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Regionalisation trends of research and innovation policies

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Introduction

This study analyses the trends in regionalisation of research and innovation policies across European countries and takes stock of the experience and practices in governance and delivery mechanisms of policy support measures at the regional level. It does so with the objective to draw lessons applicable to stakeholders in Hordaland County Municipality on behalf of Regional Research Funds in Norway.

The key research questions have been formulated as the following:

- Do regions have decision-making power for research or innovation policy or in any of the sub-areas (collaboration between research and innovation, mobility of researchers, cluster policy, start-up support etc.)?
- Do the regions have own funding sources to finance research or innovation activities? What type of measures are financed at regional level?
- What are the most recent trends in multi-level policy governance? Can we highlight any specific research or innovation programme which shows a stronger centralisation or decentralisation?

This paper is based on an extensive literature review, desk research, review of national and regional research and innovation policy strategies, implementation programmes, the European Commission's country reports produced in the framework of the Research and Innovation Observatory[1].

This desk research has been complemented by a range of semi-structured interviews organised during July-August 2018 in some of the countries of interest for this study such as Austria, Denmark, Finland, Netherlands, Poland, Portugal, Spain and Sweden.

For the purposes of this study, research and innovation policy has been defined as the set of policy action boosting the performance of the research sector, improving framework conditions for research and development, technology and innovation and stimulating competitiveness and economic growth through innovation (OECD, 2011).

Executive summary

Regions have been playing an increasingly prominent role in research and innovation policy since the 1990's when the first regional innovation strategies were designed and regional authorities launched research and innovation support programmes within the framework of their national institutional setting. Today, **we can still observe a trend towards more decentralisation in several European countries**.

This research found that overall **there are more EU countries that have recently decided to further devolve their research and innovation policy than on the contrary**. This said, in several countries there has been no change in the administrative and budgetary framework put in place since 2010.

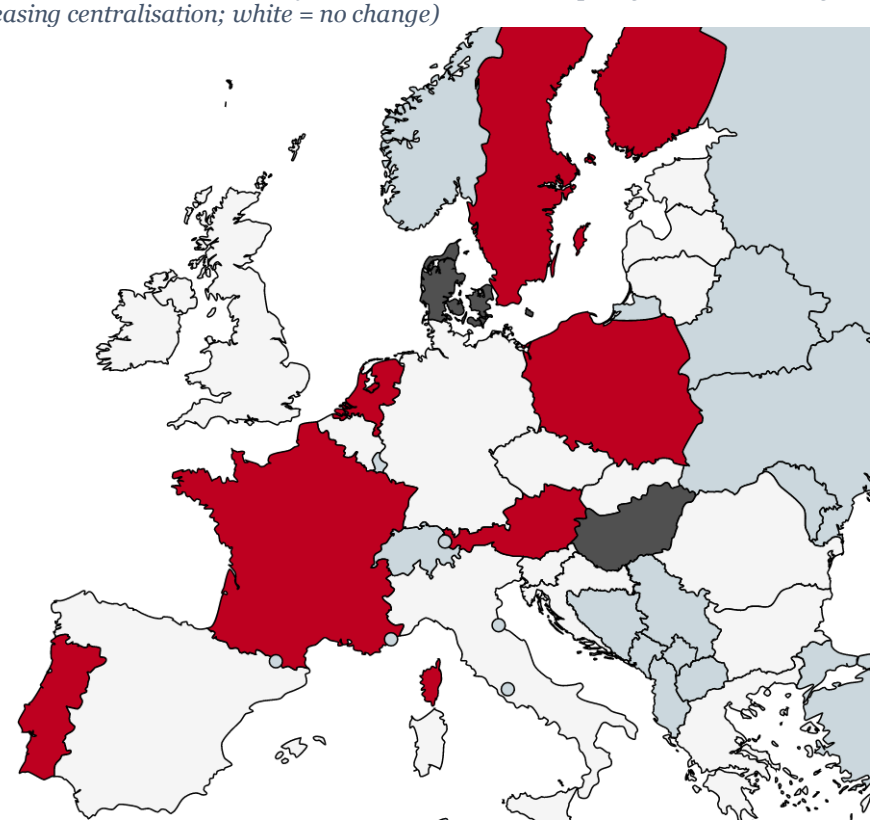
A geographical pattern emerges: we observe more efforts towards decentralization in Northern and Western European Member States such as in the Netherlands, Finland, France or Sweden; in Southern Europe R&I policy is still greatly influenced by the unfavorable economic and political context and no changes are seen in terms of multi-level governance although in Portugal for instance an increased role to regional innovation policy is considered thanks to the European Structural and Investment Funds, similarly as in Poland where in both countries regions have their own regional operational programmes (even if strongly following national guidelines). In many Eastern European countries regional

[1] https://rio.jrc.ec.europa.eu/

operational programmes and hence regional innovation policy is included in an integrated programme and controlled by national governments such as in Slovakia, Slovenia, Czech Republic, Bulgaria, Romania or Hungary.

In some countries there is a move towards **more centralization. Denmark** has launched a simplification process whereby regions won't be involved in regional economic development and innovation anymore. In **Hungary**, regions have lost their status as a sub-national level since 2012. The Hungarian Constitution and Local Government Act have been revised which resulted in more centralization and a move back to the traditional county level administration. Country trends are indicated on a map in Figure 1 below.

Figure 1: Country trends in decentralisation of research and innovation policy (red = increasing decentralisation; dark grey = increasing centralisation; white = no change)



Source: author

Another trend to be found in several EU countries is that **regional budget for R&I policy can witness an increase** for instance due to **regions recognising the importance of innovation for their economic development** (such as in some regions in Austria, Netherlands, Sweden or Belgium). In other countries such as in Italy, Portugal or Greece, some regions could increase their budget spent on research and innovation due to the **smart specialisation** agenda of the European Commission and to the availability of European Structural and Investment Funds.

Across EU countries **innovation policy is in general more often decentralized than science policy**. Responsibility for science policy and innovation policy rests often with two distinct ministries such as the ministry of research or education for science policy, and ministry of economics or industry responsible for innovation policy. Governments are eager to ensure that their science retains or reaches a leading and excellent international position, moreover the key research performing organisations such as universities and research institutes are often financed directly by the state and this provides important argument to control science policy centrally. Innovation policy, however, is more often considered with a relevant regional dimension, the importance of local industries and local innovation

ecosystems. **The role of regions are seen especially in fostering collaborative research, links between science and industry and fostering innovation in business**.

It has to be highlighted that we find a diverse pattern in the role of regions in research and innovation in different countries. **There is an asymmetry in regional autonomy** (such as in Finland, Sweden, Netherlands, Austria, Spain, Italy) since some regions or provinces are more powerful and have more own resources to support research and innovation within their own country.

In terms of the type of research and innovation policy measure, we find more often **support to collaborative research, support to business innovation, cluster initiatives and innovation network schemes.** Soft measures such as fostering technology transfer, knowledge diffusion, public–private partnerships, networking, support to startups and training activities are popular instruments at regional level even if the national governments are also engaged in such activities (Guimon, 2013).

