

Maria Salomaa

## University Third Mission in Rural Regions:

A comparative analysis on university engagement through the Structural Funds programmes in the UK, Finland and Portugal

PhD in Management  
Lincoln International Business School  
University of Lincoln  
December 2020

## **Abstract**

In the past decade, the EU Cohesion Policy has become dominated by the smart specialisation approach driving more place-based innovation. Its overall aim is to decrease regional disparities through Structural Funds Operational Programmes, which are important instruments of regional R&D funding. In parallel, universities' traditional role as a provider of knowledge and education has shifted towards broader regional engagement, 'third mission', which has also increased expectations to support economic growth in their locations. The universities' regional role has become widely acknowledged in international, national and regional policies, although universities may have a limited capability to respond to the diverse regional demands. As the smart specialisation approach binds universities tighter to regional policy making processes (e.g. RIS3), the SF funding can play a significant role in universities' adaptations of the third mission. It can support universities to deliver engagement activities, especially in less-developed regions, thus contributing to the creation of regional systems of innovation and matching university research better with regional priorities. However, the universities' role and motivation to take part in such regional programmes and projects have not been largely examined, nor has the range of different types or characteristics of universities' engagement located in rural regions sufficiently identified.

This research builds on the evolution of the 'entrepreneurial university' towards a more context-sensitive assessment of the university engagement, and previous studies providing insights on the universities' role in delivering regional development projects funded through Structural Funds programmes. The theoretical framework of the study consists of selected mainstream concepts of the higher education studies, namely the university third mission and entrepreneurial university / entrepreneurial architecture. The study seeks to explore how (entrepreneurial) universities can manage and deliver their third mission through Structural Funds programmes in rural regions. A qualitative analysis focuses on the specific characteristics and challenges of university-led SF activities, as well as on the impact of a rural region to the overall university engagement. These issues were studied through three case studies representing regionally-focused universities located sparse innovation environments in the UK, Finland and Portugal. The research project fills in a gap in the academic literature by generating new knowledge on the organisation of the university-led Structural Funds projects and their alignment with the university third mission in universities located in these remote regions. As a result, the impact of a rural region to the overall university engagement was assessed, suggesting that a more context-sensitive approach to the university's entrepreneurial architecture. Also, stylised typology of four types of university-led SF projects was derived based on the empirical evidence from all case studies. The findings imply that there is yet unused potential in optimising both regional and academic benefits from the SF activities, but challenges remain related to national and regional adaptations of the Cohesion policy in designing Operational Programmes, the capacity of university organisations to make use of the this type of funding efficiently, regional and institutional communications systems stimulating collaboration with regional actors, and finally, the lack of strategic approach to designing SF projects within universities.

**Key words:** *Entrepreneurial university, Engaged university, Third Mission, Cohesion Policy, Structural Funds, Regional development, Rural regions*

# Contents

1. Introduction.....	1
1.1. Research background.....	1
1.2. Problem statement .....	4
1.2.1. Assessing university third mission .....	4
1.2.2. University engagement and sparse innovation environments.....	6
1.2.3. Universities and Structural Funds.....	8
1.3. Purpose of the study, key concepts and research questions .....	9
1.4. Structure of the dissertation.....	13
2. Literature review, conceptual frameworks and research questions .....	15
2.1. University Engagement.....	17
2.1.1. Entrepreneurial university.....	17
2.1.2. Third Mission.....	20
2.1.3. Entrepreneurial activities, academic core: challenges of university engagement .....	24
2.2. Assessing University engagement in rural regions .....	27
2.2.1. Entrepreneurial Architecture .....	28
2.2.2. Context – the missing dimension of the EA framework? .....	30
2.2.3. Entrepreneurial architectures in rural regions.....	31
2.3. Delivering engagement through Structural Funds?.....	34
2.3.1. Assessing the Cohesion Policy: from policies to practice .....	34
2.3.2. Universities’ regional development and Structural Funds instruments.....	36
2.3.3. Current challenges of University led SF projects.....	38
2.4. Research questions, units of analysis and operationalisation of research questions .....	42
3. Research methodology.....	45
3.1. Qualitative study approach .....	46
3.1.1. Justification of the chosen research approach.....	48
3.2. Case studies .....	50
3.2.1. Justification of the selected case universities.....	51
3.3. Data gathering methods .....	52
3.3.1. Policy documents.....	53
3.3.2. Interviews.....	55
3.3.3. Interview guide and demographics.....	57
3.3.4. National SF Operational Programme data .....	60
3.4. Ethics, data management and analysis.....	61
4. University of Lincoln: an overview .....	64
4.1. UoL and regional engagement: Entrepreneurial architecture .....	66

4.1.1. Structure.....	66
4.1.2. Systems .....	68
4.1.3. Strategy .....	70
4.1.4. Leadership.....	72
4.1.5. Culture.....	73
4.2. Structural Funds projects and University of Lincoln: an overview .....	75
4.2.1. Collaboration.....	77
4.2.2. SF Administrative procedures .....	81
4.2.3. University organisational culture.....	85
4.2.4. SF Project outputs.....	91
4.3. Summary .....	95
5. University of Aveiro: an overview.....	96
5.1. University of Aveiro and regional engagement: Entrepreneurial Architecture .....	98
5.1.1. Structure.....	98
5.1.2. Systems .....	101
5.1.3. Strategy .....	104
5.1.4. Leadership.....	107
5.1.5. Culture.....	108
5.2. Structural Funds projects and UA: an overview .....	111
5.2.1. Collaboration.....	112
5.2.2. SF Administrative procedures .....	115
5.2.3. University organisational culture.....	117
5.2.4. SF Projects outputs.....	120
5.3. Summary .....	123
6. University Consortium of Pori: an overview.....	125
6.1. UC-Pori and regional engagement : Entrepreneurial Architecture .....	127
6.1.1. Structure.....	127
6.1.2. Systems .....	129
6.1.3. Strategy .....	131
6.1.4. Leadership.....	135
6.1.5. Culture.....	138
6.2. Structural Funds projects and UC-Pori: an overview.....	141
6.2.1. Collaboration.....	143
6.2.2. Administrative procedures.....	147
6.2.3. University organisational culture.....	149
6.2.4. SF Projects outputs.....	152

6.3. Summary .....	153
7. Discussion.....	155
7.1. Universities Entrepreneurial Architecture in rural regions.....	156
7.1.1. University of Lincoln.....	156
7.1.2. University of Aveiro .....	159
7.1.3. University Consortium of Pori.....	163
7.2. University engagement in rural regions.....	167
7.3. University third mission and Structural Funds.....	170
7.3.1. University of Lincoln.....	173
7.3.2. University of Aveiro .....	177
7.3.3. University consortium of Pori.....	180
7.4. Characteristics of university-led SF projects .....	183
7.5. Typology of university-led SF projects .....	185
7.6. Delivering university third mission through the SF in rural regions – a summary.....	189
8. Conclusions .....	195
8.1. Contributions of the study.....	196
8.2. Recommendations .....	200
8.3. Validity and limitations of the study .....	202
8.4. Suggestions for further research .....	205
References.....	206
Annexes.....	223

## **List of Tables**

Table 1. The case universities' involvement with Structural Funds projects.

Table 2. Selected definitions of Entrepreneurial University.

Table 3. Main themes emerged from university engagement literature.

Table 4. Five elements of Entrepreneurial Architecture, their operationalisation and regional dimensions.

Table 5. Predicted effect of rural context on EA.

Table 6. Challenges of university-led SF projects.

Table 7. Operationalisation of the research question, data and expected findings.

Table 8. Statements guiding the interviews on the characteristics of university-led SF projects.

Table 9. Conducted research interviews / organisation.

Table 10. Effect of rural context on EA (University of Lincoln).

Table 11. Effect of rural context on EA (University of Aveiro).

Table 12. Effect of rural context on EA (University Consortium of Pori).

Table 13. Proposed addition to Entrepreneurial Architecture framework.

Table 14. Universities' engagement with SF: Main results from each case institution summarised.

Table 15. The impact of current challenges in university-led SF projects in the case of University of Lincoln.

Table 16. The impact of current challenges in university-led SF projects in the case of University of Aveiro.

Table 17. The impact of current challenges in university-led SF projects in the case of University Consortium of Pori.

Table 18. Potential contribution to the university third mission and estimated regional impact of different types of university-led SF projects.

Table 19. Units of analysis, research questions and key findings.

Table 20. Key recommendations to strengthen universities' contributions towards regional development (through SF schemes).

## **List of Figures**

Figure 1. The key elements of the study.

Figure 2. Economic and societal dimensions of the Third mission.

Figure 3. Description of the flow of analysis with expected results.

## **List of Annexes**

### **Annex 1**

Salomaa, M. (2019): Third mission and regional context: assessing universities' entrepreneurial architecture in rural regions, *Regional Studies, Regional Science*, 6:1, pp. 233–249.

### **Annex 2**

Salomaa, M. & Charles, D. (2019): The university third mission and the European Structural Funds in peripheral regions: Insights from Finland. RUNIN Working Paper series 07/2019. [https://ris.utwente.nl/ws/portalfiles/portal/138694426/07.2019\\_Salomaa\\_Charles.pdf](https://ris.utwente.nl/ws/portalfiles/portal/138694426/07.2019_Salomaa_Charles.pdf)

### **Annex 3**

Fonseca, L. and Salomaa, M. (2019): Entrepreneurial Universities and Regional Innovation: Matching Smart Specialisation Strategies to Regional Needs?, pp. 260–285 in Daniel, A.D., Teixeira, A.A.C. and Preto, M.T. (Eds.) *Examining the Role of Entrepreneurial Universities in Regional Development*. IGI Global.

### **Annex 4**

Salomaa, M., Nieth, L., Benneworth, P. & Fonseca, L. (2020): The role of universities in building dense triple helix ecosystems in sparse regional environments, in L. Farinha, D. Santos, J. Ferreira & M. Ranga (eds.) *Regional Helix Ecosystems and Sustainable Growth: Innovation, Entrepreneurship and Technology Transfer*, Springer.

### **Annex 5**

Fonseca, L., Nieth, L., Salomaa, M. & Benneworth, P. (forthcoming): Universities and Place Leadership – A question of agency and alignment in M. Sotarauta & A. Beer (eds.) *Handbook on City and Regional Leadership*, Cheltenham: Edward Elgar Publishing.

## Acknowledgements

This piece of research would not have been written without the RUNIN – The Role of Universities in Innovation and Regional Development H2020-MSCA Innovative Training Network. I have the entire network to thank for the numerous training activities, peer-support, encouragement, opportunities for professional development and friendship. This, of course, would not have been possible without my supervisor, Professor David Charles, who gave me the opportunity to work on my PhD in a such a unique setting. I wish to thank him for all his guidance throughout the process, sharing his long experience and knowledge on the EU policies and their reflections to higher education sector and regional development. I also want to thank him for his flexibility and reliability, and for being such an understanding and nice person. At the same time, the whole Lincoln team, my supervisors Dr Andrea Caputo and Dr Gary Bosworth, as well as Dr Becky Herron smoothed my PhD journey and helped me to overcome any barriers I faced along the process – and there were many, from broken bones to looming deadlines. I cannot stress how much I've learned from all the senior academics I've had the opportunity to work with in the RUNIN project. It's obvious that I would not be here without Professor Paul Benneworth, who taught us all so much about academia, and who efficiently but kindly pushed us towards our very first publications. His sudden passing in 2020 was a huge loss to the RUNIN network and beyond, and I shall think about him and his valuable advice whenever working with academic papers (“Don't be downhearted Maria, that's just a rookie mistake”).

However, I wish to dedicate this work to my precious, flexible little family, with whom I travelled across Europe from one training and conference to another: to my wonderful daughter Iris, who was born in the beginning of my PhD journey in 2017, and to my husband Pasi, who made the journey possible in the first place by agreeing to leave our steady jobs and life in Finland for a couple of years and to have this crazy adventure with me. It was definitely worth it as now the three of us will always have Lincoln.

I once wrote a blog text about how to survive a PhD and have a baby without actually knowing how – but now I do, it's just a question of having the right people there for you, people who are willing to go outside of their comfort zone when you really need them. Mum, thank you for babysitting in the Netherlands, the UK and Portugal, being a great (travelling) companion and taking care of the little things. Dad, thank you for always cooking and letting me to decide for myself. Mikko, thank you for being the best silly big brother ever and asking about my work even though it's probably not very interesting. A huge thank you for my lovely in-laws, who are always ready to go the extra mile for you, especially to granny Ulla and uncle Ville, with whom we got to share parts of our UK adventure. I also wish to honour the memory of great-grandmother Ruusa, who always made me feel like a better person. Finally, a heartfelt thank you to all my darling friends around the world who supported me along the way – you know who you are.

On the 8<sup>th</sup> of February 2021 in Tampere,  
Maria

*This study has received funding from the European Union's Horizon 2020 Research and Innovation Programme under grant agreement No 722295.*



# 1. Introduction

*Parts of this chapter have been published in Regional Studies, Regional Science (Salomaa, 2019) and RUNIN Working paper series (Salomaa & Charles, 2019).*

## 1.1. Research background

Universities have always contributed to regional development (Chatterton & Goddard, 2000; Jongbloed *et al.*, 2008), but over the past two decades, discussion has increased on the regional role of the university and on the societal demands placed on higher education (Clark, 1998a; Uyarra, 2010). While universities are traditionally seen mainly as providers of education, today they are also considered to be sources of research and innovation in collaboration with regional businesses (Arbo & Benneworth, 2007) and other local stakeholders. Thus, they are expected to contribute to regional economic growth and innovation through the creation and application of new knowledge (Agrawal, 2001) through different kinds of collaboration mechanisms (Uyarra, 2010). This development is not surprising, as already in the late 1980s and early 1990s knowledge became a ‘product’, which strengthened the role of universities as regional actors, particularly in the commercialisation of academic research and other spillovers (e.g. Etzkowitz & Leydesdorff, 1997).

The university’ regional role has become widely acknowledged in international (e.g. European Commission, 2010), national and regional policies (Roper & Hirth, 2005; Vorley & Nelles 2009; Zomer & Benneworth, 2012). Many reform agendas have been created to support higher education’s efficiency, effectiveness and accountability, e.g. by developing interdisciplinary research projects responding to the needs of businesses and industry (Etzkowitz *et al.*, 2008). Thus, the higher education institutions (HEIs) have become subjects to political steering, either by international or national regulations and programmes or other policy incentives (Stensaker & Benner 2013; Zomer & Benneworth, 2012) such as regional funding schemes, e.g. the Structural Funds Operational Programmes to support local level innovation. These different policy levels have increasingly boosted universities’ role in the knowledge economy (Göransson *et al.*, 2009), but they can have multiple and even competing aims. Whilst higher education policies drive research excellence (e.g. Goddard & Vallance, 2013), the local authorities have come to regard higher education as an important engine of economic growth

and a tool for delivering prosperity (Arbo & Benneworth, 2007; Breznitz & Feldman, 2012). This might create a potential mismatch between academic profiles and regional assets (Goddard & Vallance, 2013). However, the different policy levels push universities to focus more on regional engagement and many higher education institutions also receive financial support through European funding schemes (e.g. Framework Programme for Research and Innovation; EU Structural Funds instruments) for carrying out research and development activities, building infrastructure to collaborate more with industry partners and fostering (regional) innovation.

It has been suggested, that these changes have broadened the scope of universities and made them ‘organizational umbrellas’ for different tasks varying from more traditional academic to entrepreneurial initiatives (Wildavsky, 2010). Subsequently, the amount of research literature on universities’ contributions to regional development through their so called ‘third mission’ going beyond the traditional core functions of education and research (Chatterton & Goddard 2000; Jongbloed *et al.*, 2008), has expanded. However, on the institutional level, the discussion on the university engagement remains rather dispersed. For the past decades, the concept of ‘entrepreneurial university’, originally conceptualised by Burton Clark (1998), has been one of the core concepts capturing university engagement among others (Uyarra, 2010). While the policymakers expect universities to facilitate entrepreneurship and technology transfer, binding the third mission to interaction with regional industry and society (Arbo & Benneworth, 2007; Roper & Hirth, 2005; Zomer & Benneworth, 2012), in practice, fostering regional entrepreneurship and economic growth remains as a challenging goal for universities (Gibb & Hannon, 2006), in particular in regions without an evident science base or strong technology domains to build on (Foray *et al.*, 2009). This, again, increases the expectations towards local universities, especially in more rural regions, which are not straightforward innovation environments.

In general, fostering innovation has become a central element of economic development policies, but even more so in European Cohesion Policy: during the past ten years, the so called ‘smart specialisation’ approach driving more place-based EU policies (e.g. McCann & Ortega-Argilés, 2015) has dominated the implementation of Cohesion Policy, which links innovation and entrepreneurial discovery processes more closely to regional development (Begg, 2016). Ever since the emergence of the concept of smart specialisation, regional development policies have emphasised bottom-up initiatives (McCann & Ortega-Argilés, 2015). But has the

emergence of the smart specialisation concept reinforced the university's regional role in practice? The research literature implies that it has had an impact on the higher education institutions – more specifically, it has been suggested that the role of universities has become more crucial both in regional innovation strategy formulation, especially in RIS3 – Research and Innovation Strategies for Smart Specialisation – processes identifying the regional priorities (e.g. Foray *et al.*, 2009), but also in the implementation of these strategies (Santos & Caseiro, 2015) through the Structural Funds funding schemes.

Structural Funds (SF) are indeed the EU's key instruments of Cohesion Policy based on a multi-level governance structure. For the most part, they are implemented through national and / regional Structural Funds Operational Programmes. The overall motivation behind the SFs is to support local level innovation to reduce economic and social disparities within Europe (EU 1301/2013). The regional RIS3 strategies then are used in designing of the operating plans, thus determining the lines of action of local European Regional Development Fund (ERDF) and European Social Fund (ESF) programmes. There is some evidence, that the university's participation to RIS formulation can facilitate matching universities' research more closely with regional needs (e.g. Fonseca & Salomaa, 2019), although it is up to the university to decide whether they wish to respond to the programme calls. This might partly depend on the regional profile of the university. Therefore, further empirical studies could generate new knowledge for assessing if the university has become more involved in regional programmes through RIS3 processes in different regional contexts.

As discussed above, the different policies at EU, national and local levels have a major role in creating the context and circumstances that can enable universities to transform strategically towards entrepreneurial organisations (Stensaker & Benner, 2013), as they partly define the conditions of funding for universities' regional engagement activities (Trippel *et al.*, 2015). An increasing body of literature focuses on the regional roles played by the higher education institutions. It is obvious that universities participate more and more in regional partnerships and project consortiums within multi-level governance structures associated with regional development, such as projects funded through Structural Funds schemes. It is not, however, an easy task for universities to manage and respond to the increasing local expectations, and then deliver regional collaborative initiatives while linking these activities to research and education – even more so in peripheral regions lacking other knowledge institutions and SMEs with absorptive capacities (e.g. Charles, 2016). Therefore, this study focuses on universities'

regional engagement through Structural Funds projects, especially in sparse innovation environments, with an aim to identify how universities in rural regions can manage and implement engagement in the framework of SF Operational Programmes more efficiently, while both delivering regional benefits and embedding the activity in their traditional core missions. In the next sections, the research problem, key literature related to the research project – entrepreneurial universities, entrepreneurial architecture, the context of sparse innovation areas (rural regions) and challenges of university-led Structural Funds projects – are briefly introduced, after which the key concepts of the study and the research questions are presented. In the final section, the structure of the dissertation is summarised.

## 1.2. Problem statement

### 1.2.1. Assessing university third mission

The overall comprehension of universities' engagement activities has become 'embodied' by the rise of the 'third mission' (Benneworth & Sanderson, 2009), while the phenomenon itself has remained rather broadly defined (Jongbloed *et al.*, 2008). It is mainly articulated through policies and funding instruments (Vorley & Nelles, 2009). In practise, universities have become more connected on a regional level through different kind of engagement mechanisms, such as projects and networks (Uyarra, 2010; Agrawal, 2001). There is a consensus that the international and national higher education policies push universities to become more entrepreneurial – including the European Commission's push to commercialisation and social accountability of research<sup>1</sup>, which urges universities to take a more active role in economic and regional development (Gibb & Hannon, 2006). As a result of all these recent changes in the higher education landscape, universities have become rather competitive, but also collaborative institutions (Benneworth & Cunha, 2015).

For the last twenty years, there has been an on-going debate on whether universities should focus on economic development (Clark 1998a; 1998b) or broader regional engagement activities (e.g. Goddard 2009; Etzkowitz, 2013). Should the university concentrate on research excellence steered by national policies? Or actively contribute to the development of their communities? How regional engagement could be better aligned with research priorities? The

---

<sup>1</sup> <https://ec.europa.eu/programmes/horizon2020/>, June 11<sup>th</sup> 2018.

concept of the entrepreneurial university (Clark, 1998a; 2004) has been adopted to explore the changes in the governance and management of HE, but it has also been utilised in capturing all the recent changes in the field of higher education (Armbruster, 2008). Simultaneously, with the rise of the university third mission literature, it become central in the past decades in both higher education studies and policies (see e.g. Etzkowitz *et al.*, 2000; Stensaker & Benner, 2013). However, the characteristics and focus of universities' engagement are constantly re-evaluated and the entrepreneurial university literature presents many, sometimes even opposing approaches to the issue. While the economic orientation can help to diversify universities' funding base and increase their autonomy (Gibb & Hannon, 2006; Armbruster, 2008), the broader engagement may contribute to social welfare (Gunasekara, 2004) – and finally, in ideal cases, the regional development activities are combined smoothly with the academic core functions through a strong, institutional entrepreneurial architecture (Vorley & Nelles, 2009). However, the higher education institutions have different organisational motivations (Benneworth *et al.*, 2016a) and ways to carry out third stream activities. So far, the third mission literature has focused on a rather idealistic 'one-size-fits-all' approach to university engagement in both policies and institutional responses (Benneworth *et al.*, 2016b; Kitagawa *et al.*, 2016), while the different institutional adaptations of the third mission have not been sufficiently addressed.

In order to explore the institutional characteristics having an impact on the university's regional engagement, the Entrepreneurial Architecture (EA) framework, originally conceptualised by Vorley and Nelles (2009), was employed for creating a deeper understanding on the specific institutional characteristics of the third mission in entrepreneurial universities located in rural regions. The EA framework is based on five key elements, which aim to illustrate in more depth how entrepreneurial activities can be embedded into institutional structures oriented towards teaching and research. Ideally these dimensions can help to analyse and manage universities' internal mechanisms that together, when integrated with the core activities, reinforce implementation of the third mission. (Vorley & Nelles, 2009, 2012; Nelles & Vorley 2010a, 2010b, 2011.) However, the EA literature has focused on universities' internal dynamics and has not assessed how external forces affect universities' engagement (Vorley & Nelles, 2012). This implies that the EA framework can provide further insights on the development of the third mission in universities, but it overlooks the impact of the context, even though the surrounding environment is one of the key factors in universities' move towards an entrepreneurial turn (Foss & Gibson, 2015). The different ways in which the

universities undertake the third mission have been partly explained by geographic factors (Kitagawa *et al.*, 2016). Being so, the impact of a particular context should be further studied as one of the key elements affecting university engagement: what kind of operational environment the university has? Who are its key collaborators? What kind of expectations it poses to the university and their regional stakeholders? And how the university should take these aspects into account in its entrepreneurial architecture and in delivering third mission activities?

### 1.2.2. University engagement and sparse innovation environments

The globalized knowledge economy has increased the importance of universities to the places in which they are located (Benneworth *et al.*, 2010; Breznitz & Feldman, 2012; EM3, 2012), expecting regionally-engaged universities to become key drivers for economic development (Chatterton & Goddard 2000; Enders, 2004; Tuchman, 2009). This central objective of knowledge-based economic development to build an innovating region requires a strong capability to adapt new technologies and create firms from its academic base (Etzkowitz & Klofsten, 2005). This places universities in the front line of providing knowledge transfer and other innovation support activities to local SMEs. However, the external expectations towards higher education may be unrealistic. It has been argued that universities themselves should decide which goals to prioritize (Etzkowitz *et al.*, 2008; EM3, 2012). How this can be achieved when the state and other external stakeholders have more (financial) influence to steer the activities of the university (Zomer & Benneworth 2012; Etzkowitz 2013)?

As discussed in the previous section, the entrepreneurial universities' strategic responses and resource allocation to regional development should also be further explored (Freel *et al.*, 2019) in different contexts (Foss & Gibson, 2015; Vorley & Nelles, 2012), together with policy pathways and networks supporting entrepreneurial activity in practise. As an example, a recent study by Thomas and Pugh (2020) highlights the shortcomings of the concept of the entrepreneurial university in the context of emerging economies, suggesting that a shift towards the 'engaged' university model would capture better the university' regional contributions beyond economic aspects. Hitherto, it has not been investigated thoroughly how a particular context effects the university's ability to carry out entrepreneurial activities, although the different features of local communities and public policy both have a major role in defining the

conditions of its success (Vorley & Nelles, 2012; Rhoades & Stensaker, 2017). Thus, the university's regional mission and its complex relationships should be examined through more detailed, empirical case studies (Pinheiro *et al.*, 2012) to reveal the dynamics and impact of these external factors. In particular, in rural regions universities have to deal with a diverse economic base dominated by small businesses and a lack of knowledge institutions (Charles, 2016). Typically, such regions also have a lower level of qualified human capital to build on innovative activities and support the knowledge economy (Sotarauta & Kosonen, 2003). Therefore, a rural context is not a straightforward innovation environment and may pose further challenges for universities' regional engagement. Previous single case studies on rural universities tend to emphasise the importance of entrepreneurial leadership and personal commitment (e.g. Lindeman 2015; Oftedal & Foss 2015), but they do not identify how exactly this rural context shapes universities' engagement activities (e.g. Salomaa, 2019). This has disclosed a need for further discussion on the university's engagement activities beyond a simplistic policy document reading of the third mission (Göransson *et al.*, 2009; Benneworth *et al.*, 2016b).

It is obvious that universities cannot drive economic changes alone, and the socioeconomic conditions of the region also affects the region's ability to absorb knowledge. Therefore, universities' role in regional development is also dependent on local employment opportunities, government funding, cultural and historic aspects of the region. (Breznitz & Feldman, 2012.) Previous studies indicate that the volume of expected entrepreneurial spillovers from academia has not been realistic in recent policy frameworks. This is even more the case in peripheral regions with limited innovation capacity and less tradition to pursue university-business collaboration. In such regions, it has been suggested that the focus of innovation policies should be on supporting the absorptive capacity of local SMEs and promoting networking and knowledge exchange. (Brown, 2016.) This resonates well with ERDF funding priorities for the programme period 2014–2020<sup>2</sup>. As Rhoades and Stensaker (2017) observe, there is also a need to study the national policy pathways fostering universities' entrepreneurial activities, which suggests that universities' engagement with Structural Funds also steers their regional orientation and collaboration with local stakeholders.

---

<sup>2</sup> [https://ec.europa.eu/regional\\_policy/en/policy/how/priorities/](https://ec.europa.eu/regional_policy/en/policy/how/priorities/), 1st Aug 2019.

### 1.2.3. Universities and Structural Funds

Over the past decades, the Cohesion Policy has become the EU's second largest policy area (Rodriguez-Pose & Fratesi, 2004) and a need to systematically examine its implementation through Structural Funds (SF) programmes has emerged (Cappelen *et al.*, 2003). In parallel, universities' traditional role as a provider of knowledge and education has shifted towards broader regional engagement, which has also increased expectations to support economic growth in their locations. How the university seeking to become entrepreneurial can acknowledge better that the regional contexts steer the way they can implement third stream activities? How the third mission can be delivered on a micro scale instead of using the concept merely in 'promotional terms' (Lebeau & Cochrane, 2015)? Structural Funds programmes can be one tool to support universities to deliver these engagement activities, especially in less-developed regions: previous case studies demonstrate that they have contributed to creating the foundations of regional systems of innovation and have reinforced universities' regional engagement (Charles & Michie, 2013). Universities are also among the key beneficiaries of these funds (e.g. Spilanis *et al.*, 2016), but have the smart specialisation enabled matching research better with regional priorities (e.g. Fonseca & Salomaa, 2019)?

While the previous studies emphasise that universities' engagement is heavily shaped by their regional context (e.g. Foss & Gibson, 2015; Breznitz & Feldman, 2012), also the formulation and implementation of Structural Funds Operational Programmes are nationally differentiated and very dependent on regional circumstances (Bachtler & Wren, 2006). Thus, further comparative studies on entrepreneurial universities' engagement with SF projects could provide more insight on the ways their third stream activities are being delivered (Lebeau & Cochrane, 2015) on a regional level. However, as previous studies indicate, there are several constraints hindering universities' motivation to engage with SF programmes: the projects are considered to be highly bureaucratic (Spilanis *et al.*, 2016) and cross-regional collaboration challenging (Muizniece & Peiseniece, 2012). There is also a lack of resources for self-financing, which makes the SF instruments less appealing for higher education institutions (Charles & Michie, 2013). Most importantly, the SF projects may be difficult to link with universities' core missions (e.g. Goddard & Vallance, 2013). All these challenges are further discussed in Chapter 2.

According to Gibb and Hannon (2006), higher education policies pushing towards entrepreneurship can be divided into two different categories: 1) policies supporting links



between higher education and its stakeholders, and 2) policies focusing on student entrepreneurship. Structural Funds programmes fall in to the first category, though their scope can be rather broad because they aim to foster collaboration between different regional actors. As Benneworth and Cunha (2015) state, the focus from the knowledge economy concept, which dominated the policies in the 1990s, has shifted from supporting economic competitiveness through innovation and knowledge, towards these multi-sectoral and multi-disciplinary collaborations. This broader approach is required to address emerging grand societal challenges beyond merely fostering economic growth, and as a result, universities as well as other regional institutions, form partnerships to compete for external funding to address these issues also through SF projects. Universities' regional roles in carrying out these projects may vary dramatically based on their organisational features, location and history – and that is why it is important to examine the university's regional engagement through detailed case studies (Pineiro *et al.*, 2012).

### 1.3. Purpose of the study, key concepts and research questions

As discussed in the previous sections, policy-makers have increasingly high expectations on higher education's contribution to regional innovation, which portrays the university organisations as highly flexible, integrated and strategic actors (Uyarra, 2010). However, universities have a limited capability to respond to these demands, especially in the traditional academic infrastructure (Clark 1998), and the growing expectations to meet regional needs and embed a range of new tasks into the universities' core missions may be unrealistic (Benneworth & Sanderson 2009; Uyarra 2010). According to Clark (1998), the key is to find a balance between these demands and responses, but it is challenging to hedge between the expectations and agendas of different stakeholders (Charles *et al.*, 2014). Unless the engagement is successfully linked to a broader institutional change, the engagement activities will remain peripheral to the core academic activities (Benneworth & Sanderson, 2009): therefore, the whole entrepreneurial architecture of the university, including the operational environment – a particular context – is crucial in delivering successful engagement activities.

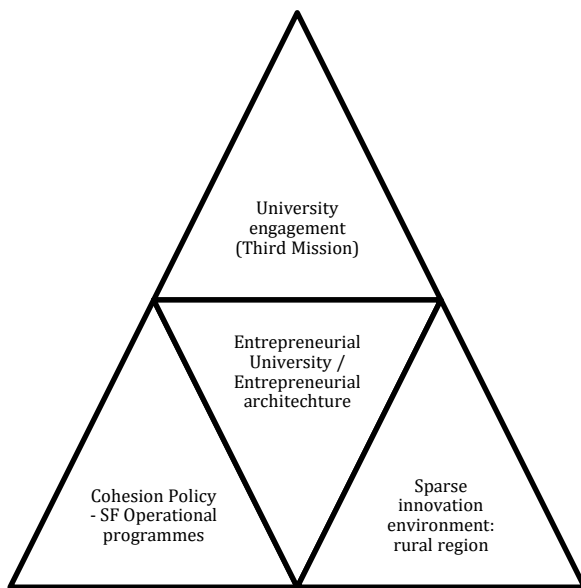


Figure 2: The key elements of the study.

While the financial regional development support through Structural Funds has contributed to the growth performance of Europe, increasing convergence in productivity and income level (Cappelen *et al.*, 2003), and whilst the SF programmes are central tools in EU Cohesion policy and important instruments of regional R&D funding (Crescenzi & Filippis, 2016), so far there are only a few studies on how universities can actually foster regional development through SF programmes (e.g. Muizniece & Peiseniece, 2012). Even

though higher education institutions are one of

the key organisations<sup>3</sup> delivering these projects (Spilanis *et al.*, 2016), the universities' role and motivation to take part in such regional project consortiums have not been largely examined, nor has the range of different types or characteristics of entrepreneurial universities' engagement located in rural regions been sufficiently identified by academics or policy-makers (Huggins *et al.*, 2012).

As discussed in more details in Chapter 2, this study builds on the evolution of the entrepreneurial university towards a more context-sensitive assessment of university engagement, as well as building on previous studies providing insights into the universities' role in delivering regional development projects funded by Structural Funds programmes. The theoretical framework of the study consists of selected mainstream concepts capturing the university's regional role:

- 1) The 'third mission' – also referred to as university engagement – the university's commitment to a broad range of activities, new patterns and competitive institutional behaviour (Charles *et al.*, 2014);

and

---

<sup>3</sup> Tentative findings from Case 1 (Lincolnshire, UK) and Case 2 (Satakunta region, Finland) revealed that 26-30% of the available ERDF and ESF funding within the region is granted to local HEIs. Detailed case information on each case study is provided in Chapters 4-6.

- 2) The ‘entrepreneurial university’ (Clark 1998; 2004), as well as its more pragmatic readings, namely the ‘Entrepreneurial Architecture’ (Vorley & Nelles, 2009; Nelles & Vorley, 2010) allowing the examination of universities’ regional contributions on an institutional level.

Acknowledging that both the context and institutional responses are essential in delivering successfully universities’ regional engagement activities, the research question set for this research project is:

*How (entrepreneurial) universities can manage and deliver their third mission through Structural Funds programmes in rural regions?*

A qualitative analysis *examining the specific characteristics and challenges of university-led SF activities through three case studies* identifies, how universities can respond to regional needs through projects linked to teaching and research, and how the management of these activities could be enhanced. This research question also allows reflection on sub-questions on both regional and organisational level, such as how the SF activities are aligned with universities’ education and research missions? Is the participation merely an opportunistic way to diversify the funding base with ‘add-ons’ to raise the ‘entrepreneurial’ university’s regional profile? Or can the SF project portfolio be strategically planned to create entrepreneurial activity that truly benefits the local economy while it is successfully combined with universities’ traditional missions? Are university institutions truly capable of addressing complex societal challenges through participation in regional project consortiums? Can participation in SF projects be a concrete way to implement universities’ third mission – and if yes, is it recognised or valued on an institutional level? The research question and its sub-questions are further discussed and operationalised in the literature review in Chapter 2.

In order to respond to the set research questions, a series of individual, qualitative case studies in three European countries was conducted in the framework of the RUNIN – The Role of Universities in Innovation and Regional Development project, which is a MSCA Innovative Training Network funded by the H2020. The overall aim of RUNIN network was to study how universities contribute to innovation and economic growth in their regions. 14 individual research projects sought to examine how universities fulfill their third mission in relation to regional industry and to explore the range of university engagement in different regional

contexts.<sup>4</sup> The RUNIN project enabled conducting in-depth case studies on the overall university engagement with a specific focus on case universities' role in delivering Structural Funds projects in the United Kingdom, Finland and Portugal.

As the case universities' involvement with Structural Funds varied from large-scale regional initiatives to smaller collaborative actions, examining three different universities provided a rich data base for producing a stylised typology of the characteristics and types of university-led SF projects through a series of single case studies

**Table 1. The case universities' involvement with Structural Funds projects.**

<b>Case Institution</b>	<b>Number of European Social Funds projects</b>	<b>Number of European Regional Development Funds projects</b>	<b>Amount of funding</b>	<b>Estimated SF profile of the case organisation</b>
University of Lincoln (UK)*	0	4	10.78 M GBP	Large-scale, institutional ERDF projects (single beneficiary) to increase local innovation capacity.
University of Aveiro (PT)**	0	47	13.5 ME	Smaller-scale ERDF projects, including IP and internationalisation projects and basic research projects.
University Consortium of Pori (FI)***	4	15	4.8 ME	Both ESF (training initiatives) and ERDF (RDI initiatives) projects related to UC-Pori' key disciplinary areas.

\* Situation in September 2020.

\*\* Situation in March 2019.

\*\*\* Situation in September 2017.

The research project sought to contribute to the existing entrepreneurial university literature by providing a more context-sensitive analysis on how entrepreneurial universities in rural regions deliver and manage their third stream activities. The aim of the study was to assess the impact of the rural regional context to the university's overall entrepreneurial architecture (Vorley & Nelles, 2009) while investigating their role in delivering Structural Funds programmes. The findings provide insights on how the universities' entrepreneurial architecture is affected by the rural context, and how the universities can deliver regional benefits through SF activities

---

<sup>4</sup> <https://runinproject.eu/>

while aligning the engagement activities to the academic core. The aim was to reveal entrepreneurial universities' internal dynamics in their engagement with SF programmes to produce insights into good practices of the management of these regional relationships, and the optimisation of both regional and academic benefits of the university-led SF project activities. On the verge of a new EU Programming Period (2021-2027), this study provides substantial empirical evidence on good practices of university-led SF projects in a rural context: The findings can guide policymakers in designing more efficient SF Operational Programmes on national and / regional level for maximising universities' contribution to regional development.

## 1.4. Structure of the dissertation

This thesis consists of eight chapters. This first chapter provided an introduction to the research problem, explained the purpose of the study and its proposed contribution to both academics and practitioners. It also presented briefly the key concepts and the research questions of the study. Next, Chapter 2 introduces a detailed literature review on the entrepreneurial university, Entrepreneurial Architecture and the university engagement in sparse innovation environments. It also presents an overview of EU Cohesion policy, multi-level governance and national / regional implementation of the SF Operational Programmes as well as the current challenges related to university-led Structural Funds projects. Building on these different streams of literature, two complementary frameworks are derived for analysing how entrepreneurial universities in sparse innovation environments – rural regions – can deliver engagement activities through Structural Funds projects. At the end of the chapter, the research questions are operationalised.

In Chapter 3, the methodological choices of the study are justified, and also the data collection methods and the selection of case universities are further discussed. Chapter 3 also includes more information on the framework, the RUNIN project, in which the research was conducted. Also, the demographics of the collected data, including information on the interviewees across all three cases, are presented. Finally, at the end of the chapter, the data management and methods for analysing the data are explained in detail.

Chapters 4, 5 and 6 contain an overview on each case university, introducing their regional contexts and explaining their general approach towards regional engagement, as well as external expectations towards the university to conduct these activities. The empirical data on

each case university's engagement is analysed using the Entrepreneurial Architecture framework, especially focusing on the impact of the rural region, after which their involvement with Structural Funds projects is analysed in detail. The empirical part presents examples of how SF activities are managed and coordinated within the university institutions, and what kind of academic and / or regional benefits they can generate, but also what kind of barriers the universities have faced in delivering these activities.

In Chapter 7, the empirical evidence on university-led SF projects is further analysed, and the different types and forms of university engagement delivered through SF activities discussed in comparison to the Entrepreneurial Architecture to assess the overall institutional approach to engagement. This analysis forms a basis for producing a narrative of good practices as well as policy recommendations for reinforcing universities' regional role in rural regions. Also, a typology of the characteristics and potential benefits of the university-led SF projects in rural regions is developed.

In Chapter 8, the key findings - how entrepreneurial universities could enhance their regional engagement through SF projects and how their institutional mechanisms for designing and delivering engagement activities successfully in sparse innovation environments could be optimised - are summarised. The potential contribution and limitations of the study are discussed, and finally, policy recommendations and suggestions for further research are presented.

## 2. Literature review, conceptual frameworks and research questions

*Parts of this chapter have been published in Regional Studies, Regional Science (Salomaa, 2019) and RUNIN Working Paper series (Salomaa & Charles, 2019).*

In the past two decades, a lot has been written about universities' emerging entrepreneurial and societal missions and their increasingly emphasised role in (regional) innovation systems. Since then, the academic discussion has been dominated by the somewhat overlapping concepts of the 'entrepreneurial university' (Clark 1998a; 1998b; 2004), the 'engaged university' (e.g. Chatterton & Goddard 2000; Breznitz & Feldman, 2012) and the university 'third mission' (e.g. Roper & Hirth, 2005; Zomer & Benneworth, 2011), widely referring to activities beyond the traditional academic core missions of education and research. Since then, an increasing body of research literature focusing on universities' third mission and their emphasised role in regional development has emerged (e.g. Chatterton & Goddard, 2001; Jongbloed *et al.*, 2008), including attempts to categorise different dimensions of the third stream activities (e.g. Laredo, 2007) as well as creating suitable success indicators for them (e.g. Secundo *et al.*, 2017). The contributions have varied from the more conceptual (e.g. Etzkowitz, 2013) to more pragmatic approaches combining the university's transformation towards entrepreneurial organisation with the reinforced third mission (Nelles & Vorley, 2010a; 2010b; Vorley & Nelles, 2009). At the same time, the university-industry-government relationships in innovation systems have been captured by different configurations of the Triple helix model (Leydesdorff & Etzkowitz, 1996) reflecting the role of academia in entrepreneurial ecosystems (Lahikainen *et al.*, 2019) more recently also taking in account the roles of the society in the knowledge-based economy (Leydesdorff, 2012) as part of the Quadruple helix model (Carayannis & Campbell, 2012). On the EU policy level, the interaction between universities, economy and society has been also conceptualised by 'knowledge triangle', proving a non-linear model for knowledge transfer and commercialisation of research outputs by linking together research, education and (business) innovation (Unger *et al.*, 2018).

In parallel, the Cohesion Policy and its implementation through multi-level governance (e.g. Marks, 1992; Marks *et al.*, 1996; Hooghe, 1996; Hooghe & Marks, 2001; Olsson, 2003) as well as a closely related – currently dominating – concept of smart specialisation promoting regional innovation (e.g. McCann & Ortega-Argilés, 2015; Foray, 2016) have drawn many

scholars' attention. Despite the increased expectations towards higher education institutions and the growing body of literature on the role of universities in designing regional development policies, such as RIS3 - Research and Innovation Strategy for Smart Specialisation (e.g. Goddard *et al.*, 2013; Kempton, 2015), the role of universities in the implementation of these policies has been largely overlooked in the research literature. As previous studies indicate, more context-sensitive, empirical case studies would thus be useful in assessing and enhancing the ways in which universities manage and deliver their engagement activities (Kitagawa *et al.*, 2016; Pinheiro *et al.*, 2012) related to regional policy goals, for example, through Cohesion policy transformed into Structural Funds Operational Programmes. Empirical studies would also provide useful insights for the national and subnational policy formulation processes on the effectiveness of the delivery mechanisms at the SF Operational programme level (Bachtler & Wren, 2006; Fratesi & Wislade, 2017). This would also generate further insights on the implementation of the EU Cohesion Policy in practise (Blom-Hansen, 2005). In order to address these topics from the university perspective, this study draws from different branches of academic literature discussing the entrepreneurial university and the university third mission, sparse innovation environments, namely universities in rural regions, and finally, Cohesion Policy and Structural Funds Operational Programmes. These issues are discussed in detail in this Chapter and two complementary frameworks are elaborated for guiding a theory-driven analysis on how *universities can manage and deliver their third mission through Structural Funds programmes*.

Firstly, the concept of 'entrepreneurial university' and its more recent readings as well as third mission literature is reviewed in order to create a profound theoretical understanding capturing the current debate on the university engagement. Secondly, the impact of a specific context – rural regions as sparse innovation environments – to the university engagement is discussed. These two branches of literature combined were utilised in order to form a theoretical framework for assessing the effect of a rural regional context to entrepreneurial universities and their third mission activities using the enlarged Entrepreneurial Architecture framework originally conceptualised by Vorley and Nelles (2009). Thirdly, the Cohesion policy, and especially the smart specialisation approach driving more place-based policies – opposing the dominant one-size-fits-all approach to regional development (Goddard *et al.*, 2013) – is reflected upon, together with lessons learnt from previous studies on the role of universities in delivering Structural Funds projects. Finally, a theoretical framework encapsulating challenges related to university-led SF projects is presented. These two frameworks, derived from the



literature, enable in-depth analysis of the empirical evidence from three European regions (Satakunta – Finland, Lincolnshire – UK, Aveiro – Portugal) on how (entrepreneurial) universities manage and deliver Structural Funds projects in sparse innovation environments. In the last part of the chapter, the research questions of the study are presented and operationalised.

## 2.1. University Engagement

### 2.1.1. Entrepreneurial university

Soon after its publication, Burton Clark's concept of the 'entrepreneurial university' (1998a) became widely acknowledged in the international higher education research community. Also, the policy-makers took interest in the concept, as at the time, there was, overall, a growing interest in the university's role in regional engagement. Despite the 'fuzziness' of the concept (Armbruster, 2008; Taylor, 2012), the entrepreneurial university became rapidly a point of reference for capturing the emerging global changes in higher education (Rhoades & Stensaker, 2017), although, as concluded by Dabic et al. (2018), the concept has remained 'vague' in Southern European countries compared to leading innovation counties. According to Clark's original definition (1998a), the transition towards the entrepreneurial university breaks down into five main elements: 1) The strengthened steering core, 2) The expanded development periphery via linking with outside organisation and networks, 3) The diversified funding base, including 'third stream sources' such as firms, local authorities, fees and grants from foundations, 4) The stimulated academic heartland: mixing academic values with new managerial approach, and 5) The integrated entrepreneurial culture. (Clark, 1998a.) In short, an entrepreneurial university is more engaged with regional development without compromising its core functions – a goal not easily achieved.

There are many external factors that influenced to the development of the concept of the entrepreneurial university. Firstly, the rise of New Public Management movement, followed by wider Europe's austerity agenda, affected the policy agendas of the whole public sector, which also have had an impact on the higher education policies. Secondly, the increasing demand for accountability on a system level and increased managerial control on the organisational level emphasised the role of external steering mechanisms throughout Europe. (Rhoades & Stensaker, 2017.) All these changes, for their part, have pushed the public sector

towards more economically productive behaviour, and higher education makes no exception to this: according to Slaughter and Leslie (1997), it was a question of rising ‘academic capitalism’. Considering all these emerging pressures in the public sector, it is no wonder that Clark’s concept of entrepreneurial university was widely adopted for capturing all kinds of ongoing changes in the higher education (Armbruster, 2008).

