orientée vers les objectifs
HEI	Higher Education Institution
ICT	Information and Communication Technologies
IPR	Intellectual Property Right
MBA	Master of Business Administration
MIT	Massachusetts Institute of Technology
RDA	Regional Development Agency
R&D+i	Research & Development + Innovation
S ³	Smart Specialisation Strategy
SME	Small and Medium-sized Enterprise
SWOT	Strengths Weaknesses Opportunities Threats



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Lifelong Learning Programme