# Smart Specialisation Implementation Processes in the North

## Lessons Learned from Two Finnish Regions

*Jukka Teräs, Antti Mäenpää\**

*The smart specialisation concept, aimed at generating unique assets and capabilities based on a region´s industry structure and knowledge base, is currently widely implemented across Europe. The literature on the implementation of regional smart specialisation strategies is not, however, abundant. This article introduces the practical implementation of smart specialisation processes in two Finnish regions: Ostrobothnia and Lapland. The article analyses similarities and differences in the smart specialisation implementation processes in different regions within the same national context, and also analyses what is really new in the two smart specialisation strategies. The findings indicate that implementing regional smart specialisation strategies is a challenging and time-consuming exercise. They also suggest that the key concepts associated with smart specialisation have not yet been fully adopted by the regions. In order to fully implement the smart specialisation strategies, regions need to dedicate enough time and resources to the implementation phase.*

## I. Introduction

Europe 2020 is the European Union's ten-year jobs and growth strategy. It was launched in 2010 to create the conditions for smart, sustainable and inclusive growth.[1] Regional policy plays an important role in the Europe 2020 strategy. Former innovation strategies focused on the national or sectoral level,[2] diminishing the possibilities for participation at a regional level. The current approach to regional innovation policy is based on a new "understanding of the role played by innovation in economic development and in particular its relationship with geography".[3]

The basis of the new bottom-up approach to regional innovation policy in the European Union is smart specialisation strategy (S3). The S3 concept was first developed to address the gap between Europe and other global competitors (namely USA and Japan) in R&D investment.[4] Despite its sectoral origins related to its RIS predecessors with focus on science based R&D and innovation, the concept was able to accommodate the place-based approach as advocated in the Barca Report.[5] The S3 approach is being promoted by the EU as the basis for the programming period 2014-2020 and, in order to receive ESI Funds, EU Member States and their regions must have a S3 strategy (*ex-ante* condition).[6]

\*    Jukka Teräs works as a Senior Research Fellow at Nordregio in Stockholm, Sweden and Antti Mäenpää works as a Doctoral Student at the University of Vaasa, Finland. For the views expressed and analyses provided, the authors are solely responsible. Both authors would like to express their deep gratitude for relevant Regional Council representatives and the anonymous reviewers for their input to the article.

1    European Commission, Europe 2020: Commission proposes new economic strategy in Europe. <http://europa.eu/rapid/press -release_IP-10-225_en.htm?locale=en> accessed on 22 March 2016.

2    S. Iammarino & P. McCann, *Multinationals and Economic Geography. Location, Technology and Innovation* (Edward Elgar Publishing, 2013).

3    P. McCann & R. Ortega-Argilés *Transforming European regional policy: a results-driven agenda and smart specialisation* (2013) Oxford Review of Economic Policy, Vol. 29 (2), pp. 405-431.

4    D. Foray. & B. van Ark *Smart specialisation in a truly integrated research area is the key to attracting more R&D to Europe* (2007) Knowledge for Growth. European Issues and Policy Challenges, Vol. 1, pp. 24-26.

5    F. Barca *An Agenda for a Reformed Cohesion policy: A Place-Based Approach to Meeting EU Challenges and expectations* (European Commission, 2009).

6    D. Foray, D.Goddard, J. Beldarrain et al. *Guide to Research and Innovation Strategies for Smart Specialisation (RIS3)* (European Commission, 2012).

Smart specialisation is a strategic approach to innovation policy development, which is fundamentally based on a process of *entrepreneurial discovery* in fostering specialised diversification across related sectors.[7] This diversification aims to transform the structures of existing regional economies into knowledge economies.

It is widely acknowledged that entrepreneurs are in the best position to discover the areas, or *domains* of R&D and innovation in which a region is likely to excel, given its existing capabilities and productive assets.[8] Dominique Foray defines a domain as the level at which S3 priorities are identified, assessed and supported which should "neither be too high (an entire sector) nor too low (individual firm)".[9] A domain stretches across several sectors, without covering them entirely. It should be noted that from a S3 perspective entrepreneurs encompass all actors including individual entrepreneurs, companies, universities, technology transfer offices and regional development agencies that have the capacity to discover the specialisation domains.[10]

Research literature on the implementation of S3 is emerging. The research on regional smart specialisation would benefit, however, from more studies on the practical implementation of S3 in the regions. In this paper, we explore the application of the S3 concept in two non-metropolitan Finnish regions: Ostrobothnia and Lapland. We focus on the following key research question: What are the main similarities and differences in the implementation of regional smart specialisation strategies between different regions within the same national context and what lessons can we learn from them? We also examine the novelty of the S3 by comparing the current strategies to regional development strategies preceding the S3 process in the case study regions.

Our paper is structured as follows. First, we provide a literature review focusing on the implementation of the S3 and describe the methodology. This is followed by the empirical part of the paper, which presents a comparative analysis of the implementation of S3 in the Ostrobothnia and Lapland regions. Finally, a concluding analysis with recommendations is provided.

## II. Literature Review

Before introducing the research literature on the implementation of smart specialisation, it is relevant to briefly present the major guidelines given by the European Commission to prepare the regional S3 documents. The overall structure of the S3 process is presented in the European Commission's RIS3 guide.[11] The six key steps for developing a regional S3 are:

(i) analysis of the regional context and potential for innovation,

(ii) governance by ensuring participation and ownership,

(iii) elaborating an overall vision for the future of the region,

(iv) identification of priorities,

(v) policy mix, preparation of policy mix, roadmap, and action plan,

(vi) and integration of monitoring and evaluation mechanisms.

The order of the steps may vary, and at some point in time a region may need to, for example, return to the first step and conduct further analysis before adopting the final version of the strategy.[12] It is worth mentioning that the EU's S3 Platform (Seville, Spain), designed to promote the implementation of S3 in the EU regions, uses the six-step structure as a framework for the participating regions to present their regional strategies and their implementation at the S3 Peer Review events.