The concept of the entrepreneurial university has many different, but quite overlapping definitions, which are summarised in Table 2. It has been described rather broadly as a concrete narrative for researchers, managers and practitioners studying and designing instrumental models for the changes in higher education. Clark’s (1998a) pragmatic approach has also been used as a model for many institutional reforms in higher education (Vorley & Nelles, 2009; Gibb & Hannon, 2006). However, it is clear that Clark’s conceptualisation captures more higher education organisations’ internal dynamics and strategies (Rhoades & Stensaker, 2017) than external forces having an impact on the path towards entrepreneurial organisation. Instead, Clark’s conceptualisation (1998) refers widely to the organisational issues of entrepreneurial universities and their management, that together allow HEIs to respond more flexibly and strategically to the (entrepreneurial) opportunities in their environment (Gibb & Hannon, 2006). Therefore, Clark’s concept of the entrepreneurial university places much weight on the universities’ personnel, though entrepreneurship should be embedded into the curriculum, which demands ‘department ownership’, but also a strong commitment of the staff (Clark, 1998a). Some scholars even argue that ‘entrepreneurialism’ can only be linked to individuals, not to organisations (e.g. Finley, 2004), which, again, emphasises academic entrepreneurship based on individuals. However, recent studies reveal that attitudes towards entrepreneurship – and overall engagement – tend to be heterogenous among academics (e.g. Freel *et al.*, 2019). Even when the regional strategies, supported by the university management, promote entrepreneurship as a ‘top-down’ initiative, it remains challenging to engage academic staff with entrepreneurial processes unless the support mechanisms for delivering these strategies are well aligned (Lahikainen *et al.*, 2019). On the other hand, there can be hidden potential of the third mission capacities ‘in previously neglected places’, namely among the university staff members not involved with engagement activities (Freel *et al.*, 2019). Thus, the overall determination of the personnel to initiate entrepreneurial activities, such as interdisciplinary research and entrepreneurial graduate programmes, enables entrepreneurship to become part of the university’s core strategy. This can lead to the creation of an ‘enterprise culture’, which promotes creation and exploitation of innovations and development. Entrepreneurial

(academic) leaders are in a key position in initiating of this change (Clark, 2004; Foss & Gibson, 2015; Lindeman, 2015), as the new entrepreneurial behaviour is likely to face resistance (Gibb & Hannon, 2006; Unger *et al.*, 2018).

The entrepreneurial university has also been understood more indirectly, as a way to emphasise and understand organisational changes as dynamic, continuous and incremental processes (Rhoades & Stensaker, 2017) based on collegial entrepreneurialism (Clark, 2000) instead of direct top-down initiatives and management strategies (Rhoades & Stensaker, 2017), which can even be detrimental to the creation of an entrepreneurial culture (Philpott *et al.*, 2011). A more generic approach to the concept was elaborated by Gibb & Hannon (2006), describing the entrepreneurial paradigm as ‘an organisational or individual mode’ to cope and thrive within an uncertain and complex environment. Instead of focusing on an individual’s entrepreneurial capacities, they emphasise that it refers to organisational design to foster entrepreneurial behaviour in different kinds of HE organisations. This leads the discussion on the entrepreneurial universities towards a more context-sensitive approach instead of the dominant one-size-fits-all approach of university engagement in institutional strategies (Clark, 2001; Benneworth *et al.*, 2016) as well as policy initiatives (Kitagawa *et al.*, 2016).

Stensaker and Benner describes the entrepreneurial university concept as an attempt to integrate the two distinct ideals of university, bringing together “the high quality, strong research-orientation of the research-intensive university with the social and economic relevant approach” (2013, p. 404). This dichotomy has been criticised, especially in relation to traditional research universities, which are not-for-profit institutions by nature even if they are private organisations. However, the narrative of the entrepreneurial university has supported universities in drifting further apart from the state and thus increased competition over the basic and research funding through a variety of performance indicators (e.g. Armbruster, 2008). Subsequently, these two separate visions of universities have become blurred in more recent discussions on the entrepreneurial university; it has been argued, that the next state stage of academic transition of entrepreneurial universities is more focused on combining and amplifying higher education’s three missions: by enlarging the scope from education and research, this transition reinforces the ‘third mission’ through engagement mechanisms, which includes taking a stronger role in economic, social and regional development (Etzkowitz, 2013). However, as Lee *et al.* (2019, p. 251) state: “local communities (in emerging economies)

may be paying the social price for their universities’ world-class ambitions” unless these different mission become aligned.

**Table 2. Selected definitions of the Entrepreneurial University**

<b>Author(s)</b>	<b>Definition</b>
Clark, 2004	Maximising potential for commercialisation of research; creating societal value without compromising academic values.
Gibb & Hannon, 2006	Internal organisational changes to reinforce entrepreneurialism that builds on the autonomy of individual academics; An organisational design to foster entrepreneurial behaviour in different kinds of organisations.
Armbruster, 2008	A general concept capturing the ongoing changes in the higher education.
Vorley & Nelles, 2009	A concrete narrative for researchers, managers and practitioners studying and designing instrumental models for change in higher education.
Stensaker & Benner, 2013	An attempt to bring together the traditional research-intensive university and the regionally oriented, socially relevant university.
Etzkowitz, 2013; Etzkowitz <i>et al.</i> , 2015	A concept widely adopted to address both broader social problems and economic development; Embedding both economic and social development into the core functions.
Foss & Gibson, 2015	Creating and exploiting opportunities and innovation, rooting the entrepreneurial paradigm across the university organisation.
Rhoades & Stensaker, 2017	A point of reference for capturing the emerging global changes in higher education; HE organisation’s internal dynamics and strategies; a way to understand organisational changes as dynamic, continuous and incremental processes.
Thomas & Pugh, 2020	A reconfiguration towards ‘engaged university’ to acknowledge the university’s regional contributions beyond economic outputs in emerging economies.

Source: Author’s own elaboration.

### 2.1.2. Third Mission

The idea of the universities’ third mission (e.g. Laredo, 2007), alongside with conceptualisations of the university as entrepreneurial (Clark, 1998), engaged (Breznitz & Feldman, 2012), civic (Goddard & Vallance, 2013) or part of a triple helix configuration (Etzkowitz, 2013) emerged in parallel with policymakers’ increasingly high expectations of universities’ contributions to regional development over two decades ago (Arbo & Benneworth, 2007). Since then, the scholarly discussion on the university’s third mission has

been diverse. Its different implications vary from a narrow economic reading (e.g. Klofsten & Jones-Evans, 2000) to a broader societal engagement of the universities in their respective regions (Göransson *et al.*, 2009) and beyond traditional science-based activities (Freel *et al.*, 2019) For example, Armbruster (2008) aligned the concept of the entrepreneurial university directly to the actual entrepreneurial actions, allowing higher education institutions to diversify and increase its funding base with exploitation of IPR and commercialisation of research and teaching. Various forms of business engagement and support for entrepreneurship attract most policy attention but wider civic engagement is also of increasing interest, covering culture (Comunian *et al.*, 2015), social development (Benneworth, 2013), sustainability (Trencher *et al.*, 2014), policy engagement (Breznitz & Feldman, 2012) and a role in new regional governance systems (Goldstein & Glaser, 2012).

There have been several attempts to redefine the third mission. For example, Laredo (2007), explores “how differently it (third mission) can be taken depending upon the configuration of university activities, upon its embedding in its geographical territory and upon the country’s institutional framework”(p.451), suggesting to replace the university missions with mutually reinforcing *functions*, while Trencher *et al.* (2014) propose a shift from ‘knowledge transfer’ within the framework of the entrepreneurial university towards ‘co-creation’ through something that they call ‘a transformative university’. Despite the vagueness of these concepts, one shared assumption emerging from the university engagement literature is that HEIs will need to respond to demands from government, industry and social communities without compromising the academic core (Clark, 2004) through the third mission. In the absence of better conceptualisation for the ‘third mission’, the concept of entrepreneurial university has been largely adopted in addressing both broader social problems and economic development (Etzkowitz, 2013; Thomas & Pugh, 2020)

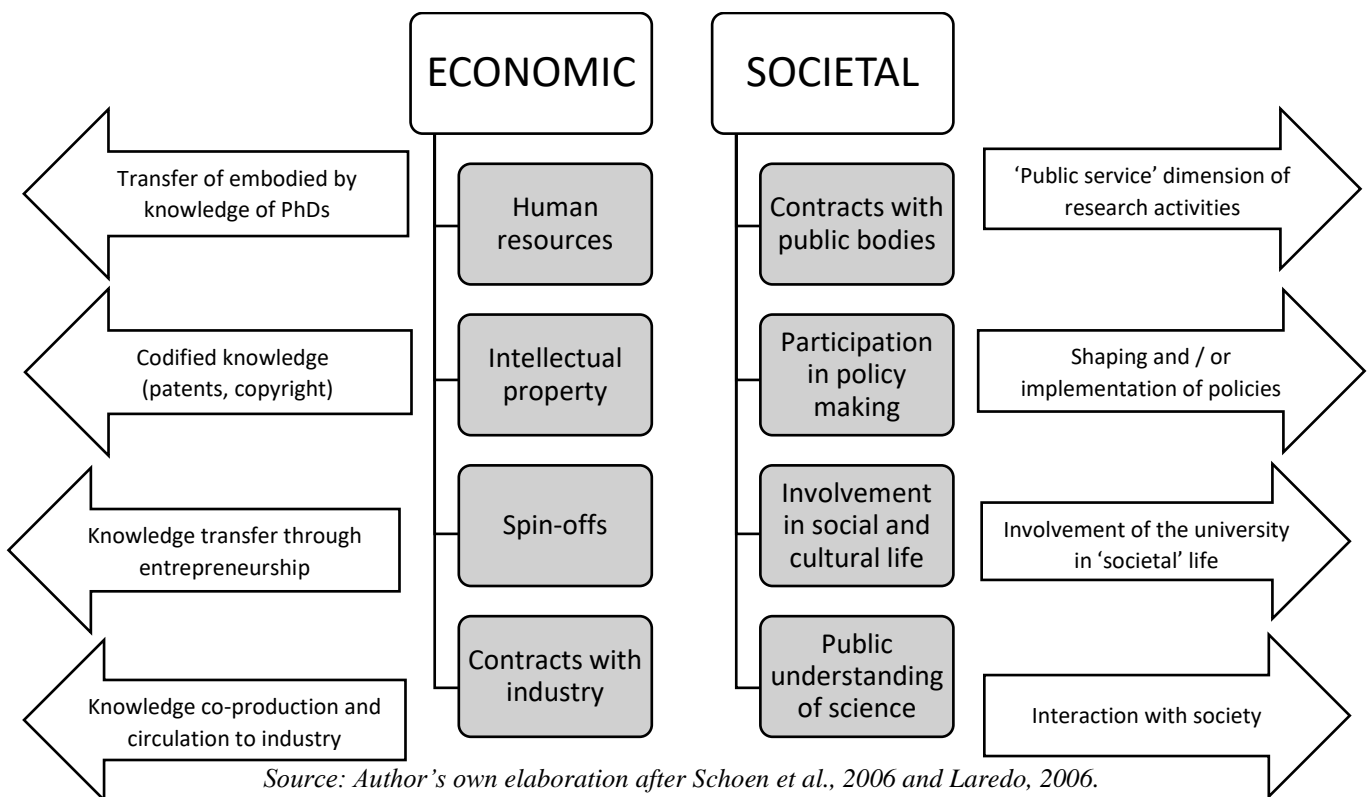
National policies have a major role in creating the context and conditions enabling universities to transform strategically towards entrepreneurial organisations (Stensaker & Benner, 2013) and defining the conditions of funding for universities’ regional engagement activities (Trippel *et al.*, 2015). As Degl’Innocenti *et al.* (2019) have note, the current (state) funding models do not take sufficiently into account the different ecosystems of individual universities, which partly determine their capabilities and resources to deliver third mission. They also remind, that even when universities are modifying their strategies for the third mission to better align with performance based (state) funding systems, there can still be different approaches towards

the third mission on an institutional level. However, universities should be cautious in their responses to regional needs. For example, a broadened curriculum and pragmatically developed research portfolio to match local needs might steer organisational behaviour towards opportunism rather than intentionally entrepreneurial strategies (Stensaker & Benner, 2013). This, again, emphasises the importance of institutional strategies addressing the different disciplinary, institutional and individual academics' characteristics affecting the third mission (Pineiro *et al.*, 2015). Instead of merely utilising the concept 'entrepreneurial' to bridge internal and external resources (Stensaker & Benner, 2013), an entrepreneurial university is able to embed both economic and social development into the core functions so that each academic mission enhances the other (Etzkowitz, 2013; Etzkowitz *et al.*, 2015). This requires a sufficient timeframe to adapt to the new institutional culture and management steering towards the third mission outcomes, including the 'softer end of the entrepreneurial outcomes' as well as 'hard' outputs, such as patents and licensing (Philpott *et al.*, 2011) and other potential commercialised outputs of academic research (Lahikainen *et al.*, 2019). Both types of third mission outcomes can be traced back to generating knowledge through intellectual capital perspective (Fronzizi *et al.*, 2019).

Universities have become more engaged with different activities supporting social and economic development (Breznitz & Feldman, 2012) combined with traditional missions. This new synthesis leads back to the original concept of the entrepreneurial university, which can integrate the technology transfer, firm formation and regional development activities with academic core functions. As Etzkowitz argues, that an entrepreneurial university is capable of transforming ideas into practice by "broadening the input into the creation of academic knowledge" and "organizing new entities and managing risks" while incorporating multiple missions to enhance regional competitiveness and industrial innovation. This interactive, collaborative approach seeks solutions for problems in the industry and society, e.g. business models, consultancy, technology or product model (Lahikainen *et al.*, 2019) most typically through the university's technology transfer / liaison office (Etzkowitz 2013, p. 489) However, recent studies state that universities' engagement is often focused either on knowledge transfer outcomes – the so called hard outputs – or more generic contributions to regional economic development, which implies that bringing these two different types of engagement activities together 'into a single coherent third mission' is complicated (Sánchez-Barrioluengo & Benneworth, 2019). There is also recent evidence on the absence of the third mission in global rankings, leading to de-prioritization of non-entrepreneurial, social and cultural activities ('soft

outputs’) related to the third mission (Lee *et al.*, 2020). In this study, the third mission is understood broadly, based on the range of activities presented in Figure 2. These activities are divided into economic and societal dimensions of the third mission based on previous studies (after Schoen *et al.*, 2006; Laredo, 2006) in order to capture the wide spectrum of third mission activities carried out in the framework of university-led Structural Funds projects. In the absence of a clear definition of the university third mission, the proposed framework provides an inclusive conceptualisation for addressing the different dimensions of the third mission. These dimensions vary from a narrow reading of the third mission related to codified knowledge transfer (intellectual property e.g. Klofsten & Jones-Evans, 2000; direct or indirect spin-off activities – with or without immaterial rights, Lahikainen *et al.*, 2019) to more unquantifiable methods of knowledge exchange and co-creation, involving both public and private actors (e.g. Göransson *et al.*, 2009), and also to more abstract involvement of the university in policy processes (e.g. Breznitz & Feldman, 2012; Goldstein & Glaser, 2012), social and cultural life and interaction with the society through dissemination and public service (e.g. Comunian *et al.*, 2015; Benneworth, 2013; Trencher *et al.*, 2014).

**Figure 2. Economic and societal dimensions of the Third mission.**



### 2.1.3. Entrepreneurial activities, academic core: challenges of university engagement

There is a consensus that the core of the university entrepreneurship, creating and exploiting entrepreneurial opportunities and (regional) innovation, cannot rely on ‘add-ons’, but rooting the entrepreneurial paradigm across the university organisation (Vorley & Nelles 2009; 2010; 2011; Foss & Gibson, 2015) As Gibb and Hannon (2006) argue, the organisational transformation towards stronger engagement requires wider, strategic collaboration with the stakeholders, but also a profound understanding on the alignment of the university missions: organisational add-ons, such as science parks, incubators and technology transfer offices, cannot replace stakeholders’ formal and informal integration into university’s core activities, although the universities’ role in knowledge/transfer processes has been re-conceptualised to include involvement of different stakeholders, e.g. Quadruple-Helix and Knowledge Triangle (Carayannis & Campbell, 2012; Unger *et al.*, 2018). Instead, the university should seek to encourage interdisciplinary activities, recruitment of entrepreneurial staff and leaders, building reward systems beyond traditional academic outputs and to ensure that entrepreneurialism is embedded in education and owned by the staff delivering the curricula (Gibb & Hannon, 2006) to release unexploited third mission capacities beyond traditional science-based activities (Freel *et al.*, 2019). Stensaker & Benner (2013) emphasise that it is challenging for the universities to reach a balance between external expectations and internal resources. This demands strategic capacity, although successful combining of the two is dependent on the university’s policy context. As recent studies reveal, the modification of existing concepts, e.g. entrepreneurial university, is required for capturing the different regional contributions of universities’ to regional development beyond economic growth in different contexts (e.g. Thomas & Pugh, 2020), taking into consideration the alignment between socioeconomic environment and the strategic mission set for the (entrepreneurial) university (Dabic *et al.*, 2018).

Universities have become portrayed as highly flexible, integrated and strategic actors in their regions (Uyarra, 2010), though in reality, they can only partially respond to regional needs, especially when operating in a traditional academic infrastructure (Clark, 1998). Whilst policies expecting universities to embed a range of new tasks to their core missions may be unrealistic (Uyarra, 2010), the universities’ enhanced regional role has become widely acknowledged and formalised through regional policies and R&D funding incentives (Vorley



& Nelles, 2009). Another potential challenge is overemphasising the service function of higher education (Finley, 2004). Instead of engaging with a wide range of stakeholders just to boost the university's regional image, internal adjustments within the organisation to acknowledge and reward success beyond traditional merits related to research and teaching are required (Gibb & Hannon, 2006). The contextual factors might hinder transformation towards entrepreneurialism, which means that all universities cannot follow the same path. While scholars have emphasised, that the 'entrepreneurial ideal' is better suited for specialised universities working with certain industries than a large, comprehensive universities (Philpott *et al.*, 2011), both the national policies and institutional strategies tend to share unified and rather simplistic understanding of entrepreneurial universities (Stensaker & Benner, 2013).

**Table 3. Main themes emerging from university engagement literature**

Main themes	Key concepts	Definitions
REGIONAL DEVELOPMENT POLICIES AND FUNDING INSTRUMENTS	Knowledge triangle; Triple Helix; Third mission	Regional development policies expect universities to be entrepreneurial actors and made them 'organizational umbrellas' (Wildavsky, 2010) or 'empty boxes' (Stensaker & Benner, 2013) filled with economic and societal missions. They play a significant role in defining the conditions of success of EU's engagement activities (Armbruster, 2008; Gibb & Hannon, 2006; Vorley & Nelles, 2012; Rhoades & Stensaker, 2017).
(ENTREPRENEURIAL) UNIVERSITY ORGANISATIONS	Entrepreneurial university; Academic capitalism; Academic entrepreneurship	Participation in regional development projects can be strategically planned, entrepreneurial activity that benefits the local economy when the entrepreneurial paradigm is rooted across the university organisation. The internal characteristics and strategies steer universities' regional orientation, and organisations have different ways to carry out third mission (Jongbloed <i>et al.</i> , 2008; Etzkowitz <i>et al.</i> , 2005; Stensaker & Benner 2013), though literature and policies are concentrated on 'one-size-fits-all' approach (Benneworth <i>et al.</i> , 2016a; Benneworth <i>et al.</i> , 2016b; Kitagawa <i>et al.</i> , 2016).
REGIONAL ENGAGEMENT AND ACADEMIC CORE	Engaged university; Quadruple Helix; Social innovation; Third mission	University institutions are expected to address complex societal challenges through different engagement activities and embed these activities into its core missions (Gunasekara, 2004; Vorley & Nelles, 2009, 2010, 2011; Benneworth & Cunha, 2015).

Source: Author's own elaboration.

Taking these aspects into account, delivering university engagement is not a straightforward task (Jongbloed *et al.*, 2008). Currently, the literature is largely concentrated on three main themes (see Table 3), namely, 1) higher education / regional policies pushing universities towards entrepreneurial behaviour; 2) internal dynamics of entrepreneurial universities partly affected by the different policy levels; and 3) balancing regional engagement with academic core ('third mission' literature), which are all addressed in this study in the context of university-led Structural Funds projects.

Thus, the engagement should be embedded in the universities' core missions (Vorley & Nelles, 2009, 2012; Nelles & Vorley 2010a, 2010b, 2011), so that it amplifies and enlarges the scope of teaching and research (Etzkowitz, 2013). This can be achieved by rooting the entrepreneurial paradigm across the university organisation (Foss & Gibson, 2015), but organisational responses towards engagement are heavily steered by international and national HE and regional development policies (Armbruster 2008; Gibb & Hannon, 2006; Vorley & Nelles, 2012; Rhoades & Stensaker, 2017; Stensaker & Benner, 2013). In universities' involvement with different engagement activities the key is to align core missions with social innovations' desired outcomes such as novel social service or activity. However, it is challenging as the universities are pushed towards a competitive 'world class university' model, which values publications and prizes and thus reduces motivation towards socially useful activities. (Benneworth & Cunha, 2015.) A university's engagement is often focused either on knowledge transfer outcomes (science-based activities) or more generic contributions to regional development, bringing these two different types of engagement activities together 'into a single coherent third mission' is complicated (Sánchez-Barrioluengo & Benneworth, 2019). Furthermore, the absence of the third mission from global ranking schemes can lead to de-prioritization of non-entrepreneurial, social and cultural activities related to the third mission (Lee *et al.*, 2020).

Hitherto, the research literature has not addressed sufficiently the different institutional adaptations of the third mission (Vorley & Nelles, 2009), though most HE institutions undertake a broad range of engagement activities covering both economic and societal dimensions of knowledge transfer and public service (Schoen *et al.*, 2006) as summarised in Figure 2. Furthermore, it has been acknowledged that the surrounding regional identity plays a role in shaping universities' third mission strategies and performance (e.g. Sánchez-Barrioluengo, 2014), but how a particular context affects universities' engagement activities

has not been sufficiently investigated (Vorley & Nelles, 2012; Rhoades & Stensaker, 2017; Thomas & Pugh, 2020). This calls for a wider discussion on university engagement beyond traditional academic functions and the third mission as a simplistic knowledge transfer through ‘hard’ economic output (Trencher *et al.*, 2014; Philpott *et al.*, 2011), while examining the effect of a particular regional context to these activities.

Stensaker & Benner describe the university ideal as an “empty box that has to be filled with content by the individual university, where different universities have different access to the resources that are critical to the realization of the evasive entrepreneurial ideal” (2013, p. 412–413). They conclude that the factors related to HEIs’ transformation towards entrepreneurial organisations are highlighted mainly with structural issues in relation to governance and cultural characteristics. The ‘empty box’ metaphor can also be useful when looking at universities’ participation in Structural Funds programmes: each institute may have a very different motivation to initiate collaboration with different regional stakeholders, also as they aim to carry out projects which may vary drastically from knowledge transfer to training initiatives. In the best-case scenario, the Structural Fund projects can be a natural way to engage with regional stakeholders and to implement third stream activities built on the academic core leading to both ‘hard’ and ‘soft’ outputs related to the third mission.

## 2.2. Assessing University engagement in rural regions

As discussed in the previous section, the research literature has not sufficiently addressed different institutional adaptations of the third mission. Therefore, the Entrepreneurial Architecture (EA) framework, conceptualised by Vorley and Nelles (2009) was employed in this study as a more pragmatic approach for creating a deeper understanding on the specific institutional characteristics of the third mission in (entrepreneurial) universities based in rural regions. The EA framework is based on five key elements, which aim to illustrate in more depth how entrepreneurial activities can be embedded into institutional structures oriented towards teaching and research. Ideally these dimensions can help to analyse and manage universities’ internal mechanisms that together, when integrated with the core activities, reinforce implementation of the third mission (Vorley & Nelles, 2009, 2012; Nelles & Vorley 2010a, 2010b, 2011.) However, the EA literature has focused on universities’ internal dynamics and has not assessed how external forces affect universities’ engagement (Vorley &

Nelles, 2012). This implies that the EA framework can provide further insights on the development of the third mission in universities, but it overlooks the impact of the context, even though the surrounding environment is one of the key factors in universities' move towards an entrepreneurial turn (Foss & Gibson, 2015).

### 2.2.1. Entrepreneurial Architecture

The 'entrepreneurial turn' has become part of universities' third mission integrated into teaching and research (Nelles & Vorley, 2010a, 2010b, 2011; Vorley & Nelles, 2012); the expectation is that an 'entrepreneurial university' is able to embed economic and social development in their core functions, combining research, teaching and knowledge exchange so that each academic mission enhances the other (Etzkowitz 2013; Etzkowitz & Klofsten, 2015). Thus, an entrepreneurial university seeks to balance a variety of external demands with institutional responses while safeguarding its academic excellence (Clark, 1998). This can be complicated because universities are increasingly expected to address regional issues, and at the same time, they are affected by agendas of different stakeholders (Stensaker & Benner, 2013; Charles *et al.*, 2014). However, universities have a limited capability to respond to external demands, especially in the traditional academic infrastructure (Clark, 1998), which draws attention to the development of institutionalised mechanisms to implement regional engagement activities. One approach that addresses this complex issue and provides a theoretical framework to analyse the different ways entrepreneurial universities can embed regional engagement in their organisational structures, is the 'Entrepreneurial Architecture' framework conceptualised by Vorley and Nelles (2009). The EA framework is based on five interrelated dimensions: *structures*, *systems*, *leadership*, *strategies* and *culture*. Building on these dimensions the framework can help to produce a wider understanding on how the university has integrated third stream activities with its core missions on an institutional level (Nelles & Vorley, 2010a, 2010b, 2011.) Next, the operationalisations of these dimensions, and their potential implications with regard to the university's regional contributions are discussed and finally summarised in Table 4.

In the EA framework the *structure* refers to entrepreneurial infrastructure, such as technology transfer offices, incubators, technology parks and business portals (Nelles & Vorley, 2010a, 2011), which are the most visible expression of the university's engagement (Vorley & Nelles,

2012). The establishment of these structures can require collaboration with other local knowledge institutions and businesses. However, the entrepreneurial interface structures cannot be separated from the other dimensions of the EA, such as university's attitudes towards entrepreneurship (*leadership & culture*) or from the specific features of the surrounding region (Foss & Gibson, 2015). They should be integrated with *systems* supporting engagement activities (Vorley & Nelles, 2012), which suggests that external factors, such as business landscape as one of the defining characteristics of a particular operational *context*, partly steers establishment of these structures.

A successful implementation of the university third mission requires activities reaching outside of academia (Foss & Gibson, 2015). This is supported by both internal and external *systems*, such as effective university networks of communication and configuration linkages between structures and departments (Nelles & Vorley, 2010a, 2011), which can support the university's entrepreneurial activities. The *leadership* dimension in EA refers to the qualification and orientation of key leaders towards the third mission (Nelles & Vorley, 2010a, 2011). It includes both formal and informal opinion leaders from within the university having influence in and outside of academia. The engagement is usually more associated with leaders' personal characters than institutional identity (Foss & Gibson, 2015), but place-based leadership should be understood a collective endeavour, that is delivered through both the formal institutional titles as well as the effective roles performed by the key regional actors (Sotarauta, 2014).

Universities tend to illustrate their contributions to regional development through explicitly communicated engagement commitments (Pinheiro *et al.*, 2012), e.g. strategic mission statements. Within the EA framework, the *strategy* reveals the institutional goals, internally determined formal incentive structures, which are elaborated in planning documents (Nelles & Vorley, 2010a, 2011) and are ideally aligned with regional priorities. The growing diversity of partnerships (*systems*) makes universities more integrated with society, which demands more from the management (*leadership*) so that HEIs do not become overburdened by the claims of the stakeholders (Jongbloed *et al.*, 2008). Hence creating a sustainable strategy can be a concrete tool to speed up the university's entrepreneurial turn and facilitate balancing between academic goals and regional needs.

*Culture* reflects institutional, departmental and individual attitudes and norms towards the third-stream activities (Nelles & Vorley, 2010a, 2011), which is a somewhat challenging dimension of the EA to assess systematically. However, Vorley and Nelles emphasise the

importance of a strong entrepreneurial culture in ensuring the efficiency of other dimensions of the framework (2012). Therefore, entrepreneurial culture is heavily interrelated with all the dimensions of the EA framework, especially with *leadership*, *systems* and *strategy* (Foss & Gibson, 2015). It is also shaped by the environmental context affecting to academics' and other staff members' attitudes towards entrepreneurial activities. Thus, it can be assessed through the three dimensions mentioned earlier, but also through the overall success of the university's regional engagement.

**Table 4. Five elements of Entrepreneurial Architecture, their operationalisation and regional dimensions**

EA Element	Operationalisation	Regional dimensions
<i>Structure</i>	Entrepreneurial infrastructure: TTOs, incubators, tech parks, business portals	Collaboration with local knowledge institutions, working with surrounding business environment
<i>System</i>	Networks of communication and configuration linkages between structures and departments	Engagement and links with key regional stakeholders, institutional mechanisms to support entrepreneurial activities
<i>Leadership</i>	Qualification an orientation of key leaders toward the Third Mission	Leaders' formal and informal regional engagement in and outside of academia
<i>Strategy</i>	Institutional goals elaborated in planning documents: internally determined formal incentive structures	Strategic initiatives to respond to regional needs
<i>Culture</i>	Institutional, departmental and individual attitudes and norms towards the third stream: links with <i>leaderships</i> , <i>systems</i> and <i>strategy</i> and overall success of the implementation of the third mission	Environmental context affecting to individuals' attitudes towards entrepreneurship

Source: Salomaa, 2019.

### 2.2.2. Context – the missing dimension of the EA framework?

The impact of the regional and national context cannot be overlooked in the university's path towards the entrepreneurial turn (Sotarauta & Kosonen, 2003). Universities are not able to drive economic change alone as the socioeconomic conditions of the region influence its general ability to absorb knowledge. Therefore, their role in regional development is dependent on local factors such as employment opportunities, government funding, cultural and historic aspects of the region. (Breznitz & Feldman, 2012.) As previous studies state, proximity is inevitably one of the features determining whom universities engage with (OECD, 1982), but

finding synergies with specific local conditions and institutional responses is problematic (Benneworth *et al.*, 2016b). Despite these potential limitations and challenges, context can be considered to be the key determinant of the speed and success of a university's entrepreneurial turn (Foss & Gibson, 2015), though a particular context alone does not determine if the university is capable of becoming entrepreneurial.

The five elements of the EA framework refer to internal dimensions of the university. They do not explicitly take into account how external context impacts on the EA. The elements are overlapping, rather loosely defined and operationalised, especially *culture*, which is strongly linked with the university's *context* (Foss & Gibson, 2015), a potential sixth element of the EA framework. If context is considered to be the leading dimension, as suggested by Foss and Gibson (2015), the organisation's internal architecture is partly built as a response to external demands. A particular context has impact on the culture, either increasing or decreasing the motivation and need for the university's contribution to regional engagement. It also determines what kind of systems – and with whom – can be established outside of academia; the volume and quality of local stakeholders define the demand and potential success of these partnerships. Also, national policies have a major role in creating the context and conditions assisting universities to develop strategically towards entrepreneurial organisations, rather than just utilising the concept to bridge internal and external resources (Stensaker & Benner, 2013). This, in turn affects how university leaders respond to regional needs, build strategies and structures supporting the entrepreneurial turn. Their strategic choices may be heavily steered by the regional priorities and local job market, especially when local stakeholders are represented on the university's governing body. For example, a higher demand for local knowledge transfer may encourage development of a central controlling engagement point and thus contribute to entrepreneurial culture by engaging more academics in different projects and development programmes. So, in order to comprehend a particular university's efforts to build EA, we also have to develop an understanding of specific characters of the surrounding region, the context further discussed in the following section.

### 2.2.3. Entrepreneurial architectures in rural regions

Typically, establishing entrepreneurial activities is more challenging for universities based in rural regions, while there are amplified expectations towards HEIs. They have to deal with a

diverse economic base, lower skills level, geographical remoteness (Charles, 2016) and weaker entrepreneurial traditions (Kempton, 2015; Foss & Oftedal, 2015), all of which have significant impact on institutions' EA (see Table 5). According to McCann and Ortega-Argilés (2015), (regional) innovation is influenced by many external factors, e.g. population density, economic diversity and regional market potential, which implies that peripheral and less-developed regions may be disadvantaged as they tend to be characterised by low local business demand for innovation, inefficient locally-based R&D activities and a lack of inter-institutional interaction (Huggins & Johnston, 2009; Rodrigues *et al.*, 2001).

The other regional key players may have a limited capacity to absorb knowledge (Breznitz & Feldman, 2012), which decreases the need for enterprise support services and narrows down the number of potential external R&D partnerships. These universities, typically being smaller branch campuses, also struggle to respond to the regional expectations often based on the capacity of full-range universities. They contribute to regional development primarily by increasing skills levels by offering local access to higher education and responding to regional educational needs. (Charles, 2016.) This implies that universities in such an environment can have a stronger regional focus: for example, their strategic choices can be employer-led and largely based on regional priority sectors. However, the local educational needs can be somewhat generic and therefore problematic to address with a limited curriculum (Charles, 2016).

Universities based in rural regions are expected to invest in research fields that are beneficial to local industries, but the capacity of smaller, specialised campuses to do so is somewhat limited. Some rural campuses fail to meet both expectations; either they cannot respond to the educational needs or are unable to create true collaboration with local industries. (Charles, 2016.) They also tend to establish more networks in disciplines that are relevant in regional and industry needs, often favouring Science-Technology based disciplines over the traditional Humanities and Social sciences, creating a culture of disharmony within the university (Philpott *et al.*, 2011). In some cases, this narrows down the third mission simply to supplying graduates to the local job market. On the other hand, as previous studies indicate, the policymakers should acknowledge better the barriers created by between geography affecting on universities relationships with their respective regions. The universities should be understood as 'leaky' institutions not restricted by their operational environments in their



efforts to engage with their region, but to accept that the activities will, up to a certain amount, leak beyond the regional boundaries (Kempton, 2015).

Previous case studies from Norway (Ofstedal & Jakovleva, 2015; Ofstedal & Foss, 2015) highlight that in such environments people are known: this narrows down the distance between academics, business leaders and public authorities. The close public-private partnerships in rural regions ‘get things done’, but do not foster thinking outside of the box as a small group of people end up having a lot of influence (Foss & Gibson, 2015) – at the same time, a majority of university personnel are excluded from engagement activities. Taking these barriers into account, there is a need to deepen the understanding of how universities in rural regions can successfully support and implement third mission, through implementation of regionally funded initiatives and beyond. All these aspects potentially having an impact on the university EA in rural regions are summarised in Table 5.

**Table 5. Predicted effect of rural context on EA**

<b>EA Element</b>	<b>Operationalisation</b>	<b>Regional dimension</b>	<b>Predicted effect of rural context on EA</b>
<i><b>Structure</b></i>	Entrepreneurial infrastructure: TTOs, incubators, tech parks, business portals	Collaboration with local knowledge institutions, working with surrounding business environment	Regional partners have a limited capacity to absorb knowledge which diminishes the need for knowledge transfer and establishment of business support structures
<i><b>System</b></i>	Networks of communication and configuration linkages between structures and departments	Engagement and links with key regional stakeholders, institutional mechanisms to support entrepreneurial activities	Less large-scale business collaboration; A little distance between academia and public sector; A small number of people have a lot of influence in different networks
<i><b>Leadership</b></i>	Qualification and orientation of key leaders toward the Third Mission	Leaders’ formal and informal regional engagement in and outside of academia	High expectations for universities to take leadership in the absence of other regional knowledge organisations
<i><b>Strategy</b></i>	Institutional goals elaborated in planning documents: internally determined formal incentive structures	Strategic initiatives to respond to regional needs	A restricted capacity to address regional needs in both education and research; Employer-led strategies built on regional priorities
<i><b>Culture</b></i>	Institutional, departmental and individual attitudes and norms towards the third stream	Environmental context affecting to individuals’ attitudes towards entrepreneurship	Less demand and opportunities to initiate entrepreneurial activities; Traditional academic culture oriented towards teaching activities to produce graduates to the local job market

Source: Salomaa, 2019.

## 2.3. Delivering engagement through Structural Funds?

### 2.3.1. Assessing the Cohesion Policy: from policies to practice

Cohesion Policy is among the most important policy areas of the European Union. A third of the total budget of the EU is earmarked for promoting economic and social cohesion within the member states through projects financed by the Structural Funds (SF), designed and implemented by the member states with an ‘added value’ to national policies. (Blom-Hansen, 2005.) Thus, the EU Cohesion Policy, implemented through national SF Operational Programmes, plays an increasingly important role in supporting national and regional innovation systems (European Commission, 2010). Currently focused on the smart specialisation concept as a place-based policy (McCann & Ortega-Argilés, 2015), the Structural Funds offer universities a crucial role in regional innovation strategy formulation, helping identify regional priorities through RIS3<sup>5</sup> processes (e.g. Foray *et al.*, 2011), and in implementation of these strategies (Santos & Caseiro, 2015). RIS3 strategies, an ex-ante conditionality to access the European Regional Development Fund (ERDF), can facilitate aligning universities’ research with regional needs (Fonseca & Salomaa, 2019; Charles *et al.*, 2014), thus supporting the university third mission focused on engagement and external services in addition to the traditional core functions of teaching and research (Chatterton & Goddard, 2000; Jongbloed *et al.*, 2008).

One of the dominant, theoretical approaches to examine Cohesion Policy is the so called ‘multi-level governance model’ (Olsson, 2003), originally conceptualised by Hooge, Marks and their co-authors (Marks 1992; Marks *et al.*, 1996; Hooghe, 1996; Hooghe & Marks 2001), often discussed in combination with the policy network approach. The multi-level governance model describes the divided decision-making processes completed in different policy levels. While the model captures the complex implementation structure of the policy with its multiple points of access (Marks *et al.*, 1996), it remains very descriptive in nature. However, it can guide the research to focus on horizontal relations – state-private actors – and vertical relations – other levels of policy making and implementation – (Olsson, 2003), but it fails to address which actors play important roles at different stages of the policy process, and thus overlooks potential implementation deficits. These different decision-making arenas are overlapping in the sense that many “subnational actors operate in both national and supranational arenas” (Blom-

---

<sup>5</sup> Research and Innovation Strategy for Smart Specialisation.

Hansen 2005, p. 643). However, the policy network approach addresses more in-depth the actors that are bound to government activity by resource dependencies, authority, money, legitimacy, information or organisation (Rhodes 1990; Rhodes *et al.*, 1996). This draws attention to the EU's authority in national distribution of the resources among the EU member states, which remains more concerned on national priorities than goals designed at the EU level. Even though the EU has a strong position in monitoring the member states in their use of the SF, there are challenges related to sanctions of non-compliance. Therefore, the national and / regional policy goals are major elements in the implementation of the SF; the EU level goals are supported only by 'by-product' and / or national sources are replaced by the ones from the EU. (Blom-Hansen, 2005.)

As Olsen (2003) summarises, the three stages of the implementation of the EU regional policies are 1) negotiation processes between member states, which is about formulation of guiding rules (the Commission and national governments), 2) Creation of regional development programmes, defining both operative goals and resource allocation (regional and local actors, national governments and the Commission, the two latter in formal controlling functions) and 3) SF Project development and implementation within the framework of Operational Programmes. This research focuses mainly on the last phase of the policy process, project development and implementation. According to Blom-Hansen (2005), there are three overlapping characteristics defining the successful implementation of the EU Cohesion Policy: Firstly, the SF projects should respond to policy goals formulated at the EU level; secondly, SF grants must be additional source of funding to national expenditure, and thirdly, SF projects should be 'innovative'. Overall, the dominant feature of the Cohesion Policy's innovation element is the smart specialisation approach emphasising tailored solutions by promoting collaborative innovation through partnership-based policy processes of entrepreneurial discovery aiming to construct regional advantage (Foray, 2016). While the regional partnerships can be essential in obtaining information on the bottlenecks hindering economic growth (McCann & Ortega-Argilés, 2015), the effectiveness of the smart specialisation strategies should not be taken as granted (McCann & Ortega-Argilés, 2013). Their implementation may be challenging because the complexity of the strategies makes it difficult to design actual plans, and the regional authorities may lack the capacity to manage these processes (D'Adda *et al.*, 2019). As de Rynck and McAleavey observe (2001), the regional allocation of the SF is an important feature in improving both economic performance and creating a more cohesive society, that also pays attention the quality of growth beyond merely

monitoring the GDP. However, empirical studies taking larger societal effects of the implementation of the Cohesion policy into consideration beyond the regional economic growth are rare, which makes it important to investigate the implementation of the national and/or SF Operational programmes to produce in-depth understanding of the practical implications of the EU Cohesion Policy (Blom-Hansen, 2005).

### 2.3.2. Universities' regional development and Structural Funds instruments

The core public funding for HEIs is on the decrease, reducing the share of total university income and forcing the universities constantly look for new streams of funding, but universities' ability to exploit these third-stream sources depend on their location and historic capability, organizational structure and disciplines. More specialised universities, especially when focused on technology or business, are usually readier to pursue entrepreneurial actions (Clark, 1998; Philpott *et al.*, 2011). Furthermore, Rossi and Goglio (2020) claim that the contributions made by satellite campuses can be different compared to the parent universities, and they often focus on local development through research related to local interests as well as business and community engagement with a large number of partner organisations. Also, some research universities have managed to link socially relevant services into their core missions, e.g. medical school and hospitals (Benneworth & Cunha, 2015). Thus, the universities' motives to seek external project-based funding are diverse (Raudla *et al.*, 2015), and the internal characteristics and strategies steer their regional orientation (Etzkowitz *et al.*, 2005). There is also some evidence, that the university-industry engagement can have a positive impact on the research quality (Degl'Innocenti *et al.*, 2019). A true diversification of the funding base is thus a step towards becoming an 'entrepreneurial university' (Clark, 1998), which is also one of the main drivers of knowledge-based regional development (Etzkowitz & Kloften, 2005). Considering satellite campuses, previous studies have implied that the local funding bodies are key actors in promoting local research and impact-creation within the area (Rossi & Goglio, 2020). Universities have embedded a regional focus more strongly in their mission (Charles *et al.*, 2014), but as discussed in previous sections, one of the challenges is to combine the third role with core functions in universities' internal mechanisms (Chatterton & Goddard, 2000; Foss & Gibson, 2015). The policy push towards third stream activities has broadened the scope of universities and made them 'organizational umbrellas' for different tasks from scholarship to entrepreneurial activities (Wildavsky, 2010): an entrepreneurial university has claimed to

have a capability to embed economic and social development to the core functions, combining research, teaching and technology transfer (Etzkowitz *et al.*, 2015). Local funding instruments and regional engagement are among the key factors in changing the orientation of higher education (Gibb & Hannon, 2006). This implies that Structural Funds, being typically local funding instruments to foster regional growth and development, may affect universities' institutional behaviour. SF programmes undoubtedly diversify universities' funding base, but the rationale of seeking additional funding sources should not be the generated funding itself, but rather the quality and societal relevance of the implemented actions.

There is a consensus that policy initiatives can have a real impact especially in supporting interdisciplinary research and collaboration between external stakeholders that leads to patents, licensing and other spin-off activities, which increases the importance of creating new ways to use technology. Though, the focus on the commercialisation of research narrows down the (artificial) silo between 'applied and discovery research' and it can be rather different when compared to conventional academic research – at least, it is measured with different indicators. (Gibb & Hannon 2006, p. 86–87.) This is an interesting observation regarding the Structural Funds programmes, which supports a variety of activities related to regional development: is the focus of the projects more applied-science oriented? And if yes, how do universities see their role in carrying these projects out? And what are the most typical – if there are any – traditional, academic outcomes from these projects? How are these projects aligned with HEIs institutional goals?

A recent literature review on universities' contribution to regional development through RIS3 (Castallanelli *et al.*, 2019) highlights, that collaboration between universities and other regional actors is one of the most important factors increasing regional competitiveness and economic growth. In addition, universities are considered to be important players in the design and implementation of these RIS3 policies, especially in 'lagging' or peripheral regions, where in the absence of other major knowledge institutions their contributions to regional capacity are crucial (Kempton, 2016). Despite the proliferation of the research literature related to universities and RIS3 strategy formulation (e.g. Goddard *et al.*, 2013; Vallance *et al.*, 2017), there is little evidence on universities' role in the implementation of these strategies. SF OPs are nationally differentiated and highly dependent on regional circumstances (Bachtler & Wren, 2006), thus previous studies remain heavily rooted in specific territorial contexts. Overall, the beneficiaries' perspective on SF activities have not been studied much, though

their objectives vary enormously; public actors receiving SF funds are more interested in projects having an immediate effect to demonstrate their efficiency whereas private entities use SF funding for financing start-ups or enhancing operational capacity (Spilanis *et al.*, 2016). However, some lessons can be learned from previous studies on the university's involvement with the SF. In Latvia, the university-led SF projects have contributed to core academic outputs, such as PhD degrees and publications (Muizniece & Peiseniece, 2012), whereas in North East England the SF programmes brought together industry and university representatives, especially in university-based projects focused on engagement and building a culture of collaboration (Charles & Michie, 2013). A strong university sector in regions with little R&D infrastructure can initiate industry-focused innovation support services targeted to SMEs with SF funding. Hence, the SF funding may play a significant role in universities' adoption of the third mission; the smart specialisation approach binds universities tighter to regional policy making processes (e.g. Goddard *et al.*, 2013), and the diversified (regional) funding base increases institutional autonomy (Gibb & Hannon, 2006; Armbruster, 2008), though monetary incentives alone are not sufficient for promoting university-industry collaboration (D'Este & Perkmann, 2011) without organisational commitment.

### 2.3.3. Current challenges of University led SF projects

The Structural Funds have evolved considerably from their origin as a form of resource transfer for economic infrastructure. Since the 1990s the dominance of the knowledge economy concept in EU policies, and an emphasis on supporting economic competitiveness through innovation and knowledge, has led to a general shift in EU programmes towards multi-sectoral and multi-disciplinary collaboration to address grand societal challenges beyond merely fostering economic growth (Benneworth & Cunha, 2015). The SF have therefore become a key policy instrument to support local level innovation and economic growth through multi-level collaboration. They are implemented through national and / or regional Operational Programmes (OP) seeking to increase regional collaboration between higher education, businesses and other local stakeholders.

As both internal and external factors can hamper universities from delivering their regional role within the framework of RIS3 (Castellanelli *et al.*, 2019), in both the design and implementation phases, these barriers should be further investigated. Current challenges

hindering university participation were identified from previous studies (Table 6). The overlapping constraints can be more generic – namely the policies affecting the OPs and the funding instruments, the expectations on the outcomes, difficulties in establishing successful collaboration – or specifically related to university organisations themselves. These challenges form the basis for analysing the specific characteristics of university-led SF activities, with an aim to reveal how universities in rural regions can respond to local needs while linking the SF project activities to teaching and research.