The objective of regional initiative is often **to trigger research and innovation activities** in certain topics that are relevant for the regional industrial fabric and which can contribute to economic development. It is essential for economic success that local researchers and industry work together along very clear objectives and there are numerous policy measures at regional level that can facilitate this process. A common theme is to tackle industrial modernisation through **digitalisation** at regional level.

In countries with trends towards decentralisation, the government **considers regions increasingly as partners and we find schemes where national programmes are complemented with a regional top-up** with the objective to increase their effectiveness and to become more targeted. We also find a large number of programmes where there is a national initiative based on national governments agenda, but its management and implementation is regionalised. The region is seen pivotable for network formation and coordinating interests vertically. Synergy effect can arise from the ability to steer policy measures jointly.

Decentralisation of research and innovation policy has its supporters and opponents and many arguments exist to support both policy endeavours to decentralise or centralise research and innovation policy. Arguments to support a regionalised R&I support governance include the notion of addressing system failures, organising R&I support tailor-made to the needs of the local innovation and industrial landscape, supporting the entrepreneurial discovery process.

It is generally acknowledged amongst scientists and policy makers that innovation is the key driver for sustainable economic growth and job creation and that the region is a key arena in which the translation of knowledge creation into innovation takes place. Others also argue for making a better use of knowledge production, supporting commercialisation and bridging the gap between discovery and application. **Regional innovation policy is seen to be the successful level to organise technology transfer**, building technology platforms and technology clusters to stimulate interaction and human capital formation.

It has been also highlighted that policy needs to be 'fine-tuned' to the needs and demands of different industries and reflect the varied role of universities in working with them. **Regional actors are much better placed to tell which areas and sectors are the most promising to be developed** and a regionalised approach means cultivating organic initiatives rather than unrealistic central efforts. Moreover, regional actors claim that in order to trigger transforming innovations, it is important to invest in niche activities and it is the regions that understand the best what are the emerging industrial activities and can support an entrepreneurial discovery process.

The **role of the European Union, and the EU's Structural Funds**, have an important influence on the regionalisation efforts in many countries.

Arguments against decentralisation include mostly the issue of fragmentation, duplication of efforts across regions and the worry about creating an unclear support service landscape.

If research and innovation policy is shared with regions, good coordination of central and regional government policies is needed for those policies to achieve greater economic impact. **Weak coordination can easily lead to a fragmented and inefficient regional landscape of bodies and programmes**.

Complexity of multi-level research and innovation support can become a barrier to making the most of the businesses efforts, and it increases their costs by using business promotion. When competences and experience are spread to too many schemes and actors lead to it overlapping efforts and lower quality and high costs.

Countries and regions are also advised to **organise the regional branding of their research and innovation hotspots in a clear manner so they get a good international visibility**. It can happen that regions develop similar branding strategies without coordination and as a result the individual small-sclale innovation hotspots won't be considered relevant enough for international investors.

Coordination among regions are also needed in order to avoid the situation that a promising innovation inititative cannot be financed because some of the **firms or research centres belong to different regional administration and hence they cannot cooperate** and receive equal financing by the regional funds. This disadvantage is, however, tackled through establishing interregional coordination forums and other platforms.

1 Role of regions in research and innovation policy

1.1 State of the art

The scope for regional authorities to intervene in favour of research and innovation (R&I) varies markedly across countries and should be kept in mind when assessing lessons for Norway. Policy governance is determined by the national institutional framework. Countries such as Austria, Germany or Belgium are federal countries where regions enjoy a high-level of autonomy, similarly in Spain or Italy where regions have their own financial resources and tax collection rights. In other cases the regional level has limited competences with a lack of funding. In some, such as Finland or the Netherlands sub-regional levels such as cities and municipalities have an important influence on innovation policy (also thanks to cities and metropoles heavily lobbying for national financial resources). When comparing regional R&I policies, the overall public administration of the respective countries needs to be properly matched.

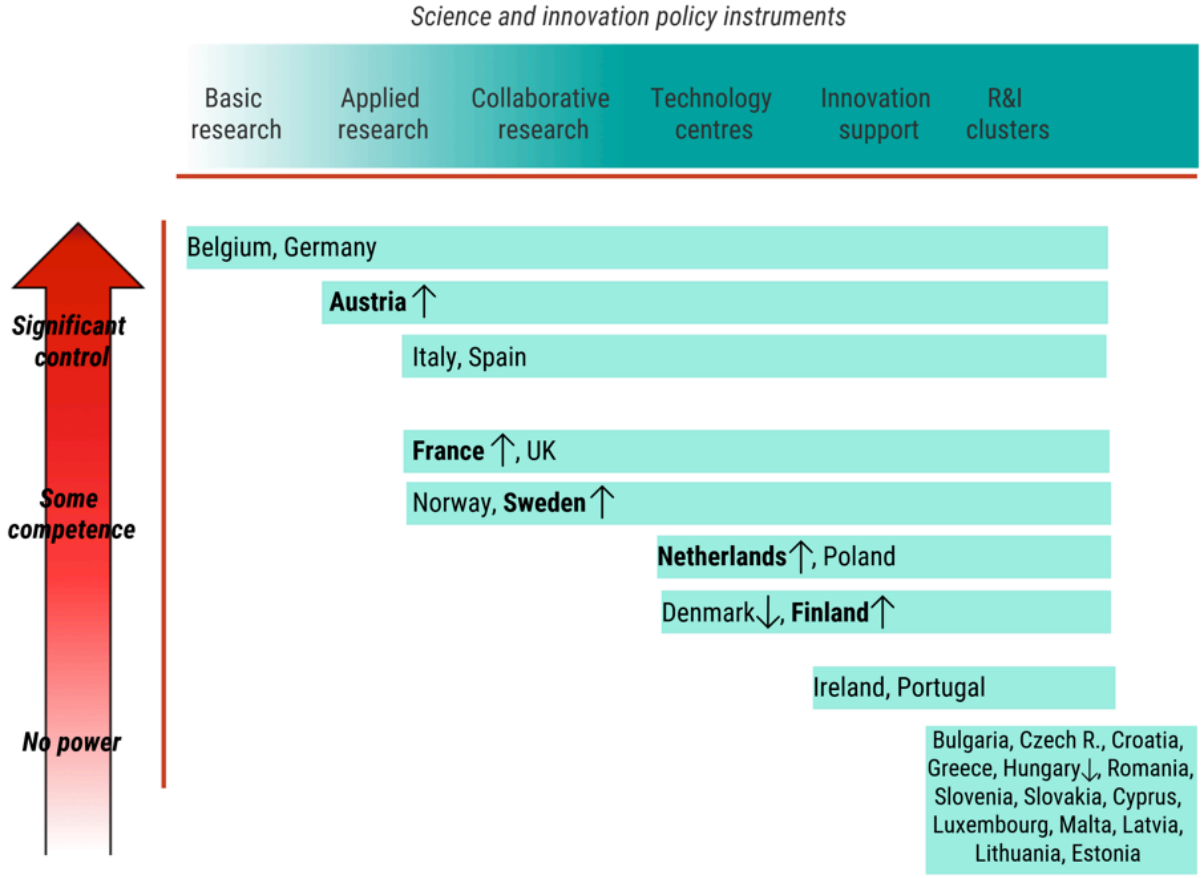
Across countries an overall tendency can be observed that basic research and science policy is administrated in a more centralised manner, while innovation policy is often steered closer to the regional and local level irrespectively of the institutional setting. Another common trait is that innovation policy is often part of regional development or regional economic policy and it is not a stand-alone area which is natural and self-explanatory. In most of the countries, at the agency level research and innovation policies and implementing mechanisms remain separate, and there is a different implication for the competence of the regions as well. Individual research and innovation systems are idiosyncratic, where context, history and culture matter.