---

7   D. Foray, P.A. David & B.H. Hall *Smart specialisation. From academic idea to political instrument, the surprising career of a concept and the difficulties involved in its implementation* (Lausanne Management of Technology & Entrepreneurship Institute, 2011); B. Asheim & M. Grillitsch *Smart specialisation: Sources for new path development in a peripheral manufacturing region* (Lund University, 2015).

8   D. Foray, P.A. David & B.H. Hall *Smart specialisation. From academic idea to political instrument, the surprising career of a concept and the difficulties involved in its implementation* (Lausanne Management of Technology & Entrepreneurship Institute, 2011) pp. 7.

9   D. Foray *Smart Specialisation – Opportunities and Challenges for Regional Innovation Policy* (Routledge, 2015).

10  D. Foray, X. Goenaga *The Goals of Smart Specialisation* (2013) S3 Policy Brief Series, 1, pp. 1- 14.

11  See <http://s3platform.jrc.ec.europa.eu/ris3-guide>.

12  D. Foray, D.Goddard, J. Beldarrain et al. *Guide to Research and Innovation Strategies for Smart Specialisation (RIS3)* (European Commission, 2012); Å. Mariussen *Smart Specialisation: Reinventing Regional Systems of Innovation* (2013) Botnia Atlantica -Institute Newsletter, 1, pp. 1–3.
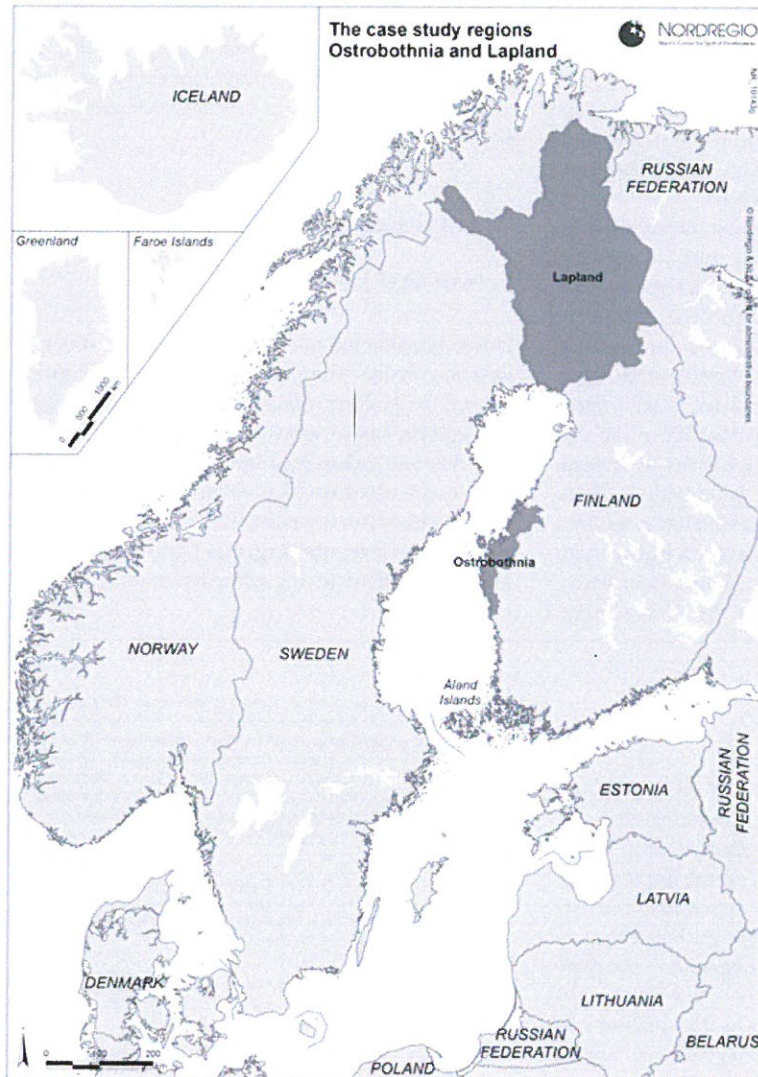
*Figure 1: Case study regions.*
*Source: Made by Julien Grunfelder from Nordregio for this article.*

There is an emerging research literature on the implementation of smart specialisation, including, for example, studies analysing of the smart specialisa-

tion processes undertaken in Malta and Wales.[13] We have also learned about vagueness around some of the key concepts regarding S3, and differences in its implementation in European regions.[14] However, early indications also suggest potential for S3 to improve regional development strategies.[15]

Some studies claim that the rush created by the *ex-ante* condition to the regions to receive ESI Funds might have affected the deficiencies that can be inspected from the local S3. It would also seem that en-

---

13  L. Georghiou, E. Uyarra & R. Saliba Scerri, *et al. Adapting smart specialisation to a micro-economy – the case of Malta* (2014) European Journal of Innovation Management, Vol. 17, pp. 428-447; R. E. Pugh *Old Wine in New Bottles? Smart Specialisation in Wales* (2014) Regional Studies, Regional Science, Vol. 1, pp. 152-157.