**Table 6. Challenges of university-led SF projects**

Challenge	Impact	References
<i>Collaboration</i>	Non-desirable competition Lack of regional coordination Lack of business partners (peripheral regions) Difficulties in cross-regional collaboration	De Rynck & McAleavey, 2001; Muizniece & Peiseniece, 2012; Uyarra <i>et al.</i> , 2018; Kempton, 2015; Charles, 2016.
<i>SF administrative procedures</i>	Unrealistic policy goals High bureaucracy High risk form of funding Match-funding rates 'economy democracy paradox'	Bachtler & Wishlade, 2004; Spilanis <i>et al.</i> , 2016; Percoco, 2017; Gagliardi & Percoco, 2017; Olsson, 2003; De Rynck and McAleavey, 2001.
<i>University organisational culture</i>	Embedding engagement to academic core complicated; mismatch of academic profiles and regional needs Lack of resources Absence of institutional strategies Lack of academic outputs	Benneworth & Cunha, 2015; Benneworth & Sanderson, 2009; Vallance <i>et al.</i> , 2017; Goddard & Vallance, 2013.
<i>SF Project outputs</i>	Over-estimated outputs Lack of academic outputs Low number of commercial results 'user inspired basic research'	Charles & Michie, 2013, Muizniece & Peiseniece, 2012; Goddard & Vallance, 2013; Goddard <i>et al.</i> , 2013.

Source: Author's own elaboration.

**Collaboration** SF programmes operate through partnerships and often require some degree of collaboration to ensure that university activities contribute to economic development. However, regional policy frameworks tend to become closed circles of 'unorganised actors', who struggle to initiative collective actions, such as forming partnerships in SF funded projects (De Rynck & McAleavey, 2001). This complicated collaboration can lead to undesirable competition between regional actors, thus strong regional and organisational coordination is essential in ensuring that beneficiaries are not implementing identical or analogous SF activities (Muizniece & Peiseniece, 2012).

Based on regional programmes, the SF funded projects are often restricted by regional boundaries, which can make collaboration difficult, particularly when desired partners are located in other regions (Uyarra *et al.*, 2018). Thus it could be said that policy-makers should acknowledge better the geographical barriers affecting to universities' relationships with their respective regions. The universities should be understood as 'leaky' institutions not restricted by their operational environments in their efforts to engage with their region, but to accept that the activities will, up to a certain amount, leak beyond the regional boundaries (Kempton, 2015). It can also be difficult to engage with local businesses in the framework of SF projects (Muizniece & Peiseniece, 2012): a general problem for universities based in more peripheral regions lacking other knowledge institutions and potential business partners (Charles, 2016).

**SF administrative procedures** Evaluations of previous operational programmes have revealed a low demand for the funds because of the bureaucracy. The complexity of administration hinders the effective use of the SF to promote competitiveness, and more innovative initiatives have been funded from national sources. (Bachtler & Wislade, 2004.) Also, universities can consider the SF funding instruments to be very bureaucratic and a high-risk form of funding (Spilanis *et al.*, 2016). Olsson (2003) calls this an 'economic democracy paradox', created in combination by strict co-financing rules and strong regional democratic controlling, which challenges the equity and democratic values of the policy. The time pressure to spend the SF funding during a specific timeframe favours more strongly organised groups within the region, such as actors from the public sectors, including higher education institutions and larger-scale businesses. These actors are typically better informed on funding opportunities and have linkages with important regional networks (De Rynck & McAleavey, 2001).

Universities tend to be among these more organised groups, which can ease access to regionally granted SF funding. The projects are often collaborative in nature, thus universities could also act as a mediator in carrying the administrative (and potentially financial) burden while introducing SF funding to less organised or even disadvantaged groups to facilitate capacity building for future activities.

Despite numerous evaluations, the overall impact of SF on sustainable economic growth and convergence of lagging regions remains questionable and difficult to assess (Percoco, 2017), which is partly due to these administrative constraints (Rodriguez-Pose & Fratesi, 2003), but also insufficient territorial approach / tailored solutions for different areas (Gagliardi & Percoco, 2017), e.g. rural regions. Although the SF diversify universities' funding base, they



are considered 'risky' as they often require some percentage of match funding from the beneficiaries themselves, and the payment of the grant is linked to a successful implementation of the project. For example, the Finnish universities have indeed had problems with the high match-funding rates, which again make the SF funding less attractive (FINHEEC, 2013).

**University organisational culture** Universities have a number of internal barriers hindering participation in SF activities. The increasing pressure to prioritise institutional success over wider public benefits can create tensions (Benneworth & Cunha, 2015). Unless engagement activities are linked to a broader institutional strategy, these activities will remain peripheral (Benneworth & Sanderson, 2009). Therefore, also SF projects can be considered as a 'distraction' unless strongly aligned with the academic core.

National higher education systems can discourage universities' overall participation in RIS3 strategy formulation and its implementation (Vallance *et al.*, 2017), while steering them towards traditional academic outputs. Rossi & Goglio (2020) conclude in their study on satellite campuses that the faculties' ability to establish (economically) relevant interactions with the local stakeholders depends also on disciplinary issues. On a more practical level, the timetable demands of teaching restrict the scale and time for such extra work. Also, the potential mismatch of academic profiles and regional assets, as well as "borderless academic excellence as defined by international peer review and reflected in institutional league tables and generating and applying knowledge to meet specific regional specialisation opportunities" (Goddard & Vallance, 2013, p. 96) require extensive strategic capacity to find synergies between different missions.

**SF Project outputs** Finally, there are challenges in terms of the kinds of outputs and outcomes needed from the SF projects. As Gibson *et al.* (2019) suggest, policy-makers do not have sufficient holistic output indicators to make objective and transparent funding decisions to know whether their programme 'really makes a difference'. Considering SF funding, the range of available performance indicators per programme is limited by the multi-level governance of the programmes, which leaves less freedom to funding authorities to consider what kind of outputs the SF funded projects are expected to generate (e.g. firms assisted, new businesses).

Furthermore, there is a tendency to set unrealistic targets for the SF projects, sometimes just to ensure funding, resulting in an over-claimed number of firms assisted and jobs created (Charles & Michie, 2013). In Latvia, the SF have been significant in developing the university's research capacity in the absence of other available external funding streams, but obtaining more

commercial outcomes, such as licensed patents, have been less successful. (Muizniece & Peiseniece, 2012.) However, the SF projects have facilitated entrepreneurial engagement activities within universities (e.g. Charles & Michie, 2013). In areas without a strong R&D capacity, universities' potential regional contribution can be manifested through 'alternative' forms of innovation, knowledge and societal engagement beyond technological interventions (Goddard & Vallance, 2013).

Researchers with multi-disciplinary orientation are more likely to engage with external partners through a range of engagement mechanisms, and to bridge scientific objectives with regional needs through 'user inspired basic research' (Goddard *et al.*, 2013). Such projects can also facilitate regional policy objectives in rural regions: increasing the absorptive capacity of local SMEs and promoting networking and knowledge exchange (Brown, 2016).

## 2.4. Research questions, units of analysis and operationalisation of research questions

The research question this study aims to address is: *how (entrepreneurial) universities can manage and deliver their third mission through Structural Funds programmes in rural regions? A qualitative analysis examining the specific characteristics and challenges of university-led SF activities through three case studies* identifies, how universities can respond to regional needs through projects linked to teaching and research, and how the management of these activities could be enhanced. To answer these questions, universities engagement with the SF Operational Programmes is examined through two complementary conceptual frameworks discussed in the previous sections:

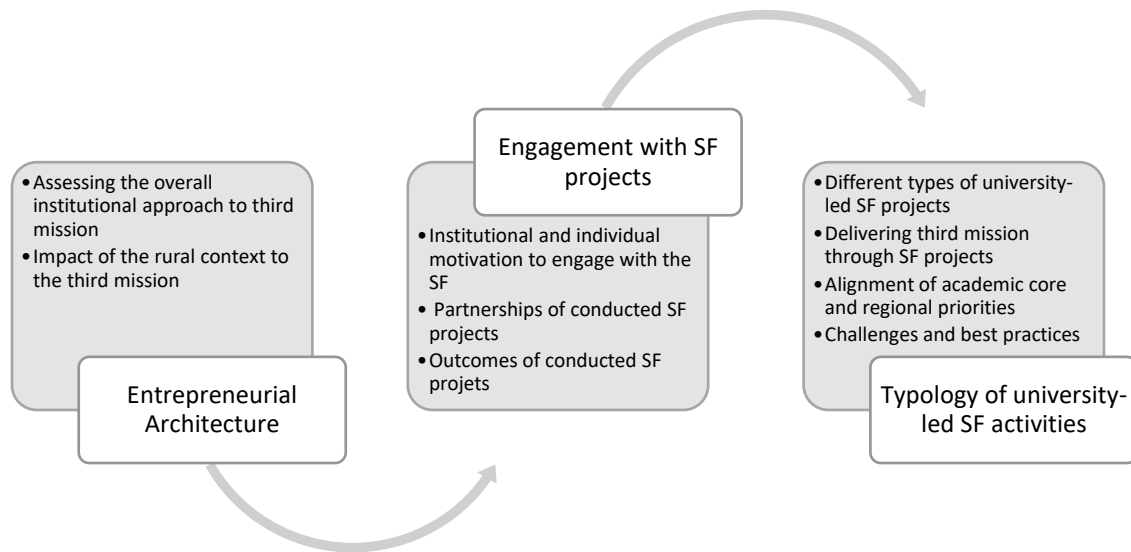
- a) The predicted impact of a rural region on overall university engagement (see Table 5), and
- b) The challenges hindering universities to deliver these activities within the framework of Structural Funds Operational Programmes (Table 6).

The flow of analysis (Figure 3) builds on these two frameworks. Firstly, the Entrepreneurial Architecture framework is employed in order to create an understanding on the potential impact(s) of a rural region to the university third mission and its institutional implications. Secondly, the challenges related to university-led SF projects derived from the research literature guide the case study analysis on the university's motivation to engage with the SF

programmes, collaboration through regional partnerships and expected outcomes of these activities.

These two steps form the basis of identifying different types of university-led SF projects and assessing how they support delivering third stream activities whilst aligning academic core with regional priorities. The results of the analysis are presented through a stylised typology of university-led SF projects, also discussing the potential transformative regional impact of these activities.

**Figure 3. Description of the flow of analysis with expected results**



*Source: Author's own elaboration.*

The study addresses the following three different units of analysis (see Table 6), being policies (SF Operational programmes, RIS3) and funding instruments, university organisations (strategic mission statements, entrepreneurial structures, staff), and engagement with SF projects (alignment of university activities and implementation of regional strategies) supported by rich empirical data presented in detail in the next chapter. All these units of analysis will be studied through the case studies in order to produce a comprehensive narrative on universities engagement with Structural Funds programmes. The aim is to reveal how universities can contribute to regional development and deliver the third mission through SF projects; what is expected in regional development policies and how universities have been able to respond to these expectations? How is engagement supported on organisational level? What kind of regional and academic results can be achieved from university-led SF projects?

**Table 7. Operationalisation of the research question, data and expected findings**

UNIT OF ANALYSIS	Premise	Research question(s)	Data	Expected findings related to RQ
HIGHER EDUCATION AND REGIONAL POLICIES; SF FUNDING INSTRUMENTS	Regional development policies expect universities to be entrepreneurial actors and made them ‘organizational umbrellas’ (Wildavsky, 2010) or ‘empty boxes (Stensaker & Benner 2013) filled with economic and societal missions. These policies play a significant role in defining the conditions of success of entrepreneurial university’s engagement (Armbruster 2008; Gibb & Hannon, 2006; Vorley & Nelles, 2012; Rhoades & Stensaker, 2017).	What is expected from universities in regional development policies transformed into Structural Funds programmes?	SF Operational programme documents; RIS3 documents	Highlighting how entrepreneurial universities’ role in regional development is articulated in regional policy documents.
(ENTREPRENEURIAL) CASE UNIVERSITIES	Participation in regional development projects can be strategically planned, entrepreneurial activity that also benefits the local economy when the entrepreneurial paradigm is rooted across the university organisation. The internal characteristics and strategies steer universities’ regional orientation, and organisations have different ways to carry out third mission (Jongbloed <i>et al.</i> , 2008; Etkowitz <i>et al.</i> , 2005; Stensaker & Benner 2013), though literature and policies are concentrated on ‘one-size-fits-all’ approach (Benneworth <i>et al.</i> , 2016a; Benneworth <i>et al.</i> , 2016b; Kitagawa <i>et al.</i> , 2016).	Is engagement with SF programmes strategic or individual entrepreneurial activity? Is the engagement recognised or valued on institutional level? Or is it merely an ‘add-on’ to raise university’s regional profile?	Interviews with key stakeholders: university personnel involved with SF programmes and top management.	Revealing how and why entrepreneurial universities have responded regional expectations through the SF funded projects, and how they are linked to universities’ strategies and institutional goals.
REGIONAL ENGAGEMENT AND ACADEMIC CORE; UNIVERSITY-LED SF PROJECTS	University institutions are expected to address complex societal challenges through different engagement activities and embed these activities into its core missions (Gunasekara, 2004; Vorley & Nelles, 2009, 2010, 2011; Benneworth & Cunha, 2015).	Can participation in SF projects be a concrete way to implement universities’ third mission? Do the main outcomes from these projects correlate with universities core missions? What are their (potential) impact(s) to regional development?	Interviews with key stakeholders: university personnel involved with SF programmes and local authorities.	Identifying the most typical academic outcomes from the SF projects, and the specific benefits of the university-led projects for regional development.

### 3. Research methodology

This is an exploratory study on how universities are able to manage and deliver their regional engagement activities through Structural Funds (SF) funded projects. Based on previous studies (e.g. Charles & Michie, 2013; Muizniece & Peiseniece, 2012; Fonseca & Salomaa, 2019), the hypothesis is that active participation in regional policy design processes guiding the SF Operational programmes and their implementation could enable universities to deliver third stream activities more efficiently on a regional level. However, as discussed in the literature review, so far, the regional context has been rather overlooked in the overall discussion on the entrepreneurial university and the third mission / university engagement literature. In addition, there are a number of challenges related to Structural Funds instruments, university organisations themselves and (national) higher education policies that hinder universities' participation to SF projects as well as reaching optimal benefits from these activities.

Despite the rigorous monitoring and evaluation of the Structural Funds programmes, many scholars have recognised a need for further programme and project level studies to “gain more insight into the effectiveness of interventions and delivery mechanisms” (Bachtler & Wren 2006, p. 151). Instead of attempting to assess the ‘total’ impact of SF programmes, there has been a shift towards studying ‘conditioning factors’ that may explain the effectiveness of those policies: thus SF Operational Programme level evaluations can also have a bigger impact to national and subnational policy formulation processes in the future (Fratesi & Wishlade, 2017).

However, the university participation in SF projects and their impact and outputs – both regional and / or academic – is yet a largely under-researched area. Therefore, a series of in-depth case studies of entrepreneurial universities located in rural regions was deemed to be a suitable approach for producing new insights on the issue. In this study, universities' engagement with SF projects is further examined with three European case universities located in sparse innovation environments, namely rural regions. The case universities are), University of Lincoln in Lincolnshire (the United Kingdom), University of Aveiro in the Aveiro region (Portugal) and University Consortium of Pori in the Satakunta region (Finland)

An exploratory study approach (e.g. Yin, 1994; 2003) was employed for examining the extent, role and internal organisational issues either supporting or hindering entrepreneurial universities' engagement with regional development projects funded through the Structural Funds schemes. The aim of the study is to produce a stylised typology of the characteristics and different types of university-led SF projects while investigating how a specific context, a rural region, can shape the way universities deliver these engagement activities. The study builds on document analysis and a series of interview-based, multiple case studies (e.g. Piekkari *et al.*, 2009) that were carried out in the UK, Finland and Portugal. In the following sections, the methodological choices of the research project are further discussed. In addition to justification of the qualitative study approach and its ontological implications, data collection methods and the selection of case universities, the demographics of the data research interviews and Structural Funds registry data (Programme Period 2014–2015) are presented. Finally, the data management, ethics and methods for analysing the data are discussed.

### 3.1. Qualitative study approach

A qualitative research approach was chosen on the basis that it is most suitable for understanding the phenomenon in question in-depth, namely by exploring the experiences of people involved with it (Merriam & Tisdell, 2015). However, qualitative research is not a straightforward methodological approach, but quite the opposite, and the complexity of the method has drawn many scholars' attention as well as raised rather critical discussion (e.g. Denzin & Lincoln, 2011; Kuhn, 1987). In this section, the challenges of the method and its epistemological perspectives are discussed in relation to the research project.

According to Kuhn (1970), in qualitative inquiry the “scientific knowledge is the results of a slow and steady process of incremental accumulation” (p. 7). Instead of relying on rigid, formal models of knowledge production (positivism), the qualitative research processes are ‘messy’ and ‘creative’, and finally, according to more radical views, the researcher's role is not discover, but to invent the empirical world (Stablein, 1996). Many scholars indeed agree, that qualitative research can be understood as an interactive, cyclical process (e.g. Miles *et al.*, 2014), often lacking statistical orientation (Prasad, 2015). This contrasts the more traditional

understanding of qualitative research as a rigid scientific method that follows the logic of deduction, induction and falsification (e.g. Feyerabend, 1987). However, as Van Maanen (1979) notes, there is no single definition for what exactly is a qualitative research method, which can be understood as “an umbrella term covering an array of interpretive techniques which seek to describe, decode, translate and otherwise come to terms with the meaning, not the frequency, of certain more or less naturally occurring phenomena in the social world” (p. 520).

Prasad (2015) describes qualitative inquiry as a ‘proficient craftwork’ or ‘inventive form of craftsmanship’, building on Flyvbjerg’s previous work (2001) on Aristotle’s (1976) philosophical reflections on intellectual virtues. Flyvbjerg approaches qualitative research with two key concepts. First of them is ‘episteme’, which refers to a production of universal knowledge guided by analytical rationality. This approach is quite close to positivism, a modern – and somewhat dominant – ideal of doing science. The second concept, ‘techne’, represents a rather contradictory approach to producing knowledge. It describes qualitative research as a “craft and art – (that) as an activity it is concrete, variable and context-dependent” (2001, p. 56). The latter view is regarded as a more suitable approach to comprehend qualitative research, which is typically more focused on the process. It also emphasises the importance of a particular context and researcher’s skills and expertise on intellectual tradition (Prasad, 2015).

Most qualitative researchers choose a somewhat postmodern perspective to qualitative inquiry, refusing the notion of a single, absolute truth. In this view, knowledge is not something waiting to be discovered, but on the contrary, it is highly context-sensitive. Multiple perspectives are produced through individual knowledge construction processes, where the researcher itself is in the centrefold. (Saldaña, 2011.) This piece of research – as qualitative research very often does – fits in best with this ‘interpretive research’ approach, which is sometimes also referred to as ‘constructivist research’ (e.g. Carr & Kemmis, 1986). In interpretive / constructivist research the researcher contrasts the knowledge, believing that instead of a ‘single, observable reality’ (ibid. p. 9), there are multiple realities and interpretations that are socially constructed. These epistemological perspectives of interpretive and/or constructivist qualitative research are best suited for studies that aim to describe, understand and interpret the phenomenon in question. This approach can be employed for many types of qualitative research, but again, its

conception of reality is very context-bound, so it is most suitable for research that strives to understand the underpinnings consolidating the experience of people involved with the phenomena, thus discovering the related key factors affecting to this (Merriam & Tisdell, 2015). Thus, the value of a qualitative inquiry process can be in producing insights and understanding on the phenomena in question (Patton, 2015) without trying to predict or control it (Saldaña, 2011).

### 3.1.1. Justification of the chosen research approach

Instead of trying to find a universal definition for what exactly is qualitative research as a method, it can be approached by developing an understanding on its basic characteristics. According to Merriam & Tisdell (2015), a qualitative research can be summarised in four key elements: 1) Process, understanding and meaning; 2) Researcher being the main instrument of the data collection, 3) Inductive research process, and 4) Descriptive end product. As discussed in previous section, the literature on qualitative research is rather focused on different aspects of knowledge production; creating an understanding on the phenomenon in question and emphasising the importance of the process (e.g. Miles *et al.*, 2014; Patton, 2015), which supports this Merriam and Tisdell's characterisation of qualitative research (2015). In any case, all the different elements of qualitative inquiry exist simultaneously, and they are somewhat overlapping; for example, van Maanen (1979) considers the data collection to be closely connected to the end product, which demonstrates the strong interdependencies between different phases of the research process.

Considering the researcher as the primary instrument of qualitative inquiry is a view shared by many scholars (e.g. Saldaña, 2011). However, this unavoidable subjectivity is a potential downside of a qualitative research process and it can pose additional challenges to the researcher (Merriam & Tisdell, 2015). It forces the researcher to deal with his or her own influences on the study so that the shortcomings and biases of a 'human instrument' would not have an impact on the process. Instead of trying to delete these biases or subjective views, it is important to identify and monitor them in relation to the theoretical framework, thus explicitly explaining how the researcher's own interests may affect the collection and analysis of the data



(Ibid.) However, some scholars have even regarded the subjectivity of qualitative inquiry as ‘virtuous’, because it enables a researcher to make a distinctive contribution resulting from the unique configuration of their personal qualities in combination with the data collected (e.g. Peshkin, 1988). The personal experiences of the researcher can actually become essential in creating an understanding on the issue in question (van Maanen, 1979). In this research project, my own personal experience on working with SF funded projects within the university context in Finland (2008-2015) has been helpful. I have previously managed the bidding processes for ERDF and ESF funds, and worked as a project manager as well as a member of steering group in SF funded projects. This previous working expertise and knowledge on the research topic facilitated data collection and conducting in-depth research interviews with the informants as I was able to engage in conversations with the interviewees from an ‘insider’s’ position.

The complexity of qualitative research approach is supported by a proliferation of literature discussing disciplinary differences through paradigms, metaphors etc. As Prasad (2015) summarizes, the only certain observation that can be derived from the literature is what qualitative inquiry is not: “a uniform set of techniques or procedures for collecting and analysing data” (p. 3). Instead, there is a substantial amount of different approaches building on varying ontological and epistemological assumptions that are not restricted by disciplinary boundaries (ibid.), but sometimes limited by arbitrary labelling (Rapley, 2011). According to van Maanen (1979), another challenge of qualitative inquiry is the increasing gap between theoretical constructions and data, and there is an obvious mismatch between data manipulation techniques and interpretive, theoretical frameworks, that often are rather loose and open-ended. As Merriam & Tisdell note (2015), in the end, each researcher has his or her own way to understand the underlying philosophical notions and to make logical choices to overcome the challenges posed by the chosen research method. Therefore, a qualitative researcher needs to take his or her own stand on the tradition of qualitative research building on existing methodology literature, and to make decisions that hugely affects to the nature and design of the research project.

Despite the vagueness and potential flaws of qualitative research, it is, however, a suitable approach for situations, where “there is a lack of theory or an existing theory fails to adequately explain the phenomenon” (Merriam & Tisdell, 2015). This is undoubtedly the case with the

university-led Structural Funds projects, which are a widely under-researched area (e.g. Salomaa & Charles, 2019). Even though some scholars (e.g. Van Maanen 1979) suggest “minimizing the use of artificial distancing mechanisms as analytic labels, abstract hypothesis” (p. 520) in qualitative inquiry processes, this research project draws from a range of related literature producing an evolving framework to guide the abductive research process. Even though the research design is loose, it can enable addressing other scholars' previous findings related to the topic (Saldaña, 2011).

### 3.2. Case studies

Considering this research project's aim, pre-set research questions and the expected form of presentation – a descriptive end product – case studies were deemed to be the most suitable method because of their appropriateness for in-depth examination (Saldaña 2011; Flyvbjerg, 2006). Another advantage of the case studies is that they are particularly well suited for understanding the uniqueness of a particular context (Patton, 2015; Saunders *et al.*, 2016). As typical for qualitative analysis, they also enable assessing causation (Miles *et al.*, 2014), which increases understanding of the underlying mechanisms of different elements affecting to the evolution of the phenomenon in question. Previous studies also indicate that case studies are especially suitable approach for exploring the impact of different surroundings, which again allows reflecting causal processes and findings in these particular contexts (Piekkari *et al.*, 2009). Thus, a series of case studies can enable producing a deeper understanding of the phenomena, in this case, how entrepreneurial universities' regional engagement through SF programmes appears in three selected cases: in different national contexts, but in comparable setting of rural regions.

Multiple case studies were chosen to implement a so called ‘replication strategy’, in which each case either reinforces or contradicts the previous findings, which is ideal for strengthening the analytical generalization (Yin, 1994, 2003). The number of cases was limited to three for ensuring that the data set will not get too exhausting. However, the examination of multiple cases will increase the robustness of findings by replicating them across sample cases (Eisenhardt, 1989). Through a deliberate sampling this study builds on the selected case

universities that are “representing itself as a rich opportunity and exemplar for focused study” (Saldaña 2011, p. 9). The case selection, discussed in more detail in the next section, followed partly the logic of ‘atypical cases’ to obtain richer data set for creating a deeper understanding on the phenomenon (Flyvbjerg, 2006).

### 3.2.1. Justification of the selected case universities

Partly following the footsteps of B.R. Clark’s original case studies on entrepreneurial universities (1998), this study leads us to the United Kingdom, Finland and Portugal. This selection echoes the entrepreneurial university’ history dating back to over twenty years ago, when Clark first identified universities’ pathways towards entrepreneurial transformation. The case universities were chosen based on homogenous multiple-case sampling (Miles *et al.*, 2014) as the universities and their regions have somewhat similar demographic and social characteristics. All the case organisations – University of Aveiro, University of Lincoln and University Consortium of Pori – are rather young and regionally-focused universities located in peripheral regions lacking other knowledge institutions and a long tradition of university-industry collaboration.

The case selection followed the logic of ‘atypical cases’, which “often reveal more information because they activate more actors and more basic mechanisms in the situation studied” (Flyvbjerg 2006, p. 13). The selection process was guided by case universities’ comparable regional conditions and organisational history, previous track record in participation to Structural Funds Operational Programmes, and finally, access to data. According to Saldaña (2011), one of the justifications of choosing a case can be ‘convenience’. In this study, access to detailed data and personal as well as professional connections through the ‘RUNIN – The Role of Universities in Innovation and Regional Development’ project to case universities’ staff permitted approaching informants in a more efficient manner. Also, the selection of the case universities was partly guided by the RUNIN project in the sense that the research project was designed to have a comparative element between the partner universities. This allowed choosing case universities (University of Aveiro and University of Lincoln) with a strong regional role working in compatible regional conditions – complimented by the case of

University Consortium of Pori as an ‘atypical’ case. The researcher’s own personal background in working in Finnish universities’ R&D and research support services also facilitated the data collection in Finland. All the chosen cases have proven to be suitable for comparative studies and offer complimentary aspects for joint-publications related to the research topic (e.g. Salomaa *et al.*, 2020; Fonseca *et al.*, forthcoming; Nieth *et al.*, 2018).

Apart from the University of Lincoln, the other case universities are members of the European Consortium of Innovative Universities (ECIU), which originally emerged from the Clark’s study on entrepreneurial universities. Thus the selected universities can provide unique knowledge from academics with a significant experience on universities’ role in regional innovation and collaboration with local authorities and other stakeholders. The University Consortium of Pori – its former coordinator, Tampere University of Technology<sup>6</sup> being a member of ECIU – was partly selected because of its rather special network organisation structure, which will also act as a point of comparison: it allows examining if the university’s organisational design affects to the way in which it delivers Structural Funds projects. Whilst peripheral campuses often struggle to respond to the regional expectations based on the capacity of full-range universities (Charles, 2016), the unique organisational structure of the Finnish university consortia combining the expertise of many universities has potential to overcome this problem, being that responding to external needs can be easier at the unit level (Goddard *et al.*, 2013) through ‘entrepreneurial departments’ (Pugh *et al.*, 2018) and other specialised units.

### 3.3. Data gathering methods

In qualitative research, samples are typically small, non-random and purposeful and the findings comprehensive, holistic, expansive and richly descriptive (Merriam & Tisdell, 2015). This study is rather multidisciplinary in nature, but as typical for higher education studies, an emerging disciplinary area, one of its main data sources consists of policy documents

---

<sup>6</sup> After a long planning process, TUT and UTA merged together in January 2019. The new university also became the main shareholder of Tampere University of Applied Sciences (<https://www.tuni.fi/en/about-us>, 20<sup>th</sup> of Feb 2019).

(Saarinen, 2008). It is also a natural context to examine universities' third mission (e.g. Vorley & Nelles, 2009). Another important source of data was a set of semi-structured interviews with case universities' top management, academics and professional personnel involved with SF projects and/or other university engagement. A multiple data gathering method was chosen for the study because, as Saldaña (2011) puts it, the use of different sources "will better guarantee a spectrum of diverse perspectives for analysis and representation." (p. 77). Therefore, different forms of research data can, in combination, offer new information and additional dimensions on the research topic, which can surpass the potential limitations posed by a single data gathering method.

Many scholars claim that contextual understanding of the phenomenon in question cannot be produced without a direct, first-hand knowledge on the issue (e.g. van Maanen 1979). As Feyerabend points out (1987), knowledge can only make sense within its own cultural context. This view is close to Rapley's (2011) notion on 'a qualitative analytic attitude' that relies on tacit knowledge of the analysis based on 'hands-on' empirical data. This means that personal experience on the operational context in each case can be highly beneficial for the research project. These assumptions have guided the research project towards multiple data sources to ensure even deeper understanding on the topic. Most importantly, multiple data gathering methods can reinforce both the credibility and trustworthiness of the study through 'triangulation' referring to the use of three or more viewpoints to the issue (Saldaña, 2011). For ensuring a rich data set, I selected a number of key policy documents concerning the SF Operational programmes as well as regional development plans and institutional strategies, and as a primary data source, a large set of semi-structured research interviews – all of which are discussed in more depth in the following sections.

### 3.3.1. Policy documents

Primary document data can offer substantial evidence of the actions, beliefs, values and strategies of particular groups (Hogan *et al.*, 2009). Some scholars claim that the third mission is, in reality, most articulated through policies (e.g. Vorley & Nelles, 2009). Undoubtedly, policy documents on European, national and regional level all together offer a rich data set to

inspect the different expectations towards (entrepreneurial) universities. Though Ball (1993) summarises, that “Policies are textual interventions into practice” (p. 12), in practise, the matter is more complicated. The diversity and vagueness of the discussion around universities’ third mission and entrepreneurial universities create different meanings and definitions to these concepts – as Bacchi reminds (2000), the definitions rather create new meanings than just reinforce the current ones. Therefore, language is the key instrument steering critical thinking – and (political) concepts effective means to create order and classify the reality as well as cultural constructions that enable abstract thinking (Puusa, 2007).

However, instead of purely relying on policy documents analysis, a series of in-depth semi-structured interviews were conducted to avoid the two basic ‘mistakes’ of analysing policy documents. According to Saarinen (2009, p. 719), the two dualistic dilemmas of policies and actions are 1) understanding the policy documents as something, that reflects the reality as ‘given’, and 2) understanding the policy documents as a purely rhetoric data source without comprehending the connection with the implementation of these policies. This bipartition is somewhat arbitrary and analysis of policy discourse always includes both dimensions, the constructions of policies and their impact (Ball, 1993). Though policy analysis typically excludes the implementation phase, the policy documents yet have a central role in describing current policy challenges and goals. That makes policy documents the key artefacts in describing the state-of-the-art and supporting the establishment of social practices of the phenomenon in question (Saarinen, 2008). Therefore, it would have been very difficult to disregard the SF Operational Programmes documentation defining the conditions for universities’ participation to SF projects from the data.

Many scholars agree, that through the policy documents, ‘textual artefacts’, the researcher can adumbrate the reality and operationalise potential impact chains to change it: analysing political discourse may thus enable tracking changes in policies and describing new angles (Barnett, 1994), but also to identify, comprehend and explain the progression in implementation of these policies. According to Saarinen (2008), the most important issues in higher education studies arise from the friction between competing viewpoints, which makes policy analysis much more than a mere chase of causes and effects. Instead, it should be considered as a discursive process that provides different insights to the phenomenon in

question. This is the case in this study, as one of the starting points of the research project is to identify the possible contradictory views and goals set in national and regional policies for higher education (e.g. RIS3, SF Operational Programmes) and the reality of implementation of university-led SF projects.

### 3.3.2. Interviews

Interviews were selected as a primary data source of the study for various reasons. Firstly, there is a consensus that qualitative interviews are the leading method for data collection in the field of human and social sciences (e.g. Brinkman, 2013). Secondly, they are considered to be a central resource allowing social sciences to engage in-depth with issues that concerns us in the society (Rapley, 2011) Thirdly, many scholars regard human research as conversational in nature and humans as ‘linguistic creatures’, thus language can be best understood in the context of conversation (Mulhall, 2007). This is also supported by Kvale’s and Brinkmann’s (2008) view, according to which the concept of interview literally refers to an ‘inter-view’, two persons interchanging views on a subject of their mutual interest. Therefore, interviews – conversations between the researcher(s) and informant(s) – provide a rich and indispensable source of knowledge. Fourthly, research interviews allow drawing data close to its origin or as van Maanen states, “raw materials of qualitative study are generated in vivo” (1979, p. 520).

The pervasiveness of qualitative research interviews can be a both blessing and a burden: whereas they are central tools in seeking to understand the world, the conversational nature of the research approach has been widely criticised for being too subjective, even though it provides the best means to grasp different aspects of human lives in-depth (Brinkmann, 2013). Nonetheless, interviews enable researchers to produce more insights on the matter in question – as Briggs (2007) summarises, qualitative research interviews can generate a “larger set of practices of knowledge production that makes up the research from beginning to end” (p. 566). Thus interviews are an effective data collection method to document individuals’ perspectives, opinions and beliefs concerning their perception of social world as well as their personal experiences (Saldaña 2011, p. 32), but only if the interviewer does not “take for granted the

form of human relationship that is a qualitative research interview and simply gloss it over as an unproblematic, direct, and universal source of knowledge.” (Brinkmann 2013, p. 5).

In this study, the choice of informants was based on a two-phase process. Firstly, the principal investigators of the university-led SF projects in the current Programme Period (2014-2020) were identified from public SF grant management sources<sup>7</sup> (see section 3.3.4). These databases were regularly revisited to ensure up-to-date information throughout the data collection process. Each detected PI/contact person of a university-led SF project within the case universities were invited to participate in a research interview. In addition, requests were sent out to the rectorate of the case universities, typically the vice-rectors responsible for research and/or engagement activities, and other high-level administrative staff members working with knowledge/technology transfer, research funding or other university engagement activities. In all cases, the interviewees largely agreed that it is typically the same people, who often get involved with these particular funding instruments (ERDF/ESF). Thus, the informants had more insights on the evolution of the role of SF funding in their universities, which supported diachronic reliability of the study (Kirk & Miller, 1986).

During the interview process, a further ‘respondent-driven sampling’ (e.g. Heckathorn, 1997) also referred to as the snow-ball approach (e.g. Saunders *et al.*, 2012), was employed to gain information on potential hidden informants, such as key partners representing the regional authorities or SF funding authorities. Also, these informants were contacted for additional research interviews. The same kind of sampling method was rigorously applied to all cases, excluding the six first preliminary research interviews conducted as a part of a scoping study of the University of Lincoln, which took place between May and September 2017.

Working on individual case studies between data collection phases, “to flip between office- and fieldwork”, can be beneficial for identifying emerging themes related to the topic and guiding further data collection (Rapley 2011, p. 287-288). For the first actual case study, a set of research interviews were conducted in Lincoln between September 2017 and February 2019.

---

<sup>7</sup> Portugal: <http://centro.portugal2020.pt/index.php/projetos-aprovados>, 28th February 2018  
Finland: <https://www.eura2014.fi/rtiepa/?lang=fi>, 28th February 2018  
UK: <https://www.gov.uk/guidance/england-2014-to-2020-european-structural-and-investment-funds>, 28th February 2018.



In the case of the University Consortium of Pori, the identification of informants as well as the first round of interviews of the SF projects' PIs initially took place in December 2017, acknowledging that all of the SF funding had not been allocated as the Programme Period 2014-2020 was still running. In the case of University of Aveiro, the first round of interviews took place between February and April 2018. In all three cases, additional interviews were conducted along the process and they took place in the following order:

- University Consortium of Pori: in March, April and December 2018, April 2019,
- University of Lincoln: in September 2017, December 2018, January and February 2019.
- University of Aveiro: in May and June 2019.

Regarding the number of informants, qualitative research interview literature provides many different suggestions on how many interviews is enough for ensuring empirically justified guidance for the study. For example, Saldaña notes that interviewing up to twenty participants can be sufficient for providing a “broader spectrum of data for analysis” (p. 32), while Adler and Adler (2012) advise a bigger range that can vary between twelve to sixty informants. As Saunders and Townsend (2016) summarise, “the actual number depends upon research purpose, saliency of data and the researcher’s epistemological and ontological positions” (p. 849). Therefore, determining how many participants is actually ‘enough’ is dependent on many different elements of the research project, though a larger interview data is more likely to secure a “sufficient corpus for analysis” (Saldaña, p. 33). In this study, the number of potential informants was limited to the information derived from the national Structural Funds grant management portals in Finland, the UK and Portugal. Only additional and persistent snow-ball sampling ensured reaching 24-36 informants for each case study, which proved to be enough for reaching the saturation point – in other words, the interviews were carried on until the participants did not provide more insights on the topic.

### 3.3.3. Interview guide and demographics

As typical for research interviews, also in this study they mostly included only one informant and one investigator (e.g. Silverman, 2005). However, the data collection benefitted from the RUNIN project’s work package (WP4: Policies and interventions) collaboration. In the case of

University of Aveiro, one third of the research interviews were conducted together with one or two other PhD researchers working on similar topics, namely regional policies, smart specialisation and universities' role in regional coalitions. Finding synergies with local researchers proved to be highly beneficial, as our individual research topics had common elements. In addition, dealing with such a highly specialized research topic requires extensive background knowledge for taking the role of a “peer, not a run-of-the-mill interviewer” (Walle 2015, p. 69). As Saldaña (2011) notes, the research should have developed “a basic literacy about the related issues of your project to inform your own research as you proceed” (p. 34). In this case, the valuable insights and cumulated (tacit) knowledge gained through collaboration with other researchers provided much needed background information ensuring sufficient “knowledge to ask the right questions and spontaneously follow-up” (Walle 2015, p. 72).

All group interviews were planned beforehand, and equal timeslots allocated to each researcher for obtaining relevant data in regard to their individual research project. In each interview, the research topic determined the covered subjects and types of questions without overlooking the possibility of serendipitous conversation to gain unexpected insights for further inquiry (Saldaña, 2011).

As universities' engagement with SF projects is largely an under researched area, semi-structured interviews were deemed to be the most suitable approach to provide “informants with the freedom to respond in an idiosyncratic manner” (Walle 2015, p.73). Despite the loose interview guide, a specific set of information relevant for the research topic was sought. Each interview consisted of pre-determined set of both more general and topic-specific background questions. In addition, a list of statements related to characteristics and current challenges of university-led SF projects derived from the theoretical framework guided the discussion and ensured that all relevant issues were covered in the interviews (see Table 7). Again, all these element together – a specific agenda, subtle prompting, specialised knowledge and structured analysis focusing on predetermined questions and issues, supported the choice to utilise semi-structured research interviews (e.g. Walle, 2015).

**Table 8. Statements guiding the interviews on the characteristics of university-led SF projects**

Characteristics of universities' engagement with SF	Statements
General	<ul style="list-style-type: none"> <li>• <i>Universities are important drivers of regional development.</i></li> <li>• <i>Structural Funds programmes are important source of funding for universities, especially in more peripheral regions.</i></li> <li>• <i>Structural Funds instruments support universities' regional engagement.</i></li> <li>• <i>Structural Funds are significant factor in developing universities' research capacity and contribution to R&amp;D activities.</i></li> </ul>
Collaboration	<ul style="list-style-type: none"> <li>• <i>Lack of regional coordination hinders participation and finding suitable partners.</i></li> <li>• <i>SF instruments create competition between regional actors.</i></li> </ul>
SF administrative procedures	<ul style="list-style-type: none"> <li>• <i>SF instruments are bureaucratic.</i></li> <li>• <i>High self-financing rates decrease motivation to apply for funding.</i></li> </ul>
University organisational culture	<ul style="list-style-type: none"> <li>• <i>SF projects are difficult to combine with higher education and research.</i></li> <li>• <i>Lack of motivation and internal coordination decrease participation to projects.</i></li> <li>• <i>Other funding instruments are prioritized.</i></li> </ul>
SF Project outputs	<ul style="list-style-type: none"> <li>• <i>Projects' expected outcomes can be over-estimated to secure funding.</i></li> <li>• <i>The number of commercial outcomes is low.</i></li> </ul>

*Source: Author's own elaboration.*

Altogether, 93 semi-structured research interviews were conducted with universities' personnel working with SF funded projects, including both academics and supporting staff members, and top management, namely rectorate, deans and research and enterprise personnel (see Table 8). Seven of the research interviews (Aveiro case study) were carried out collaboratively with two other RUNIN Early Stage Researchers.

**Table 9. Conducted research interviews / organisation.**

<b>Institution</b>	<b>Researchers</b>	<b>Top management</b>	<b>Administrative staff</b>	<b>Others</b>	<b>Total</b>
University of Lincoln	15	5	8	5	<b>33</b>
University of Aveiro	18 (3*)	1 (1*)	4 (3*)	1	<b>24 (7*)</b>
University Consortium of Pori				3	<b>3</b>
<i>Tampere University of Technology</i>	5	6	2	0	<b>13</b>
<i>University of Tampere</i>	3	4	0	0	<b>7</b>
<i>Aalto University</i>	2	1	0	0	<b>3</b>
<i>University of Turku</i>	4	2	4	0	<b>10</b>
<b>Total</b>	48	18	18	9	<b>93</b>

(Group interviews\*)

### 3.3.4. National SF Operational Programme data

National Structural Funds grant management portals provided important information on the volume of each case university's engagement with Structural Funds programmes. These portals were particularly useful in identifying beneficiaries of the granted SF projects, but information on universities' participation to these activities was available through this channel only when they were the lead beneficiary. Even if the university was a single beneficiary, the projects were typically carried either directly or indirectly with external partners, which revealed a strong networking element. Indeed, the case universities were typically single beneficiaries of the SF funding, but the projects were collaborative in nature and a number of local collaborators, such as public sector partners as well as local businesses, were involved in the implementation of the project.

Thus, national SF Operational Programme data was proved to be a good 'point of departure', but its role was, however, more supportive than the central focus of the study. As Saldaña

states, numeric data can “reveal interesting patterns of social action” (2011, p. 77), but in this case, the quality or meaning of these activities could not have been assessed without first-hand empirical evidence from the interviewees.

### 3.4. Ethics, data management and analysis

Designing a research rationale in the initial phase of the research project was an important first step of the process. By asking ‘to what end?’, the expected contribution and the usefulness of the potential findings were considered (Hogan *et al.*, 2009) in order to design a project that could provide new insights to different audiences. This study aimed to produce relevant information to both academics and practitioners representing university management, regional and government authorities and the European Commission. Before the data collection process started, an ethics approval and data management plan were formulated according to H2020- MSCA and University of Lincoln’s guidelines. All informants gave their consent in written form, either via email or signing a specific consent form, before taking part in a research interview (see Annex 1). The study did not include any vulnerable target groups. With informants’ permission, all research interviews were recorded and transcribed by the researcher. This facilitated the coding process, in which similar data chunks (characteristics of SF activities and university engagement in rural regions) were categorised for further analysis, and finally drawing conclusions (Miles *et al.*, 2014) on the specific characteristics and current challenges of university-led SF projects in sparse innovation environments. The researcher herself transcribed all the interviews: knowing the data thoroughly facilitated the analysis, acknowledging that any form of data condensation (coding, categorising, drawing thick descriptions) is itself already an important part of the analysis.

As universities participation in Structural Funds projects has not been studied much, the data collection, research interviews and registry data, has affected the conceptual framework and vice versa, which made the process more organic. The research process followed a constant comparative method, in which the sorting of the data is gathered into categories, which became more explicit as the process continued (Grove, 1988). The cases were to “co-evolve in the course of the research” (Dubois & Araujau 2004, p. 221), so that the research built on the logic

of ‘systematic combining’, in which the theoretic framework is described as both ‘tight and emerging’. It evolved in dialogue with empirical data and the “need for theory is created in the process” (Dubois & Gadde 2002, pp. 558-559). In practice, the initial theoretical framework was reinforced through constantly reviewing related research literature, particularly during the peer-review processes related to publishing the initial findings (Salomaa, 2019; Fonseca & Salomaa, 2019; Salomaa & Charles, 2019; Salomaa *et al.*, 2020). Thus, the framework derived from literature was theory driven, but not only limited to validating findings from previous studies – instead, it aimed to “explain the main things to be studied” and “presumed interrelationships between them” (Miles *et al.*, 2014, pp. 32-33).

Often in qualitative research the findings are presented in a form of themes, categories, concepts or a rich description with supporting evidence of quotes from interviews and / or secondary data (Merriam & Tisdell, 2015). In this study, the categorisation followed loosely the theoretical framework based on current challenges related to universities and SF projects (see Table 6 in literature review) and the potential impact of a rural region on the overall university engagement (see Table 5). The abductive research process followed the logic of these theoretical propositions – challenges of university-led SF projects and estimated impact of rural context on university engagement – described in the literature review. These propositions guided the data collection and finally, created a basis for organising the data to draw further conclusions and hypothesis (Yin, 2012). The first round of coding was based on these preliminary categories, after which other meaningful material regarding the research question and conceptual framework was retrieved by drawing a thick description on each of these categories (Geertz, 1973; Denzin, 1989). In this phase, NVivo 11 software was utilised in the categorizing of similar data chunks from both documentary data and transcribed interviews for creating a basis for thick descriptions. Then, these descriptions were examined and compared for drawing conclusions on the theoretical propositions and collating a stylised description(s) on universities’ engagement with SF projects. Finally, a descriptive typology of specific characteristic and types of university-led SF projects was produced for identifying how regional benefits and academic result could be optimised. During the analysing process, NVivo11 software was also a useful tool for storing the data securely.

As noted by many scholars, the research design, data collection and employed methods should be continuously revised as the understanding on the research topic grows deeper (e.g. Merriam & Tisdell, 2015). This meant that the re-writing of the core of the dissertation – literature review, empirics and discussion – was a constant and important exercise that had an impact to the overall course of the study (Hogan *et al.*, 2009). The re-writing has indeed been a natural part of the process, because the data collection from different case universities as well as initial analysis and write up took place in different phases of the overall project between February 2017 and May 2020. This enabled implementing a “replication strategy (Yin, 1994; 2003) for reinforcing or contradicting the findings from individual case studies. These tentative findings from individual case studies also helped to re-assess the suitability of the theoretical framework and getting to know the collected data profoundly for the final writing phase of the dissertation.

In the following chapters, the empiric data from all three case universities is presented in detail. In each sub-section, the case university and its regional context are introduced while focusing on the university’s role in regional development. The impact of a rural environment to the university’s engagement activities is reflected through entrepreneurial architecture framework (Vorley & Nelles, 2009), after which the university’s involvement with Structural Funds Operational Programmes and their implementation is assessed in order to create a stylised typology of university-led SF activities and the characteristics of university engagement in rural regions. The order of the case studies is the following: University of Lincoln (UK), University Consortium of Pori (Finland) and University of Aveiro (Portugal).

