

Summary

Smart specialisation is a concept introduced within the framework of the EU strategy to create smart, sustainable and inclusive growth in line with EU 2020. Region Skåne is part of S34 Growth project that aims at developing and enhance already existing regional policy instruments to support European industrial competitiveness. This report analyses the specificities of the participating regions in order to distinguish profiles and possibilities for enhanced knowledge exchange and fields for cooperation between the regions.

All regions list smart strategies and other EU related strategies as important documents along with regional policy documents. The Main policy documents for all regions include RIS3-strategies and the ERDF Operational Programme. Other policy documents in the area of innovation concern cluster policies and industry development and regional development policies which include for example local strategies relating to industry efficiency, entrepreneurship, technology, research and innovation.

The regions have in general mandate from national level to conduct regional policy development. Clusters, triple/quadruple helix models, Regional Research and Innovation Councils, Steering committees and alike, are common models for knowledge exchange and stimulating innovation. These models generally involve representatives such as researchers from universities, regional political actors, municipalities, regional authorities and businesses and industry. Discussion fora and communication platforms, such as Soundingboard 2.0 in Skåne and Open Innovation Platform in Lombardy are examples of innovative tools aimed at facilitate policy influence from different actors.

Smart Specialisation strategies, Operational Programmes as well as national and regional policy/governance documents are steering mechanisms in the regions.

The regions deploy similar approaches of involving companies, including:

- Form sub-groups of companies in line with the specialisation focus at hand → avoid broader constellations of firms and make industry participation relevant
- Cluster organisation serves as the main intermediate for involving companies → working closely with intermediaries such as cluster organisations is a key success factor
- Early engagement through a bottom-up approach → create an common objective early on in order to move from connecting to demonstrating, follow-up on meetings to indicate that the initiative is moving forward and engage industry leaders to provide legitimacy
- The overall added value for companies lies in minimising risks and opening up new possibilities → solve issues individual companies cannot tackle alone.

There is demand for policies to facilitate collaboration over borders, to find the right partners and to access global value chains in other parts of Europe. Also policies for cross-overs between science and business, as well as over sectors and cluster are needed. Furthermore, there is a demand for financial instruments that covers all the different phases of the innovation trajectory. The technology to market process needs facilitation and may not be restricted by regulations. Critical skills are often missing in advanced-technological sectors, and technological skills that develop fast are hard for education systems to satisfy. The policies and instruments that the regions are missing are in line with the demand for policies; such a policies for cross border, cross cluster, cross sector collaboration, financial instruments and support in the process from idea to

market. The themes for OSDD are also well chosen as good practices facing the regions' challenges and needs within advanced manufacturing and innovation areas such as linking innovation systems, interregional cooperation, financing instruments, demonstration infrastructure, promotion of key technologies and cross-overs between sectors and clusters.

The impact of the Vanguard Initiative for the regions is a better understanding of the region's internal strengths within the specific areas of the pilot and their place in a broader value-chain including resources in other European regions. The initiative also provides a benchmark of sectors and technologies in the RIS3-strategies in a European rather than only in a regional or national perspective. It facilitates internationalisation by underlining the advantages of interregional cooperation also for other areas in the regions RIS3-strategies. Furthermore, the Vanguard Initiative strengthens cooperation and gives new networks among project partners, which is a prerequisite for future interregional projects.

The overall view on the experiences of co-leading a VI pilot project is highly positive. Good practices include:

- safeguard industry engagement through steering groups representing different parts of the value chain
- allowing for specialization topics to emerge through preliminary stakeholders meetings
- create a common pilot project vision among participants with clear criteria for the following demo cases
- the co-leading regions must have enough capacity and knowhow of the topic to bring the process forward

Development areas include:

- the objective of the pilot projects must be articulated further with clear goals (joint/private and public) in order to keep companies engaged after the first enthusiastic phase
- focus on higher TRL-activities for shorter return of investments for companies from engaging in the pilot
- the time and resources needed to build the right kind of inter-regional collaboration necessary to take the pilot forward
- the process is not being driven by companies to a sufficient level, industry involvement is key

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1 Introduction

Smart specialisation is a concept introduced within the framework of the EU strategy to create smart, sustainable and inclusive growth– EU 2020. A milestone for smart specialisation was the Barca report in 2009¹ where the Cohesion policy was set. The idea is that policies should be customised at regions level in order to better address the regional potentials and needs. This policy orientation is called spatial awareness, in opposite to policies that rather targets larger geographical areas, called “spatial blindness”.

A Smart Specialisation strategy (RIS3) is a national or regional research and innovation strategy for integrated, place-based economic transformation agendas that do five important things:

- They focus policy support and investments on key national/regional priorities, challenges and needs for knowledge-based development
- They build on each country/region’s strengths, competitive advantages and potential for excellence
- They support technological as well as practice-based innovation and aim to stimulate private sector investment
- They get stakeholders fully involved and encourage innovation and experimentation
- They are evidence-based and include sound monitoring and evaluation systems

The aim of smart specialisation strategies is to make innovation a priority for all regions, to focus investments and create synergies, to improve innovation processes and to improve governance and to get stakeholders more closely involved. Sectors with high potential to growth and development are to be identified and prioritised also in order to clarify where structural funds and other EU programmes should be targeted at.²

Region Skåne is part of S34 Growth project that aims at developing and enhance already existing regional policy instruments in order to increase interregional cooperation. The purpose is to support European industrial competitiveness. The activities within S34 Growth is based on the Vanguard Initiative “New Growth Through Smart Specialisation”, using the method “learn, connect, demonstrate, commercialise”. Ten regions participate: The council of Tampere region, Basque government, Catalan Agency for Business Competitiveness, Flemish Government, AFIL – Intelligent Factory Lombardy Cluster, National Innovation Agency Portugal, Scottish Enterprise, Regions Skåne, Brainport Eindhoven, and Province of Zuid-Holland.

This report analyses the specificities of these ten regions in order to distinguish profiles and possibilities for enhanced knowledge exchange and fields for cooperation between the regions. Based on the input given by the regions through a questionnaire conducted by Region Skåne, this report aims at presenting a gathered view on a number of aspects:

- Policy instruments and steering mechanisms,

¹ Barca 2009: AN AGENDA FOR A REFORMED COHESION POLICY A place-based approach to meeting European Union challenges and expectations

² FORSKNINGS- OCH INNOVATIONSSTRATEGIER FÖR SMART SPECIALISERING (EC):

http://ec.europa.eu/regional_policy/sources/docgener/informat/2014/smart_specialisation_sv.pdf

- good practices, the need for policy instrument,
- OSDD themes and
- The learning process within the Vanguard Initiative.

Chapter 2 to 6 summarises the response to the questionnaire question by question and region per region. Each chapter covers a section of the questionnaire. The description is based on the answers from the participating regions solely, and not on any added material. Chapter 7 provides an analysis of the responses.

2 Section 3 - Regional conditions - State of play

2.1 What are the main policy documents in your region in the areas of innovation, industry development and regional development?

Basque Government

- PCTI 2020: Science, technology and Innovation Plan. This is the Smart Specialisation Strategy for the Basque Country (Basque RIS3)
- Document with 50 flagship projects of the Basque RIS3
- ERDF Operational Programme of the Basque Country

Catalan Agency for Business Competitiveness - Government of Catalonia

- Catalonia 2020 Strategy (ECAT 2020)
- Research and Innovation Strategy for the Smart Specialisation of Catalonia
- Programme for the Industrial Systems-PISI
- Plan for Industry Efficient Energy in Catalonia

Flemish Government - Department Economy, Science and Innovation

- The Smart Specialisation Strategy of Flanders
- Science, Technology and Innovation (STI) in Flanders: this yearly document sets out the general policy within the domain of Economy, science and innovation, as well as the different instruments available.
- Concept note on cluster policy: this concept note introduces the new Flemish cluster policy.
- Vision 2050: this is a transversal project of the Flemish Government, to realise innovative solutions to societal challenges.

Several thematic policy documents support the overall policy making in the domain of economy, science and innovation. The documents describe the situation in a specific domain, the social and economic impact and how the current situation is being connected to future scenarios. Different actors (knowledge institutions, universities etc.) are involved in the development of these documents. Recommendations are given to the Flemish government.

AFIL - Intelligent Factory Lombardy Cluster

- Smart Specialisation Strategy for research and innovation in Lombardy: II update, April 2015.
- Work programmes "Research and innovation" in the specialization areas defined in Lombardy Smart Specialization strategy
- Implementation status of regional policies closing the IX legislature: Presentation of the strategic document for research and innovation

National Innovation Agency, Portugal

- Norte Regional Smart Specialisation Strategy (2014)
- Norte 2020 – Regional Operational Programme (2014)
- Norte 2020 – Prospective Diagnosis (2013)

- Regional Innovation Agenda – Action Plan for Innovation in Norte (2008)
- Norte 2015 – Competitiveness and Development (2006)

All of these documents are closely linked to the implementation of the EU Cohesion Policy in the region. The design of science, technology and innovation policies in Portugal is mainly the responsibility of the central government, being only partly delivered at the regional level.

Scottish Enterprise

The Scotland's Economic Strategy is the route map for all of the public sector in Scotland to meet the challenge of increasing economic growth through increasing productivity, participation and population, while ensuring growth is socially and regionally equitable and environmentally sustainable. Scotland's approach to Innovation is set out in the Scottish Government's Scotland CAN DO framework for innovation and entrepreneurship. The Scottish Government's innovation response is led by two Non-Departmental Public Bodies which act as executive agencies addressing economic development: Scottish Enterprise (SE) and Highlands and Islands Enterprise (HIE). Each organisation publishes Business Plans which set out their contribution to achieving the Scottish Government's aim to increase competitiveness and tackle inequality in Scotland, by supporting Scottish companies to compete, helping to build globally competitive sectors, attracting new investment and creating a world-class business environment.

Region Skåne

- The International Innovation Strategy for Skåne 2012-2020
- The Open Skåne 2030 — Skåne's Regional Development Strategy
- The Operational Programme – Skåne-Blekinge Regional Structural Funds Programme

Brainport Development, Eindhoven

- OP Zuid (OP South Netherlands) – Research and Innovation Strategy for Smart Specialisation for the South of the Netherlands (RIS3), the region comprising of the provinces of Noord-Brabant, Zeeland and Limburg.
- Province of Noord Brabant Strategy – Regional governmental strategy and economic vision
- Brainport 2020 – the outline of the Brainport strategy with focus on the need to invest in the 'enablers for growth', domains in the form of People, Technology, Business, Basics and Internationalisation.

Province of Zuid-Holland

- OP Western Netherlands: 'Kansen voor West II' - Focus on boosting the region's potential for R&I while at the same time contributing to the development of a resource efficient, low-carbon economy
- Policy document on Regional Economy and Energy Zuid-Holland' - Focus on innovation and sustainability
- EPZ Agenda – Koers 2020 Triple Helix partners, united in the regional economic board (EPZ) focus on actions and investments on five priorities.

The Council of Tampere Region

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The regional strategy, updated every fourth year, outlines the main challenges and opportunities for the region selects the main fields of investment and development. The strategy is complemented by a bi-annual operational plan. At national level, the Operational Programmes are the main policy documents.

2.2 Briefly describe how you work with steering mechanisms in your region in terms of policies, policy instruments, structures and legal framework?

Basque Government

A new governance and steering system has been set up in order to coordinate and evaluate our RIS3 Strategy, involving all the relevant stakeholders. The Basque Government is at the core of this coordination mechanism. Emphasis is on promoting policies for science, technology and innovation, from the perspective of public-private partnership.