14  D. Iacobucci *Developing and implementing a smart specialisation strategy at regional level: some open questions* (2012) 15 c.MET

trepreneurial discovery has not been integrated properly into the strategy work.[16] Nicola Bellini provides an analysis of the S3 processes in a number of regions in Italy and Spain, highlighting, for example, its role in challenging regional governments and giving a concrete dimension to the relationship between local development and globalisation.[17]

Henning Kroll studied the understanding and implementation of regional S3 in Europe via surveys and concluded that Southern European regions have managed to gain new policy practices from the overall S3 process, which has benefitted the regions greatly. However, Central and Northern Europe have not found the S3 processes as useful. Their representatives mainly felt that they contributed to the wider strategy work and theories behind it, instead of directly benefitting from it. Interestingly from the perspective of our paper, Kroll did not interview any representatives from the Northern Europe (*i.e.* the Nordic countries) in the phone interviews, which followed-up and deepened the survey analysis.[18]

## III. Methodology

The findings reported in this paper are based on a qualitative research methodology, which utilises action research approach. The relevant literature on S3 has been reviewed, with a focus on the implementation processes. The empirical research data consists of relevant reports and interviews in the case study regions. One of the authors participated in the planning and implementation of the Ostrobothnia's S3 exercise and the other was part of the Lapland's S3 team. Our knowledge of the strategy process and its implementation in the case study regions is thus not only based on regional S3 strategy documents,[19] but also includes tacit knowledge gathered in the respective regions.[20]

The authors selected Ostrobothnia in Western Finland and Lapland in Northern Finland as case study regions (see *Figure 1*) for several reasons. Firstly, both regions have prepared their smart specialisation strategy work at a relatively early stage compared to many other regions in Finland. Secondly, both regions have a similar sized population. Thirdly, the innovation performance of the case study regions, as indicated by the regional innovation scoreboard, fell under the same category of leader-medium before the

smart specialisation work started.[21] Fourthly, the regions share the same national setting. Finally, and equally important, the authors had excellent access to information on smart specialisation process in both regions.

## IV. Empirical Analysis

## 1. National Innovation Context

Before introducing the case study regions, it is relevant to consider the national, in our case Finnish, context for smart specialisation. The Finnish innovation system can be considered as a centralised system. Science, technology, innovation and university policies are coordinated at national level and regional actors have limited possibilities to affect them. At the regional level, the Regional Councils are the responsible authorities regarding S3. In total, there are

Working Paper pp. 1-19; A. Reid & P. Stanovnik, *The Development of a Smart Specialisation Strategy (S3) for Slovenia, Report to the European Commission* (European Commission 2013); R. Capello *Smart specialisation strategy and the new EU cohesion policy reform: Introductory remarks* (2014) Scienze Regionali, Italian Journal of Regional Science, 13, pp. 5-15; N. Komninos, B. Musyck & A. Reid *Smart specialisation strategies in south Europe during crisis* (2014) European Journal of Innovation Management, 17, pp. 448-471.

15   E. Baier, H. Kroll & A. Zenker, Templates of smart specialisation: Experiences of place-based regional development strategies in Germany and Austria. <http://www.isi.fraunhofer. de/isi-wAssets/docs/p/de/arbpap_ unternehmen_region/ap_r5_2013.pdf> accessed on 22 March 2016.

16   J. del Castillo, J. Paton, B. Barroteta *Smart Specialisation for Economic Change: The Case of Spain* (2015) SYMPHONYA Emerging Issues in Management, 1, pp. 30-43.

17   N. Bellini *Smart Specialisation in Europe: Looking Beyond Regional Borders* (2015) SYMPHONYA Emerging Issues in Management, 1, pp. 22-29.

18   H. Kroll *Efforts to Implement Smart Spesialisation in Practise – Leading Unlike Horses to the Water* < http://dx.doi.org/10.1080/09654313.2014.1003036> accessed 15 December 2015.

19   Ostrobothnia lacks an official strategy document, but the Ostrobothnian smart specialisation model and process has been published as: S. Virkkala, A. Mäenpää & Å. Mariussen (Eds.) *The Ostrobothnian Model of Smart Specialisation* (Proceedings of the University of Vaasa 196, 2014).

20   Regional Council of Lapland, Lapland´s Arctic Specialisation Programme. <www.lapland.fi/en/lapinliitto/c/ document_library/get _file?folderId= 53982&name=DLFE-21455.pdf> accessed on 15 December 2015; Regional Council of Ostrobothnia, Preliminary results. <www.obotnia.fi/regional-development/smart-specialisation/preliminary-results/> accessed on 15 December 2015.

21   European Commission, European Innovation Scoreboards. <http://ec.europa.eu/growth/industry/innovation/facts-figures/scoreboards/index_en.htm> accessed on 23 April 2016.

18 Regional Councils in Finland and they operate on NUTS-3 size regions.[22]

The Finnish Regional Development Strategy 2020 considers regional specialisation as an important mean through which to promote regional development and innovation.[23] The Strategy 2020 aims for a specialised role for Finland in the global economy, based on regional competences and continuous development.[24] The latest national innovation program, Regional Innovations and Experiments (AIKO) is planned for the years 2016-2019. It includes the idea of regional expertise and experimentation and the focus on regional strengths (similar to S3), but it also includes elements of the former national policies, such as smart city development and specific (city-driven) growth areas.[25]

## 2. The Region of Ostrobothnia

### a. Overview

Ostrobothnia consists of 7,752 square kilometres of land and has a population of over 181,000 people. The regional capital is the City of Vaasa with over 66,000 inhabitants. Vaasa also has the biggest concentration of innovative activities in the region. The region's energy technology cluster is the most extensive in the Nordic countries. Besides the multinational energy technology companies, the region also possesses many smaller companies, especially in the surrounding countryside. Among the Ostrobothnia´s workforce, 6.1 % earn their living from agriculture, 29.6 % from industry and 63.5 % from the service sector. Ostrobothnia is quite a strong exporter, with over 60 % of the regionally produced industrial products going abroad. When it comes to renewable energy products, the export share is over 70 %. The Ostrobothnia´s GDP is € 5.9 billion and its GDP per capita is 127.7 % higher than the average EU-27 equivalent.[26]

Within the renewable energy field, R&D activities are strongly concentrated in the big companies. This is largely due to the fact that over 80 % of researchers in the region are working for companies. The regional campuses of four universities (University of Vaasa, Åbo Akademi, Hanken School of Economics, University of Helsinki [Law School]), two universities of applied sciences (VAMK – Vaasa University of Applied Sciences, NOVIA - Novia University of Applied Sciences), and a mutually owned industrial design agency (MUOVA) are also located in the region. These universities host over 12,000 students. In total, the region of Ostrobothnia spends approximately 2.6 % of its GDP on research. Of all the research personnel in Finland, over 2.5 % lives in the region. Ostrobothnia has a strong focus on research compared to the Finnish average.[27]