*Parts of Chapters 4, 5 and 6 have been published in Regional Studies, Regional Science (Salomaa, 2019), RUNIN Working paper series (Salomaa & Charles, 2019), IGI Global (Fonseca & Salomaa, 2019) and two book chapters that have been accepted for publication: one for Elgar (Fonseca et al., forthcoming) and Springer (Salomaa et al., 2020).*

## 4. University of Lincoln: an overview

Lincolnshire is a large, rural county located in the East of England with ca. 751 000 habitants. It belongs mainly to the East Midlands, but parts of it across to the Yorkshire and the Humber regions. It is largely agricultural land and the biggest producer of vegetables in the UK with a remarkable economic, social and environmental diversity (UK, 2001). The regional economic base relies on rather traditional industries. The Lincolnshire's economy is dependent on small and micro businesses, which represents 98% of the total business population in the county.<sup>8</sup> The administrative headquarters of Lincolnshire County Council (LCC) is located in the City of Lincoln, one of the nine districts of the county. In terms of the regional development governance in the UK, there have been significant structural changes after the 2010 elections: the former Regional Development Agencies were run down and replaced by Local Enterprise Partnerships (LEP) as central actors in driving local economies.<sup>9</sup> Altogether, 39 LEPs have been created across England to support partnerships of local authorities and businesses since 2012. The LEP boundaries are sometimes overlapping, which is the case in Lincolnshire: the LCC is part of Greater Lincolnshire LEP (GLLEP) area, which covers the most parts of the county, and also North Lincolnshire and North East Lincolnshire councils, but the latter two are also part of the Humber LEP.

The most important strategic document driving local innovation and economy is the Greater Lincolnshire Local Enterprise Partnership's (GLLEP) Strategic Economic Plan (GLLEP, 2016). It is described as a result of collaborative efforts of many local stakeholders, including the University of Lincoln (UoL) that assisted GLLEP in writing the document. Its priority areas are food production, agriculture and engineering, which are also important sectors in the current UoL strategy. (Fonseca *et al.*, forthcoming.)

---

<sup>8</sup> <http://www.research-lincs.org.uk/lep-evidence-smallbusiness.aspx>, 1<sup>st</sup> of June 2020.

<sup>9</sup> LEPs are voluntary partnerships for local authorities and businesses aiming to reinforce economic growth and job creation based on local strengths, and the Midlands Engine is a Government-driven initiative partnership of region's 11 LEP areas, businesses, universities, local authorities and other stakeholders launched in 2015. There are currently 39 LEPs in England, first established in the 2010, and they are responsible for many of the tasks of former Regional Development Agencies. (BIS 2013; BIS 2012a.)



The University of Lincoln was established in 1996, originally as a branch campus of the University of Humberside, after a long local lobbying and a common will among Lincoln partners to have access to higher education. Thus, the university has had a strong regional focus since its establishment. UoL has expanded quickly from a branch campus to becoming the main campus of the university with a full range of departments (UoL, 2010) and today it has 14 000 students and 1600 staff members across three campuses: there are two rural campuses outside of Lincoln serving the local agriculture sector and food industry, namely Lincoln Institute for Agri-Food Technology (LIAT) in Riseholme and National Centre for Food Manufacturing (NCFM) located in food production centre of Holbeach in Southern Lincoln. The main campus is located in the heart of the city of Lincoln on a former industrial wasteland.

The UoL has a strategic focus to serve the local job market. For example, it established a purpose-built Engineering School together with Siemens Ltd. to facilitate access to skilful workforce in an ageing and geographically remote region. It has also been active in supporting local SMEs and there are number of collaborative incentives to both strengthen graduate entrepreneurship to retain more graduates within the area<sup>10</sup> (e.g. Sparkhouse incubator) and to attract large-scale businesses to the region by providing a state-of-the-art facilities (e.g. Lincolnshire Innovation Park, NCFM). Many of these initiatives are based on strategic partnerships with regional actors, e.g. Lincolnshire County Council, Lincoln City Council and businesses: as an example, UoL is currently running the Think Tank on behalf of the Lincoln City Council under a 5-year managing contract, combining commercial tenants with university activities. Some of the business and innovation support activities, especially the ones targeted to local SMEs, rely on external funding from SF Operational Programmes: e.g. the European Regional Development Fund (ERDF) funded Innovation Programme for Greater Lincolnshire offered access to specialist support to SMEs through innovation vouchers and proof of concept grants in 2017-2019.

The University of Lincoln aims to support regional priority sectors such as agri-food in its two satellite campuses located in more rural areas of Lincolnshire. The Holbeach campus was

---

<sup>10</sup> According to 2014/2015 graduate destination survey, 42.7% of graduates stayed in East Midlands and 13.4% in the East of England. The East Midlands breakdown shows that Lincoln is the most popular destination (40.5%), followed by North Kesteven (10.0%) and Nottingham (8.0%).

previously a satellite campus of an agricultural college and it officially joined the UoL in 2002 with a strong support from the local government. Subsequently, the campus grew fast and increased collaboration with local industries. Since the UoL takeover, the Holbeach campus has provided a single access point for agricultural industries to academic knowledge, alongside helping researchers with relevant expertise for the food sector, such as life and computer science, to engage better with businesses. Since 2008, the Holbeach campus, hosting also the National Centre for Food Manufacturing (NCFM), has offered apprenticeships and short courses for food industry employers, as well as state-of-the-art R&D facilities used by local, national and also bigger international food producers, e.g. Nestlé and Heineken. Following the NCFM's opening, UoL has been actively working with regional partners to develop the food sector. In 2016, the Lincoln Institute for Agri-Food Technology (LIAT) was established to coordinate and reinforce UoL's contributions to food production and agriculture in the Riseholm campus.

## 4.1. UoL and regional engagement: Entrepreneurial architecture

This section discusses the Entrepreneurial Architecture of the University of Lincoln, creating a stylized narrative of the UoL's engagement activities through the five key concepts of the EA: structure, systems, strategy, leadership and culture, and the impact of a rural context to the university engagement.

### 4.1.1. Structure

The University of Lincoln's efforts to implement the third mission activities are most identifiable through its wide range of activities to support local businesses and student entrepreneurship beyond 'traditional' academic infrastructure. The support activities have resulted in establishing more structured engagement mechanisms, including the incubation centre Sparkhouse. First established in 2002 by the Lincolnshire County Council, it mostly provided entrepreneur services to students and graduates, especially in the field of arts and creative industries. In 2004, Sparkhouse became officially part of the UoL, and expanded its focus to serve also external partners, namely local start-ups and SMEs. As one member of the senior leadership team described “-- *supporting businesses, that is very important for the UoL,*

*whether it's through incubators, accelerate in the innovation and science park, whether it's working with local businesses on their R&D challenges, whether it is through apprenticeships to re-train their workforce.”(UoL, Management 2).*

The UoL also runs the Lincoln City Council's innovation centre, Think Tank, under a 5-year management contract. Think Tank seeks to support innovative businesses with high-growth ambitions, and it is partially used to accommodate academic activities. Sparkhouse and Think Tank have together supported over 400 businesses and facilitated the creation of 433 new jobs (Regeneris Consulting, 2017). The third key structure to support large-scale innovation and R&D activities is UoL's newly established Lincoln Science and Innovation Park, which is a joint venture with the Lincolnshire Co-operative Society, which also owns the land. In addition, there are individual initiatives and externally funded projects to support engagement.

UoL's role in regional development was described as both a catalyst and a response to local needs. Despite UoL's wide range of activities to support regional growth, it currently has a limited number of large-scale R&D collaborations beyond the successful collaboration with Siemens Ltd. In the lack of local business partners, the facilities are partly used for UoL's own activities: for example, Think Tank has less than 50% of commercial tenants, and at the time of the interviews, Sparkhouse's office facilities were not used to the full capacity (UoL, Admin 7). Some of the support services, such as the Greater Lincolnshire Innovation Programme and Greater Lincolnshire Agri-Food Innovation Platform, run on external funding from the European Regional Development Funds, which makes them less sustainable. However, these top-down built initiatives were seen as highly important in reaching more potential business partners: “--one of the reasons we are running the Innovation Programme is that it brings university in contact with more businesses” (UoL, Management 2), but creating a local market for business support services and institutionalising these entrepreneurial activities require long-term commitment. (Salomaa, 2019.)

One example of a successful, long-term structural investment is the Holbeach campus, which has grown steadily since becoming part of the UoL in 2002. The university's strategic focus on agri-food sector has also led to the establishment of new institutional structures, such as Lincoln Institute of Agri-food Technology in the Riseholm campus:

*“The university decided it needed something bigger to pump prime agri-food across the university. So, we took another look at it and said let's do something institutionally. So, three years ago the university created LIAT to do just that, to become the umbrella organization -- the remit of LIAT was to build capacity and bring all the capacity that existed in the schools together.”* (UoL, Management 3).

Collaboration between LIAT, the School of Science and NCFM has secured large-scale projects from both national and European funding sources, notably in agri-robotics, where UoL’s management identified a possible strategic growth opportunity: *“when you think about the alignment with the regional need and the agricultural sector, and our understanding of where the technological maturity is, we could see that the agro-robotics would become a bigger thing.”*(UoL, Management 1). (Salomaa *et al.*, 2020.) However, both Holbeach and Riseholm campus have a very specific structure and a range of support activities, which are mostly targeted at serving the industry instead of merely providing an access to traditional higher education.

#### 4.1.2. Systems

The University of Lincoln works in close collaboration with various regional stakeholders, including local authorities and businesses. One of the strongest partnerships is with the Lincolnshire County Council. They collaborate regularly through meetings and projects, but there are no formal networks or partnerships despite the management contract of Think Tank and the joint-initiative Science and Innovation Park. As the interviewees described, the collaboration has remained rather ‘organic’ as it relies more on personal connections. UoL’s active role in regional networks was indeed emphasized in all interviews. Strategic partnerships have also led to structural changes; the most successful of these partnerships, long-term collaboration between UoL and Siemens Industrial Turbomachinery Ltd, enabled the opening of a purpose-built engineering school in 2011 – the first one in the UK for the past 25 years (GLLEP, 2016).

UoL take part in local business support networks (e.g. GLLEP) and regional partnerships (e.g. Midlands Engine). UoL has facilitated identifying local gaps hindering economic growth, such as insufficient access to local investment, and it has resulted in new mechanisms to enable co-operation between businesses and local investors, such as Lincoln Investment Network (LIN).

The strategic engagement is largely concentrated on mobilising high-level infrastructure initiatives which creates a systemic gap with the coordination of individual academics. Despite many collaboration linkages outside of academia, the interviewees indicated that UoL's internal mechanisms do not support developing external links on lower levels of the organisation, and that engagement relies on individual academics' efforts. Excluding the successful Siemens collaboration, UoL's business support mechanisms tend to fall outside of the traditional academic infrastructure and there have not been very clear internal linkages between the Research and Enterprise and other university units. Many of the academics did not recognize how exactly the university can facilitate building these connections: *"I don't know really. The companies we are working with are people who have approached us."* (UoL, Researcher 7). However, the UoL has strived to establish these links e.g. through appointing business development managers to each school to facilitate collaboration.

The university's active engagement in local networks was repeatedly highlighted in the interviews: *"I struggle to think of a partnership that I sit at and the university is not part of"* (LCC, 1). As typical for rural areas, a small group of actors has a lot of influence and UoL's links with external actors rely heavily on a limited number of personal partnerships. This 'organic' way of doing things is more challenging to plan and manage at the lower level of organisation, and also makes it more vulnerable to staff changes, especially as the engagement being embodied by the vice-chancellor: *"I cannot imagine vice-chancellor saying that right, I want to do some strategy here and some operation here, some tactics here, it's not the way it happens"* (LCC, 1). (Salomaa, 2019.)

While UoL has managed to create collaboration in the key sectors supporting economic growth in Lincolnshire, namely agriculture and food production, and succeeded in creating a local 'buzz' in Lincoln, there is still a need to promote collaboration between university and businesses for *"breaking that barrier between academia and businesses"* (LCC, 2) to increase knowledge transfer within the area. UoL is still a rather young university, which means that it has a limited number of established partnerships also because the local businesses have a tradition to collaborate with other universities in the surrounding regions, which is partly explained by the fragmented governance structure of the county:

*“- it’s about making sure that the businesses know that Lincoln University has the capacity, for ex. many of our manufacturing businesses were going to Nottingham, and we’ve said that well, actually we’ve got fantastic facilities built in Lincolnshire.” (LCC, 2)*

*“- think about Greater Lincolnshire, there are ten local government actors serving just one million people, you add the city, the county and the district. That’s very complicated, it’s quite difficult environment to navigate for an individual institution -- they don’t always have the same priorities, but universities have to work with them.” (UoL, Management 5).*

### 4.1.3. Strategy

The UoL’s strategy for 2016-2021 states that the university seeks to conduct ‘research with impact’, aligning the research agenda with local economic priorities, especially in Personalised Health, Agri-Food Technology, Creativity, Digital Arts and Archive and Rural Communities (UoL Strategic Plan 2016-2021, p.14), which are also the key sectors of Lincolnshire’s Strategic Economic Plan (2016). In particular the top management thought that the priorities of the UoL and the GLLEP are well aligned:

*“We rely entirely on the LEP sectors, which you know, but we could work with any business. But we will focus on the priority sectors.” (UoL, Management 2)*

*“--in the last three or four years the university strategies changed and agri food is in the university strategy. So, and of course then we’ve got Enterprise (Research and Enterprise) at Lincoln, who feed that structure through, so really our strategy isn’t a different design here.” (UoL, Management 3)*

According to the strategic plan, UoL aims to generate more employer-led curricula to serve better the local job market, which demonstrates how the university can contribute to regional economic growth by providing graduates and facilitating knowledge transfer. One idea that is mentioned in the strategy is that of the living laboratory, conducting research that contributes to addressing local challenges, but also seeking to create a wider global contribution (UoL Strategic Plan 2016-2021.) However, the strategic aims to strive for entrepreneurial activities are focused mostly on supporting student entrepreneurship with placements, mobility schemes and start-ups, and the Strategic Plan does not specify UoL’s internal goals to promote a “culture of enterprise and innovation” (p. 5) within the other levels of the organisation. Currently, the internal mechanisms do not explicitly support regional development; for example, the workload model emphasises teaching, research and administration tasks whereas enterprise was described as a rather recent and rarely used add-on.

However, the goal to conduct research that contributes to local challenges through the proposed ‘living lab’ approach strives to find solutions for regional problems that can be transferred multi-nationally in priority sectors (UoL Strategic Plan 2016-2021). It can be a natural way of linking academics with local actors, but the nature and specialization of local businesses and ventures encourages collaboration only in few prospective fields that also steers UoL’s strategic focus in terms of engagement activities. This may limit the university’s capability and volume to engage with external actors unless it manages to reach the small-scale businesses ‘hidden in the region’ and to establish multi-disciplinary teams to work beyond these regional priority sectors:

*“there is a spectrum (of companies) outside of Lincoln --- and I hear about some companies, we are in a catch 22 where we don’t know how we can change their perception, we have gone to all their events and region to make sure that we are visible there, but there is a bit of barrier in terms how Lincoln itself has been divided into North and East Lincolnshire.”* (UoL, Admin 4)

*“So, we’re, we’re not a large city, the local population is quite dispersed. So that obviously has effects on the types of activities that make sense. We have a small manufacturing sector in Lincoln, but it is quite small --we are in the agricultural sector. So, we have to try to ensure that the focus we take for regional activity is responsive to and appropriate of the region we are in.”* (UoL, Management 1)

The strategy states that UoL wishes to serve local businesses by establishing more employer-led curricula, thus the employer-driven approach was linked to both university’s core missions. This works particularly well at the Holbeach campus:

*“--we’ve got lots and lots of people, academics who now sit within the main university, whose academic expertise is actually very relevant to the food sector. And those people are finding their way out to take science to the food industry through this campus, and be the food industry, agricultural industries are finding a way into our main university through this campus.”* (UoL, Management 3)

The interviewees also raised a concern about rooting university’s activities too much in the local needs at the expense of academic excellence, but UoL’s top management pointed out that all entrepreneurial efforts are still linked to the core mission as *“the more businesses we have involved in the more we have research and innovation -- it’s a route for impact for us.”* (UoL, Management 2). However, the strategy does not address how UoL aims to promote “a culture of enterprise and innovation” (UoL Strategic Plan 2016-2021, p. 5) on different levels of organisation. As one of the interviewees stated, *“the strategy says where the university wants to be but not enough on how to get there”* (UoL, Researcher 15). (Salomaa, 2019.)

#### 4.1.4. Leadership

UoL's staff across the organisation is claimed to be well connected, e.g. some of the personnel are jointly employed by the UoL and GLLEP to facilitate knowledge transfer (Regeneris Consulting, 2017) and the Lincoln International Business School (LIBS) has recently launched LIBS Connect, a series of networking events to bring together academics and local business community. This connectivity implies that UoL aims to play a role as an opinion leader outside academia. As the interviewees repeated, the top management is committed to regional development, though the general engagement is *"very much contained within the vice-chancellor"* (UoL, Researcher 15). The DVCs of external relations and R&I being more concentrated on research activities, the interviewees disclosed the issue of lack of lower level leadership in the area. The respondents emphasised that the VC is indeed the one who provides a strong leadership in engagement activities, whereas middle managers or the Research and Enterprise unit do not sufficiently focus on leading engagement within the organisation. The interviewees agreed, that many of the collaborations between academics and businesses rely on personal connections. Some of them confessed, that the middle management might not even be sufficiently aware of the collaboration that is going on within the school.

In the absence of other key knowledge institutions within the region, UoL's role was emphasized in all interviews: *"We have some very good supporters of innovation, in the University of Lincoln and beyond, but not that many of them."* (LCC, 1). Therefore, UoL has taken the leadership in providing support structures that are not only built in collaboration with external partners, but are partly initiatives that have been designated to the UoL from outside of academia:

*"The City Council had quite a few challenges running it (Think Tank), the occupancy rate was low, and they had challenges to get other people to run it for them, and they came to us asking if we would run it for them."* (UoL, Management 2).

The interviewees estimated, that excluding the VC's active role in engagement, UoL's is still largely missing internal leadership for entrepreneurial activities as internal linkages between entrepreneurial activities, teaching and research were described to be 'weak' or 'something extra' on the side of teaching. For example, as in the case of the ERDF funded Innovation programme, the middle management did not straightforwardly support academics' engagement



with businesses or allow them to spend sufficiently time on these activities causing challenges in teachers' workloads. Even when the academics were involved in the engagement activities, their other responsibilities and unclear instructions made balancing with different tasks complicated and caused stress. These experiences varied significantly between different schools, some of which are more supportive towards engagement. (Salomaa, 2019).

*"In my work schedule distribution, I can't remember how much time I am meant to spend per week, but obviously you could have a week when you don't do anything and where you are very busy doing lectures."* (UoL, Researcher 11).

*"--maybe they (heads of schools) have not fully grasped the (Innovation) programme for what it is. -- because it is a limited amount of time that an academic can spend, but usually it is between 10 and 15 days."* (UoL, Admin 3).

However, the leadership UoL has exerted outside of academia has proven to be significant in designing successful projects and generating external funding, especially from the ERDF schemes. Ideally these projects can lead to long-term collaboration, but only when there are good connections with the regional authorities and knowledge on the other research, development and innovation support services within the region:

*"We worked very closely with other ones (bids) that were going in, so we made sure they complemented each other-- So for the university, it's about how we can help our region grow, and as a side benefit, we end up having many good, long term collaborations with businesses, which also kind of has an impact on our teaching and what our academics are doing, so it becomes a circular process."* (UoL, Admin 4).

#### 4.1.5. Culture

Despite UoL's wide range of activities supporting entrepreneurial activities (structures) and the VCs personal engagement to regional development (leadership), its dominant culture was described to be rather conventional and focused on teaching. Also, the strategy is mostly concentrated on enhancing teaching activities, supporting graduate entrepreneurship and building research on local priority sectors, though it sets a goal to "be entrepreneurial in our activities and practice across the whole institution" (UoL Strategic Plan 2016-2021, p. 5). A lot of UoL's staff members are in the early phase of their careers, and may commute to Lincolnshire from elsewhere, which decreases their commitment to the local region. As one of the senior researchers noted, *"the university isn't able to attract those with a strong industrial*

*focus*” (UoL, Researcher 15), which was also seen as a general problem for all universities. In addition, many international staff members do not have linkages with local businesses and the constant staff changes hinders the establishment of personal engagement: “--*develop that culture throughout the university will be ongoing challenge because universities change staff all the time.*” (LCC, 1). These staff changes can have a big impact on the planned engagement activities: “--*the professor who was going to do it ended up leaving and no one else could pick it up, so that (training) was removed from our programme.*” (UoL, Admin 4).

In the past, UoL has had financial difficulties with projects designed by academics, which partly explains the institutional top-down approach to regional engagement. Even though the projects were planned to respond to regional needs on strategic priority sectors, in some cases, the academics struggled to deliver expected outputs or did not receive clear instructions, especially in the ERDF funded projects: “---*when I had the interview, it became a bit clearer that there will be engagement with SMEs within Lincolnshire, but it was not fully understood before we actually had our first full meeting, which was actually few months after I started.*” (UoL, Researcher 6). The individual characteristics and connections of the researchers seemed to play a key role in initiating and implementing engagement activities. For example, the more senior academics were better equipped to deal with the internal systems: “--*if you're going for any research proposals or collaboration, some years there's more money than others, but if you ask nicely and if they like you, you might get some.*” (UoL, Researcher 4).

Although UoL’s many efforts to build entrepreneurial activities bring together external partners from the county, the current engagement mechanisms have not reached their full potential. They fall somewhat outside of the academic structures and as their linkages with colleges and schools are vague. A majority of staff members are concentrated on teaching activities; there is a lack of local collaboration possibilities and personnel see engagement being spearheaded almost exclusively by the top management. All this together, with lack of lower level leadership to support regional engagement makes enterprise ‘unimportant’ and many schools do not have the needed skills and capacity to initiate these activities:

*“I don't think it (engagement) fits readily where schools are more traditionally academic focused and don't have (these elements)...a) the research is relevant, near enough to market and b) the academics with the skill set to engage and c) a kind of translator, or somebody who helps those academic....Often*

*what you find is that academics can speak to business but they need help just to get the relationship going--.*" (UoL, Management 3).

Taking into account also the limitations of the surrounding region, it is reasonable to question how much more the university can and should support entrepreneurial activities when there is less need for knowledge transfer and fewer possibilities for collaboration. However, the national HE policies are slowly taking these regional aspects into consideration: *"I think over the last few years that governments have become more aware of the issue that research is a driver of local economic development. So, if you strip the research out of regional universities, then you damage the local economies"* (UoL, Management 1). (Salomaa, 2019.)

## 4.2. Structural Funds projects and University of Lincoln: an overview

In the UK, universities are important actors in delivering European Regional Development Fund (ERDF) projects (e.g. BIS 2012a; BIS 2013). They are well equipped for managing the administrative processes and have the capacity to "lead the development of multi-party plans for realising the economic benefits of research" (BIS 2013, p. 24). Thus universities can be 'the biggest channel' for delivering ERDF activities to the local businesses, although there are also challenges, such as the SMEs might not be aware of what kind of possibilities university-collaboration could offer: "the first contact and creating awareness of the capabilities of the university is a challenge in itself" (BIS 2012a, p. 38).

In the programme period 2014-2020, the EU contribution to the UK is altogether £3.6 billion through the ERDF schemes – £6.7 when combined with national investments – that is allocated across England to 39 Local Enterprise Partnership areas. The LEPs are the key strategic players in delivering 'growth and jobs in their economic areas': while they are not typically accountable bodies, they still provide important strategic oversight on their economic areas, in particular, through the European Structural and Investment Funds (ESIF) strategies setting regional priorities. However, it is stated in the ERDF programme for England<sup>11</sup> that innovation should not be bound by geographical boundaries, thus "more needs to be done to ensure that

---

<sup>11</sup> There are six national ERDF Operational Programmes in the UK in the Programme period 2014-2020: East Wales, England, Gibraltar, Northern Ireland, Scotland and West Wales and The Valleys.

firms and research institutions are not hindered by artificial or administrative geographies.” (p. 41). The current ERDF programme was adjusted in 2017 to strengthen this strategic approach, and to reinforce the role of intermediate bodies delivering the projects.

Universities’ are key organisations especially in Thematic priorities 1, Competitiveness of SMEs, and 2, Research and Innovation. There are altogether nine Thematic priorities, but ca. 64.5% of the total EU contribution is allocated to these two.<sup>12</sup> They can support activities that facilitate innovation support e.g. through investments in research and innovation infrastructure, and initiatives targeted at SMEs, such as innovation vouchers and grant schemes. Overall, the gross expenditure on R&D in the UK is below the EU 2020 target, so the ERDF funds can play a significant role in exploiting the national research base and helping SMEs to commercialise research-based products and services. In the ERDF programme for England (2017), ERDF funding is indeed promoted as a possibility to strengthen collaboration between businesses, universities and other organisations. This is measured through number of collaborations – consultancy, contract research, continuing professional development, facilities and equipment and IP services – between businesses and research organisations in the bi-annual UK Innovation Survey.

The total ERDF allocation for Lincolnshire is ca £73,000,000, of which Priority axis 1. Research and Innovation is roughly £15,000,000. (GLLEP, 2017). The ESIF strategy for Greater Lincolnshire presents the University of Lincoln as one of the region’s strengths in the SWOT analysis. In particular, the importance of the School of Engineering (Lincoln) and National Centre for Food Manufacturing (Holbeach) is underlined (GLLEP, 2016). The strategic vision of the plan relies on the strong local research base: "University-led research supporting key sectors; effective knowledge transfer and good quality education and skills development" (p. 30). The aim is to make use of the “specialist knowledge from one university to support a business in another area.” (p. 114).

At the time of the last research interviews in Lincoln (February 2019), the Greater Lincolnshire Local Enterprise Partnership personnel confirmed that UoL had bid for five large-scale

---

<sup>12</sup> [https://ec.europa.eu/regional\\_policy/en/atlas/programmes/2014-2020/united-kingdom/2014uk16rfop001](https://ec.europa.eu/regional_policy/en/atlas/programmes/2014-2020/united-kingdom/2014uk16rfop001) 27th of November 2019.

European Regional Development Fund projects that were either already been contracted or in the application stage, with total of £19 M of requested ERDF investment (ca. 26% of the total ERDF funds in Lincolnshire). The public information on funded SF projects in the UK, last updated on the 22<sup>nd</sup> of July 2019<sup>13</sup>, lists the UoL as a beneficiary of only two ERDF projects, a capital project for Centre of Excellence in Agri-food (£4,201,800) and Innovation Programme for Greater Lincolnshire (£1,808,693), though there were other university-led ERDF funded activities running, such as the Greater Lincolnshire Agri-food Innovation Platforms (GLAFIP). Another large-scale ERDF project led by UoL, the Productivity Programme for Greater Lincolnshire, a successor of the Innovation Programme delivering SME support activities, started in September 2019.

Most of the interviewed researchers were involved with the Innovation Programme (7) or GLAFIP (7) either in the design phase, administration or implementation. The other researchers had previously worked with SF projects directly or through delivering contracted services (e.g. evaluation, technology hubs) for the Lincolnshire County Council. Three of the researchers had previous SF experience but were currently involved with Interreg projects. The University of Lincoln had not bid for any European Social Funds (ESF) projects in the current programme period.

#### 4.2.1. Collaboration

Many of the administrative staff handling Structural Funds projects at UoL had previously worked in GLLEP or LCC. Therefore, they are well equipped to handle SF projects, but also have good relations with their previous employers to reinforce collaboration with the university. UoL's good connections to GLLEP and an important role in regional development was repeatedly emphasised in the interviews. Also, UoL's in-depth knowledge on the SF instruments and a strategic regional approach to designing SF projects in the regional priority areas was highlighted. Especially the National Centre of Food Manufacturing has been efficient

---

<sup>13</sup> <https://www.gov.uk/government/publications/european-structural-and-investment-funds-useful-resources> December 2nd 2019.

in engaging with businesses through ERDF:

*“So, we have quite a lot of alignment that, so LEP funding's important, European structural funds are, ERDF and so on are very important, is that we do well in securing funding in those areas. --we're very strategic about it (SF). So yes, it's a key strength in our universities financially supported from the senior leadership team – ” (UoL, Management 1)*

The interviewees described that the collaboration within Lincolnshire, especially between UoL and public bodies, LCC and GLLEP, is intensive, but in terms of SF funded activities there can be overlapping services provided by different actors. The GLLEP has set up an umbrella organisation, also partly ERDF funded Business Lincolnshire Growth Hub, to coordinate business support services in the region. The Hub also impacts on the way in which the regional ERDF funding is allocated: *“And as part of our application, I know that we were required to have conversations with the Business Growth Hub to make sure that we would sit under that.” (UoL, Admin 1).*

UoL itself has a lot of business contacts, but the interviewees thought that there is room for improvement. In addition to regional collaboration, the promotion of SF activities should be reinforced: *“I don't think everybody knows what everybody's doing. -- knowing that the Innovation program is available to you.” (UoL, Admin 1).* Although the general awareness on the potential business partners is on the rise, it was described as accumulative, tacit knowledge rather than a result of deliberate coordination mechanisms to increase regional engagement. In particular, the international staff thought that it is more difficult to get information on these partnerships without in-depth knowledge on the region:

*“The more successful projects often (find partners) from word to mouth, they know that we exist, and it fits into their priorities.” (UoL, Researcher 3).*

*“-- I don't know the area. So, it's difficult for me to know people or to engage with people I actually don't know.” (UoL, Researcher 13).*

LCC has a long history of using ERDF schemes to deliver business support programmes: one such initiative that seeks to encourage local SMEs to apply cutting edge technology by showcasing modern technology is the ‘Digital Hubs’ located throughout Lincolnshire. These hubs demonstrate how modern technology, for ex. motion capture cameras, could be applied in manufacturing processes, e.g. fault detection in production lines. As LCC lacked capacity to

operate the equipment and hubs, they were contracted to third parties, with one being located at the University of Lincoln. University personnel contacted LCC during LCC's search for partners, suggesting that UoL could host a hub: *"I think I submitted a proposal to them to say what kind of equipment we'd want and what kind of support we would offer companies in return for that equipment, in return for the council investing in us."* (UoL, Admin 6)- There were originally five hubs across Lincolnshire, but a review saw this reduced to three as not all hubs were performing equally well: the UoL hub was perceived as running smoothly having engaged with more businesses than expected. As one of the LCC interviewees (1) noted: *"the university uses the hub in a more advanced way I would suggest, tending to use it in a more in-depth-way with businesses looking for technological support."* (Salomaa et al., 2020.)

Although lots of businesses are concentrated around Lincoln, many of the agricultural and manufacturing companies are located further way from the UoL main campus, as far as in Grimsby, Boston and Spalding. Reaching these companies is not always straightforward and the SF activities require very active promotion. Sometimes the collaboration is limited by the overlapping LEP areas, but SF project can collaborate on referral basis: as an example, a similar ERDF funded Innovation Programme is running at Hull and there is some cooperation with the Lincolnshire one: *"They deal with Yorkshire. Yeah. A little bit of the North East Lincolnshire, Grimsby and overlaps with those because we are at Greater Lincolnshire."* (UoL, Admin 1).

According to interviewees, SF projects can be a good tool to engage with more businesses, many of which have not collaborated with the university before, which is partly due the characteristics of the vast, rural region of Lincolnshire: *"I would say that we have a slight regional difficulty in that we are such a large county and we are so spread out, more of a geographical limitation than a coordination one."* (UoL, Researcher 1). Surprisingly, some of the interviewees thought that it can also be an advantage in the sense that the number of key contacts in businesses development is limited, which makes networking easier: *"I wasn't sure I would be able to find a positive about rural spread, but it's there, isn't it? Less people to know and to find out who needs to know."* (UoL, Researcher 3).

Despite the rural regional environment and dominance of agriculture and food sectors, e.g. the UoL's Innovation programme has managed to initiate collaboration with a range of business partners representing different sectors, such as engineering, pharmaceutical industries and

design. This have enabled collaboration with different disciplines, but STEM still dominates the engagement activities: *“Engineering, social sciences we have done quite a lot of work with school of pharmacy, sports science-- Engineering is perhaps one of the most popular, and computer science, we have done a lot of work with them.”* (UoL, Admin 3). As the only university located in Lincolnshire, UoL was considered to be in a favourable position in delivering SF projects and other collaborative activities: *“--other units that have similar resources to us are Leeds, Nottingham --- and Sheffield is another one. So, we are an hour away, we’ve got everybody in the East who have to go through us to go anywhere else.”* (UoL, Researcher 3). This was supported by the UoL’s excellent track record in securing SF funding. The interviewees brought out that there is less competition for the Structural Funds within Lincolnshire compared to other counties:

*“We are going through an extension for our current one (Innovation programme), and we pretty much know we are going to get it, because the funding is available and no one else is really applying for it. --Everything we have applied have been granted.”* (UoL, Admin 4).

However, many interviewees highlighted, that there are analogical business support programmes, many of them funded through ERDF, running at the same time across the county, which can be confusing to the target groups. This was a wider problem related to many funding schemes, not only SF: *“So at the moment, there are lots of projects, which will perhaps provide 12 hours support. --And you get three or four people telling you that, --offering them a very similar thing or maybe slightly different themes.”* (UoL, Admin 5).

Overall, the collaborative characteristics of the SF activities were emphasised, also when UoL delivers contracted services (e.g. the technology hub), the most successful of which can grow into large-scale projects led by the university: *“So we actually learnt -- how these things worked as being a delivery partner from the Council in early ERDF projects. So yeah, we do know them very well --a lot of what we've done has been done in partnership with the pre-runners of the LEP.”* (UoL, Management 3). Instead of competing over the SF funds with other regional actors, the UoL interviewees detected that there is an element of competition in delivering projects to similar target groups, which makes the programmes less efficient:

*“--we are often chasing outputs and we find ourselves competing with everybody else that has got ERDF funding chasing output.”* (UoL, Admin 2)



*“I think what you get with the regional funds, is you get lots of projects run by, doing very similar things, but run by lots of different providers.” (UoL, Admin 5)*

#### 4.2.2. SF Administrative procedures

The national (e.g. The Ministry of Housing, Communities and Local Government - MHCLG) and regional coordination (e.g. LEPs) of Structural Funds was considered to be overly complicated and the bidding processes heavy. Despite these difficulties, UoL has been successful in securing the SF funds, which were described to be ‘undersubscribed’ within Lincolnshire: *“I imagine partly because a lot of them are low value and you need all this effort to get, to retain them--”*(UoL, Admin 2). In particular, the more senior staff members considered the SF instruments to be bureaucratic and high maintenance. One way to avoid the administrative burden, as in the case of technology hubs, is to deliver subcontracted SF activities led by another party:

*“We don't have to handle or manage any of the ERDF paperwork, because that can be really quite intensive. So, the County Council would manage that, which is great, while we concentrated on delivery.”* (UoL, Admin 6).

*“--they (the SF funds) were mostly managed by the County Council. And they had done all the bidding processes and we came in as sub-contractors.”* (UoL, Researcher 1).

Even though this co-operation model works well and UoL do not have to carry the administrative burden or go through heavy bidding process, the design phase could have benefitted from academics’ input – though in reality, they have very limited time for application processes. If the university was not involved in the bidding process, there can be insufficient resources for delivering planned activities: *“--the funding only buys equipment, it's not revenue so -- I have to work, at sometimes, on some goodwill and I have to do quite a bit of persuading to help to get people engaged with this.”* (UoL, Admin 6). Some people responsible for designing SF projects at UoL are not sufficiently familiar with the workload related to implementation, and in many cases, an administrative project manager was recruited later on after the project was already up and running: *“The project had already started about 6 months before I was employed, but there had not been much happening and I think they suddenly thought that they need someone to manage (it).”* (UoL, Researcher 5). UoL, as a led beneficiary of an ERDF project, has also occasionally outsourced some of the administrative tasks to a

private company.

Another typical challenge in the SF projects is that there are often delays in the payments and the beneficiary is financially responsible for the project for a long time. Especially smaller businesses would struggle if the payments would not be processed in time. They also have troubles following the SF guidelines, even when another party, such as UoL, is coordinating these activities. All this paperwork was seen as a barrier, detected by both administrative staff and academics, in engaging with businesses within the SF framework:

*“--dealing with the ERDF funds is that they take a long time to get back to on like following audits and paperwork and processing payments and things like that.”* (UoL, Admin 1)

*“These are also things that are pushing away some of our companies, because when they see that they need to fill in six pages of personal information about the company, they just give up.”* (UoL, Researcher 13).

The administrative procedures were seen as unpredictable and difficult to manage also because the personnel changes at the funding authority (in most cases MHCLG). This opinion was shared by most interviewees, also the public actors: *“That is too hard for the value of the funding, that’s in a lot of the feedback we get.”* (GLLEP, 1). There can be significant individual differences in the way that the SF guidelines are interpreted, which causes additional work, and in worst-case scenarios, clawbacks, making SF a high-risk form of funding. This has also been the case with UoL’s SF projects and the university have absorbed tens of thousands of pounds of financial losses:

*“I’m told this is common, that whoever is appraising it in the managing authority can be quite difficult if teams change and they do. So, we found that quite a lot of putting stuff back.”* (UoL, Management 3).

*“--because Structural Funding is very complex in terms of the audit and the way it’s operated. And we had a few challenges with that around how those activities were being run and then audited and ended up with at best, lots of management time trying to sort them out and at worst we had some clawback of funding.”* (UoL, Management 2).

*“So one of the big challenges I think for universities generally is the audit risk, and that’s actually for most projects, they get put off ERDF because they’re large strategic schemes --So I think there are a lot of projects that the university would want to bring forward but I think there’s quite a high risk attached to that.”* (GLLEP 2)

Another major constraint for UoL's business support programmes funded through SF is the eligibility criteria for SMEs. Finding suitable partners was even referred to as a 'nightmare'. In practise, because of SME definitions and strict state-aid limitation, it has proven to be difficult for the academic staff to evaluate who is eligible for the programme. Some of them have ended up collaborating with businesses that do not fit into the SF criteria. In addition to the lack of knowledge on the eligibility, a rural region can pose further challenges for finding suitable business partners. Many SMEs remain 'hidden' in the county and the dominance of the agriculture sector, strongly supported by different funding schemes (e.g. LEADER), decreases the amount of suitable companies within Lincolnshire. Despite the recent efforts and amendments to the ERDF programme for the England (2017), the SF instruments are not often agile enough for cross-regional collaboration:

*"--it very difficult to be innovative and to do partnerships across borders.-- I think now, especially with multi-million pound projects, so I think it's really stifled-- compared to what we used to do a lot of, sort of partnership type objects, which is what ERDF is meant to be about."* (GLLEP, 2)

*"They (SMEs) were not eligible, which wasn't a question we asked at the beginning --"* (UoL, Researcher 9).

*"--so, we have great problems with farmers because we cannot work with them due to the eligibility criteria of the SF."* (UoL, Management 4).

In large-scale projects, the professional staff typically takes care of the administrative work. This was a good practise, as academics tend to lack the capacity to deal with details of the SF funding. However, academics still need to engage with the administrative processes, such as filling in time sheets or as in the Innovation programme, explain what kind of support they provided to the businesses. These minor administrative tasks were not considered to be very time-consuming, and the academics felt like there were sufficient support mechanisms available for them.

*"--we need administrators and we need people to help us to do that. I think when you realise that's what people do, and you find the people who can do that they make your life a lot easier."* (UoL, Researcher 10).

*"-- it's a short paragraph of what exactly will be done and what is happening after I leave them the short life (research), what I recommend and what will be the future for them. We do not just leave them with results and say here you go."* (UoL, Researcher 11).

Lincolnshire and North Lincolnshire are transition areas, which means that their GDP/head is between 75%-90% of the EU member states' average.<sup>14</sup> In the transition regions the SF funding rate is more favourable: instead of the typical 50% funding rate, in Lincolnshire, 60% of project costs can be covered by the SF grant. The interviewees had differing views on the amount of match-funding required by the SF instruments: while some thought that it is a barrier hindering access to funding, from a business perspective, already the typical funding rate of 50% was considered to be motivational as *"the risk is halved"* (UoL, Admin 2). It is, however, more challenging for public organisations, such as universities, excluding the infrastructure projects: *"Just take the Think Tank building here and you wouldn't expect them to pay for that 100%. But for research projects that is more off-putting."* (UoL, Researcher 4). UoL mostly handles the match funding with human resources, but as the top management noted, matching with equipment or staff time needs to be planned carefully because the resources are limited:

*"I can match time relatively easily because they're (researchers) not committed to three days teaching every week. Having said that, it is I think we've run out match now. We wouldn't be able to bid for another project because we're absolutely, our resources are being utilized, unless we were to find cash."* (UoL, Management 3).

*"--the ideal is always 100% from the project--and the most obvious one has been to match the Structural Funds against the LEPs funds -- then the next best option is to look at match, so what we avoid generally is putting a real, additional cash into the project."* (UoL, Management 2).

Again, this demonstrates UoL's strategic top-down approach to designing SF projects. Even the administrative staff working full time with SF funds did not deal with the match funding. The academics, unless deeply involved with SF projects, did not know that there needs to be a match, which was even more of a challenge in international SF schemes, such as Interreg's: *"But then there also is just a financial contribution to the university as well. Yeah. Which we actually didn't realize until very recently."* (UoL, Researcher 2). The academics with previous experience on SF funds were also somewhat involved with the planning processes and in a more favourable position to negotiate match funding from the university: *"Often these funding programmes are for equipment and capital, so you got to be smart and inventive about where to get the money from. --I have been shown favouritism because I have pulled in money for over five years, I have had a 100% whenever I have asked for funding."* (UoL, Researcher 3).

---

<sup>14</sup> [https://ec.europa.eu/regional\\_policy/sources/information/cohesion-policy-achievement-and-future-investment/factsheet/united\\_kingdom\\_en.pdf](https://ec.europa.eu/regional_policy/sources/information/cohesion-policy-achievement-and-future-investment/factsheet/united_kingdom_en.pdf), 25th of November 2019.

These responses indicate, that the SF instruments are somewhat unknown especially to academics.

### 4.2.3. University organisational culture

As discussed above, UoL has chosen a very top-down approach to designing SF projects. This strategic approach has led to large-scale projects, which might have been more impactful with specific knowledge on the topic in the planning phase: “--some of these projects are invented by generalists rather than specialists --It might deliver better value. Whereas if you've got just a generalist, they might miss so important points.” (UoL, Admin 6). In practise, the designing of the SF projects is contained within a few experienced individuals, while the other members of academic community, including some member of the senior leadership team, do not have any knowledge on the funding schemes or their benefits to the universities, or even how the UoL projects are designed. Overall, UoL still has a good level of knowledge and capacity to design and manage SF projects, though whereas the top management is heavily focused on SF schemes, the academics have less motivation and skills to engage – even the academics, who are currently involved with SF activities do not fully grasp what the instruments are for and what kind of activities they can support.

*“(The academics) less interested, from what I have seen they certainly have limited capacity.”* (UoL, Admin 2).

*“No, I don't have any idea of the ERDF. This is quite a big one, so we just focus on it. I don't have an understanding on the other things that are related to ERDF.”* (UoL, Researcher 11).

*“SF is better in supporting industries. There is not as much interest for academics to look at it, that's why I did not look for it, but they came to me.”* (UoL, Researcher 1)

One of the challenges of the SF funded activities within UoL was that the persons responsible for the planning are not necessary actively involved in the implementation. The project plans may not capture what kind of activities will actually be implemented or what kind of outputs the project should deliver. As an example, in the Innovation programme, there has been some confusion on the concept of ‘innovation’ and how the project activities should be communicated to the target groups:

*“I think the first year when we had to programme going that was the hardest year, because we realised that our information was not going to work, businesses wouldn't speak to us. We didn't get across what we meant by innovation.”* (UoL, Admin 4).

However, the SF projects can provide a framework for implementing regional development plans, which concerns more the senior leadership team. In particular, SF schemes were deemed to be useful for supporting knowledge transfer between academics and businesses. One of the most successful cases is the strategic focus on the agri-food sector:

*“So, we are looking at what we can do as a university to help the agenda of the Council and to deliver. So, we wrote the application to get the funding it was in line with regional council's expectations. We made sure that it was aligning with what their long-term agendas were in their fields.”* (UoL, Admin 4).

*“Our mission is to support the agri-food. And we work within the framework of our local enterprise partnership and agricultural strategy, agri-food strategy. So really they're designed to fit that.”* (UoL, Management 3).

At UoL, the SF instruments are actively promoted to the academic staff only in the implementation phase. The large-scale projects can provide fulltime funding for less experienced academics, typically postdocs, but their role was not always ideal. They might work under a supervision of a professor, who is not sufficiently aware of the limitations and requirements of the project, while the PI is located elsewhere in the organisation. The researchers felt like they did not receive enough information on the expected outcomes or guidelines for eligibility – also the academic staff more involved in the administrative processes of SF project management share the same experience:

*“So, for the first one year of the project none of them manager of the project or the P.I. we're taking care of researcher postdocs, anybody involved in the project. And nobody was delivering. They even they didn't know how many companies we would engage with.”* (UoL, Researcher 13).

Also, the nature of academic work carried out in the framework of SF projects was not always seen as relevant or interesting for future career development. The researchers with more positive experiences working with SF projects thought that they can result in KTPs and other tangible outputs, even when they do not directly support basic research. They thought that the SF projects could also bring added value to the teaching activities. The less the academics had successfully delivered support activities and found potential business partners, the more negative their view on the SF project was compared to the more engaged researchers, who thought that SF activities had actually helped them to secure a better position at the university:

*“Basically, what I'm doing these forty hours is a job that technician or an undergrad student could do. So, it's very basic science. And this is not giving me opportunity to grow as a scientist and it is frustrating me. -- So for now, I didn't have any benefit, I didn't learn anything new, I didn't develop any skills, I didn't publish, I didn't go to conferences --So the only benefit I can see is to work with my supervisor.”* (UoL, Researcher 13).

*“--without the ERDF funding I wouldn't become a research fellow. Without that I would have finished my PhD and would be looking for a job. Within 9 months, when I pulled in the KTP, the head of college gave me a permanent role and I am still finishing my PhD.”* (UoL, Researcher 3).

Some of the schools within UoL have been less responsive and have declined opportunities to engage with businesses through SF activities. This again, was partly explained by overly optimistic project design and a lack of previous experience on working with local companies. There are also big disciplinary differences between schools, some of which have a stronger capacity for business collaboration:

*“When the project was bid, from sort of headlining, we were already involved in helping Lincolnshire to develop, it seemed like something that was a really good fit, but when doing the project there was not always the staff to support that.”* (UoL, Researcher 5).

*“The majority of collaboration takes place only the college of science, usually working with engineers, computer scientists, quite a few with life sciences, and then we have got NCFM in the process as well.”* (UoL, Admin 4).