Catalan Agency for Business Competitiveness - Government of Catalonia

Catalonia has three main steering mechanisms;

- The RIS3CAT communities that contribute to improve the competitiveness of the productive sectors. Communities are groups of enterprises and agents of the R&D&I system, committed in fostering R&D&I plans of economic transformation of the productive activities. The communities obtains accreditation from the Government of Catalonia which allows requesting grants for the R&D&I actions plan from the ERDF Operational Programme for Catalonia 2014-2020.
- The Steering Groups Sectoral Programmes. Several working groups with experts and companies were created to discuss and identify the main challenges as regards the sectors covered of the programmes.
- The Steering Groups Vanguard Initiative (VI), which prepared the capacities mapping document from Catalonia regarding research, technology and innovation and work on several VI demo cases where Catalonia is involved.

Flemish Government - Department Economy, Science and Innovation

The two main actors in the Flemish region as regards policies, policy instruments, structures and legal framework are the department of Economy, Science and Innovation and Flanders Innovation and Entrepreneurship. Together with the Flemish Council for Science and Innovation (VRWI) and the Flanders Social and Economic Council (SERV) relevant actors in within each area of specialisation are brought together to enable synergies and knowledge transfer.

AFIL - Intelligent Factory Lombardy Cluster

Lombardy Region promoted the creation of Regional Clusters that act as Regional governance supporting organisations to define and implement S3 strategy. Besides clusters, Lombardy Region created Open Innovation Communities, which are networks for knowledge sharing in order to stimulate the aggregation of economic and scientific entities and to share best practices, experience, and knowledge (creation of living labs, crowdsourcing environments, etc.). To support the activity of such networks an Open Innovation Platform was created. From an organizational point of view, Regional Steering Committees were created by the Region, which

include regional representatives and Clusters with the goal to facilitate synergies and information exchange in the innovation and policy management processes and of shared projects.

National Innovation Agency, Portugal

There are three main steering mechanisms active in the North Region of Portugal, with a cross-sectorial activity; Norte 2020 Steering Committee, Norte Regional Council and Norte Intersectoral Coordination Council. In addition, the Norte Regional Innovation Council under the RIS3 governance model will soon be implemented. All these groups bring together companies, technology producers, universities, organisations from the scientific and technological systems, business associations, clusters, national agencies with responsibility in R&D policy and inter-municipal entities.

Scottish Enterprise

The overall framework for Innovation policy in Scotland is set by the Scottish Government, including through its enterprise agencies (SE and HIE). Elements of the policy are also delivered through a range of specialist agencies. Scottish Government encourages significant collaboration between these organisations on its priorities – including in terms of supporting innovation policy. Scottish Enterprise also operates a number of specialist national functions, on a Scotland-wide basis. Scotland also has a range of local players in our innovation system.

Region Skåne

Region Skåne has a mandate from the National Government to lead regional policy development. The primary funding source is the Regional Development Fund for Skåne-Blekinge. The implementation of the strategies is mainly done through mobilising interest among the stakeholders in the innovation system (private and publicly financed) to contribute to the vision and focus areas as outlined in the strategic documents. The Innovation Strategy is the joint policy document for the Research and Innovation Council in Skåne (FIRS), which is the fora for the leaders of the universities, regional political actors, municipalities, regional authorities, as well as businesses and industry. The Regional Development Strategy is a mission delegated to Region Skåne from the National Swedish Government, but the content was developed in collaboration and contribution from the municipalities, universities, and other regional actors involved in the innovation system. In 2016, the partners behind FIRS started a process to accelerate the implementation of the innovation strategy (S3 strategy) to be able to deliver on the vision: Europe's most innovative region by 2020. The stakeholders in FIRS are working with strategic plans on how to accelerate the development within each of the three S3 areas in the coming four years 2016-2020. These documents will be the guiding principles for the upcoming period in implementation of smart specialisation strategies.

Brainport Development, Eindhoven

Within the board of directors of Brainport there are the heads of municipal government organisations, heads of knowledge institutions, and business partners. Brainport Development is involved within different organisation realizing policies. Such as the OP South Netherlands RIS3 strategy which defines the Brainport 2020 strategy as one of its pillars.

Province of Zuid-Holland

There are four main steering mechanisms in the region:

- OP Western Netherlands (Kansen voor West II) that focuses on boosting the region's potential for R&I while at the same time contributing to the development of a resource efficient, low-carbon economy through, among other things, promotion of business investment in R&I and development of links and synergies between enterprises, research and development centres, knowledge institutions.
- Triple Helix Networks united in the regional economic board focus on actions and investments on five priorities; i) to improve internal and international connectivity, ii) a transformation towards the 'next economy' with a focus on innovation through science parks and living labs, iii) a labour market policy that fits the main economic clusters, iv) stimulate the use of renewable energy and v) improve attractiveness for talent and investors.
- There are several financial instruments for boosting innovation in our region, e.g. Subsidy Regional Networks Top Sectors Zuid-Holland. Zuid-Holland, together with the national government, also offers the subsidy SME Innovation Subsidy Top Sectors Zuid-Holland.
- Regional Economic Development Agency: Innovation Quarter (IQ) is the regional economic development agency. In close cooperation with major businesses, educational and research institutions and government organisations, IQ supports technological developments, Instruments, e.g. a fund partly financed by ERDF, are dedicated to business developers.

Dutch SMEs, in particular, lag behind the rest of the European Union (EU) in terms of innovation. The greatest challenge in terms of policy is therefore to increase the number of innovative SME's. Recently more attention is given to scale-ups, since growth in employment comes from a selection of innovative SME's that grow beyond the stage of start-ups.

The Council of Tampere Region

As the EU structural funds are the main source of regional funding, EU level regulation is important legal framework. National legislation on regional development gives the responsibility of regional development to the state and municipalities. The regional councils act as coordinating body in the regions.

2.3 Describe briefly how main relations influence policy in your region

Basque Government

In terms of policy deployment, the triplex helix is well developed in the Basque Country, particularly in terms of interaction between the public authorities and the companies through a well-established network of clusters. A governance system is established for science, technology and innovation with a multilevel approach that incorporates the main public and private players. An Operational Working Group under the Basque Council for Science, Technology and Innovation is expanding to become more plural and enriching. Also steering groups have been created with participants from the administration, companies, clusters and scientific and technological players with main function to coordinate and encourage development of the RIS3 strategy.

Catalan Agency for Business Competitiveness - Government of Catalonia

There are several types of stakeholders: RTOs, Associations, Clusters and Institutions that are working in the 7 Leading Sectors and, in this case, in Advanced manufacturing (also including other KETs like Nanotechnology, Advanced Materials and Photonics). Several events have been organized during the last two years in order to spread awareness and transfer knowledge.

Flemish Government - Department Economy, Science and Innovation

The policy development process starts within the department of Economy, Science and Innovation and/or Flanders Innovation and Entrepreneurship. Advice and earlier work of different bodies will be taken into consideration to improve the policy development.

Flemish Council for Science and Innovation (VRWI) provides strategic advice to the Flemish Minister for Work, Economy, and Innovation. Furthermore, the VRWI is a unique meeting and discussion forum for both experts and representatives from the knowledge institutions, enterprises and civil society. In this way, The Council supports strategic policy making in Flanders. The Flanders Social and Economic Council (SERV) brings together Flemish employers and employees to discuss and consult about issues falling within the scope of Flemish authority. The SERV also develops official advice on policy proposals.

In 2015, the Flemish Government started a process to develop a long term strategy (Vision 2050) that targets new challenges and transitions that the region will face in the future. Following a stakeholder consultation, seven transition priorities are set in which the different policy domains will work together with the relevant actors in the field.

AFIL - Intelligent Factory Lombardy Cluster

The stakeholders that collaborate in policy development are clusters, regional authority, regional development agencies, chamber of commerce, industrial associations and research centres and universities. Clusters are crucial as mediators between the policy makers and industrial needs as they define a strategic research and innovation roadmap stating the R&I priorities. Also the Open Innovation Platform is an important tool for dialogue and governance of innovation in the region.

National Innovation Agency, Portugal

The design of science, technology and innovation policies is mainly the responsibility of the central government but is partly delivered at the regional level by the Regional Coordination and Development Commissions (CCDRs), which have financial and administrative autonomy and are entitled to implement their own regional operational programmes in line with key national policies. The CCDRs manage the regional Operational Programmes, which include actions aimed at promoting local innovation. Three main mechanisms facilitate collaboration with relevant stakeholders: i) the Norte Regional Council, ii) Thematic workshops focusing on the RIS3 priorities involving relevant stakeholders from the government, universities and industry and iii) general public consultations, widening the participation on policy development to the civil society.

Scottish Enterprise

The Government's Innovation policy is supported by the CAN DO Innovation Forum, involving entrepreneurs, leaders of business and industry, to advise Government Ministers and officials on actions that can be taken to ensure how Scotland can develop stronger ambition and

connections, and develop the right culture, to make us a leading innovation nation. The forum is supported by the Innovation Strategic Partnership Group, which brings together the key players from the public sector engaged in innovation policy, including Scottish Government, SE and HIE, and Scotland Europa. There are several networks and groups at regional and local level that all seek to improve system-level collaboration, including developing a singular approach to policy development and implementation.

Region Skåne

There are several areas in which policies are influenced through relations, e.g. the Research and Innovation Council in Skåne (FIRS). Skåne's innovation areas (S3), consist of Smart Materials, Smart Sustainable Cities, and Personalized Health. Each of the three areas of innovation in the innovation strategy have their own strategic group. There is also Soundingboard 2.0, which is a discussion forum and meeting place where joint regional efforts are put together to address the challenges the region faces. Prior to initiating implementation, all relevant players in the Skåne's innovation and entrepreneurship system are invited to discuss how increased participation and a more visible cooperation could lead to creation of more growth and more jobs in Skåne. Furthermore, Competence Collaboration Skane has a mission to create a consensus among stakeholders as regards regional skills and to provide advice to participating organisations. It consist of public sector representatives from different areas.

Brainport Development, Eindhoven

Currently projected stakeholders will represent five different domains, namely; public authorities, Triple Helix organisations, development agencies, knowledge institutes and cluster organisations and economic intermediaries. With regard to the crucial connections and partnerships for development, the regional OP Zuid strategy as well as the Brainport Development strategy is focused on, at a minimum, a triple helix approach, seeking inclusion from government authorities, educational institutes, and the business sector. This in order to assure that throughout a process all of the needs of the different involved parties is met. Within Brainport Development there is a collective board of directors made up of different actors within the Triple Helix. Within OP Zuid the steering committee is made up of representatives from triple helix organisations, national, provincial, and local governments. The triple helix is crucial for the total innovation process. However in terms of the policy instruments it is important to stay close to those parties who are going to be affected and influenced by the policy changes. Change in policy should also arise from listening to the necessities of the involved parties.

Province of Zuid-Holland

Stakeholders represent a.o. public authorities, Triple Helix organisations, development agency Innovation Quarter, knowledge institutes and cluster organisations. The triple helix organisations, in which the province frequently participate, have lobby power, also relating to the policy instrument. The development agencies have innovation and economic stimulation funds at their disposal. The knowledge institutes and cluster organisations/economic intermediaries all are active in activities creating cross-border industrial value chains and contribute through experience to the improvement of policies and policy instruments.

The Council of Tampere Region

Collaboration with stakeholders is strong. The role of the regional council as a neutral coordinator gives room for multifaceted networking and collaboration. There are several forums

where the collaboration takes place, both formal (e.g. structural funds management committee) and informal.