### b. Smart Specialisation Process in Ostrobothnia

*Table 1* illustrates the development of the smart specialisation process in Ostrobothnia in 2012-2014 by presenting the major S3 activities, or steps, over time. It also gives information regarding the length of the process and is based upon project documentation (unpublished emails and calendar markings). Interestingly, the S3 planning in the Ostrobothnia region began when researchers from the University of Vaasa contacted the Regional Council of Ostrobothnia and informed their staff about the S3 platform in Seville, and its potential to improve innovation processes. Ostrobothnia was the first Finnish region to join the S3 platform in 2012. This contact also initiated a six-month planning period where knowledge was transferred between the partners and a research plan to produce regional S3 was prepared. The S3 research project was coordinated by the Regional Council of Ostrobothnia and included personnel

22  Research and innovation council, Uudistava Suomi: tutkimus- ja innovaatiopolitiikan suunta 2015–2020 [Renewing Finland: Aims for research and innovation policy]. <www.tem.fi/files/41903/Tutkimus_ja_innovaatiopo litiikan _suunta_2015_-_2020.pdf> accessed on 17 November 2015.

23  Ministry of Employment and the Economy (2010), Aluekehit-tämisstrategia 2020 [Regional Development Strategy] <http://www.tem.fi/files/27071/23_2010_web.pdf> accessed 23 March 2016.

24  M. Lindqvist, L. Smed Olsen, L Perjo, H. Claessen *Implementing the Concept of Smart Specialisation in the Nordic Countries* (2013) Nordregio Working Paper, 1, pp. 1-46.

25  Ministry of employment and the economy, Innovation clusters and regional innovation activities. <www.tem.fi/innovaatiot/innovaatiokeskittymat--gt-- accessed on 27 November 2015.

26  Regional Council of Ostrobothnia, Ostrobothnia in numbers 2015. <www.obotnia.fi /assets/1/Publikationer/Pohjanmaa -lukuina2015-webb.pdf> accessed on 23 March 2016; AMCER report, Regional report - Ostrobothnia. <http://www.espon.eu/export/sites/default/Documents /Projects/TargetedAnalyses/AMCE R/FR/Ostrobotnia_regional_profile_AMCER_FR.pdf> accessed on 15 December 2015.

27  AMCER report, Regional report - Ostrobothnia. <http://www.espon.eu/export/sites/default/Documents /Projects/TargetedAnalyses/AMCE R/FR/Ostrobotnia_regional_profile _AMCER_FR.pdf.> accessed on 15 December 2015.

| Months | Six steps in Ostrobothnia | | | | | |
|---|---|---|---|---|---|---|
| Preparation | *Preparation for the strategy process took 6 months* | | | | | |
| 1 | Analysis | **Governance** | Vision | Priorities | Policy mix | Monitoring and evaluation |
| 2 | **Analysis** | **Governance** | Vision | Priorities | Policy mix | Monitoring and evaluation |
| 3 | Analysis | **Governance** | Vision | **Priorities** | Policy mix | Monitoring and evaluation |
| 4 | Analysis | **Governance** | Vision | Priorities | Policy mix | **Monitoring and evaluation** |
| 5 | Analysis | **Governance** | Vision | Priorities | **Policy mix** | Monitoring and evaluation |
| 6 | **Analysis** | **Governance** | **Vision** | Priorities | Policy mix | Monitoring and evaluation |
| 7 | **Analysis** | **Governance** | Vision | Priorities | Policy mix | Monitoring and evaluation |
| 8 | Analysis | Governance | Vision | Priorities | Policy mix | Monitoring and evaluation |
| 9 | Analysis | **Governance** | Vision | Priorities | Policy mix | Monitoring and evaluation |
| 10 | **Analysis** | Governance | Vision | Priorities | Policy mix | Monitoring and evaluation |
| 11 | **Analysis** | Governance | Vision | Priorities | Policy mix | Monitoring and evaluation |
| 12 | **Analysis** | Governance | Vision | Priorities | Policy mix | Monitoring and evaluation |
| 13 | **Analysis** | Governance | Vision | Priorities | Policy mix | Monitoring and evaluation |
| 14 | **Analysis** | **Governance** | Vision | Priorities | Policy mix | Monitoring and evaluation |
| 15 | **Analysis** | **Governance** | Vision | Priorities | Policy mix | **Monitoring and evaluation** |
| 16 | Analysis | **Governance** | Vision | Priorities | Policy mix | Monitoring and evaluation |
| 17 | **Analysis** | **Governance** | Vision | Priorities | Policy mix | **Monitoring and evaluation** |
| 18 | Analysis | **Governance** | Vision | **Priorities** | Policy mix | Monitoring and evaluation |
| 19 | Analysis | **Governance** | Vision | Priorities | **Policy mix** | **Monitoring and evaluation** |
| (Major steps of the S3 process are marked by bold text) | | | | | | |

*Table 1: The development of smart specialisation in Ostrobothnia in 2012-2014*
*Source: Authors' own compilation.*

from several local universities and development agencies.

Official work on the regional S3 process began at the end of 2012 with extensive regional analysis. The members of the research group analysed previous regional development reports and collected data on the important specialisation fields. In the end, three main industries were considered regional fields of specialisation regarding technologies and products: (i) energy technology, (ii) boat building, (iii) fur farming. All these fields have strong export activities and global connections and are a good reflection of the various activities occurring in Ostrobothnia. Energy technology is strongly represented in Vaasa, boat building in the nearby city of Pietarsaari and surrounding areas. Fur farming is a regional speciality in the surrounding countryside.

After the selection of key industries the discussion about the focus and vision of the strategy continued.