In view of the above, EU countries have been grouped by the degree of regional autonomy in the area of research and innovation policies as illustrated in Figure 2 that presents the most recent state of the art. The vertical line illustrates to what extent do regions have a competence in research policy and which are the ones that have a control or implementing authority in innovation policy instruments such as support to business innovation or regional clusters.

This research found that overall **there are more EU countries that have recently decided to further devolve their research and innovation policy than on the contrary**. This said, in several countries there has been no change in the administrative and budgetary framework put in place since 2010.

- We can observe that regional autonomy keeps on being the strongest in federal countries such as in the case of Germany, Austria, Belgium and in regions where the government devolved a significant power to regional authorities such as in Italy, Spain and the UK.
- In France, the Netherlands, Poland and Sweden especially innovation policies as part of economic policy have been decentralised as it was also the case to some extent in Finland and Denmark. In these countries both regional authorities play an important role in the design and implementation of research, technology and innovation programmes.
- In some countries the regional level remained weak but it plays an important role to support regional innovation and development through the European Structural and Investment Funds such as in Ireland, Portugal (in Poland innovation policy at regional level is also substantially co-financed by European funds).
- Other unitary states with no regional power include a long list of countries such as Bulgaria, Czech Republic, Croatia, Greece, Hungary, Romania, Slovakia and Slovania. Moreover, the smallest countries do not run a relevant regional policy in the area of research and innovation.

Figure 2: Degree of autonomy in research and innovation policy



Source: Technopolis Group

- In some countries there are **recent or ongoing administrative reforms** that also had an influence on the share of competences within the national and regional level in the area of innovation policy. In the **Netherlands** considerable efforts have been made to focus and improve the national effort in research and innovation through governance reforms and a policy shift towards focused areas of the economy. The current Rutte government stressed the role of regions by promoting 'Region Deals' and joint investment by national and regional government (Rathenau, 2018).

- **Finland and Sweden** have been also reforming regional development. In Finland, an administrative reform is ongoing that concerns regional development and health and social care and it would give more power and role for the regional level. It is expected that more tax will be collected by the national level and less by the municipality level, however, this amount will be reallocated to the regional level to finance the extended roles that regions will obtain. R&I will be part of regional development. In Sweden, there has been a long-term process ongoing whereby Sweden's counties have been merged into greater regions. This extensive reform should be finished by 2019. As a result, the competence of regions in research and innovation policy have increased in general.

- In some countries there is a move towards **more centralization. Denmark** has launched a simplification process of the system for promotion of trade and industry in 2018, which includes R&D and innovation. This reform is expected to be implemented from 2019 on. As a result of this reorganisation the administration level in economic development and innovation has been reduced from three to to. The municipality level will be responsible for general initiatives and services, while the national level will be in charge of the specialized and focused initiatives. The

regions won't be involved in regional economic development as such but instead will focus on healthcare, education, environmental protection.

- In **Hungary**, regions have lost their status as a sub-national level since 2012. The Hungarian Constitution and Local Government Act have been revised which resulted in more centralization and a move back to the traditional county level administration. The revised Constitution and Act centralised certain local competences, such as primary education and also innovation policy due to current budget restrictions.

- In **Spain**, research and innovation policy has not evolved since the 2008 financial and economic crisis. The economy has been so hardly hit that the budget for research and innovation has been significantly reduced and the topic has basically disappeared from the key policy discussions. In Greece where the economic crisis has also a detrimental effect, the reform of Kallikratis in 2010[2] has given an increased autonomy to the regions in designing and implementing their regional development strategies and an increased role in the area of research and technology development. In the current programming period Greece has seen an increased autonomy in spending the regional operational programme which applies to all types of spending.

In some countries although there is no shift in regional competences as such, still the **budget spent on research and innovation at regional level saw an increase**. This is the case in **Austria**, where regional governments - the Länder - tend to dedicate more of their own resources to the topic of technology development and innovation. The same trend has been highlighted in the R&I report of the Netherlands (Van den Broeak et al, 2017) pointing out an increasing regional budget for research and innovation through the EU Funds. In countries with less developed regions where the European Structural and Investment Funds play an important role, the overall budget for research and innovation have been also increased due to European orientation and guidance in this direction. In **Portugal** for instance regional innovation policy is driven by the regional operative programme and the smart specialisation strategy and regions have wintenessed an increasing level of funding for their smart specialisation priority areas. EU funds are also critical in Poland. **Polish** regions have a medium level autonomy in setting their regional development goals including innovation policy and innovative actions form part of the regional operational programmes.

We also see a recentralization process in administrating EU funds, since an **integrated Regional Operational Programme** (IROP) have been implemented in Slovakia, Czech Republic, Hungary and Slovenia with the objective to improve public services. This approach is different from the previous 2007-2013 programme period where regions had their own regional operational programmes (even if the content of the individual regional OPs were usually very similar and has not meant a real regional competence either).

Countries with strong regions continue their development path. Germany is a large federal system where the regions have high influence on higher education. There are many complex and large-scale organisations in place and the government attempts coordination through overlaying cross-cutting strategic interventions (Arnold et al, 2016). In Italy the Constitutional Law (2001) introduced the principle of subsidiarity limiting the exclusive legislative power of the national government to those areas of national interest (such as foreign, immigration, defence and monetary policies) and granted exclusive legislative powers to regional governments in many areas such as scientific research, technological innovation, regional and local economic development policies. This law gives a free leeway for regions to shape their futures according to their political priorities.

In the next section, individual country trends are discussed in more detail.

[2] The Kallikratis Programme refers to the Greek law 3852/2010, a major administrative reform in Greece that brought upon a major reform of the country's administrative divisions. According to programme, the prefectures' competences were transferred to the 13 NUTS 2-level administrative regions.

1.2 Country trends

1.2.1 Austria

Austria is a federal state and the regions called 'Länder' have their autonomy and funds in the area of spatial planning, environment, agriculture, police and emergency service, municipal affairs. Most power related to research, higher education and innovation is concentrated at the federal level. Regional R&I policies focus mainly on direct funding of applied R&D to foster science-industry relations, technology transfer and innovation support measures for regional economies. Some of the regions run their own funding programmes and agencies complementary to national policy adding the regional dimension to national innovation grants.

In recent years, the Länder have increasingly recognised R&I as a policy field of their own interest and have set clear accents in this area. This has manifested itself in increased Länder budgets and the development of separate research institutes and research funding such as the Tyrolean Future Foundation, the Styrian Future Foundation or Upper Austrian Research. Most Länder have developed R&D&I strategies and mobilised substantial financial resources to implement them. This development has raised the question of the interaction of the federal R&D&I policy with its Länder counterparts (Arnold et al, 2016).