2.4 How do the national steering mechanisms influence policy development at regional level?

Basque Government

The Partnership Agreement between Spain and the European Commission is the reference framework for all the Operational Programmes running in the Member State, including the regional Operational Programmes. With respect to the Smart Specialisation Strategy, the Basque Country has developed its own strategy built on the regional traditional sectors and looking for future opportunities. The Spanish Strategy of Science, Technology and Innovation is the framework instrument that establishes the general objectives linked to fostering and developing RTDI activities in Spain during 2013-2020. It includes mechanisms to coordinate regional and national actions in this area.

Catalan Agency for Business Competitiveness - Government of Catalonia

The Spanish Strategy of Science, Technology and Innovation is the framework instrument that establishes the general objectives linked to fostering and developing RTDI activities in Spain during 2013-2020. These objectives are aligned with the ones highlighted by the European Union under Horizon 2020 and it contributes to promote the participation of the Spanish System of Science, Technology and Innovation stakeholders into the European Research Area. In addition, the "Red de Políticas Públicas de I+D+I" (RED IDI) is a main instrument to generate synergies between the public R&D and Innovation actions at the national and regional level.

Flemish Government - Department Economy, Science and Innovation

Innovation and industrial development is a solely regional competence. The way the steering mechanisms on national level influence the regional policy is through, among other things, the field of taxes, energy costs, labour costs and certain regulations (e.g. safety regulations related specific industries).

AFIL - Intelligent Factory Lombardy Cluster

The National Technology Cluster on Intelligent Factory (CFI) is the organisation promoted by the Italian Ministry of Research and University to represent manufacturing priorities to the National Government in order to define policies in alignment with real industrial needs. CFI is a governance instrument contributing to define a National Smart Specialisation. In order to represent the specialisations of Regions, main Regional Clusters (such as AFIL for Lombardy) participate as members of the National Cluster. In this way, clusters and their priorities are represented at national level.

National Innovation Agency, Portugal

Policy development and implementation at the regional level is highly dependent on orientation and decision making carried out at a national level. These orientations and decisions are not necessarily translated into policy documents made publicly available. On the other hand, both

national and regional decisions and policies are highly influenced by processes related to EU's Cohesion Policy.

Scottish Enterprise

The Scottish framework is provided by Scotland's Economic Strategy. It is a regional policy but there are links with wider UK policy mechanisms – particularly for parts of the UK policy infrastructure and support system whose remit extends to Scotland, or are particularly important to Scotland. There is also a cooperation within the national (UK) rules and guidelines for European Structural Funds (although again with a distinctive approach, reflecting Scottish Government priorities).

Region Skåne

Region Skåne has, under Swedish legislation on regional development responsibility, a permanent mandate from the Swedish government to coordinate regional development issues and to lead the work to draw up the regional development strategy. National initiatives are important as a roadmap. Close collaboration with all regional and national actors is crucial as regards, e.g. supportive actions and knowledge transfer.

Brainport Development, Eindhoven

Within the Netherlands, the main working capacities as regards RIS3 operations and strategies are outlined at regional level. This is considered the most beneficial in terms of smart specialisation and the creation of smart clusters.

Province of Zuid-Holland

The national government supports top sectors of the economy (sectors that are strong in innovation and export) mainly through fiscal instruments and with limited input in targeted support for SME partnerships through subsidies. The effort of the provinces is on regional economic policy, a task that has been decentralised in 2010.

The Council of Tampere Region

The government has accepted principles for good regional development for the whole country and the regions apply these in their own work. The operational program for EU structural funds is one of the main documents guiding actual development work in the region.

2.5 Describe briefly how the policy instrument being addressed in this project is set up. How does your region work to increase its effects or overcome limitations?

Basque Government

The Basque Government aims to increase the degree of innovators in the region and the link to global networks in order to overcome fragmentation and lack of critical mass as well as to facilitate access to research capacity and production of expertise. Article 70 will be used to implement the "outward looking" dimension of our smart specialisation strategy. Plans and strategies for the modernisation, competitiveness, specialisation, diversification and sophistication of the Basque economy had been developed, based on existing capacities and trying to take advantage of areas of greatest potential opportunity. Nowadays, Basque regional

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and provincial governments are subject to budget constraints that limit their capacity to support business competitiveness.

Catalan Agency for Business Competitiveness - Government of Catalonia

Programme for the Industrial Systems identifies three challenges regarding information, collaboration and training along with a list of actions to be taken. Also, two main RIS3CAT RDI instruments are foreseen at the axis 1 of the ERDF OP in Catalonia 2014-2020, granting 50 projects within the manufacturing sector.

Flemish Government - Department Economy, Science and Innovation

The policy instrument used is the Transformation, Innovation and Acceleration Fund (TINA). TINA invests in products and services that are scaling up to the industrial market or that are at a commercialisation stage. The fund also supports partnership with other parties in sectors that are strategically important for Flanders. Flemish Investment Company (PMV) manages TINA and other instruments that are now being better aligned in order to reinforce each other in specific business projects.

AFIL - Intelligent Factory Lombardy Cluster

Regione Lombardia is using the vouchers' system since 2003 and the instrument is said to be working well from the technical point of view. At the end of 2013, Regione Lombardia has defined its own Smart Specialisations Strategy and adopted a Cluster-based governance system. As a result, Regione Lombardia is now shaping a new vouchers' system aligned to more precise goals consistent with RIS3 and with the R&I Work Programs of the specialisation areas, approved in October 2014.

National Innovation Agency, Portugal

The policy instrument being addressed by the National Innovation Agency in this project is "Demonstration projects of advanced technologies and pilot-lines". This instrument aims at supporting the demonstration, in real productive conditions, of results from previously concluded R&D projects, including the setting up of pilot lines, and addresses the growing need to integrate, test and demonstrate results from R&D projects developed at a national, regional or international level, and to disseminate them to a wider audience, both geographically and sectorial, thus boosting the changes for cross fertilisation and further valorisation. This is a new instrument that builds on experience gathered in previous Operational Programmes that showed the still significant challenges of integrating results and technologies from R&D projects to build demonstrators and pilot lines.

Scottish Enterprise

The Scottish Managing Authority intends to undertake a Mid-term Review of the ERDF programme which will be an opportunity to take stock of how the programme has been delivering. The Mid-term Review expected to start later this year and take a year to complete. The two areas this project seeks to address are interregional learning from the project influencing the future design of ERDF Business Competitiveness and Innovation "Strategic Interventions". This includes developing industry-led collaboration and supporting mechanisms for businesses to internationalise and commercialise and exploration of the ways in which Article

70 can be applied across “more developed regions” which comprise this partnership as none of the submitted Strategic Interventions and Operations have declared an intention to utilise it.

Region Skåne

The overall objective of the Skåne-Blekinge programme is to contribute to regional growth and employment. The chosen priority axes are; smart growth - innovation, smart growth – SME, sustainable growth – low-carbon economy, inclusive growth – broadband, sustainable urban development. Skåne’s innovation areas consist of Smart Materials, Smart Sustainable Cities, and Personalized Health. The region provides support to applying partnerships to make the projects as optimal as possible and aligned with regional strategies. The work is done in collaboration with industry, academia and the public sector in Skåne. Also, the Region provides platforms for stakeholders to be able to generate new ideas that are in line with regional strategies, such as the Soundingboard 2.0.

Brainport Development, Eindhoven

OP South Netherlands is the Operational Program for the South of the Netherlands, encompassing the provinces of Noord-Brabant, Limburg, and Zeeland. In this the Province of Noord Brabant acts as Managing Authority and thus carries all final responsibility of the workings of OP South Netherlands. With its key priority areas being defined as increase of innovation and a transition towards a carbon-free economy, it is always mainly focused on innovative SME’s and the strength of the Triple Helix approach. Within the investment priorities of OP South Netherlands several specific objectives have been outlined, namely;

- Specific objective 1B1: Strengthening and broadening of the South Netherlands open innovation system in crossovers between the international top-clusters and between national and international top-clusters with high SME involvement.
- Specific objective 1B2: Strengthening of the valorisation capabilities of SME’s within the national and international top-clusters in order to contribute to solving identified social challenges
- Specific objective 1B3: Sustainable strengthening of the system in which workforce demands and supply within RIS3 top-clusters are aligned to fully utilize the innovation potential of top-clusters.

Within S34GROWTH the focus will be on specific object 1B1 and 1B2. Additionally S34GROWTH will be focussing on interregional cooperation and contributing to actual use within the OP of article 70.2 (possibility to cross the borders of the program geographic area and to build strategic partnerships and cooperate between regions). The regional challenge lies in deploying the strengths of the region (art of combining forces and on interdisciplinary and multidisciplinary engineering) with more market focus. The emphasis will be placed on the basic conditions for a knowledge economy and the organising capacity of a repetitive system of developing knowledge, applying knowledge to new products and markets and, on that basis, developing new clusters and cross-overs between existing clusters. Diversification is also helpful in reducing the susceptibility of a regional economy to fluctuations in specific markets. The OP South Netherlands is working on these issues. Given its limited budget it will need to focus its interventions on projects with a structural effect on the region’s economy. S34GROWTH will give inspiration and help in this, both during its phase 1 activities as during the implementation of the action plan.

Province of Zuid-Holland

The challenge the Western Netherlands faces is that of boosting growth in those fields of expertise and those industry sectors in which the enterprises in the region can become (international) leaders. The foremost bottlenecks experienced by the region are i) limited share of private R&D expenditure in the total amount of R&D investment, especially SME's, ii) lagging sustainability of the economy and iii) limited knowledge valorisation. The 'Kansen voor West II' ERDF Operational Programme enables increased efforts by adding to the national top sector policy by encouraging cross-overs between the top sectors. The focus is on innovation by SMEs: enterprises that develop new products and services through cooperation with other parties (large enterprises, knowledge institutions or other SMEs). There is also a focus on smart roll-out, especially in the energy sector. This means bridging small-scale end-user demands and needs with large-scale investment and risks allowing for the market to grow on its own. The aim of the efforts is to supplement the top sector policy and Energy Agreement developments in creating local partnerships. The EFRO-budget in the priority Innovation in the region of Zuid-Holland will be mainly used on projects related to start-ups, testing of new ideas/proof-of-concept, SMEs focusing on innovation.

The Council of Tampere Region

At regional level we have encouraged project applicants to involve European partners or networks in their projects. The results have so far been modest but the Vanguard Initiative has been a good example of possibilities and opportunities for interregional cooperation.

3 Section 4 - Good Practices

3.1 Specialisations focus that is evident in your region and shortly describe reasons for it being advantageous in a European perspective

Basque Government

The RIS3 strategy for Basque Country identifies three thematic strategic priorities consisting of Biosciences-health, Energy and Advanced Manufacturing. In addition, four areas of opportunity are identified consisting of Food, Culture and creative industries, Urban habitat and Environmental ecosystems. Among the themes of strategic priority, two examples of good practices can be identified relating to the wind sector (WINDBOX, Advanced manufacturing/Energy) and 3D-printing (Add+Process, Advanced manufacturing). WINDBOX, a centre for advanced testing, validation and integration of industrial subsystems for the wind sector, is intended to support the development of technologically leading supply in those segments of the value chain in which Basque companies have good prepositioning regarding parts and appliances for wind turbines. Within the Add + Process, the collaboration has led to one of the most advanced industrial 3D printers in the world and the first to combine 3D printing technology and precision machining into a single 'hybrid' manufacturing machine.