Based on these discussions, it was widely acknowledged that regional cooperation or connectivity would be beneficial for the region. At an early stage, the Regional Council decided that a specific evaluation and monitoring tool on cooperation would help the strategy process. Originally, the idea was to develop a tool to analyse technological cooperation in the region (*i.e.* measure the technological domains) but the scope of the tool soon widened to other types of innovation cooperation and thus included activities such as fur farming, services etc. This also meant that the framework for the tool was consistent with triple helix theory,[28] as the cooperation of three main

---

28  L. Leydesdorff & H. Etzkowitz *The Triple Helix as a model for innovation studies* Science and Public Policy, 25, pp. 195–203; H. Etzkowitz & L. Leydesdorff *The dynamics of innovation: from National Systems and 'Mode 2' to a Triple Helix of university–industry–government relations* (2000) Research Policy, 29, pp. 109-123.

regional sectors (universities, companies and public organisations) provided a solid theoretical background as the theory was also a part of the original RIS3 guide.[29] The tool became central to the strategy because it enabled objective calculations regarding the innovation field and thus provided a good method for evaluating the distribution of ESI Funding (€ 10 million for the programming period 2014-2020).

After receiving and analysing comments about the tool from international research experts, Elias Carayannis at George Washington University and Håkon Finne at SINTEF in Norway, the strategy, concentrating on the connectivity tool, was presented at the international S3 Platform conference in Vaasa in May 2013. After the Vaasa conference, it was decided that connectivity and the measuring tool should be focal issues of the Ostrobothnia´s strategy. Alongside this, the region decided that it should evaluate the connections of the selected industries as well as the future technologies that involve them.

In late 2013, three questionnaires on cooperation were sent to respondents from the different helices (public organisations, universities and companies). The respondents were all in leadership positions, meaning that they were well placed to answer questions regarding cooperation. Following the data collection (53 respondents in total) and analysis, the respondents and other regional experts were invited to focus group meetings to comment on the findings. The outcome of the focus group meetings was then used as background for planning policy interventions in order to bridge the gaps in cooperation between regional actors. The aim is to repeat the S3 connectivity study annually or biannually in order to analyse the development of regional connections. This helps to address monitoring and evaluation step, which is considered to be very important in the S3 concept. Regional Council of Ostrobothnia can utilise the connectivity tool for reporting their

progress with the strategy.[30] It should be noted, that the first regional measurement was *ex-ante* monitoring by nature. The forthcoming further analyses shall be compared to the baseline values for full effect.

Following the development of the Ostrobothnia´s connectivity model in the years 2013–2014, the Regional Council has arranged a logical framework analysis (LFA) with local stakeholders. Its main aim is to address issues in cooperation between companies and their suppliers as these were the biggest issues in cooperation according to the first measurements. The Regional Council decided to support three projects with this specific aspect of cooperation as the main focus. During the year 2015, the Regional Council also organised additional data collection via network survey and the results were once again presented to the focus groups. The Regional Council is currently working on similar new LFA analysis where they try to gather proposals for projects. The regional officials also continue writing of the official S3 document. There are also plans for new cooperation with international regional partners, who want to hear more about Ostrobothnia´s method and utilise it on their own regions. The region of Nordland in Norway, for example, also utilised the connectivity tool. An international comparison between Nordland and Ostrobothnia would be a good practise to further develop the model and also share good practices transnationally.

## 3. The Region of Lapland

### a. Overview

Lapland in North Finland consists of an area of 92,665 square kilometres, which is 25.7 % of Finland's land area. There are 181,748 inhabitants in Lapland, which is 3.4 % of Finland's population (situation in 2014). The largest residential centres are Rovaniemi (61,551 inhabitants), Tornio (22,322 inhabitants) and Kemi (21,929 inhabitants).[31] Among the Lapland´s workforce, 5.2 % earn their living from agriculture, 20.0 % from industry and 73.1 % from the service sector.[32]

The major higher education institutions of Lapland are the University of Lapland and the Lapland University of Applied Sciences. Moreover, Lapland´s research and education network includes regional

29    D. Foray, D.Goddard, J. Beldarrain et al. *Guide to Research and Innovation Strategies for Smart Specialisation (RIS3)* (European Commission, 2012).

30    A. Mäenpää, S. Virkkala *Introduction* (2014) Proceedings of the University of Vaasa, 196, pp. 1-15: p. 11.

31    Regional Council of Lapland, Väestö [Population], <http://www .lappi.fi/lapinliitto/195> accessed on 15 March 2016.

32    Regional Council of Lapland, Työpaikat ja työllisyys [Jobs and Employment], <http://www.lappi. fi/ lapinliitto/194> accessed on 15 March 2016.

units of *e.g.* .the Geological Survey of Finland, the Finnish Environment Institute and the Natural Resources Institute Finland (Luke).

### b. Smart Specialisation Process

Lapland's smart specialisation strategy was prepared by the Regional Council of Lapland between October 2012 and November 2013 as part of the ERDF project "Lapland - A Strong Arctic Expert". The S3 in Lapland was called as Arctic Specialisation Strategy.[33] From the beginning, the six-step approach was adopted as the main approach to the strategy. Moreover, the strategy development process included intensive cooperation with the EU S3 Platform. Lapland was registered in late 2012 as a member of the S3 Platform. The Arctic Smart Specialisation Draft programme for Lapland was presented at the S3 Peer Review event in Mallorca, Spain, in February 2013. The Peer Review event provided valuable input to the S3 process in Lapland, including the introduction and preliminary analysis of the six-step presentation format, which was a prerequisite for the Peer Review presentation.

Lapland's S3 document, which was published in late 2013, contains 50 specific proposals for action for the period 2014-2020. The proposals are divided into three main categories: (i) the refining of Arctic natural resources, (ii) utilisation of Arctic natural conditions and (iii) cross-cutting development enabling Arctic growth. The programme is linked with Lapland's Arctic Specialisation roadmap, which sets out the phasing of the various actions for the period 2014-2020. *Table 2* illustrates the development of the S3 process in Lapland during the years 2012-2015.