Upper Austria is a frontrunner in initiating R&I measures. It has a long tradition of strategic programmes such as the "Upper Austria 2000 +", "Innovative Upper Austria 2010" and "Innovative Upper Austria 2010plus" that have taken into account the region's characteristics and peculiarities. Its current research and innovation strategy has been defined in the 'Strategic Economic and Research Programme'. In this strategy five fields of activity have been selected based on technological core competencies within Upper Austria and the region's critical mass of competitive and innovative companies in industrial sectors related to the fields: Industrial Production Processes; Energy; Health and the Ageing Society; Food and Nutrition; and Mobility and Logistics. These fields are complemented by the "innovation chain" of research, education and production. Moreover, the regional government commits to the key principles and areas of developing Upper Austria as an industrial location; industrial market leadership; internationalisation; and future-oriented technologies.

A comprehensive evaluation of the strategic programme in 2004 provided a positive assessment overall about "Upper Austria 2000+", including cluster policy or the competence centres and recommended their continuation. As a result they were retained in the subsequent "Innovative Upper Austria 2010" programme (2005 – 2010). A priority was given to research and development especially in key sectors such as mechatronics, ICT, life sciences, new materials and logistics. The region increased its support of R&D partnerships, particularly between universities, business and industry, as well as the development of human resources and professional training[3].

1.2.2 Denmark

The Danish research and innovation policy landscape is centralised where the national level is active in promoting and funding research and innovation. 5 Danish regions were created in 2007 and at the same time the number of municipalities was reduced to 98 and the counties were abolished (Klatt, 2014). Danish regions are composed of representatives from the region, municipalities, local trade and industry, knowledge institutions and the labour market.

The regional level used to have competences and funding for business development. In 2016, the regions provided 1.1 b DKK (€148m) to this area (Knudsen et al, 2017). Especially the regional growth forums were instrumental to organise regional business support. Each regional council appointed a growth forum with representatives from the business community, educational institutions, labour market entities and politicians from the regional and municipal levels. The growth forums were included in regional partnership agreements with the government involving growth and business development[4].

[3] http://www.alpine-space.eu/projects/s3-4alpclusters/project-results/downloads/pp2_upper_austria_en.pdf

[4] https://www.regioner.dk

They focused on innovation in the private sector and strengthened collaboration between research institutions and SMEs and advised on growth plans and innovation audits in SMEs. The regional growth forums spent approximately €107m on regional growth measures in 2016 (Uddannelses- og Forskningsministeriet, 2016).

Nevertheless, this decentralization trend stopped. The need for an improved Danish business promotion system has been a strong debate in policy circles. A recent report (McKinsey, 2017) on support services to businesses pointed at an unclear organisational structure, overlapping services and offers and low effectiveness and called for a better optimisation.

A so-called "Simplification Process of the system for promotion of trade and industry" was launched in 2018, which put forward a reduced role for regions in economic development and innovation. According to this reform, regions won't be involved in regional economic development as such but instead will focus on healthcare, education, environmental protection. In May 2018 the national government and the Danish People's Party have signed an agreement on a simplified and future-oriented business promotion system focusing on business needs. This has been done with the objective to ensure that companies have an access to a well-functioning business promotion system with services that are easy to access and adapted to demand.

Instead of regions, according to the reform it is the municipalities that will become the focal point for companies to access basic local business and innovation support services and the specialised business services that require strong academic environments and critical mass of companies will be offered centrally. The implementation of a digital platform for business support service is also a very important goal of the reform. As from 2019, the regional growth forums and cluster efforts will be consolidated under the responsibility of the Danish Business Promotion Board. Danish regions will focus mainly on healthcare that will entail some research and innovation as well but this is limited.

1.2.3 Finland

In Finland national level policies are prominent and have a significant impact on regional policies, especially since majority of resources are at the national level. Finland is a country with a non-elected regional level; hence national policies have high influence on regional development priorities. It is the central government and municipality levels that have tax collection rights and own financial resources. The remit of the Regional Council is much more limited and it acts like a coordination platform for the cities and municipalities (Izsak and Romanainen, 2016).

Science policy more than innovation policy is in the hands of central government and regions and municipalities do not directly have any say in the formulation of science policies. However, Finnish city-regions have influenced national science policies indirectly and the interaction of national and local policies has unfolded in time in innovation and science arenas (Sotarauta, 2007). Currently, innovation support is managed by Business Finland and research and innovation is fairly centralised.

Cities especially the larger ones are powerful in terms of supporting innovation. The major cities have their own strategies, programmes and platforms for innovation and even their own funding instruments such as the Smart Tampere, Smart & Clean Foundation- Helsinki, Smart Oulu, Espoo initiatives.

Regions developed their smart specialisation strategies but they have a lack of funding to promote R&I. The regions manage, however, the European Structural and Investment Funds, but this is only relevant for regions that are less developed. The regional economic and employment centres have been responsible to organise innovation support for companies.

In 2018, an administrative reform has been ongoing that concerns regional development and health and social care and it aims at giving more power and role for the regional level. In Finland, there are 3 administrative levels: national, regional and municipality and currently it is the national and municipality levels who can collect taxes. The regional level is more a coordinating platform but it has very few resources at their hands. 1st January 2021 the reform will come into force. The regional level will have a mandate to deign their own regional development and health and social care functions and there will be changes in terms of tax collection. More tax will be collected by the national level and less

by the municipality level and the money will be reallocated to the regional level to finance the extended roles. R&I is seen as part of regional development.

All business support services including innovation support will be tendered by the regions to appoint new service providers. It is a new procurement model. One example where changes will happen is the invention support, support given to inventors, it has been coordinated by Business Finland but in the future it will be managed by the regions.

Before launching any new national or regional programmes, the final outcome of the regional reorganisation will be waited for, which will increase the autonomy and importance of the (new) regions. The change is likely to change the national-regional work division significantly, and currently it is hard to predict to what extent the new regions will launch RDI -programmes and whether there will be any national regional programmes. The regions will start also planning on how to organise and fund their RDI in the healthcare sector (which falls into their new responsibility).

1.2.4 France

France's institutional set up is commonly referred to as a "mille-feuilles", the French pastry made of thousand layers (Saskie and Zaparucha, 2017), where the key players come from 4 levels such as national, regional, department and local level. The distribution of competences between the different administrative levels was for a long time in favour of the state administration. Over the years, the regional level gained power over the state level, in particular in defining policy orientations. For instance, the regional and city funding allocated to competitiveness clusters has increased since their creation (mid-2005) to finally exceed the contribution of the state in many French competitiveness clusters as of 2016.

In 2015, a law reshuffled the competences in the field of economic development between the various levels of administrative governance, in particular at the regional and sub-regional level. The rationale for this new distribution of competences is that innovation policy should be dealt with better at the regional and local level.

The new role of the Regional Council since 2015 is defined in the law on the New Territorial Organisation of the Republic (NOTRe). The law stipulates that "*the region is in charge of defining, on its territory, the policy orientations in the field of economic development*". For that purpose, regions had to adopt an Economic Development, Innovation and Internationalisation Scheme (SRDEII) that organises, on the regional territory, the complementarity of actions carried out by all public authorities (local, regional, national) (Saskie and Zaparucha, 2016).

The implementation of the Regional Council policies is the responsibility of the regional innovation agencies (Agence Régionale Pays de la Loire Territoires d'Innovation), which arethe operational arm to coordinate the implementation of all policy instruments.