Catalan Agency for Business Competitiveness - Government of Catalonia

Catalan industry is highly diversified with no obvious predominant sector. The industry is closely interrelated with production services. The RIS3 strategy of Catalonia identifies seven major leading sectors: i) Food, ii) Energy and resources, iii) Industrial systems, iv) Design-based industries, v) Sustainable mobility, vi) Health and vii) Cultural and experience-based industries. These specialisations are in turn strongly related to six cross-cutting enabling technologies (KETs) in which the region aim to be leading: i) ICT, ii) Nanotechnology, iii) Advanced materials, iv) Photonics, v) Biotechnology and v) Advanced manufacturing.

Flemish Government - Department Economy, Science and Innovation

From the experience of the RIS3 Platform and responding to current policy developments, seven strategic cluster domains for smart specialisation have been identified for Flandern (Sustainable chemistry, Specialised manufacturing solutions, Personalised cure and care, Value-added logistics, Specialised agro-food, Building-environment-energy, and ICT-platforms). The smart specialisation strategy is in turn intrinsically linked to the strategic cluster policy where four spearhead clusters are being established within the fields of Food, Sustainable chemistry, Logistics and Materials. An important aspect of these spearhead clusters is internationalisation.

Flanders holds average-to-world level publication levels in engineering where different sub-disciplines have international specialisations, such as electrical and electronic engineering, medical informatics, nuclear science and technology, computer science and a fast growing transportation discipline. On the specialisation for technology, Flanders has built up a relatively strong technological position in chemical domains (food chemistry, macromolecular chemistry and polymers, biotechnology and basic materials chemistry), as well as in textiles and paper

machinery. There are a number of companies with in-house R&D in sectors such as machinery/mechatronics, food, materials, civil engineering and in particular pharmaceuticals that contribute to strong international specialisations of Flanders. Furthermore, strong international specialisations exists in the petrochemical sectors, chemicals and basic metals.

AFIL - Intelligent Factory Lombardy Cluster

Advanced manufacturing is one of the main focus areas for specialisation in Lombardy. The region is the primary manufacturing region in Italy in terms of turnover and value added and it is the leader in Europe for number of manufacturing companies. Moreover, it is the third region in Europe (after Bayern and Baden–Württemberg) for number of employees in the manufacturing sector. The two primary manufacturing sectors in Lombardy per value added, turnover and employees are machinery and metal products. Other relevant sectors are food manufacturing, chemicals and electric and electronic equipment. In these sectors, as well in other niches such as textiles, wood, recorded media, Lombardy is the European leading Region or among the first three leading Regions.

National Innovation Agency, Portugal

The following strategic priorities have been selected in the course of Norte RIS3 Strategy:

- Sea-related economic activities – is aimed to foster linkages between applied engineering, marine resources and sea-related economic activities.
- Human Capital and Specialised Services - is aimed at promoting skills in the ICT field for services such as e-government, dematerialisation processes and nearshore outsourcing
- Culture, design and fashion - is aimed to better exploit creative industries (particularly design and architecture), new materials and innovative manufacturing technologies in order to gain competitive advantage in sectors connected to design based consumer goods
- Mobility industries and environment - is aimed to upgrade the industries of automotive components and moulds through the use of existing scientific capabilities in the fields of manufacturing technologies and materials
- Food and Agriculture Environmental Systems - it is aimed at connecting the regional agricultural potential in high value added products with existing scientific and technology expertise and business expertise in order to develop products for functional food and local cuisine
- Life and Health Sciences - is aimed to strengthen the articulation between, on the one hand, regional research on tissue engineering, cancer, neuroscience and surgical techniques and, on the other hand, industries and services in the health sector
- Symbolic Capital, Technology and Tourism Services - is aimed to better exploit cultural and territorial resources through the scientific and technological capabilities in fields such as management, marketing and ICT, and taking into account the regional tourism offer

Considering the region's existing engineering capacities and scientific and technological infrastructures, the region aims to develop industries connected to key enabling technologies, including advanced manufacturing systems, nanotechnology, materials and ICT.

Scottish Enterprise

In terms of employment, firm structure and GVA, the top Scottish sectors compared to other EU regions in terms of specialisation are i) Oil/Gas, ii) Fishing/Fishing Products and iii) Hospitality/Tourism. After these, Financial Services, Education/Knowledge Creation and Engineering showed a moderate level of specialisation.

Of the ten broad emerging industries identified by the European Cluster Observatory as having the highest growth potential in the EU, Scotland has an identified specialisation in three: i) "Experience" industries (such as Tourism, Creative Industries and parts of Food & Drink), ii) "Blue Growth" industries (marine and maritime sectors, including offshore renewables) and iii) "Environmental" industries (including low carbon).

Region Skåne

Skåne hosts clusters in the Food, Life Science, IT, Mobile Media, Environmental Engineering and Packaging sectors. All seven clusters are considered to be extremely competitive from a global perspective.

The future development areas are grouped in the three smart specialisation areas;

- Personalized health: e.g. combining the mobile industry with the healthcare to create a strong e-health and m-health development
- Smart sustainable cities: e.g. Malmö city's transformation from an industrial city to an international sustainable urban development role model.
- Smart materials: e.g. the use of the new large scale research infrastructures of ESS and MAX IV and the transformation of technology possibilities at the universities to addressing the major global challenges.

Province of Zuid-Holland

The region has a well-educated population and three universities with very high international rankings. Leiden University is a major supplier of legal expertise and spin-offs in Health & Life Sciences. Delft University of Technology produces world-famous innovations in engineering, biotechnology, microelectronics, robotics and architecture & design. Erasmus University Rotterdam delivers top economists and medical innovations. This academic knowledge base is reinforced by six universities of applied sciences, putting theory into practice, and leading applied research institutes such as TNO and Deltares.

Our regional innovation ecosystem is closely linked to the regions strong economic clusters, the Greenports (Agro & Food); Mainport (Maritime & Logistics); Medical Delta (Health & Life Sciences); and Security Delta (Security & Justice), but also to crossovers, like the Biobased

Economy (Biobased Delta). Actors within these world class clusters have to join forces to be at the top of highly competitive sectors. Not only within Zuid-Holland but also together with other European regions.

Like the Medical Delta which forged a ‘regional knowledge community’ in the field of health and life sciences. Business is closely linked via e.g. the Leiden Bio Science Park, home to the largest concentration of life sciences activities in the Netherlands, and among the top bioscience parks in Europe. Medical Delta was part of HealthTIES, four top European regions in biosciences, med-tech and health entrepreneurship, that joined forces to compete with American and Asian competitors. At present Medical Delta is one of the leading partners within the EiT Health.

The Smart Specialisation Strategy targets on cross-over innovations focussed on Europe’s societal challenges. For example: application of big data for peace and protection of for example floods, 3D printing in the maritime and medical industry, new medicines based on plant extracts and green chemistry.

The Council of Tampere Region

Tampere region is one of the strongest manufacturing regions in Finland. Identified areas of specialisation are intelligent machines and ICT, despite of recent drawbacks in the mobile phone sector. Nokia had its biggest R&D centre in Tampere and that ecosystem is still strong in Tampere region. Innovation platforms that bridge traditional clusters to new innovative collaboration mechanisms have been developed to overcome the “collapse” of traditional clusters.

3.2 Concrete examples of good regional cases that could possibly be geared up with an interregional European perspective

The regions see great possibilities for strengthening on-going and future projects and activities with an interregional European perspective. Several on-going activities are in turn already linked to other European regions through a range of EU-funded programs (e.g. under Horizon2020). Specific sectors or areas of technology considered as especially favourable for interregional cooperation are listed in the table below, combined with examples of on-going initiatives or resources in the regions.

Favourable sectors for interregional cooperation

Region	Sector/Technology with examples of initiative or resource
Basque	<ul style="list-style-type: none"> • Energy (WINDBOX) • Advanced Manufacturing (3Dprinting) (Add+Process)
Brainport Development	<ul style="list-style-type: none"> • Silicon Europe Project - create an open European collaborative platform to strengthen the leading role of the European semiconductor industry in the global economy and value chain. • Solliance – a partnership of R&D organisations from the Netherlands, Belgium and Germany working in thin film photovoltaic solar energy. • Towards TTC (Towards Top Technology Cluster) - The goal of Towards TTC is to

	strengthen the economic structure of the ELAt border region (Eindhoven, Leuven, Aachen). This is done within the clusters of Life Sciences, ICT, Energy, and Advanced Materials.
Flanders	<ul style="list-style-type: none"> • Sustainable chemistry (Bio Innovation Growth mega Cluster, FISCH, GBEV) • High-tech Materials (Strategic Initiative Materials (SIM)) • Photonics (University lab B-Phot, Research centre Flanders Make) • Energy (project Solliance, KIC InnoEnergy) • Life sciences VIB (strategic research centre for bio-technology), Flanders Bio
Catalonia	<ul style="list-style-type: none"> • Advanced Manufacturing, Advanced Materials, Photonics, Nanotechnology, 3DPrinting/Additive Manufacturing (NMBP Programme, Factories of the Future, Spire, Manunet, etc.)
Lombardy	<ul style="list-style-type: none"> • Circular manufacturing • Manufacturing of sustainable advanced components and materials • Adaptive and intelligent manufacturing and assembly system • Digital and Virtual factory • Energy and environmentally efficient manufacturing process (Vanguard Pilot -ESM-Efficient and Sustainable Manufacturing)
Portugal	<ul style="list-style-type: none"> • Manufacturing (Production Technologies Cluster, PRODUTECH) • Life Science and to improvement of health care (Health Cluster Portugal) • Overall development of a cross-border regional smart specialisation strategy
Zuid-Holland	<ul style="list-style-type: none"> • Bio- & Circulareconomy (e.g.. Biobased Delta) • Agro & Food (Greenports) • Maritime & Logistics (Mainport) • Health & Life Sciences (Medical Delta) • Sustainable Energy
Skåne	<ul style="list-style-type: none"> • Nanotechnology (pilot production facilities, risk capital, nano-safety, industrial research centres, etc.), • Materials technology (Materials Business Centre connecting the Triple-Helix), • New materials in the Life Science area, such as nanomedicine, formulations, targeted drug delivery, structural biology (Life Science Incubator (SMILE) + Medicon Village)
Tampere	<ul style="list-style-type: none"> • 3Dprinting (Vanguard initiative pilot project) • Life Science, Human spare parts (BioMediTech)
Scotland	<ul style="list-style-type: none"> • Energy Infrastructure (Offshore Renewable Energy (ORE) Catapult, Advanced Forming Research Centre (AFRC), European Marine Energy Centre (EMEC).) • Innovation Centres (established by Scottish Funding Council within areas such as Sensors and Imaging Systems, Construction, Digital Health and Care, Industrial Biotechnology, Aquaculture, Stratified Medicine)

3.3 How do you work with getting companies involved in your specialisation focus and in intra-regional activities? Please list concrete examples of initiatives when companies have taken active roles

Basque Government

To deploy the Basque RIS3 strategy, a multilevel approach that incorporates the main public and private actors have been used. This has been achieved primarily through the establishment of steering groups for each of the three priorities and the four opportunity niches that were identified in the Basque RIS3. The steering groups have been set up to coordinate and drive forward the deployment of the RIS3 strategy. The groups are composed by representatives of the public administration, companies, clusters and scientific and technological stakeholders. Steering groups have been identified for each strategic area identified in the Basque RIS3 and meet regularly.

To advance from connecting to demonstration, one crucial aspect has been the identification of a common objective and/or challenge that can be solved in a collaborative way, without putting at risk the private company's competitive advantage. What is needed is a public leadership to ensure the sustainability and a level playfield. The added value the companies primarily are looking for are positioning, access to new markets and new sources of financing by decreasing the risk of testing or validation.