One of barriers hindering academics to engage with SF funding is the applied research approach. However, some researchers thought that if projects are designed in collaboration with the business partners, the basic research aspect could be more easily added: *“The company knows its own areas very closely --That doesn't mean the blue-sky stuff needs to be ignored.”* (UoL, Researcher 9). However, conducting research limited to a certain regional context might not be appealing for all academics. Also, the funding authorities confirmed, that finding synergies between research and expected outputs is complicated.

*“And I think where the sticky points will be for that particular project, giving an example, is the research elements which don't have a direct coherent link to outcomes that are expected--.”* (GLLEP, 1).

*“I have done a lot of Lincolnshire based research and I feel myself becoming Mrs Lincolnshire some time. And a lot of academics are looking global although, you know, they want to be the world expert in this. And so, they don't see the appeal necessarily of working on a project with local SMEs because it feels too parochial perhaps.”* (UoL, Researcher 12).

In addition to that academics were not aware of the SF funding possibilities, the traditional research funding is more appealing: *“I suppose academics are very limited with their time, and you know concentrating on their teaching and things like that, then that kind of put them some*

*of them, they do have like research and there are research opportunities with European funds, aren't there, and things like that.*" (UoL, Admin 1). In practise, the typical 12-15 days of engagement with a company (e.g. through innovation vouchers) is not enough for academic research, unless carefully planned beforehand:

*"--if we can find maybe six or seven companies that are interested in this same thing. And each company can be a replicate about our experiment, and then we will have that kind of hypotheses that we would like to test with them. Then at the end of this study we could have enough replicate to have a robust scientific work. But a single good company-- It's not possible to publish the work."* (UoL, Researcher 13)

*"I think that in these kinds of engagement, as I said they are mostly discussions and conceptual ideas, I don't think they will result in a publication before it's actually been implemented and tested."* (UoL, Researcher 6).

However, implementing more coordinated research activities within the SF framework is very challenging. Many of the interviewees echoed the mismatch of differing interests of universities and businesses. Although researchers thought that they were able to assist businesses through ERDF activities, the academic work tend to be overlooked in the process and even when academic results are achieved, they are not monitored within the organisation.

*"—they (businesses) just want us to help with a problem, and that is what they want as an outcome, solving it and report, not how we achieved it."* (UoL, Researcher 1).

*"As a scientist, we can give a big impact in agriculture and in agri-food industry. But not at this price. So, in science, we must benefit of the project too, it cannot be only a one-way relationship."* (UoL, Researcher 13).

The interviewees thought, that there should be stronger internal leadership to support engagement: *"So I think you do need strong leadership and that probably needs to come down to a very clear plan of why you want to access European funding and what you can achieve on it."* (GLLEP, 1). However, this is hindered by the organisational culture, which remains focused on teaching activities and the general view on the importance of engagement activities through SF remains divided:

*"I think there are certain people that think fantastic, when it gives us a chance to buy equipment. I think some people at various levels within the institution think that we get in the way of working with students and that students are everything."* (UoL, Admin 6).

Some of the interviewees, especially the ones that thought their engagement with SF had been more successful, thought that more academics could be involved in these activities if there was more information and training available. Another thing facilitating engagement activities



would be a stronger support from middle managers so that the academics would have more time to deliver SF projects, which is typically challenging in the given timeframe. If the academic is very committed to the project, they might continue working on it even when the funding is finished – but without a genuine research interest, the connections are difficult to build and manage, which might force the researchers to juggle between different projects in order to manufacture publications:

*“--sometimes people want to be involved with projects, but they just don't have the capacity. That's something that needs coordinating when these projects come up, there is some way to more people around to make sure they have the time.”* (UoL, Researcher 5).

*“So, I sort of pretended they (ERDF projects) were kind of longitudinal. We had one in 2006, one in 2011, 2014. Whenever it was, 14. I kind of made out that there was a, you know, there was a similarity between them and to compare the two. The reality was that I had already written a paper on the first one, which was really well reviewed at a conference and then I just kind of lost my way with it.”* (UoL, Researcher 12).

The interviewees stated, that many of the academic staff at UoL are purely concentrated either on teaching or research, although for the latter, further engagement with the industries would be highly beneficial, as there is an increased pressure to generate (research) income. Some researchers thought that the engagement would also advance their academic career and provide a possibility to develop their skills in different areas, but that requires individual skills to balance between these different functions:

*“--get little pots of money to do a little bit of research and then to build on that, it is a gateway for me to get into research again.”* (UoL, Researcher 7).

*“It does help me to build more relationships with industry -- And also, I am learning as well of new products, I have not worked with marshmallows before, and I am thinking about new products. I gained knowledge through these companies and that they come back to me.”* (UoL, Researcher 11).

The interviewees had very different views on the overall relevance of the SF funding schemes to universities. The administrative staff thought that universities may not be the most suitable actors to manage these funds because they do not support basic research. However, they were seen more fitting for universities located in rural regions, such as Lincolnshire, to reinforce delivering regional development activities. The collaboration, as in the case of UoL Digital Hub, can be beneficial for all parties: it has generated PhD research projects and long-term knowledge transfer partnerships with regional partners.

*“-- that often leads other businesses being more successful that goes into my research output, that goes into the school, department, the university reputation, then that goes into my teaching and you have students that are more capable of operating in that world. It all can be linked together.”* (UoL, Researcher 3).

*“-- it helps me to provide my services to a specific project and I think we are enabling people and services to have access to our skills --Now as an academic and professional, this is something very exciting for me because it helps me to liaise with the industry. It helps me to develop my professional network.”* (UoL, Researcher 14).

The academics were well aware of the expectations of the next research excellence framework (REF) and the UK HE landscapes, which were steering the way in which UoL delivers regional engagement activities. The fact that SF funding does not count as a research funding was seen as a major barrier hindering academics’ participation to projects and middle managers’ motivation to support researchers to conduct these activities. The only way SF activities could be beneficial for the REF is if they count as impact case studies:

*“I think the big challenges in terms of regional engagement are how university funding -- work. So, it's inevitable that activity is driven in any organization by what's funded. You need to deliver the things you're funded for.”* (UoL, Management 1).

*“For example, both (SF) projects might enable me for the next REF come up with two impact case studies. -- I could have many good publications but having a good impact case study, it's like you have eight super four-star publications.”* (Researcher 14).

The disciplinary differences in engagement activities were obvious. STEM was seen as better equipped to go for more prestigious research funding compared to e.g. social sciences, but disciplinary issues were also mentioned as an internal barrier hindering participation to SF projects. As many interviewees echoed, the support mechanisms for engagement are not accessible to all staff members:

*“I think there are systems in place, there is, as I said a lack of awareness, but once you start asking questions you can find the right people and the coordination does exist, so you need some experience to work your way in the system.”* (UoL, Researcher 1).

*“No doubt it's (the Innovation programme) linked into engineering, but some of us, who want to do innovation work -- But that's not the fault of the program at all, it's just the individual who hasn't reached out (to different schools).”* (UoL, Researcher 4).

Many of the researchers thought that regional engagement is meaningful for itself and helps them to develop a better understanding on what is happening in the field: *“As a researcher, my main, ultimate goal is to make a difference. And to do this, I will need to engage with the*

*stakeholders. If I don't do this, I will not understand their needs.*” (UoL, Researcher 14). Also the top management thought that the university’s missions have evolved over the years and engagement and regional engagement have become more important, which have also made SF instruments more relevant for universities: *“And I think these types of funds are particularly important in reaching engagement and enterprise, sort of making a significant difference in our ability to address that agenda.”* (UoL, Management 1).

All the interviewees acknowledged, that one feature that makes SF more attractive source of funding is that they are less competitive compared to national and international research funding. Some of the researchers thought that is irrelevant where the funding originates, and some thought that UoL could prioritise SF because of their high success rates:

*“--the Structural Funds like Interreg are easier to get than Horizon 2020. And ERCs. Yes, I see, I think I don't think there's anyone in the school lately who has got an ERC. So, I think it should be prioritized partly because -- low take up and so a better chance of getting the money.”* (UoL, Researcher 12).

*“Actually, if you look at structural funds, you know we can get higher amounts --also structural funds generally, because of the region that we're in, is much less competitive than the Horizon 2020 for example.”* (UoL, Top management 2).

#### 4.2.4. SF Project outputs

Typically, SF projects led by UoL aim to deliver innovation support activities (e.g. innovation vouchers, proof of concept grants etc.) to a pre-set number of local SMEs. These outputs are rigorously monitored by the funding authority. However, there is typically no follow-up evaluation on the final outputs, such as new products or services developed directly or indirectly as a result of the SF project activities or the actual outputs can be difficult to measure: *“I haven't looked back what has happened at the end of the project, to look back so many years back to see what the financial gain has been, I don't really know.”* (UoL, Admin 4). Curiously, this kind of in-depth longitudinal evaluation have been overlooked by all parties involved in the multi-level governance of the SF programmes and the beneficiaries are understandably mostly concerned about delivering promised outputs.

*“In our case that would mean the number of companies, we're here to try and help companies develop and create new products and see that through to an end result, we are not tasked to go and measure the commercial outcome or the commercial impact --which would be an interesting exercise.”* (UoL, Admin 6).

According to UoL's administrative staff working with local businesses through ERDF funds, that kind of ex-post evaluation would be difficult of conduct, because some businesses would not want to share that kind of information, even if an expectation to generate new products was stated in the project plan: *“With my project that I am working on, we got to produce 10-12 hrs of support and or ten new products, we have got to evidence that as well and that can be difficult to do. Business can go and do what they want, it can become commercially sensitive, which is actually the biggest barrier.”* (UoL, Researcher 3). This poses challenges also to sharing academic results obtained from projects activities:

*“A lot of my papers, before I came here, are not in the public domain. --I have a trimmed down version I show to the students I'm teaching this, but it's never going to be a publicized paper in the journal.”* (UoL, Researcher 8).

In the case of the Innovation Programme, both the innovation voucher scheme enabling academics to work with businesses and the proof of concept grant were good tools in supporting local economy through coordinated access to funding. This was efficient, in particular, when the business had a very specific problem that can be solved with a short intervention: *“I'm doing consultancy work for some of the companies in the ERDF project. Mainly they require a short life studies, because they are such small companies – one thing they want to do is to understand the microbiology in their food product, so most of them ask for a short life study.”* (UoL, Researcher 11). The interviews also emphasised the exploratory nature of the proof of concept scheme: *“--we don't see a great commercial outcomes from every project, but it's the nature of our proof of concept and sometimes if we do not try, you don't know if it will work. You go to try.”* (UoL, Admin 3). However, the strong focus on delivering promised outcomes can have an impact to the quality of projects:

*“The disadvantages are that sometimes people are motivated just to deliver an output or tick a box -- you could be asked to provide support to a company that you feel they will benefit from, but there's probably other companies out there that would deliver a greater benefit.”* (UoL, Admin 6).

The discussion on the outputs of university-led activities circles around more abstract benefits, such as ‘growth’, ‘knowledge sharing’, ‘knowledge exchange’ and ‘knowledge transfer’ and also, in a more concrete manner, in creation of jobs. The more senior interviewees thought that

the actual outputs can be tricky to capture and report, though the impact on a SME could be important: *“If it's an intervention that's saved business a few thousand pounds and change their mind-set, then that's a valuable intervention.”* (UoL, Management 3). The more experienced administrative personnel claimed that they are able to recognize when there is potential commercial gain: *“Sometimes we're surprised, but sometimes, but quite often, where I think we were pretty accurate with that feel.”* (UoL, Admin 6).

All interviewees, top management, researchers and administrative staff widely agreed, that SF funded activities can provide local businesses with access to university research, which can have a long-term impact to the region: *“Therefore it is only going to provide economic growth to the region and get these companies to stay and grow, reaching with the likes of us, academics' knowledge base if not so easy for them to access externally and grow.”* (UoL, Admin 4). Participation in the Innovation Programme was also seen as beneficial for businesses, who have not dealt with this kind of funding before. UoL, as a more experienced project organisation, has the capability to guide the businesses in their applications, navigate through SF language and increase their capacity to deal with individual bids in the future: *“I see my role in working with them and train them, teach them to complete the form. I spend quite a lot of time supporting, but I will not say that leave it for me, I'll write it for you.”* (UoL, Admin 3). In a manner, university' role is to make the available SF support more accessible to SMEs:

*“--sometimes they don't recognise the support that's out there, because if I start talking to people and they start saying, you start talking what I would call 'jargon'—”* (UoL, Admin 5).

However, designing realistic project plans and setting achievable targets in a rural region can be challenging: The primary target group of ERDF activities, SMEs, tend to have less time, capacity and interest in R&D activities. Bigger companies with growth prospects are more eager to engage with university for additional support, but the rigid eligibility criteria of the funding scheme is not straightforward, and many potential businesses have been dropped out. For many interviewees, obtaining mutual benefits from the SF funded project activities is a question of planning, but the top-down approach had produced overly optimistic scenarios, where the limitations of the SF instruments and SME landscape of Lincolnshire have not been taken into account:

*“--it could be challenge to get them aboard these companies, when they don't have R&D plan or strategy, so you are offering a service and they don't know -- they wouldn't ask for help so engaging with them could be a challenge --all don't understand that, there are industries that doesn't want to get in involved.”* (UoL, Researcher 11).

*“But actually, that as you start looking at those numbers, you start getting fewer and fewer (eligible) businesses.”* (UoL, Admin 5).

*“That is not to say that people in the xx school don't work with businesses, they are not necessarily working with businesses that fit in the funded area. They are not eligible or are based abroad, so it's really the locality that was the barrier.”* (UoL, Researcher 5).

Less experienced researchers, typically postdocs, working fulltime on ERDF funded projects thought it was harder to comment on the expected outcomes in general, and the more senior ones estimated that UoL tries to steer academics more towards research outputs. The academic staff largely agreed, that the limited lifespan of a project is not ideal for producing new products or services *“There was potential, but we did not make any commercial gain at all”* (UoL, Researcher 5) or academic outputs, which would require longer commitment. In some cases, there were disciplinary boundaries, if the researcher's own area of expertise was too narrow. Administrative staff echoed, that most businesses seek to work with engineering and design schools, which can more easily deliver concrete outputs for further development, such as prototypes and designs. However, the research staff thought that even this was too optimistic to achieve in the project framework, and their role was rather to provide consultancy. The time limitation was one of the most repeated barriers hindering academics to engage with SMEs through ERDF funds. The interviewees emphasised, that it is important to manage expectations of the businesses and not to promise something that cannot be delivered. One potential avenue was to build up future collaboration.

*“From this project initially it will be, in 15 days, you cannot get a huge amount of commercial outcome, what it did though is that it opened up a lot more projects.”* (UoL, Researcher 7).

In addition to the time limitations of the innovation vouchers, the amount of funding may not be sufficient to stimulate engagement: *“If you have a very experienced academic, who has a very high daily rate and you introduce them to a business, that is great, but the academic might sometime say that your grant does not cover a nanosecond of my time.”* (UoL, Admin 3). However, in ideal cases, the small investment on academics' time through innovation vouchers can first grow into KTPs and then to commercial outputs.

### 4.3. Summary

The case of the University of Lincoln illustrates how the local needs of a rural region can shape universities' Entrepreneurial Architecture. A wide range of support activities, partly resulting from local partnerships, compensates for the absence of other knowledge institutions. However, they tend to fall outside of traditional academic infrastructure and are thus less aligned with research and teaching activities. In the case of Lincoln, the academics work closely with partners from different sectors (e.g. agri-food, engineering) and local networks rely on the university's input, but the overall university engagement is led by a few key actors on the top level. In the absence of efficient engagement systems and lower-level leadership, staff members may feel excluded from the engagement activities. Thus, the findings from the case study – discussed in-depth in Chapter 7 – indicate that the external linkages with local stakeholders may shape the university's structures and strategic approach to the third mission in rural regions.

The UoL's involvement with the Structural Funds schemes emerged from the strong regional collaboration, in particular with the Lincolnshire County Council and GLLEP. The SF schemes were considered to be particularly useful in supporting knowledge transfer between academics and local SMEs through consultancy in the regional priority sectors (e.g. agriculture, food manufacturing). However, the SF funded projects were mainly designed and managed on the top level. Besides conducting more traditional types of SF projects, the UoL had also subcontracted tasks funded through SF projects led by local public bodies. These contracted activities vary from running technology hubs to performance evaluations, whilst the large-scale institutional projects focus on innovation support activities targeted to SMEs. These large-scale SF projects were designed to respond to the regional priorities, in line with the RIS3 strategy, but they tend to be less aligned with research activities and individual researchers' interests. The implementation of the projects was somewhat complicated due to the overlapping LEP areas and the strict SF guidelines hindering cross-regional collaboration. Many of the academic staff members also had a limited experience on the SF funding and guidelines for implementation, such as eligibility criteria.

## 5. University of Aveiro: an overview

The University of Aveiro is one of the three universities located in the Centro region in continental Portugal. Centro is one of seven Portuguese administrative regions, corresponding to the NUTS II European statistical subdivision, and geographically, it covers approximately 30% of the country with a population of ca. 2 million (European Commission, 2019). The region benefits from a strategic positioning between the country's major metropolitan centres – Lisbon, the capital, and Porto. The population is unevenly spread out throughout the region, with a greater density in the more urban, coastal areas, such as Coimbra and the city of Aveiro. The region has the characteristic of 'desertification' of the rural context, such as aging population, traditional industries (e.g. ceramics) and small-scale businesses. The region's GDP corresponds to roughly 19% of the national average, and its purchasing power is yet below both national and European averages (European Commission, 2019)<sup>15</sup>. Thus, it is a less developed region, though the whole Portugal is, nevertheless, a moderate innovator according to the EU's Regional Innovation Scoreboard (2018).

Centro benefits from a rich variety of natural resources that have contributed to its economy becoming relatively diversified. It is both competitive in low technological industrial sectors – like ceramics, agro-food and forest industries – and increasingly also in medium to high-tech sectors such as ICT, biotechnology, health and renewable energies, which are bringing new applications to the regional base of traditional industries (Rodrigues & Teles, 2017). Centro is the third highest ranked region in the country regarding its gross expenditure on R&D (European Commission, 2019) and the economy and innovation-related endeavours depend a lot on the region's higher education institutions: the University of Coimbra (UC), University of Beira Interior (UBI) and University of Aveiro (UA). In addition, there are five public polytechnics and many other private education and research institutes located in the area. Almost half of the total R&D expenditure in the region results from activities implemented by higher education institutions (European Commission, 2019).

---

<sup>15</sup> The GDP per capita in purchasing power standards (PPS in 2016): the Centro region 19,700 EUR; the national average 22,500 EUR and the EU-28 average 29,200 EUR (Eurostat, 2018).



The central government of Portugal is responsible for regional development and, in the most part, for the definition of research and innovation policies. Regional commissions, such as the Comissão de Coordenação e Desenvolvimento Regional do Centro (CCDRC), possess administrative and financial autonomy, but are merely decentralised bodies of the central government. Their competencies include regional and urban planning and development, environment, inter-regional and transnational cooperation, as well as the management of financial instruments and EU programmes based on funds allocated to Portugal by the EU (European Commission, 2019). The RIS3 Centro is one such instance with an aim to enhance the region's overall performance in GDP and R&D in the national context and to reinforce internal territorial cohesion and resilience (European Commission, 2019). To achieve this, eight strategic priorities have been defined in RIS3 Centro, linked to the main regional industrial sectors (ceramics, agro-food, forest industries, ICT, biotechnology, health and renewable energies) but also including sea-related economic activities and tourism. In turn, combination of these areas has been promoted through three main transversal scopes: 1) sustainable industrial productivity; 2) energy efficiency; and 2) rural innovation (CCDRC, 2014b).

The University of Aveiro (UA) is still a rather young university, which was established in the 1970s at the time of the massification of higher education and industrial decline in Portugal. Since the beginning, UA has aimed to structure the organisation to respond to academic as well as societal challenges. Overall, the establishment of the university was a result of the local lobbying for a knowledge institution for revitalising and supporting the increasingly stagnant industry. Thus UA's initial regional orientation became strongly defined by regional needs and industry demands, with a focus on regional key sectors, e.g. ceramics and materials, agro-food, as well as new areas of scientific and technological potential, e.g. ICT, sea and environment, tourism, biosciences and other fundamental sciences (Rodrigues & Teles, 2017). In addition to the main campus located in the city of Aveiro, there are two schools located outside of Aveiro: one in Agueda, School of Technology and Management (ESTGA), and one in Oliveira de Azeméis, School of Design, Management and Production Technologies.

## 5.1. University of Aveiro and regional engagement: Entrepreneurial Architecture

### 5.1.1. Structure

University of Aveiro has developed a number of interface structures to build up on its academic strengths and orient them towards entrepreneurial endeavours. These include the Office for University-Business relations, that has created a portfolio of university resources and contacts available for firms; the technology transfer office UATEC, a more proactive structure that has sought to strengthen internal coordination and external network collaboration; establishment of key management positions such as the Vice-Rector for University-Society relations in 1998 (Rodrigues *et al.*, 2001) and the Pro-Rector for Regional Development, the latter being specifically responsible for managing cooperation with government authorities; and other bodies like the incubator and the newly opened Aveiro Creative Science Park, which aims to attract new companies to the area and to support “the development of business ideas and new collaborative and co-creation projects in close liaison with the UA”.<sup>16</sup>

In the research interviews, the UA’s organisational structure was indeed highlighted one as of the facilitating factors permitting a more strategic and unified dialogue within the institution, but also with the regional authorities, businesses and other stakeholders. UA has no faculties, but instead, it is endowed with what it designates as a matrix structure, in which below the rectorate level there are only the departments. This could allow, according to interviewees, a clearer direction and alignment of the engagement activities between the management level and the rest of the university. (Fonseca & Salomaa, 2019.)

*“--we have a matrix structure. So have the university and the different departments, I think we are the only one in Portugal, because they have faculties that are autonomous. --So, it’s easier for us to talk.”* (UA, Researcher 1).

*“We don’t have walls, we say that this is an open campus. Everybody can come here to see what we are doing.”* (UA, Admin 4).

---

<sup>16</sup> <https://www.ua.pt/en/regional-influence> 9th of Jan 2020.

Internally, UA has also chosen to adapt to the smart specialisation framework by creating eight so-called ‘technological platforms’. They are cluster-like networks for regional engagement and project stimulation, focused on the themes defined within the RIS3 Centro and building on UA’s disciplinary strengths (e.g. sustainable habitat, agro-food, sea, smart communities, moulds and plastics). (Fonseca & Salomaa, 2019.)

*“--the university also tried, three or four years ago, to be more proactive in approaching companies... so that's why technological platforms were created. --Each of these platforms has a specific scientific coordinator, so they have kind of an autonomous structure. Where the university has specific competences, and has decided that the research should be focused on this, --to join forces.”* (UA, Admin 1).

*“They are more intermediaries between the society and science, and science and the society. So, I think, to a large extent, they promote what we are doing in terms of research and try to find researchers for questions...”* (UA, Researcher 7).

Also, the Structural Funds funded projects were considered to be one of the key mechanisms to facilitate engaging with local stakeholders. Their role in Portuguese universities have been on the increase over the last two programme periods: *“(2007-2013) --they opened the opportunity for the universities to...they can be the beneficiaries of the funds; they can apply for the projects from the regional funds. In the past it was not so possible.”* (UA, Admin 3). A senior interviewee from CCDRC, responsible authority for the Centro SF Regional Operational Programme (ROP) confirmed, that since the last programme period, ERDF funding has been available for research activities too: *“Only in 2007-2013 we began to have some funds within the ROP to fund science. I'm not talking about (only) infrastructure.”* (CCDRC, 1). In the past, the SF have enabled significant investments in the infrastructure, facilities and equipment: *“many things are constructed, like the incubator, many labs in all the universities of the region, Aveiro, Coimbra...research centers that are associations of the universities and companies, all funded by FEDER (ERDF) in the last 30 years.”* (UA, Admin 1).

The development of a network of incubators, IERA, containing one incubator in each of the eleven municipalities of the region, serves as a concrete example of how the SF funding, when granted to a university, can support entrepreneurial structures and raising skills levels also beyond academia:

*“(The municipalities) didn't have incubators yet, so in the beginning it was (UA) training the technicians of the municipalities, so they can help the entrepreneurs. --Our incubator (at UA) has 20 years of expertise. We have to share this knowledge to the other ones. --Nowadays, the 11 municipalities have their own incubators, and the services are the same.” (UA, Admin 4).*

Another one of UA's structural responses to regional needs, also originally funded through SF funds, is the development of technology transfer office, UATEC. It was established in 2006, following a government initiative of setting up a TTOs to each Portuguese HEI: *“We had in our mission -- the third mission - that we would be close to the region, close to the valorisation of results. But in fact, we didn't do anything. After we started this TTO, we started to do something more close to companies.” (UA, Researcher 2).* The interviewees described, that in the beginning, the foundation of UATEC helped bringing in more business collaboration and facilitated establishment of partnerships more strategically:

*“(UATEC) also started to receive contacts with companies that wanted to establish some partnership with university, we talked to them, we heard all about what they looking for, here at the university, what kind of help they needed, conducted these requests to researchers, tried to establish some kind of formal cooperation on R&D projects in consortium, service contracts...” (UA, Admin 1).*

Previously, UATEC had a specific task to support researchers to bid SF funds for local R&D projects, which is still a small part of their core activities. Subsequently, the role of UATEC has changed over the past fifteen years. It is currently focused more on IP management, which was valued by the interviewed researchers. Overall, the business collaboration has increased over the past decade, and through these collaborations, (local) companies have become more aware of the competence areas of UA. Despite UATEC's coordinating efforts, the business connections remain very dependent on individual researchers. Some the academic staff even stated, that they get so many requests directly from companies, that they do not have time to get involved with any new projects. Another downside of the establishment of many business linkages, detected by the academic staff, was the decline of the success rates of external funding targeted to business collaboration: *“So 10 years ago it was quite difficult to find industrial partners, but the funding was almost guaranteed, nowadays no, it is becoming very, very difficult.” (UA, Researcher 8).*

That is one of the reasons why the research staff's views on the importance and current activities of UATEC differed radically:

*“The TTOs cannot be the central role in the third mission of the university, cannot continue that role, because it's not needed anymore-- In the whole relationship, it is the professor, the researcher, that is the key point, not the TTO. They have a role in all the administrative issues, have to support researcher in this kind of relationship, but they cannot lead anymore, because it's not needed.”* (UA, Researcher 2).

*“No, before using that platform (UATEC) we would prefer to use our research, our lab people who to do that, we have some persons that are in between the university and the industrial sector around university.”* (UA, Researcher 9).

UA has also launched in 2017, after a long planning and lobbying process that was delayed a number of times (Nieth & Benneworth, 2019), a Creative Science Park together with municipalities to increase their interaction with different stakeholders. However, at the time of the research interviews, many of the academics were not aware of the collaboration possibilities provided by the science park: *“I have no idea. No, I know it exists. I've never been there.”* (UA, Researcher 7). The interviewees had, however, observed an increasing demand to develop a more positive culture towards entrepreneurship through service mechanisms supporting entrepreneurial activities of both the students and the researchers within the university:

*“--in our department in CESAM, my start-up is the first one in 40 years. This has never happened before since the department was created, more than 30 years ago. And this is the first one, and then I will bring my company to another university, or will start another company in another university, and nobody cares.”* (UA, Researcher 13).

### 5.1.2. Systems

The close collaboration with the regional authorities, in particular on the top level, was highlighted throughout the research interviews. In the past years, this cooperation has been reinforced through UA's involvement in the regional strategy making processes, which has also enabled building trust between different actors implementing projects together:

*“So I became kind of a representative of what the rector calls this the 12<sup>th</sup> municipality (of the region), the university of Aveiro. And I did it during those... 16-17 months while working on the strategy. So, this allowed me to build a kind of trust, confidence, a relationship with most of those political actors.”* (UA, Management 1).

*“-- they trust us, because they already worked with us-- They (the municipalities) just laid back.”* (UA, Researcher 11).

The wide range of institutional engagement incentives, such as technological platforms and

some of the SF funded activities, has increased interaction within the university, and but also with other higher education institutions located in the region. As the top management stressed (UA, 1), UA has a good working relation with other regional universities, in particular in having *“a common voice when approaching the regional authorities, saying that the strategy for science in the region should be this one.”* Otherwise, the cooperation with the other local universities was mostly initiated because of the limited equipment, resources or expertise at UA, and it did not necessarily lead to collaboration with any other regional partners outside of academia.

On the contrary, the increased cooperation with business partners was described to be more service oriented. Many of the researchers also truly valued opportunities to interact with businesses ‘from the field’, in particular through ERDF projects:

*“--nowadays the research is more applied to the companies' needs. Several years ago, we see researchers doing their research in the labs without contact with companies, with people, and then they think they have something 'Wow'. When we go to the market, 'Oh, market has already a solution'. Nowadays we work taking in consideration the needs of the companies.”* (UA, Admin 4).

*“We try always to “know the reality”, because our projects are always very near to enterprises, very near to people.”* (UA, Researcher 1).

The interviewees thought that having two schools located outside of Aveiro facilitated two-way interaction between businesses instead of traditional knowledge transfer activities: *“if we are closer to the businesses I think --they can serve us more. Not just the big ones, but the SMEs.”* (UA, Researcher 5). They estimated that UA has the strongest linkages with businesses in IT, ceramics, material science, chemistry and mechanical engineering. While UATEC was an important player stimulating university-industry interaction in the past, as discussed in the previous section, many collaborations are based on individual relationships between the companies and researchers: *“We have a very close relationship, a very good one, with the industry, it is mechanical engineering so we have a lot of companies contacting us to help us and to collaborate.”*(UA, Admin 2). The companies get in touch with UA especially if they wish to solve a specific problem related to a product or a service, sometimes also through UATEC, which has made an effort to establish more connections through linking businesses directly with departments:

*“The main link between companies or spin-offs, are the researchers, are the people that are really in the field, because the companies they don't want to talk to administrative staff. They want to talk to the ones that know, that can solve their problems. Also, the researcher, they don't want to mess with all the bureaucratic things, that's not their job. They want to deal with companies.”* (UA, Researcher 2).

*“--we had an activity that is called UATEC departments. So, each month we opened a different department for companies. This was very interesting, because we saw that they were companies that were buying services and products, and they did not know that we have the machines, equipment, labs.”* (UA, Admin 4).

In general, the interviewees thought that UA had a strong regional role resulting from personal commitment and trust, but also because the researchers have developed a stronger capacity to offer tailored solutions to the companies through applied research projects. However, this view was not shared by all interviewed researchers, and for the majority, the regional development aspect of the cooperation remained somewhat unimportant on an individual level: *“I think that we need to think larger than regions; the population of regions is too small to make anything profitable in such a small scale.”* (UA, Researcher 16). Also, the actual impact to local economy of these activities was not considered to be very significant: *“At the regional level, there are some outputs, which can be interesting for them (local business partners). And they can be valued, my research, technology we have developed, but we are not limited to Aveiro region.”* (UA, Researcher 13). These differing views can be partly explained by disciplinary differences, e.g. chemistry lacked potential partners within the Aveiro region, but also the nature of the research may not allow working with external partners until later stages:

*“Our work is very fundamental so we are not --it is based in our in our lab work, in our floor-- and up to now we, because our model is not finished we didn't contact any collaborators outside, maybe we will do it if the model is working.”* (UA, Researcher 9).

Finally, the interviewees had observed that there are many access points to the university, which might cause confusion in the potential partners: depending on the framework of the proposed collaboration – policy, development, external funds – the collaborators might get in touch with UA through the technological platforms, UATEC, the rectory or individual researchers, which makes these external linkages complicated to manage.

### 5.1.3. Strategy

In the past decade, UA has become increasingly engaged with the local and regional government. It has set for itself “a mission is to create, share and apply knowledge, involving the whole community through teaching, research and cooperation with the surrounding environment, in order to make a clear difference for individuals and society.”<sup>17</sup> This is more evident in its consultancy work with surrounding municipalities and in its partnership agreements with CIRA, Comunidade Intermunicipal da Região de Aveiro, which has sought UA’s collaboration in developing two territorial development plans, one for the period of 2007-2013 and another for the period 2014-2020 (Rodrigues & Melo, 2013; Rodrigues & Teles, 2017). Currently, as the regional development plan states, the University of Aveiro plays a role through 1) Contribution to the regional innovation system through its research activities; 2) Promotion of growth, entrepreneurship, business development, business processes and products; 3) Contribution to the development of skills, qualifications and human capital of the region, and 4) Improvement of territorial cohesion through its impact on the cultural, social and economic fabric. (CIRA & UA, 2014.)

The university was also well-positioned to contribute to the RIS3 policy process and to engage more extensively with its implementation to maximise the outcomes. UA was involved in the regional and sub-regional policy formulation stages. In the RIS3 process, it was present as a stakeholder at the table to assess opportunities in the territory and guide the discourse. Namely, UA participated in several thematic and working groups that advanced the discussion on the priority sectors and transversal areas of RIS3, specifically leading the working group and RIS3 platform on Sustainable Industrial Solutions. The interviewees from CCDRC considered UA to have been one of the most active and participating stakeholders, having designated representatives to be involved in all working tables, which has to do with the emergence of the SS concept: “*The only reason for universities, including Aveiro, to have a voice in the process, was the fact that now we have the smart specialisation strategy.*” (UA, Management 1).

---

<sup>17</sup> <https://www.ua.pt/en/about-us>, 7th of Jan 2019.



It appears evident that in the early stages of the process UA played a relevant role by not only seeking to participate in the dialogue between stakeholders that was being spurred by the CCDRC for the RIS3 process, but also in creating and promoting this interchange and connectivity in its immediate surroundings; its cooperation with CIRA and the creation of organisational structures to support knowledge transfer and network collaboration. (Fonseca & Salomaa, 2019.) However, as one of the interviewees confessed, setting regional priorities, not even in collaborative cross-sectoral processes, is not straightforward. Identifying distinctive strengths of the university that are aligned with regional key areas remains complicated. The setting of too general priorities can question the whole relevance of the smart specialisation approach:

*“--what’s the real difference between North and Centro? Well, it’s the... we have the mining industry, probably there- no, they have the mining as well. We have the sea; they have the sea. ICT, everyone has ICT. Even the poorest part of the country has ICT as an area... territorial innovation is relevant for all. Sustainability and industry are (important) for all of them.”* (UA, Management 1).

In the case of UA, the participation to strategy formulation was typically initiated by the regional authorities: *“For instance, there was a kind of a project, which was asked by the Aveiro region, CIRA, so they asked the university to provide them a strategy for the health care sector and specifically for the hospital of Aveiro.”* (UA, Researcher 6). The interviewees highlighted, that their specific knowledge on the operational context is valuable for the regional authorities, in particular in terms of re-defining the paradigm of innovation. They also believed that having the decision-making authorities closer than in the past can ease strategic collaboration:

*“--we develop here different knowledge in the innovation programme in peripheral regions. -- of course there was technology and knowledge transfer for the regional economy and so on, but I think that the most important fact was showing that innovation is not only about nuts and bolts, it’s also about intangible things like institutional capacity and so on.”* (UA, Researcher 3).

*“I think everybody sees the university as a strategic partner, because the knowledge is here. I think partners are aware that the university can bring something important to the community. Not also to companies, but for the society itself.”* (UA, Admin 4).

Currently, UA do not have an institutional strategy for the third mission. The university management described, that in the past years UA has tried to profile itself as a civic university, but the definition of the third mission remains scattered in different documents. In particular, the senior academic staff members thought that the regional priorities are not well

communicated within the institution, but instead, there is “a soft message, that of the regional collaboration” (UA, Researcher 11) that pushes researchers to consider their operational context in collaborative projects. Curiously, the matrix structure and lack of professional middle management was estimated to be one of the factors actually hindering effective engagement:

*“I don't think the strategy to the region is well communicated from director, or directory team, to the whole department. I think - that we evolve very slowly. --It's totally wrong, from my point of view, it's totally wrong. We have to have a better alignment to bring the outputs and what you demand from people and also the strategy. Look at how the whole structure of university is run. It's run by professors. --They are not so used to manage big institutions.”* (UA, Researcher 2).

Despite UA's involvement in the regional strategy processes, the UA's approach to building collaboration through SF funds was not described to be very strategic: “*The orders are that the university should go for anything we can*” (UA, Admin 1). Many of the interviewed researchers confessed, that they had not thought about how their research would be beneficial for the region before the Fundação para a Ciência e a Tecnologia (FCT), Portuguese national funding agency for science, research and technology, started to collaborate with ERDF funds very recently. The academics agreed, that in practice, the university's regional mission is then articulated and steered through these policy incentives:

*“I think it's very much communicated through calls -- you always have to justify how we think this is relevant for a region, for society in general. But I'm sure that higher up in the university levels, there's a lot of interaction on how to develop these policies. At my level, we are not involved in how to define the policy. So, we are basically at the end, and we get an offer in which we can subscribe to put our knowledge to work for the region.”* (UA, Researcher 7).

In some disciplinary areas, it was easier to make the alignment between the research agendas and regional priorities, such as health, environment and planning, whereas the more fundamental research, e.g. chemistry and physics, struggled to fulfil the criteria of the regional ERDF calls. In addition, only few of the interviewees were aware that the University of Aveiro actually played a role in setting the regional priority areas.

#### 5.1.4. Leadership

Despite UA's strong regional ethos, many of the interviewees estimated that the engagement activities are not harmonised within the organisation. While the top management is heavily involved with the regional policy processes, and thus provides leadership also outside of the academia, the set regional priorities are not communicated sufficiently to the lower levels of the organisation. This was, rather surprisingly, again partly explained by the matrix structure of the organisation:

*"I am not saying a mess--well, on one side, the complexity of our organisational governance system, so having one structure for vice-rectors, pro-rectors and technical staff--It's also a consequence of having the university too much dependent on this decision, political, decision level. So, on the rectorate team with a lack of top-level management staff, I'd say. And it's also a consequence of having this university matrix organisation with no faculties, so we have the rectory and the central administration and then departments." (UA, Management 1).*

Hitherto, the engagement activities were mostly contained within the top level of the organisation and a small number of involved departments. In particular, the more strategic, large-scale projects involving bigger companies, were indeed spearheaded by the rectorate. This is aligned with the original rationale behind the creation of supporting vice-rector positions at UA in the early 2000s: "--the need to reinforce supportive structures directly or indirectly linked to the Rectorship which, without forcing or hindering initiatives from individual departments, will perform harmonizing, entrepreneurial and proactive functions as well as carrying out some initiatives of their own."(Rodriguez *et al.*, 2001). These large-scale projects were well known within the organisation:

*"So, we have these projects with Bosch. It is twenty-seven million euros project, the same with the Navigator. And there are some other that are being planned and these were initiatives from the vice rector that is in charge of these interactions with the industrial sector around the university. So, it is regional planning I would say." (UA, Researcher 9).*

Although the engagement activities initiated by the rectory team and their support provided for regional development also through central administration was appreciated, some of the interviewed academics, typically the more senior ones, stated that the way in which the larger scale projects were established and managed, appears too exclusive:

*"No, I think that (the regional engagement) it is very concentrated on the rectory team, and probably in --political department --If you do not bring in the people from other fields, people will lose most of the discussion." (UA, Researcher 2).*

*“Now the rectorship works much more in projects and is--involved in projects on individual level. One of the things they do usually, is that they call researchers, which they know might bring something to the proposal --it’s a good thing on the other hand, but this is not transparent.”* (UA, Researcher 6).

Some of the academics with a long working history at UA confessed, that the individual interests of the rectory team towards engagement activities have an impact on stimulating the importance of the third mission throughout the organisation: *“It depends obviously on the directions of the rectory, sometimes the efforts are stronger, sometimes we feel that we are not so well supported as we want.”*(UA, Researcher 8). Despite all the UA’s efforts to reinforce engagement, including the establishment of dedicated leadership positions and a number of support structures, the interviewees estimated that, overall, the academics’ approach to these collaborative actions remained reactive instead of strategic, a possibility to obtain external funding for research activities being the main stimulus to initiate cooperation:

*“--sometimes is kind of confusing if you tend to understand research, at least fundamental research, from a very romantic perspective, but researchers and research units should decide what to do and what is relevant for the future of science. But nowadays we are mostly looking at where the money is, so, that’s the dark side (of the regional engagement).”* (UA, Management 1).

*“I think you have a big chance of being opportunistically running from left to right.”*  
(UA, Researcher 7).

### 5.1.5. Culture

Overall, the strong regional ethos of the University of Aveiro was repeatedly emphasised in the research interviews *“--it is not only a concept or idea, its action.”* (UA, Admin 2), although many of the interviewed academics could not describe what kind of impact this had on their day-to-day work. Instead, the culture of engagement appeared disunited: while the top management was highly involved with regional stakeholders and becoming more and more focused on planning long-term strategic collaboration, the personnel working at the lower levels of the organisation felt less connected. Yet the strong regional engagement was repeatedly emphasised as the main defining characteristic of the university, as a distinctive feature compared to the other universities located in the region:

*“--it's not a classical university, unlike Coimbra and Porto. So in terms of attracting students and so forth, it's not always --is it has to be extremely competitive and it's a university with a strong focus on*

*research and with the regional aspect, especially when you talk about big industries and so forth.”* (UA, Researcher 7).

*“This university was created thinking as well, in that kind of contribution, as a pillar of university, to try to search for something that is different from the other universities, because Porto is quite close.”* (UA, Researcher 8).

Some individual academics with a strong focus on business collaboration even thought that they are left alone with the companies and forced to work as ‘entrepreneurs’: “-- you have to fund yourself and that’s it.” (UA, Researcher 13). The academics also criticised the way in which the university had organised collaboration with businesses; Instead of strategic initiatives, the approach was described to be opportunistic, and as discussed in the previous section, the true stimulus to engage with external partners was the funding:

*“--we have a call, let’s design a project, let’s grab the money-- But in terms of strategy, it misses that. The relationship... long-term with the university. I think that’s missing. --we have some kind of projects that are more strategic. Just a few of them, that are important. And the other ones, the small projects, they are opportunistic.”* (UA, Researcher 2).

This ‘survival’ through external, namely ERDF funds, was echoed in the interviews: “*I think the university has been quite good since forever in seizing these funds, the construction of the site, all the buildings we have-- And for research, it is very important. They are really fundamental, without it many things would stop. Because there is no budget for research.*” (UA, Admin 1). Some of the interviewees brought up, also at the management level, that whereas the academics do not necessarily have the needed skills to work with external partners or to reflect how their research would actually be beneficial for the region, another issue hindering cooperation was the lower absorptive capacity of local partners:

*“It is impossible that the UA has the biggest responsibility to develop the region if the people in the municipalities and the other agents, are not in the same level.”* (UA, Admin 3).

*“I started by asking our colleagues- clever guys, from different areas ‘what do you think are your main assets as researchers and what will be the future for the next 5 years --what would be your contribution to the region?’ --And it was so poor, it was my first reveal, shock! --So even on this university level, top-level researchers --We expected them to know what the strategy would be their assets. They were able to say, “I am very good at doing this”. --But when they were asked how relevant this would be for knowledge or tech transfer, societal impact, in fact, only 1 per 100 would give me an answer.”* (UA, Management 1).

While UA’s matrix structure could have allowed for a broader informed interest, integration and coordination in regards to the regional policy’s progress and its implementation, a lack of strategic planning and effective management resulted in many academics not considering S3

relevant or not knowing exactly what it entails in practice. However, the simple act of thinking about potential regional impact of research activities, namely through the SF bidding processes, was considered a good exercise to increase academics' awareness of societal needs, and a way to establish a closer connection with the community. (Fonseca & Salomaa, 2019.) This steering impact of regional funding instruments was repeatedly brought up, which was positive in the sense that SF programmes can help to find new ways to push academics to work more closely with their regions: *“the most effective way of putting universities to work according to the direction of SS is through funding. It's the only way, I think –”* (UA, Researcher 3). As some of the less experienced researchers confessed, the engagement aspect has been largely irrelevant for their work, and they only started to think about it when granted funding from the SF schemes. Thus, external actors can have a significant impact on the individuals' attitude and norms towards engagement within universities:

*“--it doesn't matter where it comes from. But when we got (funding) from this source, now I feel obligation to give something back, you know, for the region.”* (UA, Researcher 17).

*“--these proposals --I mean I think the regional interest is there and may in some cases oblige people to rethink what they want to work on.”* (UA Researcher 7).

Even though all the interviewees largely agreed, that the University of Aveiro is an important actor for its region, and that the engagement mission has become amplified through policies and institutional efforts, it remains complicated to find ways to combine these different university missions together in day-to-day work:

*“--we need to have societal concern, but I would not like to forget that the mission of the UA in my view is also teaching and fundamental research. So we don't have to be totally focused on developing companies, developing science, this is not in my view the main...this does not mean that it should not be present, and of course the funding requires that you have applied science, so you need to do it. But balance between fundamental and applied, the direct impact of the university to the regional development is not so straightforward for me.”* (UA, Researcher 10).

As many of the more senior academics observed, successful engagement is both an institutional and a cultural issue – as long as engagement activities are not valued within the organisation, even when funded through external sources, the academics have less motivation to continue to work with partners: *“I brought about 3 million of funding from projects in which I was PI. --I brought my salary and did my job. If I was in a company, no one would allow me to leave--.”* (UA, Researcher 13). In the worst case, the academics with a stronger focus to work with external partners can also become less committed to work at the university.

## 5.2. Structural Funds projects and UA: an overview

In the current programme period 2014-2020, Portugal has altogether ten national and regional Structural Funds Operational programmes, including continental and overseas ones.<sup>18</sup> In the Centro region, the RIS3 was implemented within the overarching CENTRO 2020 strategy, and its funding instrument, the Regional Operational Programme Centro (CCDRC, 2014a) with ca. 2.6 billion EUR of EU funding: 1.7 billion EUR for European Regional Development Funds (ERDF) and 444 million EUR for European Social Funds (ESF).<sup>19</sup> Within the ROP Centro, ten priority axes<sup>20</sup> were defined to allocate investment. According to the available data set of CENTRO 2020's funded projects (CENTRO 2020, 2019), from 2014 until March 2019, an open call processes yielded the approval of 5166 projects with a total funding of ca. 1.3 billion EUR. The majority of the funding was granted to the private sector other regional bodies, such as scientific and knowledge institutes and sub-regional and local government authorities. Intermunicipal communities, in particular, having been allowed since 2008 the partial management of regional funds provided their elaboration of a territorial development plan, emerged in this 2014-2020 period as major actors in RIS3 project management and fund implementation, granting local government nearly 20% of the allocated funding. Considering knowledge institutions and universities as central actors in the RIS3 design process and overall regional innovation policy process (Foray *et al.*, 2009), it is curious to observe that in the Centro region, these bodies were only the main beneficiaries in 3% of the projects and 4% of the total allocated funding.

At the time of the case study, UA was the main beneficiary in 47 projects granted from the ROP Centro schemes, mainly within the priority axes of IDEIAS, COMPETIR, and

---

<sup>18</sup> Competitiveness and Internationalisation OP, OP Technical Assistance, OP Sustainability and Resource Use Efficiency OP, OP Alentejo, OP Algarve, OP Centro, OP Lisboa, OP Norte, OP Azores and OP Madeira.