The Smart specialisation project group at the Regional Council of Lapland analysed the existing regional development programmes in Lapland, in particular the ERDF Programme 2007-2013 for the Lapland region. Moreover, the national Arctic strategy in Finland was analysed, as well as the recent regional development documents by the Regional Council of Lapland. Governance issues and ensuring participation and ownership were given a high priority from the beginning of the Arctic specialisation project. The Steering Group of the project, headed by the Director of Regional Council of Lapland, consisted of representatives of institutions such as *e.g.* universities, Chamber of Commerce, and major cities in Lapland. Broad participation of public and private

actors was secured through a combination of active dissemination, workshop, and surveys. A specific survey was undertaken with key companies in order to include their opinions and ideas in the strategy development process. The overall vision of the Arctic Specialisation programme was formed based on the work of the Project Group and the stakeholder meetings, in 2012-2013. The draft version of the S3 document was disseminated to major stakeholders in Lapland in 2013 for their remarks and additions, which were taken into account in the final version of the strategy.

In setting the regional priorities, the following themes were selected for use as the starting point of the Arctic Specialisation Programme: Business Lapland, Expertise Lapland, International Lapland, Sustainable Lapland, and Citizen´s Lapland. In order to identify the key regional priorities, the authors of the Arctic Specialisation Programme organised, and participated in, regional workshops in 2012-2013. The programme work resulted in the following list of major Arctic spearhead fields in Lapland: the mining and metal industry, tourism and bio-economy. Much emphasis was put into preparing a roadmap for the period 2014-2020, including identification and listing of 50 specified proposals for action for the period.

Lapland's Arctic Specialisation Programme provided wide framework and guidelines for the future S3 monitoring and evaluation work. According to the document, the implementation of the programme will be monitored and assessed "taking into consideration the needs of different target groups and beneficiaries of the proposals for action and strategic objectives, and monitoring the financing programmes used in the implementation and assessment practices".[34]

As illustrated in *Table 2*, the regional smart specialisation strategy process in Lapland took place in three major phases: (i) the strategy formation (2012-13), (ii) the preparatory phase prior to S3 implementation (2014), and (iii) the implementation

---

33 Regional Council of Lapland, Lapland´s Arctic Specialisation Programme. <www.lapland.fi/en/lapinliitto/c/document_library/get_file?folderId= 53982&name=DLFE-21455.pdf> accessed on 15 December 2015.

34 Regional Council of Lapland, Lapland´s Arctic Specialisation Programme. <www.lapland.fi/en/lapinliitto/c/document_library/get_file?folderId= 53982&name=DLFE-21455.pdf> accessed on 15 December 2015, pp. 62-63.

| Months | Six steps in Lapland | | | | | |
|---|---|---|---|---|---|---|
| Preparation | *Preparation for the strategy process took 1 month* | | | | | |
| 1 | **Analysis** | **Governance** | Vision | Priorities | Policy mix | Monitoring and evaluation |
| 2 | **Analysis** | **Governance** | Vision | Priorities | Policy mix | Monitoring and evaluation |
| 3 | **Analysis** | Governance | **Vision** | Priorities | Policy mix | Monitoring and evaluation |
| 4 | **Analysis** | Governance | Vision | Priorities | Policy mix | Monitoring and evaluation |
| 5 | **Analysis** | Governance | **Vision** | **Priorities** | Policy mix | Monitoring and evaluation |
| 6 | **Analysis** | Governance | Vision | Priorities | Policy mix | Monitoring and evaluation |
| 7 | Analysis | **Governance** | **Vision** | **Priorities** | Policy mix | Monitoring and evaluation |
| 8 | Analysis | **Governance** | **Vision** | **Priorities** | Policy mix | Monitoring and evaluation |
| 9 | Analysis | **Governance** | **Vision** | **Priorities** | Policy mix | Monitoring and evaluation |
| 10 | Analysis | Governance | Vision | Priorities | Policy mix | Monitoring and evaluation |
| 11 | Analysis | **Governance** | **Vision** | **Priorities** | Policy mix | Monitoring and evaluation |
| 12 | Analysis | **Governance** | **Vision** | **Priorities** | Policy mix | Monitoring and evaluation |
| 13 | Analysis | **Governance** | Vision | **Priorities** | **Policy mix** | Monitoring and evaluation |
| 14 | Analysis | **Governance** | Vision | **Priorities** | **Policy mix** | **Monitoring and evaluation** |
| 15 | Analysis | **Governance** | Vision | Priorities | **Policy mix** | **Monitoring and evaluation** |
| | *Preparatory phase before S3 Implementation projects during 2014* | | | | | |
| 28 | Analysis | **Governance** | **Vision** | Priorities | Policy mix | Monitoring and evaluation |
| 29 | Analysis | Governance | Vision | **Priorities** | **Policy mix** | Monitoring and evaluation |
| 30 | Analysis | Governance | Vision | **Priorities** | **Policy mix** | Monitoring and evaluation |
| 31 | Analysis | Governance | Vision | **Priorities** | Policy mix | Monitoring and evaluation |
| 32 | Analysis | **Governance** | Vision | **Priorities** | **Policy mix** | Monitoring and evaluation |
| 33 | Analysis | **Governance** | Vision | Priorities | **Policy mix** | **Monitoring and evaluation** |
| 34 | Analysis | Governance | Vision | Priorities | Policy mix | Monitoring and evaluation |
| 35 | Analysis | Governance | **Vision** | Priorities | Policy mix | Monitoring and evaluation |
| 36 | Analysis | Governance | Vision | **Priorities** | Policy mix | **Monitoring and evaluation** |
| 37 | Analysis | Governance | Vision | **Priorities** | Policy mix | Monitoring and evaluation |
| 38 | Analysis | Governance | Vision | **Priorities** | Policy mix | Monitoring and evaluation |
| 39 | Analysis | **Governance** | Vision | Priorities | **Policy mix** | **Monitoring and evaluation** |
| (Major steps of the S3 process are marked by bold text) | | | | | | |