Catalan Agency for Business Competitiveness - Government of Catalonia

Companies are involved in the early phases through Steering Groups in order to define the Sectorial Programmes. From the Vanguard Initiative experience, to move from connect to demonstrate phase practical demo cases are needed. From Catalonia's point of view, the demo cases bring together information about the regions involved but without smart connection between regions, without a common vision. S34Growth could be an opportunity to identify exactly what kind of pilot plants the regions need.

During the definition of the Sectorial Programmes, some cluster organisations participated actively in the discussions and were predisposed to collaborate providing their experiences. However, once the Programmes are defined, the companies require action otherwise they lose interest.

Flemish Government - Department Economy, Science and Innovation

In Flanders, an important role is being played by the cluster organisations. The cluster organisations are very closely connected to the companies and knowledge institutions. Through organising bilateral meetings, matchmaking events, information sessions, etc., the contact between the organisations and their company base remains tight, and the cluster organisations are very much aware of the needs of the companies and possibilities to cooperate.

Within the VI-methodology it is also the task of the cluster organisations to voice the needs of the companies and to search for possible projects up to a level that is not too specific. Companies need to have the feeling that they also have a say in this. In order to find the right balance, a good solution would be to include a few leading companies in the development process of the

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specific demo cases. Once the demo cases are real, it is up to the cluster organisation to identify and contact relevant companies and knowledge institutions to take part in the demo case. For companies, it is important that they can position themselves within the demo case (identifying their role and position in the value chain). Having a good overview of the financial implications and possible financing instruments, is also an important element for companies to be interested in participating.

AFIL - Intelligent Factory Lombardy Cluster

The Lombardy Cluster on Intelligent Factory (AFIL) involves its industrial members in the definition of the research and innovation roadmap. This is done through specific consultations and events.

Projects in which the Cluster is engaged have the scope of providing to members opportunities that they could not have if acting alone. In particular, they are intended to organise contacts and exchanges for companies, for example through matchmaking events, international delegations or specific studies that are then diffused to the members.

The bottom-up approach adopted in the Vanguard Initiative allows for involving companies from the early phase in which they bring out the different themes of interest. This has been particularly important to involve a great number of companies. The possibility to leverage on a network of pilot plans allows companies to access technologies that could not be developed or sustained by a company alone. The perspective of entering a thematic network and of developing interregional collaborations and obtaining financial support is another interesting factor brought forward by industry.

National Innovation Agency, Portugal

Companies have mainly been involved in *Norte's* specialisation process through the development of the region's RIS3 strategy. The *Norte* RIS3 governance model also provides a means to facilitate collaboration with companies, through its three main mechanisms: the *Norte* Regional Innovation Council, Thematic workshops and General public consultations. The national cluster policy under the thematic domain of competitiveness and internationalisation of "Portugal 2020" ("COMPETE") can also be pointed out as an important tool for the integration of companies at a regional level in terms of the development of the *Norte's* strategic specialisation priorities (and activities), strengthening their cooperation in terms of innovation and R&D and also between them and other relevant stakeholders, such as Universities and Research Centres.

Scottish Enterprise

Through its long-established business support set-up, Scotland has well developed mechanisms for engaging with companies on a one-to one basis, including through SE and HIE and the Business Gateway. Through well-developed mechanisms such as the account management approaches used by both SE and HIE, export and trade support through Scottish Development International (SDI) or the investment approach pioneered through the Scottish Investment Bank (SIB), an effective way to deliver support to companies have been developed. Generally, these methods of engagement are well understood by companies, with clear evidence of benefits and additional impact, demonstrated by regular evaluation. However, in general, sustained success or significant impact has not been maintained across all of Scotland's industries. An institutional response to this challenge is under way through the creation of the Innovation Centres network. These Innovation Centres complement the Scottish-based work of the UK-level Catapult Centres,

including Offshore Renewable Energy and the Advance Forming Research Centre, in Glasgow, which operates as part of the UK's High Value Manufacturing Catapult which supports innovation in sectors such as aerospace, automotive, energy and marine.

Region Skåne

Companies are involved through the networks in the cluster organisations, incubators and Science Parks. These organisations are key in bringing companies into activities. Apart from these, Skåne also have a number of other platforms for companies to get involved, such as the Chamber of Commerce and Materials Business Centre. A number of companies are interested in general information activities to get knowledge of what opportunities exists, such as the Nanotech Community Gathering (led and coordinated by Region Skåne), that brings together companies and academia to inform each other and exchange ideas. Some companies are very interested in expanding their networks and creating business opportunities, through participating in matchmakings events, at local, but also at a European level. Companies see possibilities in scouting new technology, in finding new sectors to do business in (new value chains), export opportunities (both knowledge and products), as well as R&D collaborations.

Brainport Development, Eindhoven

Within the framework of Brainport Development lies Brainport Industries. This ecosystem is built upon a host of different High Tech suppliers with the shared goal to connect the High Tech value chains, increase their professional working methods and increasing the overall competitive power. This can be regarded as a cluster organisation which is addressed before individual companies are brought together. It is through such cluster organisations that the initial phases of the Vanguard Initiative methodology can be successfully and efficiently carried out (mapping of value chains and materials used).

Province of Zuid-Holland

The policy of Zuid-Holland aims to support companies in line with their own focus areas. Companies are involved through the Economic Programme Board Zuidvleugel (south wing of the Randstad), a triple helix network platform, and a number of support networks called 'delta's'.

From the Vanguard experience it is crucial to organise the clusters in a triple helix way. This way the agenda of the Industry in the Vanguard process can be set immediately. Cluster have strong links with the industry in this way and cooperation between companies is easier in the pre-competitive phase. When projects get more definite, things become more confidential.

The Council of Tampere Region

The main way to involve companies is through R&D activities within universities, polytechnics and vocational training schools. Regional development concentrates on building the capabilities of research units to work with companies. Usually companies get involved when there is concrete issues at stake. It seems that the willingness of the companies to take R&D risks is decreasing and public sector must or should reach further in developing the innovation system. Companies are mostly interested in practical issues, even though this depend on the size of the company. The possibilities of business cooperation through regional networks is also interesting for the companies.

4 Section 5 - Policy Development Areas

4.1 Description of policy development needs in the regions

Basque Government

There is a need to increase the international connections of the Basque Innovation Ecosystem in order to help innovation actors in the region to find the right partners, access global value chains as well as make use of technology centres and innovations hubs located in other parts of Europe.

Catalan Agency for Business Competitiveness - Government of Catalonia

The implementation of RIS3CAT requires strong, multilevel governance to ensure the following:

- Government leadership and public policy coordination. It is to this end that the Catalan Government has established the RIS3CAT Steering Committee as a collegiate body to formulate, promote and coordinate the RIS3CAT strategy.
- Effective and efficient use of public resources. To this end, the Government has established mechanisms to ensure the coordination of resources from the European Union's multiannual financial framework programme 2014-2020 in Catalonia. RIS3CAT also promotes an integrated focus on results oriented projects aimed at achieving the critical mass necessary to generate real impact on the socioeconomic situation.
- Active participation by the quadruple helix. This is one of the guiding principles underlying the RIS3CAT tools. Permeability of RIS3CAT to determining factors in the environment and to the changing needs of society in general and the quadruple helix stakeholders in particular. This is ensured by a system for monitoring and evaluating actions and their impact. This system provides information and qualified, consistent data to enable the review, if necessary, of RIS3CAT programmes, initiatives, instruments and investment.

A joint working group was established. Representatives from industry, administration and academia worked together to define the main challenges and opportunities. This will be dynamic and updated in accordance with its results and the needs that may arise. In this way the public drive meets the private leadership. The main driving strategies in the field of the PISI are: Internationalization, Dimension and Professionalization, Priorities in Innovation, Training, Machinery Renewal and Environment. These challenges will be transformed into programmes and business reality and focus the initiatives to the different sectors, like the manufacturing sector.

Flemish Government - Department Economy, Science and Innovation

An important need is a financial instrument mix that covers all the different phases of the innovation trajectory (including demonstration and piloting). Also an administrative process (that goes along with the application for public financing) that is simple and 'light' is being perceived as necessary.

Regulation adjusted to new technological developments is crucial. Concerning this issue, the Flemish government has decided to set up defined areas that are not restricted by the current regulation to test new technological developments.

One of the main items that frequently come up regarding policy needs, is the problem of skills. A lot of new technological developments require specific skills that are not yet included in education or trainings. On top of that, these technologies develop so fast that employees need to adapt their skills throughout their career. Continuous learning and updating of skills will become even more important than it already has been in the past.

AFIL - Intelligent Factory Lombardy Cluster

Regione Lombardia, has identified seven Specialisation Areas (SAs), which represent a consistent part of the economic and scientific actors situated in the territory. The Specialisation Areas identified so far are i) aerospace, ii) agri-food, iii) eco-industry, iv) creative and cultural industries, v) health industry, iv) advanced manufacturing and vii) sustainable mobility.

The aim is convergence and cross-fertilization, to accelerate the evolutionary process and establishment on the market of emerging industries and transformation of the mature industry. The challenge is to help the production system seize and intercept new market opportunities within the SAs through the evolution of their traditional industries into emerging industries, by addressing the needs of the new markets (strengthening the market-driven approach) and helping improve the quality of life of its community (society-driven approach). The region has identified the manufacturing industry as the priority for its policies.

National Innovation Agency, Portugal

Norte is an industrial region. Industry corresponds to 25% of the regional GVA (2014) and 23% of the regional employment (2013). On the other hand, in 2015 Norte was responsible for 39% of the total national exports and the value of the exported goods corresponded to over 36% of the region's GDP in 2014. However, the region is still a lagging territory with considerable innovation challenges. Despite the importance of its economy, the regions levels of GDP per capita are the lowest in Portugal, lagging significantly behind the EU28 and national. The region has made significant progress in terms of some innovation indicators, such as R&D. However, it still performs poorly in several innovation output indicators. Only a small number of SMEs develop R&D activities in the region. On the other hand, enterprises demonstrate low levels of R&D competences and collaboration with the scientific and technological system. This leads to difficulties in the access to new knowledge, which in turn translates into poor innovation intensity and underachieving economic valorisation of new ideas. The challenge to develop policies tackling Norte's innovation standstill. In this context, it is important to facilitate technology-to-market processes in Norte region, especially targeted at the eight priority domains of the regional RIS3. Industry will have to play a key role in the solution.

Scottish Enterprise

The focus of Scotland's approach is building international competitiveness, raising Scotland's performance in key areas such as innovation, exporting and productivity. As part of the economic development focus, Scotland is seeking to build some major areas of international competitive advantage that are providing longer-term opportunities for growth. This includes:

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- Energy – using sustained international successes in oil & gas, engineering and technology to realise new opportunities, in renewable energy, advanced manufacturing and in the low carbon economy.
- Premium Products – building on a worldwide reputation for quality to increase international revenues in areas such as Food & Drink, Tourism, Creative and Digital Industries, and Financial Services.
- Health – building on the strengths in areas like Healthcare, Life Sciences, Chemicals and Food to take advantage of growing opportunities in global ‘lifestyle and health’ markets.

At the same time, the region faces a number of significant economic challenges that are addressed in the economy that will help unleash the significant growth that exist among companies and sectors. This includes:

- Transforming low levels of innovation and entrepreneurship by encouraging more companies to become more innovative and encouraging more ambitious entrepreneurs to build successful new businesses;
- Expanding narrow export base by encouraging more companies to internationalise, targeting new markets and encouraging more exporting in sectors;
- Addressing the low productivity levels across companies by helping more companies to improve their performance and make more of the talent and abilities of their workforce

Making more successful inroads to these challenges will produce a significant improvement in the international competitiveness of companies and sectors, which will feed through to a stronger economic performance, more jobs and higher wages.