<sup>19</sup> [https://ec.europa.eu/regional\\_policy/en/atlas/programmes?countryCode=PT](https://ec.europa.eu/regional_policy/en/atlas/programmes?countryCode=PT), 7<sup>th</sup> of Jan 2020.

<sup>20</sup> Research, development and innovation (IDEIAS); Competitiveness and internationalisation of the regional economy (COMPETIR); Develop human potential (APRENDER); Promote and stimulate employability (EMPREGAR and CONVERGIR); Strengthen social and territorial cohesion (APROXIMAR and CONVERGIR); Affirm the sustainability of resources (SUSTENTAR); Affirm the sustainability of territories (CONSERVAR); Reinforce institutional capacity of regional entities (CAPACITAR); Reinforce the urban network (CIDADES); Technical assistance.

APRENDER, the three most related with research, education and competitiveness, emphasising their role in stimulating regional knowledge-based innovation. These projects generated altogether 13.5 M EUR of external funds to UA.<sup>21</sup> Nevertheless, through their partnership with local municipalities and CIRA, UA became involved in cultural and natural heritage and digitalisation projects relating to the axes CONSERVAR and CAPACITAR, which on their own granted funding of over 4 million EUR. In this sense, the degree of UA's regional engagement through the implementation of the RIS3 Centro appears more diversified and strategic. (Fonseca & Salomaa, 2019.) Altogether, twenty-six research interviews were conducted with UA's academic and other staff members dealing with ERDF funding grants from the CENTRO ROP, top management of UA and CCDRC representatives. The research interviews covered 21 projects funded from the scheme, ten of them being small-scale grants for intellectual property projects, mainly covering patent costs for promising research outcomes. These IP projects were centrally applied and managed by UATEC. The other ERDF projects granted from Centro ROP run by UA vary from large-scale initiatives to small and medium size projects that have a stronger regional focus. Two of these projects strive to reinforce internationalisation by encouraging researchers to bid grants from Horizon 2020, whereas the others have either stronger links with external stakeholders, such as local businesses and municipalities, or are fundamental research projects in collaboration with other universities located in the region.

### 5.2.1. Collaboration

In general, the SF instruments were regarded as an important tool for initiating more research, development and innovation activities in the regional priority areas: *“So they are a clear incentive for our researchers, research units, to focus on certain topics --they are one of the major R&D funding instruments for universities.”*(UA, Management 1). As described in the previous sections, the University of Aveiro works closely with regional authorities and other

---

<sup>21</sup> CENTRO 2020, Projetos Aprovados website: <http://centro.portugal2020.pt/index.php/projetos-aprovados>, 11<sup>th</sup> April 2019.



local stakeholders. Many of the interviewees believed, that this strong established relationship with regional authorities have had an impact on the amount of granted project funding:

*“--as we were as universities getting involved with the managing authority, we knew that there would be money coming for this capacity reinforcement of universities in specific research topics-- We were involved in a kind of one-to-one and collective discussions with the managing authority on how much the budget would be for the three universities (in the region).”* (UA, Management 1).

*“--it’s important to know the people and the projects, because in these kinds of things personal are the key of all, the projects and the success of applying the funds.”* (UA, Admin 3).

However, the funded SF projects were not seen very aligned with with RIS3 objectives in practise, and the strategy did not have a major role in the projects’ design process. Only the larger scale, institutional initiatives had somewhat strategic approach to regional development whereas the smaller ERDF funded projects within the Centro ROP were designed more opportunistically by individual reserachers: *“--there’s always, always a box that we need to fill in trying to mention and justify why this research had... is aligned with the RIS3. --I really don’t believe that it had an impact.”* (UA, Researcher 2). Even if the regional priorities were known, many of the researchers were struggling to link the priority areas with their research interests: *“We have a deadline, this week, one of the members asked me how can I align, what topic can I put here. They have a wonderful scientific publication, but sometimes it’s complicated to outreach the community and to promote our research.”* (UA, Admin 2).

However, thinking of potential regional impact of research activities was seen as a good way to increase awareness and to establish a closer connection with the community, which is not always easily achieved, though it was described as the very core of the project activity:

*“Because SF are very much based on the notion of regional development, and so when you have a type of funds that has such main objective, regional development, at least to diminish differences between these regions, and there are universities accessing these funds, it’s a kind of immediate conclusion we can take that these funds when accessed by universities are contributing for a closer connection between university and regional development, it’s dynamics.”* (UA, Researcher 3).

Also, the communication with managing authorities was straightforward, in particular in the CCDRC-FCT joint-calls: *“--the difficulty is that, I believe that these regional entities, that are now leading these projects, from not scientific way, they are still learning, the communication is not yet optimised.”* (UA, Researcher 10). Despite these challenges, the interviewees believed that SF funding opportunies can make *“universities more keen to cooperate with regions and regional agents”* (UA, Researcher 3). Depending mostly on the disciplinary issues, some of

the academics could not find suitable partners for SF activities from the Aveiro region, or sometimes even nationally. Whereas the academics working with the health and social care institutions had a long tradition of working together, for ex., the physics department had troubles in establishing regional collaboration: *“I looked for a business partner. I didn't find any.”* (UA, Researcher 17). One of the researchers from the chemistry department, estimated that the new Science Park may help to overcome this issue by attracting new companies to the area:

*“Not in my area-- we did have a national industrial--But then a few years ago the company collapsed to lack of funding basically. There is no, there is no other really possibility yet of an industrial partnership (in Portugal). Having said that, this company is now being bought by, all the intellectual property, been bought by an American company. And so, they have effectively reformed under a new name and they will be actually coming to Aveiro. They are to change their base from Lisbon to Aveiro, to Science Park. There may be a chance I think in the future we will cooperate.”* (UA, Researcher 12).

The academics with a long working history at UA had seen the interactions with local businesses grown over the years. This was estimated to be a result of both institutional incentives and external funding, but also personal motivation of individual academics, who had built strong, personal linkages with businesses over the years, helping them to access ERDF funding:

*“--this university, I think it should have a very strong technological involvement, trying to serve the companies around Aveiro because Aveiro is very powerful in terms of industries. We have to respond to some of the ambitions and trying to straight forward contacts with industries and so. It's my main vision and that's what moves me, even now there's in terms of research and efforts. --what happens now is that the number of SMEs interested in applying for projects increased enormously. So, they learned how easy is to be involved and to run a project, if they trust that the other partners can do a good job.”* (UA, Researcher 8).

The researchers also estimated, that there are other suitable funding instruments for industry collaboration too, but the regional ones are useful when there are local business partners: *“The point is that when the university and the company are from the same region, we try to go to regional funds.”* (UA, Researcher 16). The interviewees thought that there was not much coordination between different regions, which can create disadvantages: *“A similar (ERDF) call was launched and approved a more than a year before in the North region. And because of that, obviously it improved their competitiveness, but reduced ours, because they were able to attract some of our best human resources.”* (UA, Researcher 16).

### 5.2.2. SF Administrative procedures

According to interviewees, the SF Operational Programmes were considered to be somewhat bureaucratic. In Portugal, they are managed by many different authorities, which can cause confusion and extra work: *“the rules and the regulations are those of the regions --You might feel a little bit lost in the middle of that because the logic is different.”* (UA, Researcher 16). Overall, the academics did not have to deal with heavy administrative processes - except when directly linked to the implementation of the project, such as recruitment of scientific staff. Also, the administrative support provided by the UA through centralised administration and departments was much appreciated. In particular, the bigger research groups and institutes, such as CICECO – Aveiro Institute of Materials established in 2002, which according to the UA website is the biggest research institute in the field of materials science and engineering in Portugal<sup>22</sup>, are well equipped to handle both the bidding processes and project management on the departmental level: *“I’m a lucky guy because I belong to CICECO and CICECO is an associated lab that has our own support structures.”* (UA, Researcher 8).

Despite this support, the less experienced scientific staff members found the administrative processes related to regional funding to be more complicated. Some of them confessed spending almost half of their working time on project management:

*“In the rectory, we have the central help, it makes a bridge between the researchers and the local entities.”* (UA, Researcher 10)

*“They are very different, the programmes that are implemented by different agencies. So, they have different levels of organisation. Different levels of bureaucracy. Some are more organised, more rational, some others not so much.”* (UA, Admin 1).

One of the most repeated obstacles, for the academics’ perspective, was the difficulty to recruit both administrative and academic staff to work on the SF projects, which causes extra administrative burden and leaves less time to work on the actual implementation of the project:

*“We had tremendous difficulties to hire all the human resources that we needed for developing the project. At this moment, two years have passed, and we still have a postdoc to hire, a research grant of MA, someone who were supposed to give help with basic administration and some basic operations*

---

<sup>22</sup> <http://www.ciceco.ua.pt/index.php?menu=197&language=eng&tabela=geral>, 7th Jan 2019.

*of the project, that we have already hired three times. They come, they stay for a few months and they leave because they find more attractive alternatives.” (UA, Researcher 16).*

The University of Aveiro interviewees had not faced any challenges considering the match-funding. Overall, the funding rate for the Centro region was relatively high, typically 85% in the FCT joint-calls, and in some cases, the state contributed the remaining 15% of funding. Otherwise, the match was covered with in-kind financing, typically human resources, which appeared to be difficult to plan: *“I’m involved in so many projects nowadays that I don’t have more time (to allocate to projects).” (UA, Researcher 8).* On the contrary, the match-funding was considered to be too much of a burden for smaller SMEs:

*“It’s not fair for the small guys, the small companies which are start-ups, spin-offs, who would like to participate but cannot contribute the percentage. --But in fact, is the small enterprise, or ever the micro enterprise that really need help, and stimulating interaction with Structural funds—” (UA, Researcher 13).*

In the past decades, it has become easier for universities to access the regional funds. Some of the academics had even solely focused on SF instruments, because they wanted to work with companies. Also, the higher success rates made the regional funds more appealing: *“I got several projects for FCT until 2010, and then it becomes very difficult. If I have another alternative, why should I spend my time with the FCT?” (UA, Researcher 10).* However, one of the former SF funding schemes, which was seen a highly relevant for stimulating university-industry collaboration, was cancelled for this programme period: *“--some programs were created to support R&D in consortium with companies. There were some very good opportunities for this collaboration.” (UA, Admin 1).* Thus, the amount of relevant programmes targeted for universities is on the decline, but as discussed earlier, in the current programme period, the CCDRC has worked together with the national science foundation, FCT, to open joint calls. This appeared to be somewhat confusing:

*“Now we introduced one new thing: the regional impact. And you can imagine how... because it’s no longer funded just by the national budget, but also the SF funds. So, mathematicians, philosophers, chemists, political scientists, law guys, all had to apply and explain how their project would comply with or contribute to regional and national S3. No one knew what that was about, except some of us involved in the process. --But it’s the fact that no one really knows what smart specialisation is and how relevant it is for the SF or how relevant it is for even day-to-day life at universities.” (UA, Management 1).*

Even though this particular scheme supports fundamental research – being more appealing for the academics – the bidding process was considered to be more complicated. When the call

was launched, the academics received support from their respective departments or even the rector team in aligning their research with regional priorities – although many of the projects were planned beforehand, without any specific regional focus:

*“I think it was, CICECO project support office. --we had a meeting when the call was announced where they tried to explain all these factors --They did tell us that, if we couldn't align with the regional ones, we should still with the national ones, because projects could still be funded.” (UA, Researcher 12).*

*“I would say that it was a bit schizophrenic in a way that this was, we have two institutions FCT, which is a science foundation and also then we have the CCDRC, the one that coordinates the funding. We need to have an application for both...having these very specific conditions for regional funding things, and very academic for the science foundation, very controversial to have everything done. I must tell you, in the middle of the process I felt I just want to give up.” (UA, Researcher 11).*

The staff members with more experience of working with SF funded projects thought that the instruments are ‘very strict’, ‘inflexible’ and required a lot of effort considering the amount of available funding: *“--the budgets are smaller. And it is very bureaucratic. --I have that project that is funded by SF, oh the bureaucracy -- the reports you have to do, all the assessments, it is completely a mess.” (UA, Researcher 2).* The researchers hoped for a more strategic, long-term programmes with a bigger investments, especially as the bidding processes being very time-consuming, to truly generate collaborative, strategic projects taking the regional aspects better into account: *“For a lot longer time periods, in which there is a commitment of developing something together for the region and not competing between universities and between groups and so on.” (UA, Researcher 7).*

### 5.2.3. University organisational culture

The majority of the interviewees did not recognise how external projects are designed or managed on an institutional level. The SF activities were largely divided into two categories: *“--one is for the research, and the applications depend on the researchers, if they want to go, they go, no one forces them. And then there are insitutional ones, like these ones that is to support activities of the institutions.” (UA, Admin 1).* The latter ones include knowledge transfer activities, such as providing training to improve entrepreneurial skills through workshops and events, funding proofs of concepts and patent applications, but also the larger scale projects mobilising wider internal research collaboration, such as technological platforms

and strategic SF projects designed on the rectory level. As one senior administrative staff member (UA, Admin 3) confirmed, there indeed are two types of SF projects; ‘political’ and ‘operational’ ones.

UATEC is formally responsible for all UA’s project applications, but the ones that stimulate engagement with local authorities or other relevant actors and / or very large-scale research collaboration, are processed directly on the rectory level. Otherwise, the academics had a lot of freedom to establish links with businesses:

*There’s a real difference between typical university-business projects... They don’t need us, fortunately. But there are the university-public agents- and eventually businesses, that need to go through us. Because of that other... facilitative role that we can perform there. And of course, some of the projects come through us --like the big research projects. --And of course, they did not start at the researcher or research unit’s level, they started on the institutional level. (UA, Management 1).*

Sometimes the ERDF calls within the Centro ROP have a limitations for the amount of applications per applicant, which can create internal competition, but also lead to more collaboration between schools: “--if it wasn’t for this funding opportunity, we would not be working together as intensively as we are now doing.” (UA, Researcher 11). On the other hand, it can also force universities to manage project portfolios more strategically in the future on the top level: “Because in some calls there is a limit to the applications. So, the rectory is the one that decides if it should my project, your project...” (UA, Admin 4).

Although SF were seen a relevant funding instrument for universities, there has been a shift from capital projects to R&D projects, and the bidding for ERDF funding has become a more question of a survival rather than reinforcing institutional engagement with regional development activities. This has made the latter somewhat unimportant, on both institutional and individual level:

*“We have to have the money from the external (sources) to manage our structure, SF are essential for survival--.” (UA, Admin 3).*

*“Now my contract is finishing, then I will hire myself as postdoc. Because university don’t have money to hire researchers, so then I have to hire myself --- despite the productivity or (SF) project funding, you will never get a permanent position.” (UA, Researcher 13).*

Instead of regional funds, the academics had experienced pressures to ‘take the next step’ and apply for H2020 funding, in some cases, for more large-scale monetary incentives:

*“National funds, like the national science funds, is peanuts and it’s very difficult to get a project there.”*  
(UA, Researcher 6).

*“If you are in the lab doing the experimental work, it is not important if it comes from a private or public foundation. The thing is that usually the money that comes from Europe, the budget is much bigger.”* (UA, Researcher 9).

Surprisingly, this steering towards international research funds originated from the department-level and not from the top management: *“we have been convinced that it is important. --by our own research lab.”* (UA, Researcher 9). In contrast, the top management has made an effort to manage the SF funding in a more strategic manner: *“--one of our major next steps would be to be more actively engaged in the reviewing process of the structural funds at the regional level, because we already entered that stage.”* (UA, Management 1). Some of the large-scale, top-down SF project were also coordinated on a higher level of the organisation, and altogether, there was a high level of support available for SF funding instruments:

*“(The rector) have done work with the coordination, so we do not need to worry about that--”*  
(UA, Researcher 14).

*“So, the rectorate has a specific organisation, specific office to build these types of issues --So I think that this is one of the major encouraging elements that rectorate gives, telling us that you need to raise the money.”* (UA, Researcher 3).

ERDF funding granted through Centro ROP were considered to be one of the most accessible instruments to fund research activities. One of the interviewees had estimated, that *“the funding is very appealing, because the competition is lower”* (UA, Researcher 10). On the other hand, supporting fundamental research through SF to compensate for the lack of national funding for science was considered to be complicated in terms of regional development:

*“--we don’t have much national budgets to fund science. Well actually science is pretty much funded, which is a problem, pretty much funded through ERDF. -- It’s very difficult to defend that in within the European Social and Structural Investment funds. You should only fund the research that is that you can value socially, economically, and not so much the TRLs (Technology Readiness Levels.”*  
(CCDRC, 1)

It was also seen as a valuable tool to interact with local SMEs, but there remains a number of challenges from lack of skills to collaborate with businesses to the fact that the university does not truly see collaboration as valuable as the researchers would hope. In fact, many academics brought up that engagement activities are not truly part of UA’s internal performance evaluation, though technically it could be evaluated through the main categories: Teaching, research, technology transfer and management activities.

*“It is so strange, that it is better to forget one of those, to ask me. I was evaluated again, obviously, as a teacher, as a researcher and the management. I forgot the technological transfer--Even when I have all these companies, it is so badly counted, to be honest, there is no real motive to do this kind of action. Unless you like it, like me.”* (UA, Researcher 8).

*“...the ultimate mission of knowledge institutions, which is to bring to the productive sector the knowledge generated in the university, I think that this is not valued.”* (UA, Researcher 13).

Therefore, the motivation to engage with local stakeholders and serve their region varied enormously on individual interests. Whereas some wanted to engage with regional development projects to give back to the community, serve local companies and transfer academic results, many researchers did not make any kind of distinction between regional, national or even international project activities: *“It’s hard to say in the sense that the origin of the money does not interest much.--What really counts is the possibility to establish networks.”* (UA, Researcher 16). Some of the interviewees also brought up the fact that all academics are not equipped to engage with external stakeholders, especially with the local industries: *“--to change your paradigm as a scientist, to think about the productive sector, it is a huge challenge.”* (UA, Researcher 13). It is also a question of not having a common language *“To align the languages of a researcher to someone from a company -- sometimes I think it is not the lack of communication but the type of communication.”* (UA, Admin 2). Overall, the unimportance of regional engagement activities was also explained by lack of strategic management, cultural issues and its poor position in universities’ evaluation framework: *“...you don’t get proficient amount of recognition or more support from the university to stimulate this kind of thing...it’s a cultural problem.”* (UA, Researcher 13).

#### 5.2.4. SF Projects outputs

The most often repeated regional benefits of the SF projects were promoting research, providing information for policy processes, developing links with businesses and creating jobs, especially in the regional priority sectors such as raw material industry and healthy ageing. Some of the Centro ROP ERDF projects run by UA had managed to initiate multidisciplinary collaboration within the university around these themes with external partners, such as SmartWalk, a project initiated by students, which aimed to create a monitoring system of wellbeing and physical activity for senior citizens together with health care organisations.



These kinds of collaborative projects were considered to be beneficial for the region, but their continuation after the project funding depends on local authorities, which do not necessarily have the capacity to pick up where the project ended:

*“--with the former president I was sure that if we could have somehow results, it would have a big impact... with this (new) one if we have results it will have some impact, but I don't know if it will be adopted.”* (UA, Researcher 11).

*“I think the regional authorities don't have any capacity to actually pick up on the knowledge that we are providing. --I think there is a, even if the research (project) is able to come up with interesting solutions, there is the implementation that is still a tricky issue.”* (UA, Researcher 7).

The interviewees had the same kind of experiences also with private partners, typically small-scale companies, who were not equipped to follow the process after project funding ended:

*“I even already told them why don't we sell it to the company that was able to continue with this.--. So, it was a little bit like we do research then at the end that company wasn't always totally prepared for picking up on that and fitting that into their that package of services.”* (UA, Researcher 7).

Overall, the regional benefits of the SF projects led by UA were seen as broad, including also tangible results, such as reinforcing the entrepreneurial support services run by UATEC and the regional incubator network IERA: *“Nowadays, the 11 municipalities have their own incubator, and the services are the same. Even if a student of the university doesn't want to stay at our incubator because his project is more related to sea, he can go to Ílhavo municipality incubator that is focused on sea projects.”* (UA, Admin 4).

Many of the SF funded projects had produced patents and UATEC run a number of SF projects that were only targeted to IP and valorisation to support individual researchers: *“The technology transfer office UATEC applied for this funding. So, this project only to help and to pay for the patent. So, it was very punctual. They just asked us to fill in the form with a short CV and they dealt with everything else.”* (UA, Researcher 15). However, the actual commercial outputs are rare for a multitude of reason, such as different timescales of universities and companies or a low demand: *“So going to the market is not just a matter of will, is a matter of whether the market is big enough.”* (UA, Researcher 11). The academics also criticised the way in which the SF instruments are formulated: they were not seen as agile enough to produce outputs with a real market value and for the most part, the knowledge transfer mechanisms supported by the SF schemes were regarded as restricted. Also, the questions of ownership can become overly complicated:

*“I don’t know how you can really stimulate innovation and business development, and the creation of start-ups and spin-offs with these funding schemes--everything is beautiful when you talk about innovation and knowledge transfer, but in the end what do you really have in your hand to make this real? -- but there’s a lot base research, which has to be also transferred--...And this process is not efficient at all.”* (UA, Researcher 13).

*“It is important to share the ownership of these patents, so in many cases these are their decisions. But in new products, the investment and huge and it takes typically a long period to accept and implement it—”* (UA, Researcher 16)

The commercialisation was also hindered by sectoral differences: *“It’s very difficult to put in the market because we are trying to solve problems in social care, and here in Portugal we have a problem because this kind of institutions they don’t have money to buy solutions.”* (UA, Researcher 1). The managing authority CCDRC was familiar with these issues, but their emphasis was also on the supporting fundamental research as such, with a potential to have practical implications in a later stage:

*“What we tried to ask the researchers is, okay, even if you are in fundamental research, it's important for us. For instance, here it's a lot of (focus on) health. You have lots of important research, fundamental research in physics, in chemistry, in biology, whatever, that can be really very relevant for health. --it's fundamental research, but it's very important for us to develop societal responses to health problems, to environment, to whatever.”* (CCRDC, 1)

Also, some senior level staff members thought that the SF funded projects should be considered as seed money for creating a long-term impact instead of expecting immediate results. Although the academic outputs were considered to be achievable, mostly publications in the joint ERDF schemes supported CCDRC and FCT, some of the expectations can be unrealistic, notably in terms of the societal contribution. The academics did appreciate, though, that in the FCT related calls they did not have use typical SF indicators, such as the number of new companies, but only academic outputs were measured. As one of the senior academics stated, *“You cannot compromise yourself with a lot of commercial outputs.”* (UA, Researcher 16).

It was very common to link PhD students already working at UA to the SF projects, with the exception that *“you cannot have a PhD student starting on the project because it takes one year before the PhD gets a grant.”* (UA, Researcher 7). Otherwise, the academics thought that it was also beneficial to award ERDF grants to MA students for working in the projects. That would potentially reinforce their research groups in the future, in case the students would *“stay and eventually study for the PhD”* (UA, Researcher 12).

To conclude, the SF funded projects had led to a reinforced internal collaboration within the university: *“I’d have an interdisciplinary research centre or research line, we don’t need a centre, we have enough of those, we need a group, if you want. A consolidated one with multidisciplinary knowledge, interdisciplinary knowledge”* (UA, Management 1). This is also what the researchers hoped for: a more strategic, long-term collaboration through SF schemes, in which the outputs would have a bigger impact, if *“the organization actually have a clear idea what they want to do with the knowledge.”* (UA, Researcher 7).

### 5.3. Summary

The University of Aveiro’s strong commitment to regional engagement was evident in the high number of interface structures to support entrepreneurship and involvement in regional policy networks. The latter was considered to be further reinforced by the smart specialisation approach (e.g. the RIS3 strategy design process). Overall the representation of the UA in the local networks was maintained within the higher level of the university. As in the case of UoL, the engagement structures were partly established in collaboration with external partners. The findings from the case study suggest, that the UA’s many efforts to respond to the local needs through multiple access-points can make the university engagement complicated to manage and confusing for external partners. Thus the university engagement can be more funding-driven (e.g. external funding for TTOs), opportunistic than strategic behaviour.

The level of the engagement varied in different disciplinary areas, e.g. health, environment and planning being more aligned with the regional priority sectors than STEM (e.g. chemistry and physics), which emphasises the importance of the regional environment to the university third mission. However, the culture among the academic staff remained focused either on research or teaching. This was partly explained by the university’s internal evaluation mechanism, which perceives engagement and entrepreneurship secondary compared to teaching and research; the absence of an institutional third mission strategy; and a lack of communication and professional middle management to strive and reinforce the third mission.

In the case of AU, the collaboration with regional authorities and other stakeholders increased the university’s engagement with the SF schemes. In particular, UA’s involvement in the policy

formulation of the regional smart specialisation strategies had reinforced these relationships. In practise, many of the interviewed researchers had a strong capacity to collaborate with local companies or partners from the public sector, but the regional development aspect of the cooperation remained rather unimportant, also in the SF funded projects. In addition, the top-down, large-scale SF projects designed by the rectorate were perceived as exclusive, and their regional development aspects could get lost in the day-to-day work – even when the project was aligned with the regional priorities. Yet the case of UA demonstrates that the SF projects can increase internal collaboration within the university, especially when the top management supports research groups to design joint projects for the SF calls.

## 6. University Consortium of Pori: an overview

The Satakunta region, the oldest historical province in Finland located on the southwest coast, currently consists of 17 municipalities. It has a population of 220 398 inhabitants (OFS, 2017) and two major regional centers, the cities of Pori and Rauma. The regional economy relies on energy production, engineering, offshore process industry, ports and logistics and food industry.<sup>23</sup> The location by the coastline makes Satakunta an important port and an attractive place for both residents and visitors. Natural resources, such as the Kokemäenjoki River, a port that flows through the region into to the Gulf of Bothnia, and large protected wilderness areas are considered to be major strengths of the region. The economy is booming especially in automation and robotics and maritime industry<sup>24</sup>, but the annual expenditure on R&D is still below the national average<sup>25</sup> and there are clear differences in GDP between urban centres and more remote municipalities within the region.<sup>26</sup> The number of start-ups and inhabitants with a higher education degree has been on the rise, and local access to higher education, provided by the University Consortium of Pori and the Satakunta University of Applied Sciences, is indeed one of the strategic factors increasing the region's attractiveness and knowledge capital (Satakunta Regional Programme 2014-2017).

Altogether, there are six university consortia in Finland, network organisations of universities located in more peripheral areas otherwise lacking local access to university. The consortia, established in their current form in early 2000, aim to enhance the societal role of higher education and respond to local needs (FINHEEC, 2013.) Their position was legitimised in 2009, when they were added to the Finnish University Act (Universities Act 558/2009), and later in 2012, when additional regulations on their state funding allocation were approved. Besides being important access points to higher education and sources of skilled workforce, the consortia are expected to play an enhanced role in regional development. They have been

---

<sup>23</sup> Regional Council of Satakunta website, <http://www.satakuntaliitto.fi/english>, accessed 12<sup>th</sup> November 2018.

<sup>24</sup> [http://www.satamittari.fi/sites/satamittari.fi/files/asiakaskuvat/Satamittari/Satakunnan\\_talous/Talous\\_katsausII2018/TIEDOTE%20Satakunnan%20talous%20joulukuu%202018.pdf](http://www.satamittari.fi/sites/satamittari.fi/files/asiakaskuvat/Satamittari/Satakunnan_talous/Talous_katsausII2018/TIEDOTE%20Satakunnan%20talous%20joulukuu%202018.pdf), accessed 17 of April 2019.

<sup>25</sup> [http://www.satamittari.fi/Tutkimus- ja\\_kehitt%C3%A4mist%C3%B6iminta](http://www.satamittari.fi/Tutkimus- ja_kehitt%C3%A4mist%C3%B6iminta), accessed 17<sup>th</sup> of April 2019.

<sup>26</sup> <http://www.satamittari.fi/Taloukasvu>, accessed 17th April 2019.

particularly active in taking part in Structural Funds (SF) projects. (Fonseca *et al.*, forthcoming).

University Consortium of Pori (UC-Pori) is such higher education network located in the Satakunta region. Until December 2018, it was coordinated by the former Tampere University of Technology (TUT),<sup>27</sup> which was the first university to establish a remote unit in the city of Pori. It has provided degree education in engineering in the region since the 1980s. The other partner universities, all working under the same roof in a historic factory building in central Pori, are the former University of Tampere (UTA), University of Turku (UTU) and Aalto University (Aalto)<sup>28</sup>. Today, UC-Pori is an umbrella organisation consisting of 2500 students and of 170 staff members. It provides education and/or research activities mainly in the fields of arts and culture (Aalto, UTU), technology and engineering (TUT), social sciences (UTA) and economics and maritime studies (UTU).<sup>29</sup> UC-Pori's regional role is to offer local access to higher education with an aim to strengthen the regional skills level. The UC-Pori personnel are directly recruited by their parent universities and administratively they belong to their respective faculties located in the main campuses, but the staff members work permanently at the Pori campus. The coordinating unit, currently the new Tampere University (TUNI), nominates a director who is responsible for promoting collaboration between the UC-Pori units, parent universities and regional stakeholders through an earmarked funding, ca. 600 000 EUR per year, from the Finnish Ministry of Education and Culture. (Salomaa & Charles, 2019.)

---

<sup>27</sup> Tampere University of Technology and University of Tampere merged on the 1<sup>st</sup> of January 2019 forming a new Tampere University (TUNI). TUNI is also the biggest shareholder of Tampere University of Applied Sciences. However, these two HEIs, TUT and UTA, were investigated separately in this study because the merger process was not completed at the time of the research interviews.

<sup>28</sup> Since 2020, Aalto University has no longer a presence at the Pori campus.

<sup>29</sup> UC-Pori website, <http://www.ucpori.fi>, accessed 12<sup>th</sup> November 2018.

## 6.1. UC-Pori and regional engagement : Entrepreneurial Architecture

### 6.1.1. Structure

Despite its strong regional focus, UC-Pori partners – unlike its parent universities – do not have any traditional, formal structures for supporting collaboration with local businesses or other stakeholders, such as TTOs or incubators. This is explained by the limited resources and the small size of the Pori campus. Instead, many of the engagement activities, e.g. knowledge transfer and capacity building responding to the regional priority areas, are organised through projects, occasionally in collaboration with the other units located in the Pori campus. The strong capacity of UC-Pori to initiate projects with a regional focus was highly appreciated by the local stakeholders: *“UC-Pori is very good with managing (regional development) projects. As well as SAMK (Satakunta University of Applied Sciences.”* (City of Pori, 1). The funding for these activities originates mostly from the Structural Funds schemes, especially the European Regional Development Fund (ERDF).

In practise, however, the units located in the Pori campus do not have equal possibilities to deliver SF projects. As for an example, originally Aalto’s education activities in the Pori campus were indirectly founded on Structural Funds projects, whereas currently it has only a very specialised, small-scale unit in the Pori campus. Its former degree programmes in the field of arts and culture, originally developed in Pori, were moved to the main campus located in Otaniemi near Helsinki following bigger organisational changes in 2014. One of the interviewees described Aalto’s current Pori unit as a ‘project platform’ (Aalto, Researcher 1) that runs mostly on ERDF funded projects, although the arts and culture are widely absent from the national SF Operational Programme.

UTU has had activities in Pori since 1984, mostly continuing education and small-scale projects, until the mid-90s when they started to offer also degree studies. Currently UTU’s Brahea centre is one of the most active units delivering SF funded activities in the Satakunta region: *“We do not have any research activities in Brahea, but it is a channel for utilising the research base of the university”* (UTU, Admin 4). This implies that the units located in the Pori campus are, as such, a part of the main campuses’ entrepreneurial infrastructure: instead of establishing separate TTOs, incubators or technology parks to the Pori campus, these strongly

regionally focused university units are, in fact, a structure for reinforcing collaboration with local stakeholders.

All of the parent universities of UC-Pori have gone through major organisational changes, such as large-scale mergers, in the past decade, which have also had an effect on the Pori units. Instead of substantial changes in the structures for delivering engagement, the impact is more evident in the management of these remote units. This, for its part, has had an indirect impact on the overall strategic focus and also working culture: “—*we have changed the organisation so that we have less, but bigger units, and the idea is that all the resources are more flexible to manage within these bigger units*”(TUT, Management 2). As an example, the former TUT’s activities in Pori were previously organised into a separate, administrative department, but now the units are scattered into different faculties located in the main campus: “*They put me in to the department of signal processing, though I don’t think I have anything to do with it.*” (TUT, Admin 1).

In the current structure, the deans are responsible for the activities in the Pori campus in all parent universities. This has caused some extra work to the personnel, but interviewees also acknowledged that centralisation is a dominant trend in Finnish higher education policies. However, it has made the mismatch between research and engagement activities even more drastic. For example, the researchers working with SF projects need to constantly explain to the management, located in the main campuses, why this funding instrument is important for the Pori campus. For the large part, the interviewees stated rather bluntly that SF funding remains to be their main structure for delivering engagement activities. As one senior researcher confessed: “*If we want to do regional development, we need ERDF funding*” (TUT, Researcher 4). In addition to the ERDF funding, also the former TEKES<sup>30</sup> and H2020 schemes were seen as valid instruments to deepen collaboration with local actors. The difficulty is that they require larger consortia, and in particular, in the TEKES projects, the businesses need to generously contribute to the match-funding, which was considered to be an obstacle for many local SMEs. (Salomaa & Charles, 2019.)

---

<sup>30</sup> TEKES - Finnish Funding Agency for Technology and Innovation changed its name to Business Finland in 2018.



### 6.1.2. Systems

The Regional Council of Satakunta (RCS) is an important actor in facilitating interaction between UC-Pori and other local stakeholders, such as Satakunta University of Applied Sciences, Prizztech Ltd, a not-profit business development company of the municipalities in the Satakunta region, and Satafood co-operation network, which focuses on supporting the food entrepreneurship. For example, it hosts RDI forums for local organisations leading ERDF projects to facilitate collaboration. RSC is also responsible for designing a Regional plan, setting priority areas together with local stakeholders. In particular, the Turku School of Economics, located in the Pori campus, has provided input in the planning of how to support innovation capacity of local businesses through smart specialisation.

Overall, the researchers at the Pori campus thought that they had good relationships with many regional stakeholders, and also with the authorities managing the SF funds *“If they grant us the funding, they know we’ll make things happen---I think they trust us.”* (TUT, Researcher 4). Both the University Consortium of Pori and the Satakunta University of Applied Sciences are important actors in increasing the skills level and the inflow and rate of R&D activities. Also, having 2500 students in the city helps building a positive image for the region. Thus, the city of Pori, as well as local business, value having local university activities and also support them financially e.g. through professorships, in order to retain graduates:

*“It is difficult to attract graduates from the University of Eastern Finland or University of Tampere to the West coast of Finland. But when they (students) study here, either in Rauma or Pori, which is beneficial for us.”* (City of Pori, 1).

*“—it allows us to provide university education, not only to people living in the Satakunta, but we can also attract students from elsewhere in Finland and then they stay here after graduation.”* (RCS, 1).

In general, the top management of all parent universities thought that they have an important role in producing relevant knowledge for (political) decision-making, also on the regional level. In practice, the UC-Pori’s connections with regional stakeholders, City of Pori and Regional Council of Satakunta as well as businesses, rely on personal interactions of the academic staff working in the Pori campus. Thus, it is not spearheaded by the top management. The interviewees from the Pori campus considered, that the SF programmes reinforce these relationships, especially the UC-Pori having been involved in the regional RIS strategy process too. On the contrary, the rectorate meets once or twice a year in the UC-Pori steering group,

consisting of university personnel and local representatives, but this formal body was not seen as a good platform for exchanging ideas for further collaboration: *“These meetings with rectors are good on the top level, but the field work, research consultancy and that kind of things, that should be on the unit level-- There are possibilities to do more.”* (City of Pori, 1).

Overall, the top management of the parent universities is not deeply involved with the regional policy processes in the Satakunta region, nor have detailed knowledge on UC-Pori’s role in these processes or the implementation, but thought that it was the responsibility of the local actors:

*“How they (RCS) actually build programmes and what are the themes, I have no knowledge on that.”* (TUT, Management 1).

*“The regional policies do not always serve the higher education policies. And I think it is justified, that UC-Pori units are more active than we here in the main campus, because our activities are more bind by the higher education policies.”* (TUT, Management 2).

However, the top management recognised UC-Pori’s enhanced regional and societal role, and the connections with local policy networks that comes with it. The City of Pori’s considerable annual investments to the Pori campus were seen as a very important driver reinforcing linkages with the regional stakeholders: *“they see us as a strategic partner, and we want to respect that with match-funding, and brining out own contribution to it.”* (UTA, Management 2). Indeed, the top management of the parent universities agreed, that instead of delivering (SF funded) projects based on regional priorities, the university’s contribution should be in defining the local strategies and development programmes. Some of the top management confessed, that whenever there have been cutbacks in the state funding, the parent universities are forced to analyse if they can afford to have these remote campuses – and in these reflections, the regional role, as well as the local funding, are crucial.

The strong centralisation of HEIs and the closing down of remote university campuses, such as the TUT’s former unit in Rauma, have not complicated the collaboration with businesses, though some of the local partners thought that the local presence made it easier to create cooperation. As one of the senior researchers (TUT, 3) summarised, after returning back to the main campus in Tampere from the Satakunta region: *“The 200km distance is not the problem here.”* From the management’s perspective, the problem of the remote units is that they are very small, and despite the organisational changes, they remain rather detached from their parent universities: *“They (remote units) are left alone with local economy. And typically, they*

*are small businesses, who don't have any long-term research interests.*" (TUT, Management 3). Therefore, the development of a culture of university-business collaboration in such operational environment requires long-term commitment and tailored solutions: *"The businesses have slowly become interested in the automation technology – we have thought about their needs, and then offered custom-made courses."* (TUT, Researcher 1).

In general, the remote units were seen as important in serving the local business culture together with universities of applied sciences. Though there are actors facilitating regional collaboration, such as Prizztech Ltd., the UC-Pori researchers thought that finding partners is their own responsibility:

*"We made an effort and tried to map the needs of the (regional) companies –s some of the researchers ended up working in local businesses -- in that sense the projects were successful. I think that the central university resources can't really help you with this, it's about the raw fieldwork--"* (TUT, Researcher 3).

Although there is some internal collaboration between different units at the Pori campus, especially between business (UTU) and technology (TUT), and some of the funding from the Ministry of Culture and Education is allocated to support these activities, there most important thing is to have a common topic. As for any university, solely working in the same building is not sufficient for establishing collaboration:

*"When there is a need to collaborate, I'll get in touch, but there is no point in forcing it if there is no common topics."* (TUT, Researcher 4).

*"We have had some project ideas---but our profile is a bit different, so it would be complicated to find common interests."* (UTU, Researcher 1).

### 6.1.3. Strategy

In Finland, the Regional Councils are responsible for preparing regional development plans, typically in collaboration with local stakeholders such as municipalities, public and private partners. Thus, the Regional Council of Satakunta (RCS) is the leading party of the process of designing the Regional Strategic Plan, which is the key document in contextualising the general regional policy framework. It is also responsible for the supporting implementation documents

such as Regional Programmes.<sup>31</sup> As for all EU member states, the Satakunta region has designed a Regional Innovation Smart Specialisation Strategy (RIS3) through a collaborative process identifying competitive advantages and setting strategic priorities – and finally, forming a basis for regional Structural Funds investments. The key themes of the RIS3 strategy, e.g. bio economy, ICT and maritime environment, are the ones identified in the processes of designing the Regional Strategic Plan and also represented by the UC-Pori units. As a part of the strategy formulation process, RCS organised a series of thematic ‘future workshops’ involving many local stakeholders, especially from the Turku School of Economics (UC-Pori) *“to bring new insights”* (RSC, 1) which is also mentioned as a key partner in developing of success indicators for the implementation of the RIS3. (Fonseca *et al.*, forthcoming).

The smart specialisation approach has reinforced the UC-Pori regional role, which was also appreciated by the top management: *“Our role should be in the discussions and setting the regional programmes, so that research, knowledge base and universities’ profiles are visible in these programmes.”* (TUNI, Management 1). In practise, the researchers working in the Pori campus thought that they can easily find common interests and work with regional priorities. The UC-Pori units have managed to build ERDF funded activities based on these areas, though there is still room for improvement: *“—maybe we haven’t, as a university, influenced to the regional programmes and have had a more reactive approach, just applied for funding when there have been calls”* (TUT, Admin 2). At the moment, economics and engineering were seen as the important strategic priority areas to boost local economy:

*“--here in the West coast, we need more engineers in robotics and automation.”* (City of Pori, 1).

*“In the innovation context, the actors of the UC-Pori are central.”* (RCS, 1).

Overall, the UC-Pori’s priorities are somewhat aligned with the regional ones: Digital society, Energy and Environment, Gamification, Knowledge-intensive organisations in networks and Social Cohesion.<sup>32</sup> However, the interviewees had no information on how and why certain disciplines have ended up in the Pori campus, except for the TUT’s degree education in

---

<sup>31</sup> The Regional Council of Satakunta website, <http://www.satakuntaliitto.fi/regional-development-and-planning>, accessed 18<sup>th</sup> of April 2019.

<sup>32</sup> <https://ucpori.fi/fi-fi/tutkimus/tutkimusyhdistyo/70/> December 10<sup>th</sup> 2019.

engineering in the 80s, which, at the time, was developed as a response to Nokia's rapid growth. Otherwise, the current disciplinary areas represented in Pori were considered to be more a question of personal interests rather than strategic planning, though the local stakeholders pointed out that UC-Pori and the Satakunta University of Applied Sciences are both well aware of the local needs.

*"--there is some research activity, but maybe the way in which it has been planned is not very strategic. If it responds to the local needs, it is more of a historic development based on individuals--"* (TUT, Admin 2).

Although the university consortia are based on political will to have local access to higher education and universities' enhanced societal role, the strategic approach to planning research or engagement activities does not appear to be very strong. Also, the way in which the parent universities steer education portfolio is not very clear: *"--maritime industries could be stronger (in research) and mechanical engineering, that Turku currently provides. But we do not teach any mechanical engineering there, but other stuff."* (TUT, Admin 2). One of the common challenges was that all the units in the Pori campus are expected to follow the strategies of the parent universities, though the profile of the satellite campus is significantly deviant from the mainstream university organisation. The structural changes have aimed to push the Pori units closer to the main campus: *"Now the steering comes from two different faculties. But it should be the same everywhere. It is the same strategy."* (TUT, Management 2).

In practise, the academic staff are less focused on strategic issues, although *"at least all professors should know what kind of aims the university and the faculty have set, and how to get there."* (UTA, Management 1). However, the interviewees thought that the strategic steering and collaboration could be stronger, and in particular in the remote units, a more multidisciplinary approaches to common themes could be found: *"It has a lot to do with individuals, though we are trying to facilitate interaction between faculties."* (UTA, Management 3).

Curiously, the role of the university consortium is not mentioned in any of the parent university's strategies, though the societal role and interaction with different groups were emphasised in all three parent universities:

*“Our vision carries a strong commitment to building a sustainable society driven by innovation and entrepreneurship” (Aalto strategic plan 2016-2020, p. 3).*

*“The University of Turku is strengthening its capability to meet the region’s educational and economic needs, and its ability to respond to national and global challenges. We are building a strong culture of foresight for the benefit of society.” (UTU Strategic plan 2016-2020, p. 8).*

*“Unique expertise in developing applications that benefit industry, business and the public sector.” (TUNI)<sup>33</sup>*

Following the importance of engagement and universities’ societal role underlined in the strategic documents, the SF activities seems as a sensible channel for implementing these activities. However, the parent universities have a strategic focus to increase the volume of research funding, also in remote campuses, and to push them towards the EU framework programme funds. Overall, all the parent universities have adapted a more strategic approach to research funding: *“It has been a shock to the personnel, in particular in the counties, it seems that we are controlling it, but this is a general policy of the university and we need to be more careful how to spend our resources.” (TUT, Management 3).* In general, the role of university consortia in the implementation of overall institutional strategies was not seen as very important: *“--I think we could survive also without the Pori unit.” (UTU, Management 1).*

However, as one of the interviewees described, if the regional funds could be targeted to larger projects with a societal relevance, they would be more easy to align with the institutional strategies. Many of the interviewees also agreed, that there should be more strategic approach to engagement too, so that the activities would not rely only on external funds. The many recent organisational changes have raised individual concerns on the issue, which reveals a more opportunistic approach to the engagement than a strategic one: *“Earlier it was more like we did a project there and another one there, depending on where we got the funding from, and we were experts in all fields or actually were not very good in anything.” (TUT, Researcher 2).*

The management also brought up, that the many these kinds of strategic projects can be already running without them knowing, which refers to communicational issues. In the discussions with the top management of TUT, UTA and UTU it was obvious, that SF projects do not play

---

<sup>33</sup> The former strategies of TUT and UTU has been replaced by the TUNI one after the merger: <https://www.tuni.fi/en/about-us/get-to-know-tampere-universities> December 9th 2019.

any part in the universities' strategic planning, not even in regard to the university consortia: *"Maybe it is too local to support strategic thinking"* (TUT, Management 2). The education activities were somewhat more planned, for example TUT do not provide BA degree education anymore because *"--we felt like there was not enough potential"* (TUT, Management 2). This stronger steering from the parent universities and the growing mismatch between research and regional engagement has also caused some resistance at the Pori campus:

*"I am not entirely sure if Tampere understands why we are so focused on the regional development -- someone needs to explain why we should not do this, not just basing the argument on the state funding model --- but what is the benefit to the society."* (TUT, Researcher 4).

*"Maybe the people in Pori think about it (SF funding) strategically, and the problem is at our end, that we don't really get how it works here in the main campus."* (UTU, Management 1).

#### 6.1.4. Leadership

Since its establishment in 2004, the former Tampere University of Technology has formally been the coordinating university of UC-Pori until the merger of TUT and UTA in 2019. The coordinating university appoints a director for the consortium with an earmarked funding from the Ministry of Culture and Education, but in terms of leadership, the university consortia are somewhat complicated organisations. All the units of the UC-Pori belong to a particular faculty or a school, typically located in the main campus of their home universities, and many researchers working in the Pori campus units feel that they are not very well connected to their home organisations. The whole existence of these remote university units is strived by a strong local political push and additional to a state funding, and they are usually subsidised by municipalities; e.g. the city of Pori supports generously UC-Pori's activities. Being so, the interviewees felt they are forced to balance between the differing views of the local stakeholders and their home universities' strategies: *"The biggest challenge is to find balance between universities increasingly results-based approach and this regional development mission, like we have here in Pori."* (TUT, Researcher 5). Also, the national higher education policy framework has become increasingly performance-based since the renewed University Act (558/2009) and it steers universities to generate traditional academic outputs, which makes regional engagement activities somewhat unimportant, though all the interviewees from UC-Pori echoed that it is their 'core business'. (Fonseca *et al.*, forthcoming.)