*Table 2: The development of smart specialisation in Lapland in 2012-2015*
*Source: Authors' own compilation.*

project phase (beginning in month 28 and currently ongoing). Following the completion of the S3 document in late 2013, the Regional Council of Lapland began preparatory activities for the S3 implementation project. In 2014, the preparatory activities included a workshop in Rovaniemi, Finland on the topic of Research and Innovation Strategies for Smart Specialisation (S3) in Sparsely Populated Regions, arranged in partnership with the S3 Platform in Seville.[35] The Rovaniemi workshop inspired the Regional Council of Lapland to start a specific project

35  As a follow-up of the workshop, see: J. Teräs, A. Dubois, J. Sörvik and M. Pertoldi *Implementing Smart Specialisation in Sparsely Populated Areas* (2015) European Commission. Joint Research Centre. S3 Working Paper 10/2015.

*Table 3: Comparison between smart specialisation processes in Ostrobothnia and Lapland*

| Region | Ostrobothnia | Lapland |
|---|---|---|
| Initiative to the regional S3 process and participation | S3 process started by Regional Council but the contact between local researchers and EU S3 platform was of crucial importance. Steering group by public sector and university representatives. Companies as respondents, some companies in focus groups. Some civil society connections and international experts involved | S3 process started by Regional Council. Steering group by public sector and university representatives. Companies as respondents, some companies participating the workshops. Some civil society connections. Commentary remarks to strategy by municipalities in Lapland. International experts engaged especially during the implementation phase 2015-2016 |
| Main fields of S3 intervention and strategy | Energy technology, Boat industry, Fur industry<br>Triple helix connections | Refining of natural resources (timber, livestock, mining etc.), utilisation of Arctic natural conditions (tourism), cross-cutting development enabling arctic growth (e.g. arctic vehicle testing) |
| Implementation process | Focus on governance and analysis, S3 process of 19 months. Follow-up process by annual checking of the S3 strategy | Focus on governance, vision setting, priority selection and policy mix. S3 process of 15 months. An additional S3 implementation project currently ongoing |
| Outcomes and next steps | Analysis of the regional innovation network and concrete suggestions to bridge the gaps in it. Next steps involve selection of targets to focus on and annual repetition of the analysis. Ostrobothnia also lacks official strategy document | Official strategy document prepared and published, with engagement of a broad group of actors. Implementation as a separate follow-up project under way. Smart clusters (domains) identified after the S3 phase, during the follow-up phase. Focus on evaluation & monitoring as the next step |
| Estimated ESI Funds in 2014-2020 | Over € 10 million | Over € 130 million |

Source: Authors' own compilation.

in late 2014 to catalyse the implementation phase of the Lapland Arctic Specialisation Programme. In 2015, an implementation project of the Arctic Specialisation strategy was carried out by the Regional Council of Lapland. Five local smart clusters were identified in 2015: Arctic Industry, Arctic Rural Networks, Arctic Design, Arctic Security, and Arctic Development Infrastructure. A regional development project Arctic Smartness Portfolio (ASP) was implemented in the second half of 2015 to coordinate the broad range of actors in Lapland to the Arctic Smart Specialisation Programme, with focus on the identified smart clusters, with international experts engaged.

## V. Cross-Case Analysis

Now that we have presented the smart specialisation implementation processes of Ostrobothnia and Lap-

land, we will move on to comparative analysis regarding the S3 implementation in the two case study regions. *Table 3* illustrates the comparison between Ostrobothnia and Lapland on relevant implementation issues.

The key actors behind the strategy processes in both Ostrobothnia and Lapland gained basic knowledge of the key S3 concepts at an early stage of the strategy development process. The regions built their strategies based on accumulated knowledge as well as evidence-based documents related to the regions. The S3 in Ostrobothnia and in Lapland also have a clear overall vision: Ostrobothnia wants to be regarded as "Connected Region" and Lapland aims to be a region with "Arctic Expertise". Both regions continue their support for existing industries, and completely novel industrial and/or business directions are not proposed in the strategies. The regions seem to have followed their former regional strategy frameworks. Ostrobothnia is still aiming to en-

hance regional innovation capabilities and Lapland aims to become known for its arctic knowledge.[36] Both regions have significant export activities and tourism and as a result they already interact with international markets in accordance with the aims of S3.

Ostrobothnia and Lapland both valued the S3 as a way to strengthen the region. They presented their strategy suggestions on the S3 Peer Review events early in the preparation process in order to get external ideas for the strategy work. Interestingly, both regions relied heavily on public sector and university experts in the preparation of the strategy. Companies were mainly involved as survey respondents only. The S3 processes of the two case study regions so far largely lack concrete examples of entrepreneurial discovery with significant involvement of actual companies and entrepreneurs.

Even though there are similarities between the S3 processes in Ostrobothnia and Lapland, major differences can also be identified. Ostrobothnia created a model which measures the regional connectivity via triple helix concept, which is rather theoretical approach and also not absolutely place-based. The overall strategy has some focus on the development of local industries as well, but one could argue that this development plays a minor role when compared to the connectivity model. This was a deliberate initiative by Ostrobothnia, as the region intentionally emphasised international comparison and learning between regions – both of which were assisted by the model development. Lapland's S3 strategy is directly attached to regional arctic infrastructure and thus is not transferrable to other places directly. This seems appropriate because of the relatively unique arctic environment. Lapland´s strategy focuses more on thematic specialisation instead of traditional sectors, which fits well to S3 guidelines.