There are also a number of important areas of emerging opportunity which can help companies and sectors grow to scale, to grow new industries, build new companies and create new jobs, in a way that will help increase growth and competitiveness over the longer-term. This includes developments in relation to

- Informatics and Digital Industries, in areas like Games, ‘Fintech’, medical technologies, ‘Big Data’ and Analytics, and sensors.
- Environmental Services such as heat and water, energy transmission, subsea engineering, resource efficiency and the ‘circular economy’.
- Advanced Manufacturing, building on Scotland’s deep-rooted competitive capabilities in engineering, addressing emerging opportunities in areas like Industrial Biotechnology and the Circular Economy

To realise these opportunities Scotland deploys a well-developed range of tools, including company support, investment, and support for R&D, skills development and inward investment. The region is seeking to strengthen growth among leading “pioneering” companies who internationalise, innovate and grow, helping them secure the resources they need to fulfil their ambition – including accessing investment, people and talent. The region also seeks to broaden growth to a wider range of companies, by increasing our levels of innovation & internationalisation.

Region Skåne

The regional innovation policy needs to be reinforced in its implementation, which requires a change in perspective to ensure that the policy mix meets the strategy's goals. There are ways for improvement at implementation stage along the four tracks below:

- Establish, test, use, refine and further integrate monitoring and evaluation systems within the policy cycle;
- Reinforce the trans-cluster dimension of the policy;
- Further develop the cross-border and international dimension of the policy;
- Boost private sector involvement in strategy definition and implementation.

Other areas:

- Innovation in white spaces, new emerging industries
- Being able to collaborate to address global challenges and make business opportunities in these areas
- Being able to articulate needs in the public sector, and articulate societal challenges and transform these into action through public procurement for innovation.
- Making real testbeds that are visible in the society.
- Attracting entrepreneurs from outside EU
- Financing of larger joint efforts and through alignment of funding

Brainport Development, Eindhoven

The true strengths of the region are based on the art of combining forces and on interdisciplinary and multidisciplinary engineering. The challenge lies in deploying these competences with even more market focus. Bringing the valorised product to the market for large scale uptake. This is further compounded by the intensifying pressure of globalisation. Within this challenges facing the region include developing, attracting and retaining sufficient talent; attracting sufficient risk capital; diversifying the economy; increasing its capacity to valorise research; expanding its international reputation and visibility; and attracting public and private R&D investments from outside the region.

Province of Zuid-Holland

The region has a strong basis in several (top) sectors, but lags behind in innovation. What lacks are the connections between science and business (the 'usual' European innovation paradox) and between sectors. The regions is looking for ways (not top-down) to improve those connections. Another issue is the focus on innovation hotspots and campuses. What is needed is more than physical proximity, the importance of physical concentrations of innovative activity lies in the ecosystem for innovation and entrepreneurship. Another important point is how cross-overs between for example successful field labs and testing grounds can be realised.

The Council of Tampere Region

Development policies should be more open and allow regions, cities, companies and even citizens to connect over different borders. This is a major challenge of EU policies. Regional policy

should connect, not divide Europe. As a consequence, new ways of interregional cooperation should be developed. Interregional actions should be mainstreamed and they should be part of normal regional development policy, not something special funded from separate funds and organisations.

4.2 Missing instrument and/or policies on a European level - to support interregional cooperation, implementation of RIS3, and support regional stakeholders to engage in interregional activities with relevant partners

Basque Government

The process of going from idea to market goes through different phases to evolve and scale up the specific solution, demonstrate its commercial potential and to make it a viable business opportunity. Demonstrators and pilots play an important role in catalysing and accelerating this transition. It is the development of these types of demonstrators that the cooperation in the Vanguard Initiative pilots focuses on. However, the traditional instruments of Horizon 2020 are not sufficient to meet the needs of the European industry when it comes to demonstration projects. Therefore, a European Joint Demonstration Initiative (JDI) would be needed if Europe wants to accelerate transitions and regain competitiveness. This JDI would be a private public partnership combining private sector investments with European/national and regional public funding. The JDI build help to build critical mass and would increase the efficiency of the investment in this kind of projects.

Catalan Agency for Business Competitiveness - Government of Catalonia

Missing policies in Catalonia are instruments complementary to the Horizon2020 Calls. These instruments should respond to the needs identified by the regions (not necessarily linked to the Horizon2020 Topics): Specific Instruments for the Focus Areas identified by the S3 of the regions, ERA-NETs in the Focus Areas: for example, MANUNET and European support to Industrial R+D and Innovation projects in each region: flexible (because Innovation is not static) and easy to manage.

Flemish Government - Department Economy, Science and Innovation

For companies it is important to know what the ecosystem looks like, what actors are doing what. It is difficult for companies to find equivalents in other regions, this is especially the case for SMEs. An overview on the different existing infrastructures is also very important. A sort of mapping tool is necessary. Tools to stimulate interregional contacts would also be very useful. Organising matchmaking events but on different levels: brainstorming on the first ideas, further elaborating the concept, involving additional partners, etc. Every phase requires a different approach and different actors.

AFIL - Intelligent Factory Lombardy Cluster

Missing instruments are financial instruments specifically devoted to the development of smart specialisation strategies in cooperation with other European Regions, to establish European supply chain with complementary synergic partners. Also, financial instruments supporting companies' innovation with mechanisms more appropriate to SMEs compared to the traditional research and innovation funding is needed. In particular, equity funding models would be suited

in a public-private logic. Finally, financial instrument to facilitate the technological transfer to companies. Alignment among Regions on the nature of the stakeholders involved in cooperation activities can also be improved.

National Innovation Agency, Portugal

From a thematic perspective, new policies and instruments should focus on addressing the specific barriers to the development of new high R&D-intensity sectors and firms in European regions, in order to reduce the still significant differences among member states in terms of overcoming those barriers. Examples of such barriers include:

- Access to finance or intellectual property rights protection;
- Access to R&D funding opportunities;
- Specific challenges regarding market failures.

Scottish Enterprise

There are significant constraints on interregional collaboration between companies and industries – particularly outside the leading industrial regions. The experience of the Vanguard Initiative highlights these constraints, while pointing to potential solutions – highlighting the need for public policy solutions, both at inter-regional and cross-EU levels:

- The need for effective financial instruments to support interregional collaboration, to address the lack of commercial investment mechanisms.
- The need to explore the scope for specific policy actions for interregional industry collaboration across significant value chains, for example in terms of standards, IP, and procurement practice.
- A particularly effective route in Scotland has been to find new ways to link Scottish SMEs to large market leading corporates and public sector procurement through our customer led innovation approach. New initiatives like Open Innovation and Seek & Solve grants are enabling our most innovative companies to work with these customers to develop new solutions to their business challenges. Over time this will translate into increasing investment in R&D.
- There is a need to explore the policy actions to address the incompatibilities different industry support systems between different regions – such as the role of industry cluster organisations, regional and national support structures/programmes. The ability to develop evidence and knowledge in these areas is a critical dimension of the Interreg Europe S34Growth Project.

Region Skåne

Policies based on awareness of available infrastructure and possibilities at European level, e.g. pilot production facilities for nanotechnology products. Qualitative and comprehensive mapping of different ecosystems (what actors are doing what?), as well as matchmaking possibilities for different actors across different value chains are also missing, according to Region Skåne.

Brainport Development, Eindhoven

With respect to the OP South Netherlands, policy instrument it is not so much a case of what is missing rather than it being a case of what are the opportunities that can be exploited which is

currently not happening. Article 70.2 allocates a budget for interregional cooperation. However there is currently little incentive for SME's to make use of this and there is no active exploitation of the possibilities which are contained in this article. Therefore the necessity lies within clearly defining the meaning of article 70.2 to external partners/companies.

Province of Zuid-Holland

Companies that have participated in ERDF or Horizon2020 projects indicate that their expanded European network is one of the unintended but very important effects of their participation. For many SME's EU projects are far away, bureaucratic and tiresome. Maybe instruments like knowledge vouchers (a grant of say 5.000 euro to investigate the potential of an idea with a university or a company in another sector) can help to lower the barrier for SME's for intraregional innovation and business development. The creation of a database of SME's with competences in technology fields could also be of help here. Good assistance for SME's towards European funding options.

The Council of Tampere Region

New ways of interregional cooperation are missing and should be developed. Interregional actions should be mainstreamed and they should be part of normal regional development policy, not something special funded from separate funds and organisations.

5 Section 6 - Preferred theme for the OSDD

5.1 Main focus area for the OSDD per region

Basque Government

Two themes are preferred by the Basque Government:

- Linking up regional innovation ecosystems.
- New cluster policy

Catalan Agency for Business Competitiveness - Government of Catalonia

Advanced manufacturing is a preferred theme for the OSDD. As the OSDD in Catalonia will be held in November 2017, during these months ACCIÓ, together with the catalan stakeholders, will decide the specific focus for the OSDD (Industry 4.0, 3DPrinting, Efficient Manufacturing, Surface Treatments, Robotics, Advanced Materials....)

Flemish Government - Department Economy, Science and Innovation

The main theme of the OSDD in Flanders would be financing instruments, specifically for interregional cooperation in demonstrators: i) the instruments available in the region, ii) the different kind of financial support needed for different kind of project needs, iii) the financial instruments that already exist on other policy levels (nation, European) that can complement the regional ones.

AFIL - Intelligent Factory Lombardy Cluster

The OSDD will be focused on the regional specialisation areas that emerged in the Vanguard Initiatives and in connected policy activities. Focus areas will include:

- De- and Re-Manufacturing (Circular Manufacturing)
- Smart and Agile Manufacturing
- Manufacturing of Smart Materials and Components
- Digital and Virtual Manufacturing
- Energy and environmental efficient Manufacturing
- 3DPrinting

Activities of OSDD will include:

- workshops and presentations animated by the Regional working groups responsible for the above mentioned advanced manufacturing specialisation domains
- visits to regional pilot plants and demonstration infrastructures that constitute the regional eco-systems supporting Lombardy participation in the Vanguard initiative;
- site visits to representative companies, research institutes and technology transfer organizations;
- meetings with Lombardy Regional representatives to discuss policies in the above mentioned areas.

National Innovation Agency, Portugal

The North Region of Portugal is one of the most industrialised regions of the European Union, which increases the region's need to explore the economic potential associated with the

development and implementation of advanced production technologies (key enabling technologies) in the regional economy. Therefore, the focus area for the regional OSDD is “Advanced Production Technologies/Key Enabling Technologies”. In the case of the *Norte*, there is potential in the development of ICT, production technologies and potentially nanotechnologies. This specialization field is based on the promotion of advanced production systems and on the integration of complementary knowledge that the region considers to have in order to pursue its specialisation, this way promoting vertical and horizontal technology transfer.

Scottish Enterprise

The Scottish OSDD would look to focus on how the introduction of an interregional focus to the OP could further enhance the innovative capacity of Scotland’s priority sectors. It is widely recognised that interregional collaboration can create both scale and spill-over benefits to industry in boosting their innovative and internationalisation capacity. Such activity requires investment and funding to develop the required mechanisms for collaboration coupled with a strong public sector role. Like many EU regions, Scotland has made specific reference to the use of Article 70 within the region’s OP as a means of fostering such activity. However, as yet no region has utilised this option to any great extent. The Scottish OSDD would look to explore the various options that Article 70 could create and also explore the risks and opportunities associated with undertaking this new form of investment outside of the region.