The agencies have developed activities to fulfil four main objectives:

- Support the local actors in order to ensure that economic activities and employment are 'rooted' in the regional territory;
- Encourage all forms of innovation in enterprises and territories;
- Strengthen the internationalisation of the regional economy;
- Develop the attractiveness of the regional territory;
- Coordinate, facilitate the Regional Innovation Network.

Within the policy mix, a lot of effort has been dedicated to technological infrastructures and received the title and funding of regional innovation platforms (PRI). The regional approach combines a facilitated access to technologies for SMEs over all the regional territory with a massive concentration of funding in four technocampuses that address the largest companies as well as SMEs.

1.2.5 Netherlands

Although research and innovation policy in the Netherlands is mainly centralised at the national level, the provinces and local innovation communities play an important role in shaping the Dutch science, technology and innovation (STI) agenda. The national government manages the key funding instruments, but policy-making and focus areas are gradually becoming more regionalised and support to business R&I is increasingly provided at the regional level (also due to priorities of EU Funds) (Van de Broeak et al., 2017).

Provincial authority rests with the provincial councils that are directly elected every four years and act as the legislative authority in the province. The Dutch provinces have strong competencies in the areas of spatial planning, infrastructure and transport, environmental policies, regional economic development, regional culture and rural development.

In research and innovation policy, the regional aspect is getting more and more important, especially when policy areas are linked such as research infrastructure, collaborative research, campus, innovation, start-ups, education. The latest decentralisation process started in 2015 called the "Decentralisaties social domein", whereby tasks in the domain of health and social affairs such as youth care, have been shifted from the central government and provincial levels to the level of municipalities (Groenendijk, 2015). Previous Dutch governments had already focused on devolving tasks to local and regional authorities.

Most recently, the third Rutte government has made a point of stressing the role of the provinces by promoting 'Region Deals' and joint investment by national and regional government (Rathenau, 2018). A process is ongoing whereby various activities have been transferred to the regional level including innovation types of activities. The Dutch take an approach to design and implement certain R&I measures jointly. For instance, the budget of the MIT programme[5] (an SME scheme to stimulate innovation in selected top sectors) has been increasingly matched by regional funding.

There is, however, an asymmetry in regional autonomy since some provinces are more powerful and have more own resources to support innovation in their economies such as Limburg and Brabant. Cities and public-private partnerships can be also very successful in national lobby and regions and cities develop also research and innovation agendas that attract funding such as the Rotterdam and The Hague metropole region.

Regions also play an increasingly prominent role in research and innovation policy. For example, the Province of Limburg is funding a research institute in Geleen, and the Brainport public-private partnership in the Province of Noord-Brabant is the driver behind a regional innovation ecosystem (Rathenau, 2018). Brainport has recently launched the Brainport National Action Agenda in which it asks for national support for the continuing development of the Brainport area and focuses on four flagships of newly emerging technologies combined with leveraging the existing culture of collaboration. Leiden and Noordwijk have been also very active and pursuing their agenda for a space campus close to the European Space Research and Technology Centre.

1.2.6 Sweden

In Sweden, there are 8 NUTS 2 level administrative regions and 21 counties that correspond to NUTS 3 regions. Political tasks at this level are undertaken on the one hand by the county councils, whose decision-makers are directly elected by the people of the county.

Science policy is centralised where the Ministry of Education and Research and the Ministry of Enterprise and Innovation are responsible for research and innovation policy (Hallonsten et al., 2017). Nevertheless, regions also have an important competence in research and innovation policy especially supporting the development of their regional industrial strongholds. The government adopts a Research and Innovation Bill every four years. The most recent bill with a ten-year perspective was adopted by the Parliament in 2017 to enhance the longer term perspective in research and innovation policy.

[5] https://www.rvo.nl/subsidies-regelingen/mkb-innovatiestimulering-regio-en-topsectoren-mit

Tillväxtverket, the Swedish Agency for Economic and Regional Growth manages and distributes funding from the European Regional Development Fund on assignment by the government, which means that it is in charge of supporting smart specialisation on NUTS 2 regional level. Vinnova, the national research and innovation agency also has programmes with a regional dimension such as Vinnvaxt or the Bio-based economy programme in which regions collaborated.

Despite the national approach to R&I policy, there has been a long-term process ongoing whereby Sweden's counties have been merged into greater regions and they received more competence and financial resources to implement their regional innovation agendas. 10 of the counties have been transformed into new regions in an ongoing pilot policy of increasing regional autonomy. This extensive reform should be finished by 2019, although the upcoming elections might bring new changes. In 2015 six new regions has been created which are Region Jönköping, Örebro, Gävleborg, Östergötland, Kronoberg, and Jämtland Härjedalen that joined Region Skåne, Västra Götaland (which were made permanent regions in 2011), Region Gotland changed status from municipality to region in 2011, and Region Halland in which the county council and regional development council merged in 2011.

The strategy for regional development launched at national level in 2015 is called National Strategy for Sustainable Regional Growth and Attractiveness that sets the framework for research and innovation policy. Nevertheless, some regions (Dalarna, Värmland and Östergötland) have launched ambitious smart specialisation strategies in accordance with the model proposed by the European Commission, and in two Swedish NUTS2 regions, namely North Middle Sweden (NMS) and East Middle Sweden (EMS), the regional authorities (Värmland, Dalarna and Gävleborg; Östergötland, Sörmland, Örebro, Västmanland and Uppland in EMS) are developing joint strategies to explore common strengths and synergies.

Region Värmland, for instance, is responsible for five colleges for adult education and several regional resource centres, including Visit Värmland, the Regional Resource Center for Dance and the Regional Energy Agency. The objective is to create the conditions for growth that is economically, socially and environmentally sustainable. The regional council co-funds regional growth related projects including research and innovation and it has around 40m SK per year from the state. This is still a small part compared to the national research and innovation funding. The county council and municipalities of Värmland have tax receipts of about 1,4b euro per year, of which Region Värmland receives 16,7m. This means that about one percent of tax revenues from the residents of Värmland goes towards regional development[6].

The development of the smart specialisation strategy has been an important step and has been a successful process in Värmland. The Research and Innovation Strategy for Smart Specialisation 2015-2020 aims at serving as a tool for sustainable and inclusive development and growth in Värmland. Region Värmland allocated funding for R&I in the framework of the 'Academy for Smart Specialisation' initiative and 50 m SK is given for a 5 year period to fund R&I in universities along the smart specialisation themes. There are very clear objectives that have been set together by the local researchers and industry which is seen as a key to success. They also take the national measures into account.

An important aspect that regional actors pointed out is that there is a need to better align the national and regional level policies. What would be necessary is that national innovation agencies take the regional smart specialisation agendas into account in a stronger manner and follow up those priorities. In this respect, smart specialisation agendas could be mainstreamed and become more effective.

Local elections are coming up in September 2018 that might change the landscape and policy priorities.

[6] http://www.regionvarmland.se/english-summary/

2 Implementing and coordinating regional R&I policy

2.1 Regional research and innovation programmes

In this section, we bring examples of recent research and innovation programmes, projects and initiatives implemented at regional level and seen as effective or being popular.