The interviewees were not able to articulate how exactly the engagement is led or supported within the Pori campus, despite the UC-Pori's director's efforts to foster multidisciplinary collaboration. The UC-Pori campus was described to be only loosely attached to the parent universities, even though many recent organisational changes have aimed to bind these units more closely to the main campuses. The management estimated, that the people working in the Pori campus have not fully accepted all these recent changes, and would rather have a more autonomous structure, in particular in the case of the changes antecedent to the merger of TUT and UTA in 2019. These recent changes have undoubtedly created uncertainty and the management structures are not clear to all: *"they changed the structures---our project manager didn't even know who her supervisor was at that time."* (UTA, Researcher 3). Especially the smaller units were somewhat invisible to the main campus and the way in which the UC-Pori is currently organised unknown: *"We had this strong, interesting, new type of degree programme that for some reason – I do not know why it was in the Pori campus.—it was moved here to Otaniemi—and now I don't know actually what there is left."* (Aalto, Management 1). In practise, the top management admitted, that their day-to-day-work is more focused on the people working in the main campuses.

However, the parent universities' leadership was explicit in the recruitment processes of professors: the interviewees highlighted, that previously it has been more difficult to attract academic staff to these satellite campuses as *"the geography does matter"* (UTU, Management 1). Finding competent academics was described as crucial for both, successful research and engagement activities and the enhanced regional role has been emphasised in the job announcements of UC-Pori. The management still thought that professors work more efficiently when disciplinary areas centralised, typically to the main campus:

*"If we manage to recruit good professors and lecturers, they will be able to attract suitable external funds and to initiate meaningful research projects."* (UTA, Management 3).

*"Single professors may not be the best solution for ensuring quality and developing research."* (UTA, Management 4).

Otherwise, the researchers in the Pori campus thought that they work as 'entrepreneurs' as there is very little steering from the parent universities, and they have a lot of freedom in planning the projects. As there is very little internal coordination within the universities, sometimes the researchers at UC-Pori end up bidding for the same grants:



*“-- the aim is that we would not compete with each other’s, but that happens sometimes, we do not always know about the other projects.” (UTU, Researcher 1).*

*“Of course, the departments and deans may have different opinions, but we do not tell the researcher from top-down what they should do or what kind of funds to apply for.” (UTU, Admin 4).*

These small and very specialised remote units of the university consortia were seen as rather opposite to the dominant the higher education policies. This makes the of university consortia more complicated to manage. TUT had already started closing down smaller units working more closely with their local partners, such as the research unit located in Rauma, which was seen as an end result of the ongoing organisational changes: *“--this structure (of the Rauma unit) did not support sufficiently research activities, probably that is why they closed it down.” (TUT, Researcher 3).* In the case of former TUT, the parent university tightened the steering of projects activities also in the Pori campus since 2017:

*“--there is no point start working on an application if you do not get permission to bid for the funds.” (TUT, Admin 1).*

*“Officially the Pori department vanished in 2017. All the controlling mechanisms and the project work too, they are a bit different know.” (TUT, Researcher 2).*

*“After this change, no one in Pori doesn’t even have a representative right --Everything has to be signed off in the Hervanta campus”. (TUT, Researcher 3).*

One of the strengths of the UC-Pori is potential for multidisciplinary research collaboration, but the parent universities do not actively provide leadership to initiate these activities. In terms of delivering engagement through SF projects, the management was also less interested, though they acknowledged that there is some added value in producing more general knowledge for different audiences, especially in social sciences. However, the parent universities’ management does not consider delivering these projects to be as important as the local staff members do, who collaborate with regional stakeholders regularly. Despite the tightened monitoring of the remote units, it is very unusual to actually forbid researchers to apply for SF (or other) funds. In the case of UTU, the management also thought that it was important to let the more experienced researcher to have the freedom to design and bid for projects without restrictions:

*“I have turned down two projects when acting as a dean, because they were so expensive. That is ridiculously little. And it was not just about the costs---the researchers had come up with an idea, which was not aligned with our mainstream research in anyway, but was very local and disconnected project” (UTA, Management 2).*

Overall, the remote campus of Pori remains somewhat hidden from the management of the parent universities. As one of the interviewees confess: “—*I get the information about the new SF projects in Pori from the intranet— but there could be more strategic approach—on the whole university level.*” (UTU, Management 1). Only the director of the UC-Pori strives to foster internal cooperation between the units, while the management of the parent universities remains more focused on generating research funding and publications, which were seen as a “*good indicators of success (for engagement)*” (UTA, Management 3).

### 6.1.5. Culture

The researchers working at Pori campus saw added value in bringing university activities into a heavily industry-based region with little academic traditions Overall, the people working the Pori campus thought that their profile is different compared to their parent universities. Some of the units are focused more on education and some of research, but the strong regional focus is shared by all actors working in the Pori campus. For many researchers the engagement activities, such as SF projects, actually made their work more meaningful. Also the top management from TUT, UTA and TUT brought up the important regional role of UC-Pori referring largely to universities’ ‘third mission’:

*“I think it is a relief that we are not just counting how many conferences or peer-reviewed articles this (SF) project will produce –the focus is on the content of the project, which is more important than the quantifiable academic outputs.”* (Aalto, Researcher 1).

*“Societal engagement and regional development projects have been our main focus instead of academic research or education.”* (UTU, Researcher 2).

Initiating projects based on regional priorities was seen as more straightforward in the fields of technology, engineering and economics than in social science, arts and culture. Despite the lack of leadership and support from their home universities, contributing to regional development was considered to be highly important as the researchers want to compensate for the financial support received from the city of Pori. (Fonseca *et al.*, forthcoming) The management saw also added value in providing flexible educational paths to adult students at the Pori campus, such as continuing learning. The staff working in the Pori campus indeed estimated that their student base is very different, many of them being adults. However, the top management questioned if

there could be other models in the future for universities to work in these more remote areas than the university consortia: “--considering (higher education policies’) strategic aims, it is not sensible that the Finnish university networks is artificially expanded through the university consortia.” (UTA, Management 3). To the opposite, the researchers working in the Pori campus thought that it is crucial to physically work in the area:

*“That is why we are here in Pori. The city supports us, and it is our responsibility to give something back. It can’t be that we just focus on basic research—it is important, but the regional development is our main focus.”* (TUT, Researcher 4).

*“It is not enough that someone from Turku or Helsinki pops overs every now and then, it is not sufficient for filling in the need for regional development –Satakunta is, in these (R&D) questions, a bit of an outsider –it is (geographically) close, but not close enough.”* (UTU, Researcher 2).

In addition to delivering third stream activities, the UC-Pori still has an important role as providing higher education in the Satakunta region – even now that TUT has no longer BA degree programmes or Aalto any kind of education activities at the Pori campus. The representatives from the City of Pori estimated, that the economics is the most important single discipline attracting students to Pori. This role was also recognised by the management of the parent universities, but they wished that despite the very regional focus of the Pori campus, the unit would have a more ambitious research goals.

The people working in the UC-Pori saw added value in having three universities working under the same roof, but in practise, there is still room for improvement in creating more collaboration. Considering that the units in the Pori campus are focused on very different disciplinary areas, and that the (engagement) activities are not strategically managed by the parent universities, the researchers assessed, that overall, the UC-Pori has put in a lot of effort to initiating more collaboration between units through project work. In the case of Aalto, the presence in the Pori campus has reinforced project collaboration also between the main campus and the Satakunta region, for example by offering facilities for Aalto researchers with an individual interest to work in Pori:

*“She (the researcher) used to work in Outotech research centre in Pori, and when she was offered the position here (in Otaniemi) she was like ‘Well but you know, a lot of the work will involve Pori, can I be based there?’ We said yeah, well we organized through this university Consortium.”* (Aalto, Researcher 2).

The interviewees described that the academic staff is quite clearly divided into teaching staff and researchers working with different kinds of projects. Overall, a strong regional focus

allowed UC-Pori units to better respond to local needs, especially through the (SF) projects. In ideal cases, these projects are part of the research group's long-term agenda contributing to the future research activities, but without strong strategic steering it is complicated to link single projects to a bigger picture:

*“—typically, in universities scheduling or contents are not that agile—but the (SF) projects provide a channel for a more concrete development activities.”* (UTA, Researcher 2).

*“The projects should not be delivered for the sake of delivering projects.”* (TUT, Researcher 2).

Many of the staff members work on fixed-term contracts tied to projects, which can cause staff changes. This was, however, not seen as a barrier hindering collaboration with local partners and the general culture is strongly oriented towards serving the local needs: *“The raison d'être of the university consortia is that they generate something that the parent university doesn't—for some reason, their degree programmes serve the region better. And there is research that is relevant for the region.”* (TUT, Management 2). The management thought that centralised management and accreditation processes have improved the quality of education in Pori, now that *“both campuses play by the same rules.”* (UTU, Management 1). The somewhat differing orientation of UC-Pori's parent universities towards high profile research projects was seen as quite contrary to these more regionally focused units located in the Pori campus. The staff members who had worked in both the main and the Pori campuses saw the mismatch of different organisational cultures more clearly: *“I did not have any ERDF projects in Hervanta, and I was astonished that they have so much of these projects and so little research funding here in Pori.”* (TUT, Researcher 2). This was partly explained by the strong regional steering. The RCS expects the UC-Pori to be active in delivering SF projects, which have had an impact on the culture of the Pori units. This strong orientation towards the engagement activities was not fully supported by the parent universities, and overall, the balancing between blue sky research and third mission was seen as complicated despite the regional mission of the UC-Pori:

*“—the (rules) can't be different for regional higher education institutions, who just run projects. They can't be an end in itself, but they need to generate (academic) results for the faculty like everybody else.”* (TUT, Management 1).

## 6.2. Structural Funds projects and UC-Pori: an overview

Universities are typically among the key beneficiaries of the SF funds (e.g. Spilanis *et al.*, 2016). So far, the Finnish universities have been granted funding for 519 European Social Funds and European Regional Development Funds projects with the total SF contribution of 140M EUR in programme period 2014–2020.<sup>34</sup> The SF Operational Programme, ‘Sustainable growth and jobs 2014-2020 – Finland’s Structural Funds programme’ is a single document covering both European Regional Development Fund (ERDF) and European Social Fund (ESF) activities by setting five priority axes and thirteen specific objectives. Overall, the ERDF actions aim to balance national economic structure by supporting businesses as well as research and innovation base, in particular in more sparsely populated areas. The innovation activities, in which the universities are expected to play an important role, can be funded through priority axes 1 and 2:

Priority axis 1:

Competitiveness of SMEs (ERDF): Generating new business; Improving transport and logistic connections that are important to SMEs (only in Eastern and Northern Finland); Promoting growth and internationalisation of enterprises; Promoting energy efficiency in SMEs

Priority axis 2:

Producing and using the latest information and knowledge (ERDF): Development of the centres of research, expertise and innovation on the basis of regional strengths; Strengthening innovation in enterprises; Developing solutions based on renewable energy and energy efficiency<sup>35</sup>

The other priority axes are 3) Employment and labour mobility (ESF), 4) Education, skills and lifelong learning (ESF) and 5) Social inclusion and combating poverty (ESF).

The total EU contribution to Finnish SF programme in the current period is 1.3 billion EUR (ERDF 769.7 M EUR and ESF 515,6 M EUR) of which the Southern and Western Finland will spend 29%, while the remaining 71% will be invested in Eastern and Northern Finland.<sup>36</sup> The

---

<sup>34</sup> Structural Funds Information Service, <https://www.eura2014.fi/rctiepa/index.php?lang=en>, 2<sup>nd</sup> Aug 2019.

<sup>35</sup> <https://tem.fi/en/sustainable-growth-and-employment-2014-2020>, 15th of Dec 2019.

<sup>36</sup> <https://ec.europa.eu/growth/tools-databases/regional-innovation-monitor/policy-document/manner-suomi/sustainable-growth-and-jobs-2014-2020-finlands-structural-funds> December 12th 2019

priority axis 1 and 2 will receive ca. 46% of the Operational Programme allocations.<sup>37</sup> The expected outcomes of the SF Operational Programme are e.g. increased R&I investments (3.73% to 4% of GDP by 2020), altogether 5660 supported SMEs and 12 700 new jobs.

From a historic perspective, the Structural Funds have been important in establishing regional university branch units in the Satakunta region. In the early 2000, the SF funding was indeed a central element in developing research capacity in the area and supporting the presence of higher education in the region. Especially bringing in new disciplines to the Pori campus to increase the local knowledge base demanded supplementary funding, but since then the importance of SF – as well as the amount of available funding – has decreased, which is mostly due to the renewed University Act and the shift towards more performance-based state funding indicators. However, all units of the UC-Pori participate actively in SF programmes, though TUT and UTU were granted more projects than Aalto and UTA, both of which have smaller and specialised units in the Pori campus.

UC-Pori plays an important role in both regional policy design processes and their implementation, especially through the Structural Funds projects. In the current programme period 2014-2020, the local higher education institutions have been awarded ca. 33% of the available SF funding in the region (RCS, 2016). All units of UC-Pori are active in these programmes, especially TUT and UTU, both of which have larger portfolio and more activities at the Pori campus compared to Aalto and UTA with their smaller and more specialised units. Many of the interviewees thought that UC-Pori would not be able to carry out any regional development activities if there were no SF funding available for these activities. The researchers were familiar with the key priorities set in the Regional Strategic Plan, partly because of their involvement in the design process. Although the UC-Pori was heavily represented in the policy design process, as described in the previous sections, the top management of the parent universities did not recognize how these regional programmes are built or how UC-Pori's staff is actually involved in the process. (Fonseca *et al.*, forthcoming.)

---

<sup>37</sup>[https://ec.europa.eu/regional\\_policy/en/atlas/programmes/2014-2020/finland/2014fi16m2op001](https://ec.europa.eu/regional_policy/en/atlas/programmes/2014-2020/finland/2014fi16m2op001)  
December 12th 2019

Altogether, the interviewed researchers and the administrative staff members were involved with nineteen SF projects in the programme period 2014-2020: 15 European Regional Development Fund and four European Social Fund projects. The total SF contribution to these project activities was 4 820 871 EUR and they were granted by four different managing authorities: the Council of Tampere Region, former TEKES (currently Business Finland) and two Centres for Economic Development, Transport and the Environment (Häme and Central Finland), which demonstrates the rather complicated national implementation structure of the national SF Operational Programme. The interviewees worked either directly at the Pori campus or at the parent university. In the latter case, the project had a special focus to the Satakunta Region (e.g. the projects of the Brahea Center at UTU).

UC-Pori units typically collaborate with local businesses, public organisations especially in healthcare sector, and the city of Pori. Many SF projects result from long-term collaboration with these regional actors. The majority of the UC-Pori personnel have been working with SF projects for a long period of time, and it is very common to apply for extensions to projects. The interviewees described very different agendas, individual motivations and benefits from SF projects, but their role was acknowledged as particularly important in setting up the UC-Pori units: *“In the very beginning of the millennium, the SF funding was central in developing research capacity in the area”* (UC-Pori, Management 2). In general, SF programmes were seen as an important source of funding for universities, especially for such remote branch campuses that have a stronger regional mission. At the same time, many respondents also recognized that their home universities remain more focused on funding instruments that directly contribute to teaching and research activities, which makes SF funding less appealing and overlooked in strategic planning. Some of the interviewees described SF projects as *“a catalyst of change”* (UTU, Admin 2), that enable finding new ways to work, also regarding basic missions, e.g. developing online teaching platforms.

### 6.2.1. Collaboration

One of the most repeated advantages of SF projects was that they encourage collaboration with other higher education institutions and businesses, which facilitates knowledge transfer and

capacity building. The projects were seen as “*a natural way for us to approach businesses*” (UC-Pori, Management 2) and collaboration was described to be meaningful for both academics themselves and the region of Satakunta. Even when if the funding scheme does not require business partners, there usually are local SMEs or other actors involved, as the needs for development projects usually come from them.

*“We always collaborate with local businesses, sometimes they also partly fund the projects, and sometimes they provide piloting platforms for the projects.”* (TUT, Researcher 4)

*“I find it interesting to combine business collaboration with more applied approach and academic research.”* (UTU, Researcher 3).

*“--you feel that you can do something good for the partners”* (UTU, Admin 3).

Among the UC-Pori staff members, the regional policies were considered to be one of the key factors affecting UC-Pori’s motivation to engage with SF funding. They acknowledged, that there is an increased demand from the Satakunta region towards UC-Pori, and as a response, the personnel in the Pori campus deliberately seek ways to engage with local stakeholders through SF programmes. The UC-Pori’s knowledge base is considered as an advantage in the RIS3<sup>38</sup> strategy and it was represented in the design process of the regional strategic plan<sup>39</sup> through series of future workshops. Some units were also involved in setting success indicators for regional goals. However, the top management of the parent universities are not very active in regional networks, and they only visit the Pori campus once a year or even less frequently.

In contrast, the local researchers brought up the importance of following the regional strategic plan “*it defines the key areas, so we have to do our homework before starting to build new ideas and project consortia*” (TUT, Researcher 4). It was seen as rather easy to find common angles, because the both the RIS3 strategy and the SF calls’ themes echo UC-Pori’s central disciplines, especially in the circular economy, wellbeing technology and automation and robotics. However, it can be challenging to find suitable business partners from the region. Although UC-Pori aims to fill these local skills gaps stated in the strategies, the parent universities are less involved in the strategic planning, and criticised the UC-Pori’s curricula

---

<sup>38</sup> [http://www.satakuntaliitto.fi/sites/satakuntaliitto.fi/files/RIS3\\_Satakunta2014\\_TEM.pdf](http://www.satakuntaliitto.fi/sites/satakuntaliitto.fi/files/RIS3_Satakunta2014_TEM.pdf) 1st of Jan 2019.

<sup>39</sup> [http://www.satakuntaliitto.fi/sites/satakuntaliitto.fi/files/tiedostot/Aluekehitys/MAKO\\_2018\\_2021/Satakunnan\\_maakuntaohjelma\\_2018-2021\\_SahkoinenJulkaisu\\_LowRes.pdf](http://www.satakuntaliitto.fi/sites/satakuntaliitto.fi/files/tiedostot/Aluekehitys/MAKO_2018_2021/Satakunnan_maakuntaohjelma_2018-2021_SahkoinenJulkaisu_LowRes.pdf) 1st of Jan 2019.



for not being developed as a response to local needs but rather based on “*individual academics’ interests to work in the Satakunta region*” (TUT, Admin 2). Even if all the SF activities are not aligned with regional priorities, UC-Pori has been able to bring in much needed knowledge and initiate SF projects e.g. in health sector and robotics (e.g. KAMPUS-SOTE<sup>40</sup> and AutoRobo<sup>41</sup>).

Most projects are multidisciplinary in nature; big changes in the business environment require multidisciplinary responses. The proximity of different universities of UC-Pori increases internal collaboration, also with parent universities. The UC-Pori units are highly specialised, so it might be challenging to find common interfaces, though it was also considered as an advance:

*“There is an added value in having four universities together -- it is easy to step out of your own scientific field and establish projects with researchers from different fields, which enables examining the research problem from different aspects and finding new solutions.”* (UC-Pori, Management 2).

The regional RIS3 strategy highlights local HEIs, UC-Pori in particular, as key players in supporting regional growth, but the focus is largely on technology transfer and supporting entrepreneurship, thus different units of the UC-Pori are in an unequal position when applying for SF funding. These disciplinary issues are evident also when examining the funded SF projects. Social science and arts and culture are marginal compared with technology and business projects: *“It is so easy for us to create concrete applications and programmes -- maybe it is more difficult for humanities”* (TUT, Researcher 4).

In the absence of a tradition of cooperation between academics and other stakeholders in the Satakunta region, the SF project activities have contributed to creating a culture of collaboration: *“In the beginning they were suspicious and thought that we are in some ivory tower”* (UTU, Researcher 3). SF projects allow researchers to work ‘in the field’ and get in touch and discuss with different actors. The interviewees also thought that regional engagement through SF projects may have an impact on local authorities and policymaking: *“This is what I hope from the SF projects: to increase the regional impact and mission”* (UTU, Admin 1).

---

<sup>40</sup> Campusbased competence building for social welfare and healthcare services, <https://sites.tuni.fi/kampusnote/in-english/> 2<sup>nd</sup> of Aug 2019.

<sup>41</sup> Autonomous Robot Ecosystem, <https://www.tuni.fi/en/research/autonomous-robot-ecosystem>, 2<sup>nd</sup> of Aug 2019.

The University Consortium of Pori (UC-Pori) launched several projects together with local healthcare institutions supported by the Satakunta Regional Council and European Regional Development Funds. The consortium was extensively funded by the city council, and researchers felt that that wanted to ‘give something back to the community’. These initiatives built on individual connections, as UC-Pori researchers were required to actively search for partners to find ways to contribute to regional priority sectors (e.g. Salomaa and Charles, 2019). One project sought to assist healthcare professionals using mobile robots with specific functions targeted to elderly people with memory illnesses. The researchers had contacted a local healthcare institution to explore how robotics could be applied in elderly care, and the challenges they faced in their daily activities. One issue was that dementia patients easily get lost and need constantly assistance, for example, in navigating out of their room. A set of such repetitive tasks were identified with healthcare professionals and then partly automated, with engineers developing a mobile assistance robot to assist the demented patients. The researchers also invited local businesses to take part in the pilots and creating a new ecosystem through implementing open-source software. A second project together with local hospitals aimed through gamification to assist surgery patients discharged from the hospital. In this case, researchers developed a game that measured whether patients understood the instructions for treatment during home-based convalescence. Both these pilots, producing academic outputs as well as new healthcare innovations beyond regional boundaries, were also potential steppingstones towards larger, international research projects.

Some of the interviewees agreed that responding to regional needs should be prioritised in all UC-Pori’s activities: the UC-Pori is supported by the city of Pori *thus “the city of Pori pays for us to be there, so we should try to support the region.”* (UTU, Researcher 2). Also, the Regional Council of Satakunta expects universities to participate in SF projects, though the researchers struggle to justify these engagement activities as *“the main campus does not necessarily know what we are doing here”* (TUT, Researcher 4). (Salomaa & Charles, 2019.)

The same concern was raised also in regard to funding authorities, which are currently more scattered across Finland. Currently, the SF projects are managed by many funding authorities located in different regions, namely government bodies and most importantly, four Finnish Centres for Economic Development, Transport and the Environment (ELY Centres) having a

specific task to coordinate SF programmes. The interviewees thought that this might affect to the allocation of SF funds as the funding authorities located in different regions lack the local knowledge. Therefore, the bidding processes were not always considered to be transparent or fair. In addition, some of the interviewees thought that there is not enough regional coordination for creating synergies or optimising the benefits from on-going SF projects:

*“I believe that we could get more out of these projects, if the coordination would be more centralised, e.g. communication on the ongoing projects. The funding authorities could be more active in bringing together beneficiaries and other stakeholders.”* (UTU, Researcher 2).

### 6.2.2. Administrative procedures

One of the appeals of SF funding is the high success rate of proposals in comparison to applications to other funding instruments. However, despite the recent national efforts to simplify the administration work, many of the researchers struggled with the bureaucracy, especially in ESF projects. The funding authorities do not provide consistent guidelines on eligibility criteria, which causes extra work, or in the worst case, clawbacks. There were big differences also in the support offered by the UC-Pori units' parent universities, some of which had rather straightforwardly signalled, that SF projects are an unwanted form of external funding. Even though the city of Pori has provided generous support for SF projects' match-funding, which is typically very complicated to generate from external sources, universities' internal administration mechanism, the so called 'full cost model' is more compatible with other research funding (e.g. Academy of Finland, Business Finland). Otherwise, the match-funding have been covered from universities' personnel resources, but it requires a lot of planning: *“I've seen it many times: the share of match-funding is so big that the whole personnel is bind to ERDF project and that's financially unbearable.”* (TUT, Management 3). However, the interviewees stated that *“--we have learned how to use SF instruments here in Pori”* (Aalto, Researcher 1), and the cutbacks from the state research funds have made it more appealing.

In some cases, research group's bidding success rate was as high as 100% and there is a strong tradition of carrying out SF projects at the UC-Pori. This raised concerns about rooting the research too much on the local needs at the expense of academic excellence: *“Many of the*

*research groups have got used to winning ERDF funds, so they do not go for other instruments, Academy of Finland, TEKES, and Horizon2020. So, they are used to getting funds too easily.”* (UC-Pori, Management 2). SF funding was considered to be very accessible mainly because of regional factors, which can also have a negative impact on the research excellence:

*“—the competition (in SF) is not so tough because of its regional limitations. In the long term, it can lead to the dominance of SF projects, which makes their role distorted and decreases research ambition as people will finally mix it up with research funding instruments.”* (UC-Pori, Management 2).

Sometimes SF projects were applied for mostly to safeguard jobs. This was more often the case for project researchers, typically PhD students working on their research projects ‘on the side’, and for other staff members, such as personnel working on continuing education services. The latter typically had permanent contracts – however, they were also expected to get funding from ‘somewhere’.

Although some of the SF projects have generated new content for continuous education, e.g. in maritime studies, or even piloted degree study programmes, the current SF guidelines no longer allow such activities unless it is clearly stated how the project activities differ from the university’s basic education:

*“We needed more graduates in Mechanical engineering in Turku, so we designed a SF project together with TUT to deliver targeted, full-time Master’s degree education for students with a Bachelor of Engineering. –SF does not fund basic teaching, but the idea was to pilot this type of education model.”* (UTU, Management 2).

Overall, the SF funding has diminished and become more business oriented. Therefore, the current development projects have remained less beneficial for the degree study programmes: *“I hope these could be more linked. There is a possibility to run a course on robotics (based on SF activities) and there are few publications from the project.”* (TUT, Researcher 1).

All these aspects combined may threaten the quality of SF projects: *“Some of the SF projects are applied just for the sake of getting external funds, so the projects themselves are not always so excellent”* (UTU, Researcher 3). Particularly the researchers working full-time in these projects thought that a further decrease of SF funds in the coming programme period is not just a threat for single employees, but to the whole regional engagement activities of university units in the Pori campus (UTU, Researcher 2). (Salomaa & Charles, 2019.)

### 6.2.3. University organisational culture

The project initiatives came typically from single researchers or research groups without coordination or intervention of UC-Pori or their parent university. Only one of the university present in UC-Pori described that its parent university has tightened the monitoring on a project level due to ongoing large scale organisational changes, but the others could still work somewhat independently, though they needed a formal authorisation for bids from their universities: *“When we win a project, the university do not care very much, someone just takes care of it”* (TUT, Admin 1). The researchers are typically very enthusiastic to plan and initiate cooperation with many stakeholders, but without strategic planning the activities tend to end together with the external funds. On the other hand, the personnel of UC-Pori widely suggested that the researchers currently work ‘as entrepreneurs within the university’ without a strong strategic guidance from their home organisations. Failure to win external funding would have a drastic effect for individual researchers: *“You get sacked when there is no more funding. No one intervenes to our activities as long as we can generate funds.”* (UTU, Researcher 2).

The importance of SF funded projects was described in very different ways: whereas the researchers thought it is ‘a relief’ to concentrate on the regional priorities and objectives of the project instead of traditional measurements of academic success (e.g. the performance indicators of the state funding model), the management of parent universities either worried that these projects do not advance scientific research because of their more applied approach or they were not sufficiently aware of the SF activities in detail. In general, the SF projects are not usually based on cutting-edge technology, but their function is more likely to transfer existing results, so the focus is more on capacity building of the region, which does not necessarily foster research excellence.

*“The goals (of SF projects) are quite modest from the university’s point of view. If we just focus on serving the SMEs, it is just transferring existing knowledge and there is no time to develop anything new.”* (TUT, Management 3).

*“The ambition level should be aligned with international, high quality research –I understand the mission of regional development and that researchers are trying to have an impact to local policies – but that is not the core mission of the university.”* (UTA, Management 4)

Both the city of Pori and the Regional Council of Satakunta (RCS) expect the UC-Pori units to *“deliver SF projects and bring new knowledge and organise workshops etc. ---while the parent*

*university wants us to go for -- the Academy of Finland, Horizon2020 and TEKES.*” (TUT, Researcher 5). The SF instruments have enabled local university activities that would not have been otherwise funded, and even if their performance indicators may not be very suitable for universities, the university-business collaboration has raised local skills level and brought new knowhow to the Satakunta area: *“You need to do a lot of work and research and generate knowledge --the new businesses do not come out of nowhere.--the Regional Council of Satakunta knows this very well.”* (UTU, Researcher 2).

Especially after the merger of TUT and UTA, the interviewees saw new opportunities to make use of SF funding in the research, development and innovation chain of the Tampere higher education community together with businesses and other actors. Yet, the top management shared the same opinion, that SF funding should be targeted primarily to universities of applied sciences:

*“I think that the RDI and SF instruments would be more suitable for Tampere University of Applied Sciences. That might be a good way to divide tasks in the higher education community, the other one (TAMK) would make better use of the SF projects than the university.”* (UTA, Management 4).

The management expressed their concern also on the amount of granted SF funding. SF instruments are more common in the remote units, such as university consortia, and the parent universities need to ‘compensate’ this by generating more external funds from sources that are applicable with universities’ internal ‘full cost model’ – only funding from these streams can help to secure sufficient funding from the state: *“If it would be the other way around, things would go financially wrong.”* (TUT, Management 1). The management also considered the amount of available SF funding to be too small so that it would be truly attractive for universities:

*“We aim to win long-term funding and bigger amounts.”* (TUT, Management 2).

*“The funding (of a SF project) is a few hundred thousand euros, maybe one million, but they are not very big.”* (UTA, Management 3).

They also thought that SF projects can support their research agendas by disseminating existing results. Most interviewees, including the management, largely believed SF projects to be a potential means to deliver third stream activities in practice:

*“In a way they (the SF) help us to work on the so called third mission—though our researchers are less motivated to bid for these funds because they do not count in the state funding model for universities. But it is still valuable, it is not only about the funding model.”* (UTU, Management 2).

The lack of internal coordination of project portfolio on the UC-Pori might lead to situations where different units of the UC-Pori compete with themselves for SF funds. This was not seen as a problem, because *“It is the funding authority’s task to choose which bids are granted funding”* (TUT, Researcher 5), and UC-Pori has strived to tighten internal collaboration in the recent years. Few of the interviewees emphasised, that SF projects should be taken into account when designing long-term research agendas, and there should be more critical discussion on role of the SF projects within the universities:

*“I agree that also here in remote campus we should have other sources of funding, so in that sense it is important to think how SF projects fits in the unit's strategy. We cannot build all our activities on SF funding, but the decision-making authority should be here (in Pori, not in the main campus).”* (TUT, Researcher 5)

Some of the challenges were linked to internal logic of the instruments, which typically are not very agile and the guidelines being even counter-effective in relation to the desired effect, especially in supporting SMEs. However, the researchers felt that *“--it is not just about the (SF) instrument, it is also about the internal chain. To be frank, they have wanted us to be more part of the main campus, and not a separate unit. I guess it is the same thing with all the units of UC-Pori.”* (TUT, Researcher 1). The centralised coordination was indeed mentioned as one of the issues that complicates implementation of the SF projects, but the researchers were still highly motivated to apply for these funds, though if these remote units *“fail to sell the idea (of regional engagement activities) to their parent organisation, it will stay on a very small scale.”* (TUT, Researcher 3). In addition, they do not easily fit into universities’ current success indicators as their main focus is not on the publication and the SF funds does not count as research funding: *“Sometimes the Turku School of Economics (in Pori) get large-scale RD projects, but it doesn’t count in the state funding model, so that causes frustration in researchers”* (UTU, Admin 5). (Salomaa & Charles, 2019).

#### 6.2.4. SF Projects outputs

Though the UC-Pori units' parent universities have little interest in engaging in SF activities, the local researchers had increasingly thought about maximising the benefits from such activities, especially finding ways to combine regional engagement activities with other core functions: *"We think about these links for every projects, I think there has to be a synergy there."* (TUT, Researcher 1). All researchers had faced expectations to deliver more academic outputs: *"Everybody that calls her/himself a researcher has to publish."* (UTU, Researcher 3), though it is increasingly challenging in SF projects because of their strict timeframes and guidelines that do not allow allocating time for basic research work. In many cases they can result in conference papers and provide rich data sets for further research, but SF activities can also facilitate achieving individual researcher's and research group's goals: *"In our team we require two publications per year; it is possible to link these three (missions)."* (TUT, Researcher 4). Also, the researchers recruited to ERDF projects are typically PhD students, who can work on their research projects 'on the side', which has proven to be an efficient way to combine regional engagement and academic outputs through awarded degrees: *"PhD students that work in SF projects make more progress than those who teach."* (TUT, Researcher 4)

As discussed earlier, the strong collaboration element of SF funded projects was seen as a two-way street, though there is a limited number of potential partners in the region and businesses have not exploited SF funding and project's results as much as they could have – partly because of the strict limitations of SF instruments. However, the collaboration has brought people together and some researchers have ended up working in the local firms. In addition, SF projects can be seen as 'seed money', so that they generate academic results more indirectly, either in the Pori campus or the parent university:

*"They (SF projects) enable small-scale pilots and publishing preliminary results, which makes it easier to apply for larger projects in the same area."* (UC-Pori, Management 2).

*"I mean the project finished I guess a year and a half ago or something. So, it's finished a little while ago, but a lot of that has been a lot of continuation of things from it. So, for example we just got a grant confirmed yesterday from Business Finland-- that's something like 5.2 million EU."* (Aalto, Researcher 2).



The longer the researchers had been working with SF projects, the clearer they described the change after the renewed University Act (558/2009), which led to performance-based state funding. After the reform, the universities have become more focused on traditional academic outputs, which has made SF funding even more problematic: the universities also struggle to deliver expected outputs:

*“It is a challenge for universities, and recently we have had to camouflage the research from the projects. It is difficult, because now research’s (outputs) are expected. But on the other hand, there has been major cuts in the research funding, so what else could we do?”* (UTU, Researcher 2).

*“-- I think in terms of the region, I mean it's generated some business I think, because there's a lot of new contacts -- So I think, you know, in terms of hard outputs, it would be very difficult to quantify in terms of jobs or anything like that.”* (Aalto, Researcher 2).

The interviewees with less experience did not recognize other research funding instruments being more desirable, while the senior staff members had received a clear signal from their home universities to focus on other calls. They were generally concerned about the rise of managerialism in the university: after the new state funding model, the researchers implementing SF projects have become forced to work on ‘some sort of publications’ on the side. The management’s view was stricter: *“Although we are trying to respond to regional needs, the funding of the UC-Pori cannot compete in the regional league – there’s no such thing. All research—is measured globally in publications.”* (UC-Pori, Management 2). (Salomaa & Charles, 2019.)

### 6.3. Summary

The regional mission of the Finnish university consortia is further reinforced by the national legislation, but the findings from the UC-Pori suggest that these remote units located in more peripheral areas are juggling between regional engagement activities and delivering traditional academic outputs. The recent organisational changes within parent universities have not reinforced the regional mission of the UC-Pori units, which follow the high-level strategies of their parent organisations focusing on research excellence. In the case of UC-Pori, there were less dedicated structures to deliver entrepreneurial activities (e.g. TTOs or incubators) compared to their parent universities located in urban areas. Instead, the engagement was

mainly organised through projects, many of them funded through SF and Business Finland. This makes the engagement activities less sustainable and complicated to plan. In the lack of top-down initiatives to increase collaborative actions within the Satakunta region, the burden to find ways to combine all the three missions fell mostly on the shoulders of individual researchers of the UC-Pori. Thus the university engagement relies on a strong culture of collaboration with regional stakeholders and researchers' individual interests instead of comprehensive entrepreneurial architecture supporting the third mission.

Also the design processes of the SF projects were not described as strategic, but based on ad-hoc approach, even encouraging opportunistic bidding to safeguard jobs. Even so, the university-led SF projects are largely based on local priority sectors. The SF funding have helped UC-Pori to initiate longer term collaboration with other HEIs and other stakeholders. The collaboration through SF projects have allowed researchers and research groups to increase their skills base, which also facilitates knowledge transfer activities. UC-Pori's SF funded projects varied from very small-scale pilots to larger development projects and there is typically a strong networking element. Whereas some SF projects engage with a variety of local stakeholders, many are more targeted to business partners. To conclude, some of the UC-Pori units have managed to build their research agendas systematically on SF funded projects despite the reduced amount of available funding and the limitations of SF funding instruments, such as heavy administrative procedures, unsuitable output indicators and high match funding rates – and the lack of internal coordination and strategic management within parent universities. These issues are discussed in detail in Chapter 7.

## 7. Discussion

In this chapter, the findings from the case universities presented in the previous three chapters are further discussed in order to identify the specific characteristics of university engagement in rural regions. This is done with the enlarged Entrepreneurial Architecture framework (see Table 5) assessing the impact of a rural region to the university third mission. Then, the university-led Structural Funds activities of the case universities, as a cross-section of how the university third mission can be delivered through SF schemes in rural regions, are discussed. The analysis is based on the overlapping key challenges derived from the literature - collaboration, university organisational culture, SF administrative procedures and SF project outputs (see Table 6). Finally, a typology of university-led SF project types is derived from the analysis for discussing how the different third mission activities (see Table 16) could be delivered through the SF projects, and what kind of transformative contribution to they can make to the regional innovation systems.

*Parts of this Chapter have been published in Regional Studies, Regional Science (Salomaa, 2019), RUNIN Working paper series (Salomaa & Charles, 2019) and in a book chapter in Springer' series entitled Studies on Entrepreneurship, Structural Change and Industrial Dynamics (Salomaa et al., 2020).*

## 7.1. Universities Entrepreneurial Architecture in rural regions

### 7.1.1. University of Lincoln

The case study of the University of Lincoln demonstrates how the local needs of a rural region can shape universities' Entrepreneurial Architecture in many ways. In the case of the UoL, the establishment of a wide range of support activities, some of which have grown into sustainable structural engagement mechanisms, compensates for the absence of other knowledge institutions in the region. These structures are either results from collaboration with external partners (e.g., Lincolnshire Science and Innovation Park) or activities that have been handed over to the university from local stakeholders (e.g., incubators Sparkhouse, Think Tank). Especially in the latter case, they tend to fall outside of traditional academic infrastructure and focus on supporting graduate entrepreneurship and interaction with business partners. The existence of these structures demonstrates mainly the university's commitment to regional development and its efforts to fill in a gap in local knowledge transfer activities, but in practice, it is difficult to reach their full potential in an environment where there is less demand for such services as well as fewer potential partners with a sufficient absorptive capacity. However, universities in such environments are expected to contribute to creating a local market for these services, for example by attracting large-scale companies to the area (e.g. Lincolnshire Science and Innovation Park).

As typical for rural regions, in Lincoln the academic community works closely with the public and private sector. There is not much distance between academia, businesses and regional authorities, and the collaboration has remained rather 'organic' than strategic. The local networks rely heavily on the university's input and these systems are mainly built on personal connections outside academia. The overall university engagement is led by few dedicated individuals at a senior level, who are particularly active in providing leadership in regional networks. Also, typically for rural environments, a small number of people have a lot of influence, which makes delivering successful engagement particularly vulnerable to staff changes. Thus, these external linkages are also challenging to plan and manage on an institutional level, as they are mostly built on personal relationships instead of formal networks. That means that the overall engagement is more based on individuals' than the organisation's

characteristics. In the absence of internal engagement systems and effective lower-level leadership, many of the staff members remain excluded from these activities.

The UoL's rapid growth and expansion demonstrates that a full-range, multidisciplinary university is more likely to be able to cater to the complex needs of a rural area. Currently, its strategy focuses on employer-led curricula design in order to adapt to the emerging local education needs and support graduate entrepreneurship. The regional priority sectors also steer heavily their research orientation in practise (e.g. the living lab approach). This leads to an assumption that universities in rural regions are inclined to build strategic goals for education and research activities in response to local needs and strengths, which reflects a strengthened service identity. However, the UoL's strategy does not address how engagement can be linked to a university's core missions and the strategic aim to cultivate entrepreneurialism in all its activities is rather generic. The internal mechanisms focus mainly on teaching, and the links between regional engagement, education and research remain weak. This decreases the need for creating an entrepreneurial culture beyond serving the region by producing graduates and conducting research on local priority sectors, although the UoL's strong focus on teaching is partly explained by the fact that there is less demand and opportunities to initiate engagement activities and fewer potential partners. In addition, the university, due to its geographical remoteness, has not always been able to attract personnel with a strong engagement focus.

The establishment of a range of engagement activities beyond traditional academic infrastructure, mainly entrepreneurial support services, demonstrates how a university in a rural region can be proactive in reinforcing entrepreneurial culture within the region. However, in the absence of a tradition of local university–industry collaboration, it is not straightforward to create a market for these services. Furthermore, universities are expected not only to deal with a diverse economic base but also to enhance it by attracting large-scale businesses to the region with state-of-the-art facilities. Thus, the strategic engagement focuses on high-level infrastructure initiatives, which creates a systemic gap in the coordination of individual academics' engagement activities. Therefore, the overall culture may remain rather conventional and focused on teaching.

The empirical study of the UoL suggests that in rural regions especially the systems – external linkages with local stakeholders – shape the university’s structures and strategic approach to the third mission. The UoL’s other engagement activities, state-of-the-art facilities and a range of business support services (structures) mainly result from a tight collaboration with other regional stakeholders (systems), implying that the university is filling in the gap in the absence of other local knowledge institutions in a rural region (context). These partnerships and external demands have also expanded the UoL’s curricula design, for example, by the establishment of the engineering school and the local priority sectors steer its research orientation (strategy). The close collaboration and strategic aim to develop employer-led curricula and research reflects a strong service identity in both core missions.

**Table 10. Effect of rural context on EA (University of Lincoln)**

<b>EA Element</b>	<b>Predicted effect of rural context on EA</b>	<b>Observed EA element (UoL)</b>	<b>Effect of rural context on EA</b>
<i><b>Structure</b></i>	Regional partners have a limited capacity to absorb knowledge which diminishes the need for knowledge transfer and establishment of business support structures	Large-scale initiatives to attract more businesses to the region by providing state of the art facilities (e.g. Lincolnshire Science and Innovation Park); Research and Enterprise unit has developed a number of incubating services and development programmes to reach small-scale businesses hidden in the region and to reinforce student entrepreneurship	University compensates for the lack of other knowledge institutions by providing a wide range of support services beyond academic infrastructure; Structures established in collaboration with external partners or handed over to the university from outside; Focuses on supporting student entrepreneurship to tackle regional issue in retaining graduates
<i><b>System</b></i>	Limited large-scale business collaboration; A little distance between academia and public sector; A small number of people have a lot of influence in different networks	A lot of collaboration networks (e.g. GGLEP, Midlands Engine) and strong public partnerships (County Council); Engagement spearheaded by a limited number of university personnel; Recent initiatives (e.g. LIBS connect) to bring together more academics with the local business community	Few large-scale business partners; Little distance between academia, businesses and regional authorities; A small group of people have a lot of influence; Individual efforts compensate weak internal linkages between entrepreneurial systems and departments and colleges

<b>Leadership</b>	High expectations for universities to take leadership in the absence of other regional knowledge organisations	Personal engagement of the top management (especially VC and senior managers); Weak internal leadership of engagement activities	In the absence of other regional partners, the university leaders are expected to play leadership roles outside of academia; Engagement linked more to individuals than institutions: Vulnerable to staff changes
<b>Strategy</b>	A restricted capacity to address regional needs in both education and research; Employer-led strategies built on regional priorities	Strong service identity in both core missions (e.g. establishment of Engineering School with collaboration with Siemens Ltd); Emphasizes student and graduate entrepreneurship for retaining graduates within the region; Relies on regional development strategies (e.g. living lab)	Employer-led approach steers curricula design; Provides a broad range of study programmes for responding to diverse needs of the region; Research orientation steered by regional priority sectors; Favours large-scale infrastructure initiatives instead of coordination of individual academics
<b>Culture</b>	Less demand and opportunities to initiate entrepreneurial activities; Traditional academic culture oriented towards teaching activities to produce graduates to the local job market	Orientation and nature of staff “conventional”, difficult to attract personnel with strong engagement focus; Overall success of the third mission based on individual efforts, few successful partnerships and large-scale infrastructure initiatives	Lack of tradition of university-business collaboration and culture of innovation in the region; Limited number of potential partners; Only few prospective fields for initiating local research collaboration; Strong focus on teaching activities; Vulnerable to staff changes

Source: Salomaa, 2019.

### 7.1.2. University of Aveiro

In the case of University of Aveiro, the university’s commitment to regional engagement was notably visible in the high number of interface structures to support entrepreneurship and business collaboration (e.g. UATEC, Aveiro Creative Science Park, Technological platforms), but also through UA’s active involvement in regional policy networks, further reinforced by the smart specialisation approach and RIS3 strategy design process. The matrix structure of the organisation, set up with an aim to facilitate more strategic and unified dialogue within the organisation, was described to facilitate a clearer direction of the engagement activities between the rectory level and the rest of the university (leadership and culture). In practice, the engagement activities, in particular the representation of the UA in the local networks, was

maintained within the higher level of the organisation. Although the top management provides leadership, also outside of the academia, the regional priorities were not sufficiently communicated to the lower levels of the organisation. This is supported by the interview data, as many of the researchers were not aware of how the university was involved in the regional policy design processes or what kind of priorities were set in these processes (systems).

As in the case of Lincoln, the establishment of a range of engagement structures to facilitate collaboration with different stakeholders demonstrates both the organisational commitment to regional development, but also the enhanced local expectations towards the university in the lack of other knowledge institutions in the area. Despite these efforts, the engagement remained more dependent on individuals than institutional mechanisms, failing to reinforce the university third mission on the system level. As an example, the knowledge transfer office UATEC was criticised of being too concentrated on the IP issues, whereas individual researchers were in the key positions in establishing and maintaining business collaboration. However, as many of the interviewees agreed, it can be complicated to find suitable partners from the Aveiro region, – or even on a national level – depending on the discipline. In some cases, UA's dedicated interface structures had managed to attract more potential business partners to the region. Some of these engagement structures were built in collaboration with external partners (e.g. Aveiro Creative Science Park). These efforts to respond to the local needs through multiple access points can make the university engagement complicated to manage and confusing for external partners by offering too many, overlapping, local pathways to academic knowledge. Another common issue with the cases of Lincoln and Aveiro is the engagement activities rely partly on external funds, mostly from the Structural Funds schemes, which makes them less sustainable platforms to develop long-term collaboration – excluding the past infrastructure projects that have shaped the Aveiro campus remarkably. This illustrates university engagement as funding-driven, rather opportunistic than strategic behaviour (strategy).

UA's strong regional role results from personal commitment and trust build between different stakeholders. Though UA's partnerships with local stakeholders, mainly public bodies, were well established, one of the issues raised by the academics was the fact that these local authorities may not have sufficient capacity to build on the knowledge produced through collaboration projects (context). On the other hand, whilst many researchers had a strong



capacity to offer tailored solutions to the local companies or public bodies through applied research projects, the regional development aspect of the cooperation remained rather unimportant compared with fundamental research. The level of the engagement was also determined by the disciplinary areas, e.g. health, environment and planning being more aligned with the regional priority sectors compared to STEM (e.g. chemistry and physics). This is also partly explained by the university's internal evaluation mechanisms that perceive engagement and entrepreneurship secondary compared to the other university missions. Again, a common issue compared to the findings from the University of Lincoln: the overall absence of suitable performance indicators and acknowledgement of the engagement activities cannot be overlooked, or the national higher education policy context ignored in the discussion on the university third mission.