The Scottish OSDD will also provide an opportunity to explore deeper the potential interregional aspect of Scotland’s Manufacturing Action Plan (MAP). With the MAP one year into delivery by the time of the Scottish OSDD, this provides an ideal opportunity for discussion on this topic in an S34Growth context. With a review of the OP being undertaken during 2017/18, the Scottish OSDD also comes at an ideal time for the topics above to be actively explored and any learning from the Scottish OSDD, and the wider S34Growth project, to be incorporated into the future direction of the OP.

Region Skåne

Preferred focus for OSDD in Skåne is developing international attractive research and innovation areas. In principle this is:

- Nanotechnology and collaboration between partners across the whole value chain, such as the universities, RTOs, region, companies, and innovation support actors, etc. who collaborate in pilot production facilities, risk capital, nano-safety, industrial research centres, etc.
- Materials technology and business with a business-oriented membership organisation, connecting industry, entrepreneurs, research institutes and universities with materials related operations.
- New materials in the life science area such as nanomedicine, formulations, targeted drug delivery, structural biology. Life Science Incubator (SMILE) + Medicon Village

Brainport Development, Eindhoven

One of the great strengths of the Brainport region as well as the South Netherlands region is its ability to move from concept / design to market uptake / implementation in a short period of time. This ‘fast track innovation’ will therefore be the theme of the Brianport Development / South Netherlands OSDD.

Province of Zuid-Holland

The region would like to focus on efforts aimed at cross-overs between sectors and those aimed at fulfilling the promise to be “a real life testing ground”. Bio based Economy could be a good theme for an OSDD in our region with the Bio based Delta Triple Helix Organization.

The Council of Tampere Region

N/A

6 Section 7 – Vanguard initiative methodology

6.1 Please specify what kind of impact your role as a co-leading region of a Vanguard Initiative pilot project has had in terms of implementing your smart specialisation strategy

Basque Government

One of the main aims of the Basque RIS was to increase the international connections of the Basque innovation ecosystem. By means of co-leading the ADMA Energy (Advanced Manufacturing in Energy applications in Harsh Environments) pilot, the innovation actors in the Basque region has access to partners and technology centres and innovations hubs located in other parts of Europe within different parts of the value chain. The pilot project thereby has had an impact in fulfilling the objectives in two of the Basque RIS3 strategic areas: Advanced Manufacturing and Energy. To showcase the relevance of this co-leadership, one of the 50 strategic projects identified in the deployment of the Basque RIS3 is the VI ADMA Energy pilot, serving as an example of an outward looking effort.

Catalan Agency for Business Competitiveness - Government of Catalonia

Catalonia (ACCIÓ and Eurecat) is co-coordinating the “Efficient and Sustainable Manufacturing Pilot” with AFIL from Lombardy and is also participating actively in the “3DPrinting” Pilot with a number of stakeholders (Eurecat, Leitat, Fundació CIM-UPC, ASERM). Catalonia’s participation has been useful to establish a Steering Group in order to map the regions capacities and to identify the most interesting Vanguard Initiative (VI) projects for the region. This has led to a deep knowledge about the manufacturing and 3DPrinting ecosystem in the region and insights on the main projects being carried out in other parts of Europe, at the same time reinforcing the relations with European regional bodies, companies, RTOs; which is a very important point for developing collaborative projects in the future.

Flemish Government - Department Economy, Science and Innovation

The activities within the smart specialisations of Flanders have traditionally had a relatively inward looking approach. Cooperation with other regions already existed, but these were mainly neighbouring regions (Wallonia, South-Netherlands and Nordrhein-Westfalen) and on a more coincidental base. The Vanguard Initiative has opened/broadened this scope and introduced regions in the north, south and east of Europe as potential partners. By including Flemish stakeholders in an early phase through the Vanguard Initiative the projects and activities carried out in the region are strengthened by an international dimension that perfectly fits with the objectives of the overall smart specialisation strategy.

AFIL - Intelligent Factory Lombardy Cluster

The role of co-leading region has facilitated the ongoing process of defining a smart specialisation strategy related to manufacturing in the Lombardy region. Vanguard has been an ideal framework to develop and exploit smart specialisation opportunities for several reasons. Firstly, it supports a common understanding of smart specialisation goals among stakeholders. Secondly, it requires the active involvement of companies in the overall process. Thirdly, it requires to adopt a structured method for the definition of specialisation topics in order to conform to other regions. Fourthly, it facilitates interregional cooperation due to the critical mass of regions

participating. Furthermore, the role of co-leading has created the possibility for accessing public funding for smart specialisation projects and for the region to communicate activities related to manufacturing to the European level.

National Innovation Agency, Portugal

The experiences of co-leading region has been very positive for the implementation of the Norte's smart specialisation strategy in several aspects. The international perspective and visibility of the Norte's RIS3 strategy has been strengthened through international matchmaking events providing better opportunities for future projects and through promoting the region's most important business sectors abroad.

Scottish Enterprise

Scotland's participation has provided the region with specific insights into their approach to their Smart Specialisation agenda when seeking to sharpen the focus on the most significant growth opportunities. Vanguard is producing particularly important insights in areas where important growth opportunities for Scotland has earlier been identified (e.g. Subsea Engineering and Industrial Biotechnology). The application of the 'Learn, Connect, Demonstrate, Commercialise' approach has been particularly useful as a mechanism for facilitating interregional working and in identifying "pivotal companies" across the Pilot regions. Furthermore, a particularly important area of learning has been the important role of intermediary organisations in supporting engagement with industry. Developing a stronger role for these institutions in leading the region's engagement with industry will be an important feature of its future approach, both though Vanguard and the region's approach to sectors.

Region Skåne

Within a number of defined KET-areas (Advanced Materials, Nanotechnology and to some extent Biotechnology) Skåne in a number of cases have had the possibility to organise cross-over activities facilitating interactions from other stakeholders outside the specific KET-area. The process has contributed to a better view on how, for example, the nanotechnology landscape looks like in the region. Furthermore, participation has provided insights on stakeholders in other parts of Europe in order to create European value chains that could be part of global value chains.

Province of Zuid-Holland

Zuid-Hollands role as co-leading region within Vanguard has broadened the network of industrial and cluster connections of the Bio based Delta region on the one hand, but also created more partners in the pilot project. Various other cases within the pilot project are of interest for industry, cluster organisations, knowledge institutes from the Bio based Delta region, but also from parties in West Netherlands. Besides such direct results, some indirect impacts has occurred in terms of new interregional coalitions, of which some for proposals on European funding opportunities. Also, due to the region's co-leading role in the Bio economy Pilot Project, Zuid-Holland regularly attends several general Vanguard management or network meetings, strengthening the region's contact with cluster organisations, companies, knowledge institutions, development agencies, RTO's, etc. in other regions.

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The pilot project has shown the possibilities of interregional cooperation in many ways and has put the region's own activities and knowledge base in perspective. It has also encouraged universities and companies to look for new partners and collaboration possibilities in a new way.

6.2 Please specify best practices as well as worst practices in relation to your experience as a co-leading region of a Vanguard Initiative pilot project in terms of interregional cooperation, “what works and what doesn’t?”

Basque Government

Best practices primarily include the stimulation of a strategic dialogue between the participating region and the EU-level and the alignment of efforts/policies and co-investments. Furthermore, best practice include the possibility to leverage public-private investments to demonstrators and pilots, (possible Joint Demonstration Initiatives) and the implementation of smart specialisation strategies by aligning regions via clusters.

What does not appear to work to the same level of satisfaction are the procedures to allocate funds for the VI type of pilots and demo cases. The long procedures discourages private sector engagement, resulting in a lack of efficiency.

Catalan Agency for Business Competitiveness - Government of Catalonia

In Catalonia there has been a strengthened knowledge on the kind of Demo cases that other regions prioritise and the importance of networking with the regions involved in order to generate future collaborative projects. What has worked to a lesser degree is the lack of a clear objective and the focus on theoretical rather than practical aspects as well as financial issues for the pilot projects.

Flemish Government - Department Economy, Science and Innovation

Best practice for Flanders has been the engagement of industry representatives in steering groups representing different parts of the value chain as well as representatives of government. For the latter it has been important that governmental actors play a visible role in the projects, so that industry knows that a political commitment is in place. Interregional cooperation cannot be possible without industry (bottom-up). In other words, what does not work would be only involving one of these two groups in the process.

AFIL - Intelligent Factory Lombardy Cluster

The experienced best practices for the Lombardy region include several aspects. Firstly, the structured process allowing for specialisation topics to emerge through preliminary stakeholders meetings, “calls for topics”, consequent clustering and conform to topics have been a positive experience. Secondly, the creation of regional thematic working groups of experts (companies, research and innovation stakeholders) that had the responsibility to aggregate a regional community committed in the definition of priority topics and Vanguard project contents was highly appreciative. Thirdly, the constant relationship between the Cluster and representatives of the Regional Government in Lombardy and EU represented a real partnership of the political and industrial/technical level within an institutional framework.

Difficult aspects of the Vanguard experience include the lack of clear perspectives and possible advantages/returns of the initiative, limiting company commitment after the first enthusiastic phase. Furthermore the difficulty to dedicate appropriate resources (in terms of skills and competences) to the Vanguard action especially at the beginning of the initiative, due to the mainly in-kind contribution required for managing the it, was something that did not work properly.

National Innovation Agency, Portugal

Best practice relates mainly to interregional cooperation and the network effects of the Initiative, mainly through matchmaking events. In terms of interregional cooperation challenges, it can be said that the region's participation in the Vanguard Initiative suffers from several limitations in terms of the level of decision making and regarding its own implementation capacity, mainly because Portugal is not a regionalised country. Norte has no autonomy in terms of funding and decision making, contrary to other regions of the Vanguard Initiative.

Scottish Enterprise

Vanguard has been one of a number of initiatives involving Scottish policymakers and support organisations that are proving important to the development of the sector agenda. In particular, the opportunity to use engagement with industries from other regions to build up stronger propositions of scale for investment, e.g. in infrastructure has worked well. Vanguard is also giving insights into securing more direct industry engagement through the partner regions, who have in place more specific mechanisms to help secure industry involvement, e.g. within particular industry clusters.

The main challenge on Vanguard is the time taken (and the resource involved) to build the right kind of interregional collaboration necessary to take the pilot forward. In many ways, the process is still being driven by the Industry Experts, drawn from across the participating regions, rather than companies. The time/resource constraints have limited the involvement through Vanguard. Other participating regions have also struggled to maintain their involvement in the pilots, with many regions overly dependent on the personal commitment of specific individuals to maintain their involvement. For Scotland, a major challenge has been securing the required engagement of Scottish companies and industry, during a period of major disruptive change in the Energy, Offshore Renewables and Oil & Gas sectors. The concern is that there will be a need to see the emergence of more tangible outcomes in the short to medium term if the interest of companies is to be maintained beyond the short term.

Another concern is that a more sustainable delivery model for supporting the Vanguard Initiative will need to be developed over the longer-term, to meet the requirement to move on from the current approach that is over-dependent on the commitment of a relatively small number of regions and regional industry experts (including Brussels representatives).

Region Skåne

For Skåne, a number of best practices have been identified.

- Engagement: Without engaged actors it is very difficult to move plans forward. The stakeholders also need incentives to get engaged in an interregional cooperation that perhaps at a first glance does not provide immediate return.