In **Austria** and specifically in Upper Austria there are regional programmes that follow the latest megatrends such as the **STAR programme - 'Step Ahead Through Research'**. The objective of this initiative is to trigger research and innovation in certain topics that is relevant for the regional industrial value chain through regional support, the objective is to unlock the innovation potential of the region. In the framework of this programme, approx. 40 m eur will be invested over 2017-2021 in research and innovation. One example has been to foster research and innovation in nutrition and food. The STAR initiative includes also thematically driven, personal programmes to foster research with young researchers in certain areas. Several of the strategic programmes follow topics broadly defined at EU and national levels for instance through the Horizon Europe programme. The programme focuses on innovative niche areas that have high potential but are not yet addressed sufficiently. The programme is managed by the Upper Austrian Research GmbH.

So-called **'Pilot lines'** have been also launched that is a national instrument to foster digitalisation but it has been complemented with regional co-funding. Upper Austria supports research projects in the area of digital technologies by a total of 5.68m euro. Two recent digital initiatives in Upper Austria are the following instruments: **DigiFIT** will facilitate industrial firms towards digitization and a rapid connection in the Digital Transformation. DigiVALUE has been designed to allow companies with advanced levels of automation to better and value-add their data. Silicon Austria is a new programme where part of the funding comes from Carinthia, Styria and Upper Austria besides national funding and private co-financing.

In **Finland**, the Regional Council of Pirkanmaa launched a regional innovation and experimentation programme called **Aiko**, which has been a national initiative based on national governments agenda, but its management and implementation has been regionalised. The priority is given to industrial restructuring. The programme funds experimental development projects related to the renewal of manufacturing firms through the adoption of digital services. The total programme budget is relatively small: 839,000 € funding is provided for the period 2016-2018. Despite of the low level of financing, the programme has very relevant objectives and is considered as important by local actors interviewed for this report. Funding is granted to the following themes: digitalisation, industry 4.0 premises and demonstrators. The level of support cannot exceed 60% of the eligible costs of the project (Izsak et Romanainen, 2017).

In **Sweden**, the so-called **10 professorship programme** has been an initiative of the Region Värmland with the objective to foster applied and mission-oriented research. This programme has been recently evaluated and found to be successful. The programme was the forerunner to create the smart specialisation priorities. Overall the Region Värmland and the Karlstad University have together made great progress by focussing on regional competitiveness in key business clusters. There has been a mix of internal and external candidates appointed to the '10 Professorships' part of the programme. Internal candidates tend to have stronger local networks, while external candidates can bring connections from other places. There should be more mechanisms for professors to share learning and experience between themselves in order to maximise the benefits of these local and external connectivities. The current agreement comprises the installation of ten new professorships at Karlstad University in subjects in demand from the cluster organisations and regional leaders. Eight of the ten professorships are defined in the intersection between the university's strategies and the development areas of the cluster organisations in Värmland (and their member companies). The research areas that these eight professors cover include: production technology, improved energy efficiency, the development of services in the engineering sector, user-focused packaging development, renewable energy, testing of software systems, materials science, and cloud-based IT services. Links between the university and the cluster organisations are overall very good, with evidence of high levels of trust in the relationships.

However lack of absorptive capacity in SMEs, visibility of the professors among companies and (at times) a mismatch of expectations act as constraints.

In **France** an important policy instrument that supports public-private technological research is the **Technological Research Institute Jules Verne**. This is an industrial research and technology organisation dedicated to advanced manufacturing uniting the private sector and scientific research institutions on a public-private partnership model. Its goal is to improve the competitiveness of regional industry and to help the region becoming a world reference in the field of advanced production for composite and metallic materials and hybrid structures. The IRT Jules Verne provides technological resources, and carries out research projects for and with enterprises. It also created in 2015 an event dedicated to bridge the gap between industries' needs in terms of human resources and students willing to engage in industry-related training, through apprenticeship (Saskie and Zaparucha, 2017).

2.2 Nationally funded or coordinated R&I programmes with regional dimension

Certain policy instruments can be co-financed and jointly managed by regional and central governments. Often, the central government exercises a policy design role, and the lower levels of government are responsible for service delivery.

In **Austria,** coordination between the national and regional level happens on the basis of specific programmes. One example of how federal R&D&I policies can interact with Länder is the national Kplus programme, which supported research platforms that brought together scientific research and innovative firms. Public funding was provided jointly by the federal and Länder governments. The federal level set the programme goals and defined the rules for implementation, while the Länder provided co-funding to the programme and to the established platforms. Other examples for cooperation between the national and regional levels include programmes AplusB and REGplus. AplusB supported incubator facilities at universities or other public research institutions, REGplus focused on technology centres and supported regional competence building and networking (Arnold et al, 2016).

In **Finland** the Innovative Cities - INKA programme is a result of a dialogue between the national government and the cities. The Finnish government published a standard tendering procedure throughout Finland in order to gather concrete ideas and decide the participation of regional actors in this programme. This involved the submission of a proposal by the cities and further negotiation with the government to refine the contents and role of the different cities, hence the local level was critical in defining the programme content (Izsak et Romanainen, 2017). The positive outcome of the INKA policy design process was that it created a strategic discussion about the future economic development priorities and promising policy approaches.

Another Finnish policy initiative is the 6City Strategy as a platform for interregional policy coordination. The 6City Strategy is a joint initiative between the six largest municipalities in Finland including Tampere, Helsinki, Oulu, Turku, and also in the wider Helsinki Metropolitan region, Espoo and Vantaa as part of the Finnish implementation of EU Cohesion Policy for 2014-2020. This programme has three 'priority axes' in the areas of open innovation environments, open data and interfaces, and open participation and customership. The 6City Strategy initiative allows cities to cooperate and tackle urban challenges jointly. In this sense it is both a policy coordination and policy implementation mechanism. For instance efforts are made to harmonise policies such as the use of open data or the launch of open innovation platforms.

In **Sweden**, more specifically the recent success of one of the clusters in **VINNOVAS's Vinnväxt competition**[7] can be interpreted as an indicator for a good alignment of the regional development strategy with the national policy agenda. Vinnväxt is a programme that takes the form of a competition for regions. The aim has been to promote sustainable growth by developing internationally competitive research and innovation environments in specific growth fields. It provides long-term funding to regions to coordinate business, academia and public sector towards research and innovation.

[7] https://www.vinnova.se/e/vinnvaxt-2019/

In the **Netherlands**, the Topsector initiative is the core of the current national research and innovation strategy, according to which nine platforms have been created where policy makers, science representatives and industry jointly determine a technological and industrial development path. The top sector approach has seen policy coordination take place within the triple helix of businesses, educational institutions and governments. Each of the nine top sectors has developed a social network and has a unique organisational structure with their own rules, agreements, and arrangements to drive innovation within its respective sector (Regeczi and Oomens, 2017).

In **Denmark** in the 2014-2020 period, the **INNO+ initiative** supports smart specialisation investments in: transport, environment and urban development, food production and bio economy, health solutions, innovative production and innovative digital solutions. INNO+ has been devised as a part of the work on the Danish government's innovation strategy and identifies particularly promising areas of innovation for Denmark, on the basis of special Danish knowledge and commercial preconditions which can support increased export, growth and employment.