One of the biggest differences between the regional processes in the two case study areas is the overall length of the strategy work. In Ostrobothnia the strategy process took 19 months, but still lacks the

official strategy document. In Lapland the strategy process was completed in 15 months, which was followed by separate implementation process which is still underway. The implementation process complements Laplands smart specialisation strategy, including a section on smart clusters, following largely the domains introduced by the S3 concept and engaging more company involvement. The Lapland case with a preparation phase before the actual implementation of the S3, or "cognitive break" and its later work on smart clusters demonstrates the importance of adequate time being allocated into the S3 process, especially the implementation phase. Ostrobothnia's strategy involves yearly measurements of connectivity, so the duration of the S3 process might be difficult to compare between the regions. Lapland seems to have been slower in formulating the structure of the programme, whereas Ostrobothnia proceeded rapidly with the S3 process from the outset, but has not yet completed it with official documentation.

Ostrobothnia spent more time on governance and analysis steps during the overall strategy process whereas Lapland had a considerable focus on priority selection and policy mix as well as vision of the strategy. This can largely be explained by the focus on the connectivity model in Ostrobothnia, including lots of testing and analysis. Lapland, on the other hand, focused more on themes and concepts which included additional work on development paths and various scenarios for the chosen specialisation fields. Regarding monitoring and evaluation, Ostrobothnia presents concrete measurements and thus has developed a solid tool for evaluating the regional strategy in the coming years, whereas Lapland has, for the most part, left the details of monitoring and evaluation for future work.

One could conclude that Lapland has written its strategy largely following the EU's RIS3 guide, whereas Ostrobothnia puts specific focus on international comparison and direct measurements via the developed connectivity model. One important factor that may have an influence on different S3 approaches by Ostrobothnia and Lapland is the difference in the allocation of ESI Funds between the regions. Ostrobothnia's estimated total share of these funds for the period 2014-2020 is slightly over € 10 million and the measuring tool gives important analytical data for prioritising its distribution to projects, whereas Lapland´s estimated share of ESI Funds is over

36 Ministry of Employment and the Economy, Pohjanmaan maakuntaohjelma 2011-2014 [Ostrobothnian Regional Strategic Program] <www.tem.fi/files/27983/15_ Pohjanmaa_ MAO _07062010_muutoksin.pdf> accessed 23 March 2016; Regional Council of Lapland, Lapin maakuntaohjelma 2011-2014 [Laplands Regional Strategic Program] <www.lappi.fi/lapinliitto/c/document_library/get_file?folderId=26465&name=DLFE-11190.pdf> accessed 23 March 2016.

€ 130 million for the period 2014-2020.[37] This is partly because of Lapland´s peripheral and arctic location, as majority of Finnish ESI Funds is directed for rural development.[38]

## VI. Conclusions and Recommendations

In this article we analysed the smart specialisation implementation process, using two Finnish case study regions in Ostrobothnia and Lapland as empirical material. We began by presenting background information regarding the S3 process and unpacking the various steps of the implementation process. This revealed the similarities and especially the differences in S3 implementation processes between the regions. Our main conclusions and lessons learned largely focus on the following issues: the time needed for the S3 process, the balance between the old regional development plan and the new S3 approach, especially regarding entrepreneurial discovery, and the role of funding.

Firstly, we conclude that the implementation of S3 requires a considerable amount of time in order to be effective and inclusive. The new regional innovation policy concept of S3 seems to require far more time and communication activities than initially estimated by the European Commission and the regions. In some regions, a "cognitive break" may even be needed between completion of the strategy document and its actual implementation across the region.

Secondly, the regions face the risk of not fully utilising the regional capacity for entrepreneurial discovery with the S3 approaches because of limited participation by companies and entrepreneurs in the region. The increased participation of companies is crucial for establishing more significant results and, as a result, strategies for involving the private sector require further improvement. Even when the concept of entrepreneurial discovery is understood, the practical involvement and engagement of companies in the S3 implementation remains a challenge.

Thirdly, the ESI Funds allocated to the regions to realise their smart specialisation strategies may appear to be in a considerable role in preparing and implementing the regional strategies. The regions are motivated to participate in the S3 work largely because of the *ex-ante* condition related to the strategy. The allocation of ESI Funds to the regions naturally effects the engagement of regional actors in a long-term regional S3 development and implementation process and raises an interesting question about the correlation between funding and implementation.

Future research about the implementation of S3 will be vital in determining whether specialisation efforts actually produce new value-added activities and processes with a larger impact to the regions. It appears that more research is also needed to better understand the practical challenges the regions face. It would be interesting to compare the length of the regional S3 processes in the European regions, and to analyse the ways the regions have implemented, as opposed to just prepared, their smart specialisation strategies to meet the *ex-ante* condition of funding. Another important issue for further research is entrepreneurial discovery and how it is approached in the actual strategy work. Good practices and examples in European regions are worthy of increased research and dissemination because of the difficulties that regions face regarding the concept. It should be noted, too, that possible changes in the S3 concept after the programming period 2014-2020, already under discussion, are likely to have an implication to the regions and their S3 processes.[39] This further validates studies concerning practical S3 implementation processes.

37  Structuralfunds.fi, Kestävää kilpailukykyä ja työtä 2014–2020. Suomen rakennerahasto-ohjelma [Sustainable competitiveness and work 2014-2020. Finnish structural funds programme]. <http://www.rakennerahastot.fi/ documents/10179/43217/rr_2014 _2020 _yleisesittely.pdf/958a5c3f-7a1f-471d-9bfb-27f8cd423818 > accessed 23 March 2016.

38  W. Petzold *What if Cities and Regions Governed EU Regional and Urban Policy?* (2015) EStIF European Structural and Investment Funds Journal, Vol. 3, Nr. 1, pp. 12-20: p. 16.

39  J. Veit, M. Wirbatz *Report on OPEN DAYS 2013: 11ᵗʰ European Week of Regions and Cities* (2014) EStIF European Structural and Investment Funds Journal, Vol. 2, Nr. 1, pp. 59-72: p. 64.