- Timing: It is important to know when different actors should take the lead and to be the main driver in an interregional process. Regional authorities can play an active role mainly in phase 1 and in phase 2 but, as from phase 3 and onwards it should be the companies that should drive the process forward. Regions could still, of course, be the facilitator.
- Cross-learning: In preparation for the Vanguard matchmaking event, Skåne organised a preparation meeting for the cluster organisations in the pilot project, leading to a cross fertilisation between nano-technology on the one hand and the marine tech industry on the other hand, underlining the importance of cross-learning in the process.
- Financing: seed money is difficult to find and here initiatives such as the planned smart specialisation platform could play a helping hand – for example to finance smaller mapping studies to be done by an external expert, to support the cluster organisations participating in, for example, a matchmaking event using the COST model, etc.

Province of Zuid-Holland

Good practices from Zuid-Holland includes providing a clear communication on goals (joint/private and public) and make clear for companies that Vanguard by itself has no funding scheme for projects. The common Vanguard methodology and the need to create a common pilot project vision among participants with clear criteria for demo cases are critical. Furthermore, lessons learned are the need of having a dedicated team working on the pilot project process (co-leading regions), with enough capacity and knowhow of the topic and a dedicated steering group of the case leaders with highly involved experts to regularly discuss the direction, vision, strategy, state of affairs, do's don'ts of the Pilot project and its cases.

What can be developed further is to focus on higher TRL (≥ 5) for mitigating the risk of lower TRL interregional projects via the Vanguard network focusing primarily on research and not market introduction. Furthermore, the composition of groups at matchmaking events are too broad to facilitate fruitful discussions.

The Council of Tampere Region

The overall good experiences of the work are encouraging. But all this needs resources, people and time, which are scarce in many times!

7 Analysis

7.1 Policy instruments and steering mechanisms

As regards policy development, the regions have in general mandate from national level to conduct regional policy development. Most regions highlight that national policy mechanisms, decisions and priorities are passed down to regional level. Also, national policies are linked to e.g. the Operational Programmes and Horizon 2020. With respect to the Smart Specialisation Strategy, e.g. the Basque Country has developed its own strategy built on our regional traditional sectors and looking for future opportunities. The Flemish government says that innovation and industrial development is a solely regional competence and that national influence is only through fiscal and labour legislation, which is similar to Region Skåne and to Province of Zuid-Holland.

Regional Research and Innovation Councils, Steering committees and alike, with representatives such as researchers from universities, regional political actors, municipalities, regional authorities and businesses and industry, are present in all regions. Key purposes mentioned are enabling synergies and information exchange in the innovation and policy management processes and knowledge exchange of conducted projects and encouraging entrepreneurship and invests in start-up companies. Regional policies, Smart Specialisation strategies and Operational Programmes are mentioned in several regions as drivers in the regional development process. Also, stronger link between innovators in the region and global networks in order to overcome fragmentation and to facilitate access to research capacity and production of expertise is addressed by e.g. Province of Zuid-Holland. The Flemish government and AFIL are mentioning funds and voucher to overcome financial limitations for products and services that are scaling up. National Innovation Agency in Portugal has an instrument that aims to demonstrate, in real productive conditions, of results from previously concluded R&D projects in order to address the challenges of integrating results and technologies from R&D projects to build demonstrators and pilot lines

In terms of steering mechanisms, clusters are mentioned by most of the regions as an important feature for interaction between public authorities and companies and hence for influencing policy development. Also triple helix are vital in many regions. As mentioned above, all regions have established stakeholder organisations and networks at regional and local level with participants from the administration, companies, clusters and scientific and technological players with main function to coordinate and encourage development of the RIS3 strategy and to improve collaboration, policy development and implementation. Smart Specialisation strategies, Operational Programmes as well as national and regional policy/governance documents are mentioned in all regions as part of the steering mechanisms in the regions. Discussion fora and communication platforms, such as Soundingboard 2.0 in Skåne and Open Innovation Platform in Lombardy, are examples of innovative tools aimed at facilitate policy influence from different actors.

7.2 Good Practice

The division between present and potential sector specialisation and the key technologies that enables the development in each sector are, in the majority of the regions, clearly articulated in

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the main strategic documents. The sectors and niches for specialisation provided in the RIS3-documents are all the result of an extensive process of analysing the strengths and potential of the region, although not always from a European but rather a national perspective. An important observation is that some regions focus to a greater extent on potential sectors for growth while others focus on sectors where the region already holds a competitive advantage. The specialisation focus of the regions covers a broad spectrum of technologies and industries. All regions certainly have competitive industrial niches that are not articulated in the official policy documents as well as cross-fertilisations.

The regions deploy similar approaches in getting companies involved in the specialisation focus which includes the launch of specific initiatives that require active participation from individual companies. The different initiatives can broadly be summarised as follows.

- Form sub-groups of companies in line with the specialisation focus at hand: The regions have to a large extent created sub-groups, e.g. Steering Committees/Boards/Platforms where companies from specific sectors coincides with the specialisation focus of the region, i.e. avoiding broader constellations of firms. Each sub-group focus on strategic projects and areas that are relevant for participating firms.
- Cluster organisation serves as the main intermediate for involving companies: The cluster organisations are very closely connected to the companies and knowledge institutions well aware of the needs of the companies in the region as well as the possibilities to cooperate. In a majority of the regions, cluster organisations has served as the main point of contact in engaging companies to get involved in a specific activity.
- Early engagement through a bottom-up approach: The regions speak favourably of the bottom-up approach adopted in the Vanguard Initiative. This approach allows companies to get involved in an early phase, even before moving to the demonstration-phase. In this way, the companies are made given a say already when stating the objective of the activity.

To advance from connecting to demonstrating, the identification of a common objective and/or challenge that could be solved in a collaborative way, without putting at risk their competitive advantage, is underlined. The sometimes extensive process of moving from connect to demonstrate can however be deterrent for companies wanting fast results, why it is important to regularly arrange predetermined activities involving companies and to follow-up on such meetings to reassure the participants that the project is actually moving forward. Finally, it is important to engage industry leaders early on in the process, providing legitimacy to the planned activities.

The added value for companies when engaging in clusters, lies in minimising risks and opening up new possibilities. Through engagement of the cluster organisation, demonstration projects has the possibility to provide members with opportunities they would not prioritise or have the resources to carry out on their own. Participating in cooperative projects with other companies also entails business opportunities for the individual companies, which should be underlined when engaging companies in cluster formations and development activities.

7.3 Need for policy instruments

As regards the need for policy instruments, several countries points out the need for financial instruments suitable for innovative processes, start-ups and small scale entrepreneurs. Also a simplified and less burdensome administrative processes along with adjusted regulations taking into account the establishment of new business to a greater extent rather than addressing already existing and well established industries where mentioned as desirable by some regions.

From the questionnaire it is also made clear that there is a need for crossover policies of various kinds; to connect industries and other relevant actors within the value chains as well as across sectors and clusters where there is potential for productive exchanges. There is also a need for cross-over policies between science and business in order to facilitate the technology-to-market process. Regions are also often arenas for meetings between different type of actors (public sector, finance, universities etc.) but it is mentioned that it can be challenging to efficiently include businesses, especially of smaller scale, in these activities. International cross-over is also stressed by some regions as important; new ways of making cross-borders connections together with policies that have international dimensions are needed. Cross-border connections within EU and working out new ways of interregional cooperation are tasks suitable for projects financed by EU structural funds. These policies are to a great extent a responsibility of public actors and it is hence suitable for public authorities at regional, national and European level to regularly conduct reviews of the relevant policy documents.

Some other policy needs mentioned by the regions, such as helping the production system to efficient transformation in order to grasp new market opportunities and facilitating technology-to-market process, are to a large extent in the hands of the business sector. Public support is needed, but it may require careful thinking, proper analysis of needs and empirical base of good practices to find suitable policy instruments.

The processes and mechanisms that are mentioned by the regions as desirable ways forward requires instruments and policies that facilitates and stimulates the cross-over and cross-border developments. The need for well targeted policy instruments is linked to the missing policies addressed by the regions. These can be summarised as follows:

- Interregional collaboration. The regions are missing policies for interregional collaboration, which is a crucial part of regional development procedures. Relevant actors (industries, public sector representatives, financial actors, science and technology innovators, universities etc.) within each region must be known and reachable. Mapping of networks, contacts and activities is desirable.
- Financial instruments. The need for financial instruments and especially the visibility of existing opportunities are wanted. Financial instruments could be group e.g. as i) devoted to RIS3, ii) for cross-borders collaboration, iii) for existing industries, iv) for sector development and v) for cooperation between SMEs and large actors.
- Instruments supporting process from idea to market. This includes pilots, demonstration initiatives and complementary instruments to overcome start-up barriers.

7.4 Themes for OSDD

The themes for OSDD suggested by the regions are linked to the regions ambitions and documented areas for specialisation. Themes that have been suggested can also be recognised also in the need-for-policy-areas as well as areas where there is a stated need public sector involvement. Suggested themes for OSDD are linked to areas of challenges that the regions state they are facing:

- Interregional cooperation and knowledge exchange as regards innovation systems within EU,
- Advanced manufacturing and how to develop attractive innovation areas,
- Development of suitable financial instruments,
- Identification and presentation of good practices regarding demonstration and pilot projects,
- Promotion of key technologies,
- Promotion of cross-over synergies within a chosen subject, such as bio-based economy.

7.5 The learning process within the Vanguard initiative

The impact of co-leading a Vanguard Initiative pilot project on the implementation of the regions smart specialisation strategies are overall regarded as significant. Although the impact manifest itself in different ways, a number of broad themes can be identified. Firstly, the experience has led to a better understanding of the region's internal strengths within the specific areas of the pilot, facilitating the process of the subsequent RIS3-process within the specific thematic area. Secondly, and related to the previous impact, the regions have gained a deeper understanding of the relative strengths of specific areas of its own region and their place in a broader value chain including resources such as companies, research institutes, projects, innovation centres and support structures in other European regions. Many of the RIS3-strategies adopted in the regions primarily have had a national perspective and the strengths of individual sectors or technologies are mainly benchmarked nationally and not from a European perspective. Within the VI-pilot project, the knowledge of the relative strengths of the region within relevant areas has been profoundly improved. Thirdly, internationalisation is a pivotal objective in several of the regions RIS3-strategies. Through the pilot projects, the advantages of an international and outward perspective to other regions where cooperation historically has been limited serves as a good example for the implementation of the region's RIS3-strategies also in other areas. Finally, the cooperation among the project partners has created new and stronger networks among participating regions, a prerequisite for future interregional projects.

The overall view on the experiences of co-leading a VI pilot project are highly positive. Good practices include safeguarding industry involvement through steering groups (or similar) representing different parts of the value chain, making it interesting for firms to participate. The structured process allowing for specialisation topics to emerge through preliminary stakeholders meetings have been a positive experience. The common Vanguard methodology and the need to create a common pilot project vision among participants with clear criteria for demo cases are viewed as critical. Furthermore, the projects only have a possibility to succeed if the actors involved are engaged in the process. On this background, the co-leading regions should have enough capacity and knowhow of the topic to bring the process forward.

Lessons learned include several aspects. Firstly, the objective of the VI initiative pilot projects should be articulated further and a clear communication on goals (joint/private and public) should be provided. An unclear intervention logic is one of the main reasons why projects fail to materialise and reach project goals. The lack of a concrete goals relates to the possibility to communicate the possible advantages and returns of the initiative to companies, limiting their commitment after the first enthusiastic phase. For companies, the political success of the initiative is not enough and they need to see a clear advantage (of strategic, financial, technical, etc.) from participating to the initiative. Facilitating a sense of possible returns of investments would be to safeguard that the focus is on higher TRL-activities with possibility to reach the market within a shorter time frame after pilot testing or demo casing. One main challenge has been the time taken (and the resource involved) to build the right kind of interregional collaboration necessary to take the pilot forward. In many ways, the process is still not being driven by companies.