2.3 Coordination forums

For an effective implementation of research and innovation policy, it is important to clearly define the roles of each government level. The way how multi-level governance is organised in the country is largely influenced by their institutional structure. There are usually three main levels that are involved the national, regional and municipality level (at NUTS 1, 2 and 3 levels), moreover there are further differences between administrative regions and other juridical regions.

In **Austria**, the region has a long tradition in working together with FFG, the Austrian Research Promotion Agency. The basis of the collaboration is the so-called **Cooperation Contract**, whereby the region complements national programmes with an add-on with regional money. The same type of contracts are used in the case of the scientific fund. For instance, Upper Austria often involves the national level in the process of research and innovation policy implementation, for instance by creating an international/nation-wide jury and in order to create a sounding board that can guarantee the impartiality of results and hence it creates less questions why certain stakeholders have been selected to fund. The involvement of the national level ensures further quality management and independency. The Austrian Länder also created an informal platform to discuss various topics, including the R&I, the so called **Conference of Governors**. The Conference aims at defining a common line to represent the interests of the individual Länder.

In **Finland** the so-called **Growth Pacts,** launched under the current central government, form part of the coordination mechanism between the national government and the cities. The government collects taxes and a part of this is allocated to the cities. This allocation happens through the Growth Pacts, which includes a decision on the budget and a plan how the cities wish to spend the money. The cities are free to come up with their own policy development goals and support measures but they are 'stress-tested' by the national level through this process. There are also national level objectives transmitted through the Growth Pacts for instance the goal of increasing the amount of innovation public procurement (Izsak et Romanainen, 2017). The Growth Pacts are well aligned with all the other strategies. Its purpose is to agree between the government and the city how the city will implement its planned activities and projects selected by the government in the respective region, particularly in the form regional innovation and experimentation projects. The pact includes also additional funding from the government.

Denmark put in place a unique multi-level governance mechanism to align national and regional innovation policies after a major reform in 2007. The regional "Growth Forums" served as a platform where policymakers can discuss innovation policies with representatives from business, labour market and research. Partnership agreements between the national government and the regional growth forums had been institutionalised in order to ensure alignment between national and regional priorities. The Growth Forum is responsible for innovation policies in the region while the national government is responsible for improving the general business framework conditions in Denmark. The Regional Growth Forums had no formal authority in the area of science and technology, however, the regional authorities and the universities have a strong collaboration on specific initiatives (Ebdrup and Nielsen, 2011).

In **Italy**, the main coordination mechanism between regional and national authorities is the **State-Regions Conference**. It carries out intense activities of connection and consultation intended for the coordination between the central government action and the regional one, especially in the fields of strategic planning and the elaboration and implementation of European measures related to regional competences (Elli and Hinojosa, 2017).

In Spain the central government convenes contracts with the regions to improve national–regional coordination in support of R&D and innovation and provides preferential loans at low interest rates for regional investments in science and innovation. Within the contract, each region commits to its own objectives for meeting the national plan's targets. These bilateral contracts are flexible, allowing for an asymmetric decentralization across regions (Guimon, 2013). It is, however, still a challenge to create synergies between regions and improve coordination mechanisms between national and regional strategies with the aim to both stimulating R&I potential and performance (Fernández-Zubieta, 2017).

In **France**, **State–Region Project Contracts** have been concluded between the national and regional level ("Contrat de Projet État–région"). These broad contracts cover all policy areas and set out the financial transfers provided by the central government to meet regional policy objectives. The contracts have a chapter dedicated to research and innovation, including the continued deployment of research capacities in regions with strong university potential and the preservation of the influence and international competiveness of large scientific centers (Saskie and Zaparucha, 2017).

In the **Netherlands**, a newly created instrument called the **City Deal** provides a platform for coordination across government levels. The deals entail agreements between public and/or private parties to help cities and urban regions address problems and achieve their ambitions. The emphasis is on innovative initiatives with international scope. Cities and other stakeholders determine the form the City Deals take, with central government acting as partner and facilitator, for example by amending legislation and rules to create space for new ideas, delivering tailored solutions at regional level, merging existing funding, amending conditions of financing and working with new forms of procurement

3 Drivers and challenges behind decentralisation efforts

Decentralisation of research and innovation policy has its supporters and opponents and many arguments exist to support both policy endeavours to decentralise or centralise research and innovation policy. This said, science policy is less contradictional and there is a stronger consensus for steering it at a national level than innovation policy. Besides the theoretical underpinning of the arguments, interviewers often pointed out that it is political priorities, agendas and political lobbying that will decide how to organise the design and implementation of R&I strategies in the end. In Finland, for instance, the current government is run by the Center Party, whose fundamental aim is to transfer power including both autonomy and fiscal functions from the central administration to regions. This change has been justified by many different arguments such as cost savings, better coverage of health services, which could easily be challenged, but the political ambition behind is too strong. There is however lot of debate going on including the concerns about service coverage or the efficient functioning of the market.

Arguments to support a regionalised R&I support governance include the notion of addressing system failures, organising R&I support tailor-made to the needs of the local innovation and industrial landscape, supporting the entrepreneurial discovery process. In the Netherlands it is the Rathanau institute that has discussed recently the pros and cons of regional innovation policy and analysed to what extent research and innovation should have a regional character. They find that the Netherlands' success in innovation is the result of many different municipalities and regions working together and regional hotspots playing a very important role.

Systemic approach in support to research and innovation: System failure refer to the inability to make the most out of what is available due to missing or malfunctioning links in the innovation system (Edquist, 2001). According to theories of regional innovation systems and industrial clusters, a regional government may be better suited than a national one to tackle systemic failures as an animator of a

public–private process of interactive and mainly incremental learning, with a focus on bringing scientific knowledge closer to local industrial needs (Cooke 2001; Koschatzky and Kroll 2009, Guimon, 2013). It is generally acknowledged amongst scientists and policy makers that innovation is the key driver for sustainable economic growth and job creation, and that the region is a key arena in which the translation of knowledge creation into innovation takes place. The region of Värmland, for example, has designed and implemented policy strategies led by territorial innovation models such as clusters and regional innovation systems. Others also argue for making a better use of knowledge production, supporting commercialisation and bridging the gap between discovery and application. Learning such through interactions, linkages between various actors and entrepreneurship can best fostered at regional level. Regional innovation policy is seen to be the successful level to organise technology transfer, building technology platforms and technology clusters to stimulate interaction and human capital formation.

More efficiency at regional level: In Austria it has been argued that since the regional level can listen better to the needs of local industries and R&I actors, it is more efficient to organise R&I support at the level of Länders. The national support landscape is seen fragmented, where there are too many ongoing programmes, competence centres, and fragmented topics, where actors loose their overview. The Länder have put in place a close monitoring system that ensures the direct follow-up of policy measures and can make quick adjustments if necessary. In Värmland, the Region plays an important role in encouraging network organisation among companies and bridging cooperation between Karlstad University and the industry. The region is pivotable for network formation through coordinating both horizontally interests and policies among communes and social and economic organizations, and vertically between policies by central government agencies including policy for infrastructure and education and policy in Värmland. In Portugal the regional RDI funding instruments are also considered as enhancing efficiency and effectiveness to reach development goals.

In Sweden the rationale behind more decentralisation is that by incorporating regional development into the county councils, it will fall under the responsibility of a directly elected institution. The synergy effect can come from the ability to coordinate policy measures more effectively. Regional and local politicians also aspire to take more responsibility over the economic development, also including smart specialisation and innovation. In the past, regions feared that the capital city of Stockholm overshadows their aspirations and "in order to have a positive economic development one had to take matters in their own hands" (McCallion, 2012).

Fine-tuning support to the needs of local industries: It has been also highlighted that national level policies often focus on top research, high-tech innovations and strategic and large-scale investments. It is important to note that innovation takes place not only in high-tech industries but in all sectors of the economy, and policy therefore needs to be 'fine-tuned' to the needs and demands of different industries and reflect the varied role of universities in working with them. Regional actors are much better placed to tell which areas and sectors are the most promising to be developed and a regionalised approach means cultivating organic initiatives rather than unrealistic central efforts. Moreover, regional actors claim that in order to trigger transforming innovations, it is important to invest in niche activities and it is the regions that understand the best what are the emerging industrial activities and can support an entrepreneurial discovery process.

EU Funds and smart specialisation: the role of the European Union, and the EU's structural funds, have an important influence on the regionalisation efforts in many countries. Achieving balanced and sustainable growth through the support of regional research and innovation is at the core of the EU regional and cohesion Policy. The notion of smart specialisation supports a process of bottom-up discovery of national technological strengths and priorities by bringing together regional strategies (European Commission 2016). The identification of regional competitive advantages and the development of strategies to maximise regional potential has highlighted a need to implement high added-value specialisation through collaborative innovation in key enabling technologies. In consequence, consolidation of clusters and networking in integrated regional research and development must also include, when appropriate, the stimulation of local innovation in advanced manufacturing technologies.

Arguments against decentralisation included mostly the issue of fragmentation and the worry about creating an unclear support service landscape and inefficient duplications.

Fragmentation: If research and innovation policy is shared with regions, good coordination of central and regional government policies is needed for those policies to achieve greater economic impact. Weak coordination in several countries such as Spain, Denmark etc has led to a fragmented regional landscape of bodies and programmes to foster research and innovation activities and inefficiencies. Coordination mechanisms among national, regional and local actors responsible for research and innovation policies are indispensable in order to create synergies. If there is no clear division of responsibility between national and regional administrative levels in certain cases that results in overlapping instruments and programmes. The goal of regional systems should not be to duplicate national innovation systems but bring in additionality and help to exploit regional strengths. Discovering new ways of coordination is a challenge both for national and regional research and innovation policies.

Unclear support service landscape: In Denmark the policy consideration behind the recent reforms is to improve the current system that has been found too much supply-driven and difficult to go around. Complexity is a barrier to making the most of the businesses efforts, and it increases their costs by using business promotion. When competences and experience are spread to too many schemes and actors lead to it overlapping efforts and lower quality and high costs. It often gives companies experience that efforts more reflect the priorities of business promoters than business needs. In other countries such as in Slovakia or Hungary there has been a concern about regional institutional capacity to implement research and innovation programmes.

Need for interregional cooperation and synergies: Countries and regions are also advised to organise the regional branding of their research and innovation hotspots in a clear manner so they get a good international visibility. It can happen that regions develop similar branding strategies without coordination and as a result the individual small-sclale innovation hotspots won't be considered relevant enough for international investors. Coordination among regions are also needed in order to avoid the situation that a promising innovation inititative cannot be financed because some of the firms or research centres that would need to collaborate belong to different regional administration and hence they cannot be equally financed by the regional funds. This disadvantage is, however, tackled through establishing interregional coordination forums and other platforms.

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Appendix B: Interviews

Country	Name	Organisation	Date
Austria	Klaus Oberreiter	Biz-Up Austria	17 August 2018
Denmark	Leif Henrik Jakobsen	Danish Technological Institute	28 August 2018
Denmark	Martin Klatt	University of Denmark	28 August 2018
Finland	Kimmo Halme	4Front	17 August 2018
Finland	Jari Romanainen	Technopolis Group	3 August 2018
Sweden	Anders Olsson	Region Varmland	21 August 2018
Sweden	Marie-Louise Erikkson	Region Skane	24 August 2018
Netherlands	Martijn Poel	Ministry of Education	July 2018
Netherlands	Anne Mensink	Technopolis Group, Food Valley	30 August 2018
Portugal	Douglas Thomson and Susana Figueiredo	SPI	27 August 2018
Spain	Jaime del Castillo	Infyde	27 August 2018

Appendix: Summary of regionalisation trends and reforms

Table 1: Regionalisation trends and reforms

Degree of autonomy	Countries	Most recent trends	Recent or ongoing administrative reforms
Significant control of STI powers in federal countries	**Austria**	Although the national level is clearly more important, regions have significant control over their policies and have recently put R&I higher up on their agendas with more resources. Some regions have more active R&D policies, like Vienna, Upper Austria, Styria, Lower Austria and Tyrol.	
	Belgium	na	
	Germany	na	
Significant control of STI powers	Italy	na	
	Spain	na	
Some decentralisation of STI powers	**France**	In 2015, a law reshuffled the competences in the field of economic development between the various levels of administrative governance, in particular at the regional and sub-regional level. The rationale for this new distribution of competences is that innovation policy should be dealt with better at the local level.	2015 decentralisation action
	Netherlands	The third Rutte government has made a point of stressing the role of the region by promoting 'Region Deals' and joint investment by national and regional government.	2015 decentralisation action
	Poland	Polish regions have a medium level autonomy in setting their regional development goals. They play an increasing role in R&I due to ESIF.	
	Sweden	10 of the counties have been transformed into new regions in an ongoing pilot policy of increasing regional autonomy. There has been a long-term process ongoing whereby Sweden's counties have been merged into greater regions with wider roles including economic growth.	Reform of pilot regions (greater regions)
Some decentralisation of STI powers through significant regional initiatives or local actions	**Finland**	In Finland national level policies are prominent and have a significant impact on regional policies, especially since majority of resources are at the national level. An administrative reform is ongoing that concerns	

		regional development and health and social care and it would give more power and role for the regional level.	
	Denmark	In 2018 a 'Simplification' of the system for promotion of trade and industry, including R&D/innovation has been launched and the plan is expected to be implemented from 2019 on. As a result of this reorganisation it is expected that the local level will be responsible for general initiatives, service and the national level will be in charge of the specialised/focused initiatives.	Simplification' reform
No power at regional level but control over ESIF funds	Czech Republic	Separate regional operational programmes including regional innovation	
	Portugal	Separate regional operational programmes including regional innovation	
	Ireland	Separate regional operational programmes including regional innovation	
No power at all at regional level	Bulgaria	Unitary state with no regional power but it is the municipality Bulgaria's main administrative and territorial entity.	
	Hungary	The Hungarian Constitution and Local Government Act have been revised that seized the regional level and gave more power to the central government.	Change in the Local Government Act
	Greece	The reform of Kallikratis (2011) has given an increased autonomy to the regions in designing and implementing their regional development strategies and an increased role in the area of research and technology development.	
	Romania	na	
	Croatia	na	
Small countries	Cyprus, Luxembourg, Malta, Latvia, Lithuania, Estonia	na	

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