In the case of Aveiro, the culture among academic staff was focused either on research or teaching, and even these two missions were perceived as rather separate functions of the university. This was partly explained by the absence of an institutional third mission strategy and lack of communication, but also the matrix structure, which created a gap between the top management and the departments, and finally the lack of professional middle management to strive and reinforce the third mission (leadership). Although the attitudes towards university engagement and its practical implications remained disunited, the University of Aveiro was still largely characterised as a regionally focused university (culture). This was seen as its leading distinctive feature compared to the other two universities located in the Centro region, demonstrating how both the history of an institution and the expectations of the surrounding environment together determine the main narrative for attitude towards the university engagement.

**Table 11. Effect of rural context on EA (University of Aveiro)**

<b>EA Element</b>	<b>Predicted effect of rural context on EA</b>	<b>Observed EA element (Aveiro)</b>	<b>Effect of rural context on EA</b>
<i>Structure</i>	Regional partners have a limited capacity to absorb knowledge which diminishes the need for knowledge transfer and establishment of business support structures	Large-scale initiatives to attract more businesses to the region by providing state of the art facilities (e.g. Aveiro Creative Science Park); internal efforts to create multidisciplinary research on regional priorities (e.g. SF schemes); Establishment of a range of entrepreneurship interfaces to support local collaboration (e.g. UATEC).	University compensates for the lack of other knowledge institutions by providing a wide range of support services beyond academic infrastructure; Structures established in collaboration with external partners or handed over to the university from outside (e.g. up-scaling skills level of IERA).
<i>System</i>	Less large-scale business collaboration; A little distance between academia and public sector; A small number of people have a lot of influence in different networks	A lot of collaboration networks and strong public partnerships (e.g. CIRA); Engagement spearheaded by a limited number of university personnel, mostly on the top-level; Large-scale business collaboration resulted from top-down initiatives.	Few large-scale business partners; Little distance between academia, businesses and regional authorities; Weak internal linkages between entrepreneurial systems and departments.
<i>Leadership</i>	High expectations for universities to take leadership in the absence of other regional knowledge organisations	Personal engagement of the top management (Vice-Rector for University-Society relations, Pro-Rector for Regional Development), also outside of academia (e.g. S3 policy formulation); Lack of lower-level leadership for engagement activities.	In the absence of other regional partners the university leaders are expected to play leadership roles outside of academia; Engagement linked more to individuals than institutions; Vulnerable to staff changes.
<i>Strategy</i>	A restricted capacity to address regional needs in both education and research; Employer-led strategies built on regional priorities	Large-scale initiatives to respond to regional priority sectors (e.g. technological platforms).	Large-scale infrastructure initiatives instead of coordination of individual academics.

<i>Culture</i>	Less demand and opportunities to initiate entrepreneurial activities; Traditional academic culture oriented towards teaching activities to produce graduated to the local job market	Orientation and nature of staff ‘conventional’: A shared narrative on regionally-focused university with less practical implications; Overall success of the third mission based on individual efforts, mostly on high-level: few successful, large-scale businesses collaborations.	Lack of tradition of university-business collaboration and culture of innovation in the region; Limited number of potential partners; Only few prospective fields for initiating local research collaboration; Strong focus on teaching and fundamental research.
----------------	--	--	---

Source: Author’s Own elaboration.

### 7.1.3. University Consortium of Pori

The case of the University Consortium of Pori tells a story of three Finnish universities’ remote units forming a university network organisation with an emphasised regional role. Although the regional mission of the Finnish university consortia is reinforced by the national legislation, in practice, the remote units of the UC-Pori located in more peripheral area were forced to juggle between regional engagement activities and delivering traditional academic outputs. The regional context with less tradition of university-business collaboration poses high expectations towards the university consortium, but unlike in the cases of Lincoln or Aveiro, the UC-Pori had less dedicated structures to deliver entrepreneurial activities (e.g. TTOs or incubators) compared to their parent universities located in more urban areas. Instead, the engagement was largely organised through projects, mostly funded through SF and Business Finland (former TEKES), which makes them less sustainable and complicated to plan in a long-term.

Due to major organisational changes at all parent universities of the UC-Pori, these small-scale remote units were more closely linked to the main campuses. However, the centralisation processes have not addressed the stronger regional mission of the UC-Pori units, and they follow the high-level strategy of their parent organisations largely focusing on excellent science with an international impact. This lack of strategic planning of regional engagement activities – and the partly opposed objectives set in the parent universities strategy documents - was repeatedly emphasised as a barrier hindering UC-Pori to respond to the local needs. Instead of top-down initiatives to increase collaborative actions, the burden to find ways to combine all

the three missions fell mostly on the shoulders of individual researchers. Whilst the parent universities strive for international research collaboration, the UC-Pori units had a strong commitment to the region, creating smaller-scale collaborative initiatives, e.g. through SF funding, which do not fit into the strategic aims of their parent universities. Whereas in Lincoln and Aveiro the engagement was manifested through high-level, large-scale institutional initiatives, UC-Pori represents a more bottom-up approach to the university engagement, propelled by individual academics' motivation to work with their local stakeholders. In both cases, universities work closely with local stakeholders, but in the latter, the high-level leadership spearheading the university engagement is largely absent.

As in the cases of Lincoln and Aveiro, also the UC-Pori filled in a gap of other knowledge institutions in the area. This was evident on the system level, though UC-Pori personnel engage with local stakeholders mostly via informal networks and personal linkages based on trust. Again, the UC-Pori had a different approach to working with regional networks compared to Lincoln and Aveiro: instead of top-down, high-level engagement, the individual academics were active in different regional networks and policy formulation (in particular RIS3), whilst the top management of the parent universities were not fully aware of how the UC-Pori actually was involved in these processes. Similarly, as in the case of Aveiro, the smart specialisation approach in the regional policy design processes has strengthened the role of UC-Pori in the policy formulation – and also in the implementation phase, as many of the disciplines of the UC-Pori were highlighted in the regional priorities of Satakunta. This implies that remote units with a specific regional mission can operate more easily with their local stakeholders, such as municipalities and regional councils, even without a strong leadership or an official mandate from their parent institutions. Overall, there was very little leadership provided for the engagement activities, neither at the Pori campus nor at the parent universities.

Providing a local access to higher education in the Satakunta region was highly appreciated by the regional stakeholders. From the management's perspective, it was also the ultimate *raison d'être* of the university consortia. In contrast to the cases of UoL and UA, both being full-range universities, the case of UC-Pori represents an 'atypical' model to deliver university activities in a remote region. The data from UC-Pori implies that the overall culture and attitudes towards engagement are more positive in such remote units compared to traditional university

campuses. Partly motivated by the generous financial support from the city of Pori, the UC-Pori personnel had a stern commitment to ‘give something back’ to their community and to serve the region beyond producing skilful graduates to the local job market. Curiously, the curricula design did not appear to be strongly based on regional needs, but rather on creating ‘added-value’ to the study degrees offered at the main campuses – or even resulting from individual academics’ interest to work in the Pori area. This again illustrates the bottom-up approach to regional development and the lack of leadership provided by the parent universities. Whilst the regional mission was not strongly present in the UC-Pori’s structures, systems, strategies or leadership, its specific commitment to regional development was yet obvious in the overall culture of the units, among both the academics and the supporting staff members.

**Table 12. Effect of rural context on EA (University Consortium of Pori)**

<b>EA Element</b>	<b>Predicted effect of rural context on EA</b>	<b>Observed EA element (UC/Pori )</b>	<b>Effect of rural context on EA</b>
<b>Structure</b>	Regional partners have a limited capacity to absorb knowledge which diminishes the need for knowledge transfer and establishment of business support structures	No formal structures for supporting engagement with the regional stakeholders because of the insufficient resources of the small remote units located in Pori; Engagement largely organised through project.	University compensates for the lack of other knowledge institutions by initiating joint projects with local stakeholders; High expectations towards university to build knowledge transfer activities and scale up the local skills level.
<b>System</b>	Less large-scale business collaboration; A little distance between academia and public sector; A small number of people have a lot of influence in different networks	A lot of collaboration with local stakeholders, mainly through informal networks and personal linkages based on trust; Parent universities' management less active in these regional networks than personnel working in the Pori campus.	Few large-scale business partners;  Little distance between academia, businesses and regional authorities;  Individual academics' efforts compensate for the lack of top managements' engagement.
<b>Leadership</b>	High expectations for universities to take leadership in the absence of other regional knowledge organisations	Weak internal leadership of engagement activities provided by the parent universities (excluding director working at the Pori campus); Engagement based on individual academics' efforts to work with the local stakeholders.	In the absence of other regional partners, the university personnel is expected to play leadership roles outside of academia (e.g. regional policy formulation and implementation); Vulnerable to staff changes.
<b>Strategy</b>	A restricted capacity to address regional needs in both education and research; Employer-led strategies built on regional priorities	Strong commitment on the third mission on high-level strategy documents, but no dedicated strategy considering the regional needs (e.g. offered degree studies); Many research projects build on regional priorities.	Smaller units have a limited capability to address the diverse educational needs of the region; Research orientation steered by regional priority sectors
<b>Culture</b>	Less demand and opportunities to initiate entrepreneurial activities; Traditional academic culture oriented towards teaching activities to produce graduated to the local job market	Strong commitment to the development of the Satakunta region; Overall success of the third mission based on individual efforts to work with local stakeholders.	Lack of tradition of university-business collaboration and culture of innovation in the region; Limited number of potential partners; A few prospective fields for initiating local research collaboration based on regional priorities; Engagement vulnerable to staff changes.

*Source: Author's own elaboration.*

## 7.2. University engagement in rural regions

The impact of the regional and national context of the university are crucial in the development of engagement activities (Breznitz & Feldman, 2012; Foss & Gibson, 2015). This highlights the importance of more context-sensitive approaches for understanding the third mission instead of simplistic one-size-fits-all solutions (Benneworth *et al.*, 2016b; Kitagawa *et al.*, 2016). Through the cases of University of Lincoln, University of Aveiro and the University of Consortium of Pori it was possible to analyse how rural context impacts the way in which universities develop their engagement activities on institutional level. For this purpose, the original Entrepreneurial Architecture framework (Vorley & Nelles, 2009, 2012; Nelles & Vorley, 2010a, 2010b, 2011) was expanded to include a contextual element, in this case a rural region, and its predicted impact on the EA, which was investigated with multiple case studies.

The case studies illustrate how a particular context can have a major impact on all the dimensions of the Entrepreneurial Architecture framework, and thus on the overall university engagement. A rural context can steer the university's institutional responses towards the third mission especially through the establishment of a wide range of *structures* to compensate for the absence of other knowledge institutions in the region. This was evident in the cases of full-range universities (UoL and UA), while the smaller-scale remote units (UC-Pori) organises the engagement through projects and other collaborative activities instead of heavy formal structures. The engagement structures can either be resulted from local collaboration networks and external linkages (*systems*) or they can be tasks designated to the university by local stakeholders.

In a rural region, especially partnerships (*systems*) and personal engagement (*leadership*) of top management shape universities' engagement activities (e.g. Lindeman, 2015; Oftedal & Foss, 2015). In all cases, these relationships are based on individual commitment rather than institutional mechanisms, which makes them challenging to plan and manage, and also vulnerable to staff changes. While the engagement of the full-range universities located in peripheral areas (UoL and UA) was spearheaded by the top management, the remote units providing local access to university activities (UC-Pori) had a more bottom-up approach. In both cases, the university personnel played leadership roles outside of academia, including

involvement with regional authorities and networks, as well as informal linkages with key stakeholders. In the cases of Lincoln and Aveiro, the personal engagement of the top management is aligned with Foss and Gibson's (2015) remark that entrepreneurialism is not linked to institutional, but the personal characteristics of leaders. This is emphasised in a rural region where people are known and there is little distance between university, public and private sector (Oftedal & Foss, 2015; Oftedal & Iakovleva, 2015), which also facilitates academics to create linkages with local stakeholders. The potential downside of the strong engagement embodied by the top management is that the other university staff members may be excluded from the engagement activities based on individual connections especially if the *strategy* focuses on high-level infrastructure initiative on local priority sectors and serving the local job market through traditional study modules. The full-range universities are more able to provide the latter, and thus cater the different educational needs emerging from the region.

These findings indicate, that universities can struggle to deliver engagement activities – through SF funding or otherwise – if all the elements of the university's Entrepreneurial Architecture are not balanced, and the operational context not taken into account in designing and delivering the third mission. Based on the empirical evidence from three case universities, it is evident that the rural context plays a role in shaping the overall institutional approach to the third mission. A particular context, in combination with institutional and individual linkages, shape the systems, structures and strategies. However, the leadership for engagement is not automatically strong even if these previous elements supported regional engagement. Together with insufficient coordination systems reinforcing individual staff members' engagement (UoL, UA, UC-Pori), fewer potential partners (UoL, UA, UC-Pori), and strategic focus either in teaching or research activities (UoL, UA, UC-Pori), hinders creating an entrepreneurial *culture* in universities based in rural regions. Curiously, a positive culture of engagement is not only dependent on the other elements of the Entrepreneurial Architecture: as in the case of UC-Pori, the other key elements, such as structures, strategy and leadership for the third stream activities were widely missing, but yet the staff members described a strong commitment to bringing added value to the region and working with local stakeholders. This is completely opposite to the UoL's approach to regional engagement, characterised by the establishment of a range of entrepreneurial interface structures to foster local collaboration.



To conclude, all the elements of the Entrepreneurial Architecture framework observed in the case studies are rooted, as Foss and Gibson (2015) noted, in a particular context affecting the way in which the university can deliver and manage third mission activities. In order to better address the impact of the operational environment to the overall university engagement, both local economic and social environment affecting to the need, volume and potential means of engagement should be analysed as part of the universities' EA.

**Table 13. Proposed addition to Entrepreneurial Architecture framework**

<b>EA Element</b>	<b>Definition</b>
<i>Structure</i>	Entrepreneurial infrastructure: TTOs, incubators, tech parks, business portals
<i>System</i>	Networks of communication and configuration linkages between structures and departments
<i>Leadership</i>	Qualification and orientation of key leaders toward the Third Mission
<i>Strategy</i>	Institutional goals elaborated in planning documents: internally determined formal incentive structures
<i>Culture</i>	Institutional, departmental and individual attitudes and norms towards the third stream: links with <i>leaderships</i> , <i>systems</i> and <i>strategy</i> .
<i>Context</i>	Local economic and social environment affecting the need, volume and potential means of engagement.

Source: Salomaa, 2019.

### 7.3. University third mission and Structural Funds

Next, the main results related to the case universities' engagement with Structural Funds are briefly presented, after which the findings from each case are discussed in more depth. The results summarised in Table 14, based on the majority of responses given in the research interviews, are clustered according to the challenges related to universities' engagement with the SF programmes presented in the literature review (see Table 6).

All the case universities' informants widely agreed that universities are important drivers of regional development, and the Structural Funds are relevant funding instruments in reinforcing engagement activities, especially when it comes to remote units: *"The further we go from the main campus, the more important the SF are to the university"* (UC-Pori, Management 2). However, the University Consortium of Pori had a less positive perception on the role of SF in reinforcing R&D activities compared with the University of Aveiro and to the University of Lincoln. This is partly explained by the fact that in Finland the national restrictions and implementation of the SF funding schemes forbid conducting basic research within the projects. The guidelines also complicate business collaboration, which limit the number of commercial outcomes. On the contrary, interviewees from Aveiro and Lincoln thought that SF projects can often lead to patents and other commercialised research outputs, and in the best case scenarios, to KTPs.

All case universities described that they have a good relationship with many regional stakeholders. However, the University of Lincoln's staff thought that a more effective regional coordination would help identifying potential partners and increase the university's participation in SF projects, whereas informants from UC-Pori and Aveiro agreed that the current level of coordination is already sufficient, and the identification of project partners is mainly up to academic staff.

One of the main barriers hindering universities' engagement with SF funding was the complicated administrative structure of the funding schemes (national and regional programmes), guidelines depending on the funding authority and the heavy reporting procedures related to the implementation of the projects, in particular in ESF projects. In the case of UC-Pori, the university's internal funding mechanisms were not considered to be

compatible with SF schemes. Also, the mandatory self-financing rate, in the case of the UC-Pori and Lincoln the match-funding typically being between 30–50%, can make the SF funding schemes ‘off-putting’, especially from the management’s perspective: “-- *that's a very dangerous game to play isn't it --the ERDF funding is just a very, very complicated way of borrowing money.*” (UoL, Management 1). In the case of Aveiro, the match-funding was not seen as a barrier as the SF funding could cover up to 100% of the costs.

Considering the university’s organisational culture and how the SF projects can be aligned with teaching and research, the respondents from Lincoln and Aveiro thought that synergies are rather easy to find (e.g. hiring PhD students or post-docs, building larger research projects on regional priorities), whereas the informants from the UC-Pori, especially the management from the parent universities, were more sceptical about how the SF projects can be linked with these core missions. Nonetheless, the academic staff were highly motivated to bid for SF projects in both Pori and Aveiro. In both universities, the academics are involved with the bidding processes, but Lincoln had chosen another route to engage with the SFs: the management level and the Research and Enterprise unit took care of the designing of the projects. As Lincoln only bid for large-scale institutional projects, the academic staff felt somewhat disconnected and were not well aware of the SF funding opportunities. In the case of Lincoln, the respondents agreed that the increasing of the internal coordination of the SF activities within the university would be beneficial in finding more motivated academics to work with regional partners and businesses in SF projects in the future.

Despite the high motivation of individual academics to engage with SF projects at UC-Pori, the parent universities had clearly signalled that other funding sources are more desirable (e.g. H2020, Academy of Finland, Business Finland). The respondents from Aveiro and Lincoln considered SF to be one relevant funding instrument among others.

In the following sections, these findings are further elaborated by each case university.

**Table 14. Universities' engagement with SF: Main results from each case institution summarised.**

Universities' engagement with SF	Statements	Lincoln	Aveiro	Pori
General	1. Universities are important drivers of regional development.	***	***	***
	2. Structural Funds programmes are important source of funding for universities, especially in more peripheral regions.	***	***	***
	3. Structural Funds instruments support universities' regional engagement.	***	***	***
	4. Structural Funds are significant factor in developing universities' research capacity and contribution to R&D activities.	***	***	**
Collaboration	5. Lack of regional coordination hinders participation and finding suitable partners.	***	*	*
	6. SF instruments create competition between regional actors	***	—	*
SF administrative procedures	7. SF instruments are bureaucratic.	***	***	***
	8. High self-financing rates decrease motivation to apply for funding.	***	—	*
University organisational culture	9. SF projects are difficult to combine with higher education and research.	*	*	**
	10. Lack of motivation decrease participation to projects.	***	*	*
	11. Lack of internal coordination decrease participation to projects.	***	*	*
	12. Other funding instruments are prioritized.	*	*	***
SF Project outputs	13. Projects' expected outcomes can be over-estimated to secure funding.	***	***	***
	14. The number of commercial outcomes is low.	*	*	***

\*\*\* Agree, \*\* Neutral, \* Disagree – No response

As discussed in Chapter 2, demands towards universities have been on the increase in the past decades (e.g. Uyarra, 2010). However, responding to regional needs can be complicated (Arbo & Benneworth, 2007; Gibb & Hannon, 2006), especially in a traditional academic infrastructure (Clark, 1998) or in particular in areas without an evident science base or strong technology domains to build on (Foray *et al.*, 2009).

The empirical evidence from all three cases indicates, that this is the case for full-range universities (UoL, UA) as well as for a network of universities with a specific regional mission (UC-Pori). The lack of strategic approach towards the university third mission and the – sometimes contradictory – needs of the different stakeholders makes regional activities very complicated to manage within universities, also through the SF projects, which potentially provide a channel for delivering the third stream activities. The interviewees from all three universities described different agendas, institutional and individual motivations for engaging with SF projects. SF schemes were seen as an important source of funding - in the absence of other suitable funding streams for delivering the university third mission - especially for remote / satellite units with a stronger regional focus (UC-Pori, Holbeach and Riseholm campuses at UoL).

In the next sections, the impact of the challenges of university-led Structural Funds projects to the third mission is discussed. Firstly, an overview on the analysis on each case study is presented, and secondly, the overall characteristics of the university-led SF projects are further elaborated. Then, based on the empirical evidence from all case studies, a typology of university-led SF project is produced while reflecting their alignment with the university third mission and potential to make a transformative contribution to the regional innovation systems.

### 7.3.1. University of Lincoln

In the case of University of Lincoln, the university's involvement with Structural Funds schemes emerged from the strong regional collaboration between the UoL and local authorities, especially with the Lincolnshire County Council and GLLEP. These linkages helped to design university-led strategic, large-scale SF projects. As the overall regional engagement of the UoL, also the SF projects were managed on the top level of the organisation. In addition, UoL

has also undertaken subcontracted tasks funded through SF projects, but led by external partners, mostly public bodies. While these contracted SF activities vary from technology hubs to performance evaluations of the SF programmes, the large-scale institutional projects tend to focus on innovation support activities targeted to SMEs (e.g. innovation vouchers, proof of concepts grants, internships).

In the lack of cross-regional coordination between the overlapping LEP areas almost analogical business support programmes might be running simultaneously, which can be confusing for the target groups. Also, the University of Lincoln had difficulties to initiate cross-regional collaboration within the overlapping LEP areas. Another major constraint identified in the case of UoL's was the guidelines of the SF programmes, especially the strict eligibility criteria of the SMEs. Finding suitable (business) partners in a vast, rural region is challenging in itself, but even more so for academic staff with a limited experience on the SF funding and insufficient knowledge on the SF eligibility criteria, which can cause challenges in the implementation phase of large-scale projects. These strict guidelines of the SF instruments can also hinder academics to plan and deliver long-term collaboration with regional stakeholders, making them less motivated to engage with the SF funded activities. Also, the administrative guidelines provided by the funding authority were described to be unpredictable and thus difficult to manage, which was partly due to the personnel changes at the funding authority (in most cases MHCLG).

Overall, the UoL had a good level of knowledge and capacity to design and manage SF projects. In the large-scale projects, UoL acted as an intermediary, not only increasing the absorptive capacity of the local SMEs, but also their ability to benefit from SF schemes in the future. While the UoL's SF projects were designed to respond to the regional priorities according to the RIS3 strategy, in practise, they were less aligned with research activities and individual researchers' interests. However, the SF projects can provide a framework for delivering the university third mission: In particular, the SF schemes were deemed to be useful in supporting knowledge transfer between academics and SMEs through consultancy in the regional priority sectors (e.g. agriculture and food manufacturing). Although the SF funding does not count in the national evaluations of the universities, e.g. Research Excellence Framework (REF), the overall attitude towards them was rather positive at UoL.

The SF instruments can provide a platform for delivering third mission activities, but in the current approach of the UoL, their effective implementation depend on individual academics. The strategic, top-down approach to regional engagement at UoL was not seen ideal for maximising regional and / or academic benefits from the SF projects, although it has been a successful way to secure large-scale funding related to the university's priority areas. For example, the university's investments in the agri-food sector were deeply aligned with the regional priorities, which also resonated in the amount of granted SF funding through projects: thus the impact of the rural context and its local business base were the key elements in setting these strategic priorities and their implementation, the university being heavily involved in both stages.

The case of UoL demonstrates, that even when there is a strong leadership for engagement on the top level of the university, a range of established structures to support working with regional partners and large-scale institutional SF initiatives are designed, the overall university engagement through these projects can remain superficial, unless academics and other staff members are involved throughout the processes. Whilst the top management was heavily focused on SF schemes, partly because of the otherwise low demand of the funds within the region, the academics had less motivation and skills to engage. Even the academics who were more involved with the SF activities were not fully aware of the purpose and limitations of the SF instruments; in the absence of lower level leadership and support mechanisms single academics were excluded of many of the SF activities.

**Table 15. The impact of current challenges in university-led SF projects in the case of University of Lincoln**

<b>Challenge</b>	<b>Impact</b>	<b>Observed key elements (UoL)</b>	<b>Effects on the third mission</b>
<i>Collaboration</i>	Non-desirable competition Lack of regional coordination Lack of business partners (peripheral regions) Difficulties in cross-regional collaboration	Contribute to creating long-term collaboration with other HEIs, businesses and public organisations; More complicated in remote regions with less potential (business) partners; Many actors provide analogous activities supporting entrepreneurship (not just through SF)	Facilitate knowledge transfer and capacity building to support regional innovation by increasing the absorptive capacity of the SMEs; Foster creating a culture of collaboration with academia and regional stakeholders; May have an impact on policymaking (RIS3 and implementation).
<i>SF administrative procedures</i>	Unrealistic policy goals High bureaucracy High risk form of funding Match-funding rates 'economy democracy paradox'	Do not fund basic research or degree education; High success rates; Bureaucratic, non-transparent and complicated to manage (clawbacks); Guidelines complicates business collaboration (eligibility criteria)	Low competition may lead to opportunistic behaviour ('projects for the sake of external funds');  Forces to build research agendas too much on local needs.
<i>University organisational culture</i>	Embedding engagement to academic core complicated; (mismatch of academic profiles and regional needs) Lack of resources Absence of institutional strategies Lack of academic outputs	High-level of strategic planning and top management's involvement with regional engagement activities; Individual academics not widely aware of the activities; Focus widely on supporting entrepreneurship	A potential funding source for delivering TM activities, especially in remote campuses; SF less attractive funding source for universities in the national HE policy framework; Top-down SF initiatives do not foster engaging individual academics to the activities.
<i>SF Project outputs</i>	Over-estimated outputs Lack of academic outputs Low number of commercial results 'user inspired basic research'	Strong applied approach; Enable small-scale regional pilots; commercial outputs rare.	SF projects based on transferring existing results instead of cutting-edge technology (excluding the proof of concepts); Can enable user inspired basic research, but it is difficult to design and manage in the project timeframe; SF activities can be 'steppingstones' to large-scale research projects.

Source: Author's Own elaboration.



### 7.3.2. University of Aveiro

In the case of University of Aveiro, there was a lot of technical support available for regional engagement activities. The university strived to facilitate these activities through organisation of the university e.g. matrix structure and Aveiro Creative Innovation Park. Whilst the top management of the university was responsible for designing the large-scale Structural Funds projects with a regional focus, also individual academics and dedicated entrepreneurial interface structures (e.g. technology transfer office UATEC) bid for external funds from the SF schemes. The latter were active in SF projects related to capacity building and IP. In Portugal, the use of SF was somewhat different compared to the other two case studies, as the funds were partly allocated in collaboration with national research council and the guidelines allowed funding basic research projects. Although this increased the researchers' motivation to apply for Structural Funds, at the same time, the regional aspects of the projects became less significant. Many of the academics admitted, that the origin of the funding does not matter to them as long as they can concentrate on research. However, disciplinary differences were evident as some of the SF projects e.g. related to health and aging, took the local stakeholder groups more in to account already in the bidding phase.

In the case of UA, the collaboration linkages with regional authorities and other stakeholders, were estimated to increase the university's engagement with the SF schemes. These linkages were mainly contained on the high level of the organisation, and in particular, UA's involvement in the policy formulation of the regional smart specialisation strategies had reinforced these relations. The top-down, large-scale project designed by the rectorate were perceived as exclusive, and their regional development aspects could get lost in the day-to-day work – even when the project was aligned with the regional priorities. However, the case of UA demonstrates that SF projects can increase internal collaboration within the university, especially when the top management assigns research groups to develop common projects for the SF calls. The strong collaborative element of the SF projects was evident also in the two other cases: while the UC-Pori units worked occasionally together or with the other units located in the main campuses, the large-scale ERDF projects led by UoL mobilised different disciplines across the campus to work with local partners. In all cases, collaboration with the

private sector through SF was restricted by the SME landscape of the region, hindering some disciplines from finding potential business partners.

The complicated national management structure of the SF programmes in Portugal (including both national and regional OPs) caused bureaucracy and the guidelines could vary depending on the managing authority. However, unlike in the other two case studies, the administrative burden of the SF projects did not decrease the amount of SF activities within the university, although they made the bidding processes – especially joint-calls with Centro and national science foundation FCT– and also partly the implementation of the projects more complicated. UA provided administrative support for both the bidding and the implementation phase through centralised services, but some of the departments had lots of experience on the SF schemes and were able to assist the researchers in all stages.

Despite UA's heavy involvement with the SF schemes, both regional and national, the role of the SF and their institutional management was not clear in the university organisational culture. This was evidenced by the fact that individual researchers were not aware of how the large-scale projects were designed and managed on the institutional level or how the SF activities should contribute to the regional development goals set in smart specialisations strategies. In addition, the motivation to engage with the regional partners was rather driven by individual interests to serve the region instead of a well communicated institutional mission, also because of the poor weighting of the third mission activities in the internal evaluation mechanisms. The researchers familiar with the SF funding were, however, able to use the SF funding for basic research related to the regional priority areas, which is a not a common practice. Whilst a better alignment between the SF projects and the university core missions (research), the ability to generate academic outputs (publications, PhD degrees) and contributions towards capacity building (e.g. UATEC's internationalisation efforts resulted in H2020 bids, IP projects) increased the overall motivation to bid for SF funds within UA, the regional aspects remained less important. This was partly explained by the restricted absorptive capacity of the regional businesses and public sector partners to build on the knowledge generated in SF projects. Finally, the SF instruments were not seen as agile enough for producing commercial outputs, and the knowledge transfer mechanisms supported by the SF schemes were regarded as inefficient.

**Table 16. The impact of current challenges in university-led SF projects in the case of University of Aveiro**

<b>Challenge</b>	<b>Impact</b>	<b>Observed key elements (UA)</b>	<b>Effects on the third mission</b>
<i>Collaboration</i>	Non-desirable competition Lack of regional coordination Lack of business partners (peripheral regions) Difficulties in cross-regional collaboration	Contribute to creating long-term collaboration within university, but also with other HEIs, businesses and public organisations; More complicated in remote regions with less potential (business) partners; Limited absorptive capacity of the regional stakeholders.	Facilitate knowledge transfer and capacity building to support regional innovation processes; Foster creating a culture of collaboration with academia and regional stakeholders; May have an impact on policymaking (RIS3 and implementation).
<i>SF administrative procedures</i>	Unrealistic policy goals High bureaucracy High risk form of funding Match-funding rates 'economy democracy paradox'	Funds basic research (partly on the expense of regional approach); High success rates; Regional policies favour STEM; Bureaucratic, non-transparent and complicated to manage.	Inefficient delivery mechanisms for knowledge transfer and supporting regional innovation; Forces to build research agendas too much on local needs; Unused potential in supporting entrepreneurial activities.
<i>University organisational culture</i>	Embedding engagement to academic core complicated; (mismatch of academic profiles and regional needs) Lack of resources Absence of institutional strategies Lack of academic outputs	Enable finding new ways to work (e.g. capacity building, networking); Top management's heavy involvement with regional engagement activities; Increased internal collaboration; Focus widely on generating traditional academic outputs.	A relevant funding source for delivering both research and TM activities; SF less attractive funding source for universities in the national HE policy framework; Overall engagement depends on individual academics and research groups.
<i>SF Project outputs</i>	Over-estimated outputs Lack of academic outputs Low number of commercial results 'user inspired basic research'	Strong applied approach; Enable generating also academic outputs; Inefficient delivery mechanisms for knowledge transfer and supporting regional innovation.	Results unexploited by the regional companies (strict SF guidelines, regional SME landscape); Collaboration 'steppingstones' towards large-scale research projects.

Source: Author's own elaboration.

### 7.3.3. University consortium of Pori

In contrast to the previous two cases, the Structural Funds activities of the University Consortium of Pori were not spearheaded by the top management of the parent universities, but the individual academics working in the Pori campus. Although UC-Pori personnel take part in the regional strategy design processes and networks, they are expected to follow their parent universities' strategy. The design of SF projects is not strategic, but rather based on ad-hoc approach, encouraging opportunistic bidding to safeguard jobs. Although the leadership, structures or even the strategy – considering the parent universities' strategic plans, which emphasise universities' societal role, but mainly through teaching and research – value engagement in paper, in practise, the engagement relies on a strong culture of collaboration with regional stakeholders and researchers' individual interest.

The SF projects were planned by the academics, who typically were also involved in the implementation, which facilitated setting realistic goals and effective implementations of the proposed activities. In Finnish universities the staff is divided into academic and administrative staff, but the SF activities were implemented by both, in particular the personnel dealing with continuing and adult education. In the other case universities, the implementation were more clearly the academic staff's responsibility while the professional staff were focused on the project management, administration and reporting (UoL). In the case of UC-Pori, the SF funding have helped universities to initiate longer term collaboration with HEIs and other stakeholders, though the university-industry cooperation is less established in the region of Satakunta and there is a lack of potential business partners. However, the collaboration through SF projects allows individual researchers and research groups to increase their skills base. It also contributes to knowledge transfer activities and general capacity building of the region as the university-led SF projects are largely based on local priority sectors. Working with public sector stakeholders in different stages of policy processes can have an effect to local policy processes, in particular through RIS3 formulation.

According to Finnish HE policies, universities can deliver the third mission simply by being a part of a university consortia and bringing university activities (e.g. generating graduates to the job market) to locations otherwise lacking access to a university, which was also highlighted

in the case of Pori. Beyond that, the third mission is broadly defined as knowledge transfer, contributing to innovation processes, providing complementary training, collaborative actions and participation to public discussion. (FINHEEC, 2013.) The findings from Pori suggest that all these tasks can be aligned with SF projects carried out by universities, but a number of barriers hinder optimising benefits from these activities and acknowledging their role within university organizations.

UC-Pori carries out different types of SF activities, both ERDF and ESF funded projects varying from very small-scale pilots to larger development projects, which typically have a strong networking element. Whereas some SF projects engage with a variety of local stakeholders, many are more targeted to business partners. Over the past decade, some UC-Pori units have managed to build their research agendas systematically on SF funded projects from practise to theory, even despite the limitations of SF funding instrument – such as heavy administrative procedures, unsuitable output indicators and high match funding rates – and the lack of internal coordination and strategic management within parent universities. The SF projects can provide a channel for academics to get in touch with different target groups, but they also indirectly contribute to generating research outputs. The SF activities can thus facilitate obtaining PhD degrees and generate conference papers, despite the purely networking-based activities, that do not typically lead to any kind of academic outputs. The Structural Funds programmes are one of the tools to support the former, though the national guidelines of the instruments are not suitable for directly generating the latter. This has forced researchers to ‘camouflage’ research outputs from these development projects or to work on publications or PhD degrees ‘on the side’ of SF activities. This is partly due to the rise of managerialism and other recent changes in the higher education policies in Finland; Especially the performance-based indicators in the state funding model has steered universities to focus more on the generation of academic outputs such as degrees and peer-reviewed publications. As in the UK, the SF funding does not count as external research funds, which makes university leaders more reluctant to invest resources, e.g. designing of the projects, match-funding, to these activities. As an exception, University of Turku was currently working on internal performance indicators for societal impact, in which the amount of granted SF funding was one of the measurements of success.

**Table 17. The impact of current challenges in university-led SF projects in the case of University Consortium of Pori**

<b>Challenge</b>	<b>Impact</b>	<b>Observed key elements (UC-Pori)</b>	<b>Effects on the third mission</b>
<i>Collaboration</i>	Non-desirable competition Lack of regional coordination Lack of business partners (peripheral regions) Difficulties in cross-regional collaboration	Contribute to creating long-term collaboration with other HEIs, businesses and public organisations; More complicated in remote regions with less potential (business) partners;	Facilitate knowledge transfer and capacity building to support regional innovation processes; Foster creating a culture of collaboration with academia and regional stakeholders; May have an impact on policymaking (RIS3 and implementation).
<i>SF administrative procedures</i>	Unrealistic policy goals High bureaucracy High risk form of funding Match-funding rates 'economy democracy paradox'	Do not fund basic research or degree education; High success rates; Regional policies favour STEM; Bureaucratic, non-transparent and complicated to manage (clawbacks); Guidelines complicates business collaboration.	Low competition may lead to opportunistic behaviour ('projects for the sake of external funds'); Lower quality of implemented projects (engagement an 'add-on'); Forces to build research agendas too much on local needs; Forces academics to camouflage research activities; Unused potential in supporting entrepreneurial activities.
<i>University organisational culture</i>	Embedding engagement to academic core complicated; (mismatch of academic profiles and regional needs) Lack of resources Absence of institutional strategies Lack of academic outputs	Enable finding new ways to work (e.g. capacity building, networking); Lack of strategic planning and top management's involvement with regional engagement activities; Internal competition on SF at the Pori units Focus widely on generating traditional academic outputs.	A relevant funding source for delivering TM activities, especially in remote campuses; Individual researchers focusing on engagement work as 'entrepreneurs'; SF less attractive funding source for universities in the national HE policy framework; Overall engagement depends on individual academics and research groups.
<i>SF Project outputs</i>	Over-estimated outputs Lack of academic outputs Low number of commercial results 'user inspired basic research'	Strong applied approach; Allow researchers to 'work in the field'; Enable small-scale regional pilots/	SF projects based on transferring existing results instead of cutting edge technology; Offers rich data sets for further research (e.g. user-driven research in health sector); Results unexploited by the regional companies (strict Sf guidelines, regional SME landscape); Publishing initial results can be 'stepping stones' to large-scale research projects.

Source: Salomaa & Charles, 2019.

## 7.4. Characteristics of university-led SF projects

Based on the empirical evidence presented in previous sections, some common elements can be detected in the university-led Structural Funds activities across all three case studies. In all cases, the universities worked in close collaboration with regional stakeholders and were also involved in the planning processes of the regional strategies. In particular, in the cases of the University of Lincoln and the University of Aveiro, both full-range universities located in rural regions, the management exercised significant leadership outside of academia in the policy formulation processes (e.g. RIS3). This is a different approach compared to the University Consortium of Pori, consisting of smaller-scale remote units, whose parent universities' management were less involved in the regional strategy processes, and overall less motivated to engage with the SF funding.

The case studies verified the specific challenges related to the implementation of the Structural Funds Operational programmes detected from previous studies. These challenges in combination, being collaboration, administrative procedures, university organisational culture and expected outcomes, made universities less enthusiastic to conduct SF funded activities. However, the national higher education policies focusing on generating traditional academic outputs were also a major obstacle in delivering the third mission, which emphasises the major impact of a *context* to the university engagement. As an example, in the case of UC-Pori, it was evident that the national higher education policies and the state funding model for the universities determined the limitations and scope of all the university activities, including engagement (Salomaa & Charles, 2019). In particular, a strong focus on the traditional academic outputs within the public higher education policy framework can diminish universities' motivation to participate to SF activities and bid for these funds. By contrast, the University of Aveiro illustrates an atypical model for implementation of the Structural Funds Operational Programmes: in Portugal, the managing authorities can launch joint SF calls with the Portuguese National Science foundation, allowing also supporting basic research. The projects funded under these joint calls did not necessarily have any external regional partners outside of the university, or the partners were mostly HEIs, which diminished the networking component of the university-led SF activities.

In all cases, the monetary incentives provided by the SF were an important factor in motivating universities to engage with the funding schemes, as well as their relatively low demand and high success rates. This was the case especially in Lincolnshire and in the Satakunta region, in both of which the universities' success rates in SF bids were very high. An easier access to funding also enabled more opportunistic institutional behaviour instead of developing deeply rooted regional engagement activities within the organisation.

Despite many efforts to simplify the administrative burden related to bidding processes and implementation of the Structural Funds projects, the strict guidelines of the SF schemes can complicate delivering activities successfully. As an example, all case universities had difficulties with cross-regional collaboration, although the interviewees agreed that the RDI activities should not be restricted by the geographic boundaries. Especially the university-led large-scale projects aiming to support innovative capacity of the local SMEs struggled to meet the eligibility criteria of the target groups: in rural regions, the smaller companies stay 'hidden' and may have less absorptive capacity to pursue collaborative activities, even when university organisation acts as a 'intermediator' to ease access to these innovation support services. Another related issue, highlighted by the case of University of Lincoln, was the lack of coordination between overlapping regional policy areas (e.g. Local Enterprise Partnerships in the UK), which caused competition between different actors providing similar services. As an example, analogous activities supporting entrepreneurship and innovation funded through the Structural Funds schemes, as well as from other sources, can cause confusion and lower demand for these support actions within the target groups.

Considering all case universities, the Structural Funds project portfolio was not be very strategically planned or managed, and thus remained as 'marginal' activity within the organisation. This was most visible in the case of the University Consortium of Pori, in which the top management of the university consortium's parent universities were not aware of the funding possibilities, nor the regional policies (RIS3) guiding the application processes and setting the regional priorities. In all cases, the SF projects were associated with the university third mission, though the ways in which the third stream activities can be delivered through the SF schemes in practise was not explicitly articulated. This also highlights the overall organisational capacity to manage and deliver the university third mission; whereas in the case



of UC-Pori, single academics worried about aligning the SF activities with the academic core, in the case of UA, the researchers could actually focus on basic research in the SF projects, which sometimes led to overlooking the regional development aspects in the process.

Building on these findings, four different types of university-led Structural Funds projects were identified and characterised. These types are presented in the following section whilst considering their potential contribution to delivering the university third mission.

## 7.5. Typology of university-led SF projects

The empirical evidence from the three case universities allows critically assessing both the impact of a rural environment to the university engagement, but also identifying different types of delivery mechanisms of university-led Structural Funds projects, all generating potential outputs related to economic and / or societal dimensions of the third mission. The four different types of university-led Structural Funds projects derived from the empirical evidence from three case universities are Top-down designed, institutional SF projects, Academic-led SF projects, Professional-led SF projects and Outsourced SF activities, all of which are also linked to the university third mission through participation in policy making, either in producing knowledge to shape the future policies or contributing to the implementation of the current ones (see Table 16).

**The Top-down institutional SF projects** (UoL and UA) are designed on the top level of the organisation and they aim to respond to the local needs set in the regional policy formulation processes. The university is typically part of the policy design phase. In this project type, the university has an important role either in transferring knowledge to the local SMEs, acting as an intermediary between academic knowledge and the small-scale businesses, or generating new knowledge and skill base within the identified regional key policy areas. In the former case, the university can provide an access point to knowledge to the less experienced, smaller businesses by creating linkages between individual academics and local companies through innovation vouchers, proof of concept grants or other forms of consultancy work to build on long-term collaboration. In practice, the top-down processes tend not to be well communicated to the academic staff members, many of which are excluded from the implementation of the

project. Thus, the academics, being responsible for the overall implementation of the project, excluding the administrative project management typically supported by professional staff, can struggle to find common interests with the businesses or to develop further research activities.

Despite the challenges, the top-down institutional SF projects can facilitate universities to deliver third mission activities by providing skilled human resources (e.g. academics working with businesses), creating contracts with industry (different forms of interaction with businesses) and spin-offs, namely new forms of knowledge transfer through supporting entrepreneurship and future university-industry collaboration. Further communication between the university management and academics is suggested in the planning phase in order to reinforce high-quality implementation of the project and maximising synergies between academics' ambitions and regional needs.

**The Academic-led SF projects** are divided into fundamental (UA) and applied research projects (UC-Pori). In both cases, the projects are designed by individual researchers without strong support from the university. The academics can make use of both, ERDF and ESF schemes, the ERDF being more targeted to business collaboration and ESF to 'public service' through increasing the participant's skill level and employability. These projects vary in scale and in focus depending on the national / regional adaptations of SF funding instruments and also the institutional culture and attitude towards university engagement. In theory, all projects funded through the SF schemes should be aligned with the regional policy goals, but the basic research projects often ignore this perspective, while the applied ones do not directly produce academic outputs making them less interesting for university organisations.

The Academic-led SF projects are not coordinated or managed on the institutional level, but through academics' individual linkages with local businesses and other stakeholders they can result in both economic and societal outputs linked to the university third mission, including contracts with industry, involvement in social and cultural life (e.g. urban policy planning, creative projects) and increasing public understanding of science (e.g. dissemination of the results). The smaller scale projects with dedicated business partners – typically including regional pilots – can be steppingstones towards larger research projects, finally creating regional knowledge clusters based on smart specialisation strategies.

**The professional-led SF projects** (UC-Pori and UA) are designed and managed by the non-academic staff members. These projects can vary from institutional capacity building to transferring knowledge through education projects targeted to non-degree students. The projects can be led by dedicated entrepreneurial interface structures, as in the case of UA, the knowledge transfer office UATEC, which runs a range of SF-funded projects focusing on commercialisation of research through intellectual property contracts (e.g. patents and licensing) and up-scaling the entrepreneurial skills of the regional actors (e.g. Aveiro network of incubators). These departmental projects deliver potential university third mission through codified knowledge and other forms of knowledge transfer (e.g. human resources).

The projects can also be led by committed members of the professional staff, as in the case of UC-Pori, mostly planning managers working with continuing education, generating SF-funded project target to certain disciplines lacking tailored study modules and specialisation studies (e.g. maritime studies). In the latter case, European Social Fund schemes are more suitable funding instrument, though again, the strict guidelines of the SF and the resistance of the university management complicates both the design phase and implementation of the projects. These projects can be considered as ‘add-ons’ with a lower regional impact, despite their contribution to delivering the third stream activities by offering accessible higher education targeted to regional needs (interaction with society) and increasing the employability of the participants (human resources), which are difficult to evaluate.

**The Outsourced SF activities** within universities can vary from small-scale collaborative initiatives, typically with partners from the public sector, to contract research and consultancy. These types of SF-activities were mostly identified in the case of UoL. They included investments to up-scale the university equipment in exchange for providing technological assistance to local companies (e.g. technology hubs) and evaluating the implementation of past SF Operational programmes / projects. These collaborations emerge bottom up, based on academics’ personal interest and existing linkages with the regional stakeholders instead of a strong institutional leadership. These SF activities tend to stay on a small-scale and may not have sufficient resources for the designed activity (e.g. investments only for new technology, not staff time). This makes their role within the university rather marginal and even unknown to the top management, which can reduce their potential regional impact.

However, these types of activities further increase interaction between motivated academics and regional partners from both private and public sector, creating possibilities for further collaboration. The range of SF activities outsourced to university is aligned with the third mission, addressing both its economic and societal dimensions with contracts with public bodies and industry as well knowledge transfer through entrepreneurship through KTPs and other entrepreneurial spin-offs.

## 7.6. Delivering university third mission through the SF in rural regions – a summary

The stylised typology of the different types of university-led Structural Funds projects presented in the previous section reveals that the SF project activities can be linked to the university third mission through both economic and societal contributions. However, there is yet unrecognised and unused potential in further aligning the third mission and the university-led SF projects. The overall motivation of the universities to engage with SF is either increased or restricted by national higher education and regional policies. In particular, the national and/or regional adaptations of the EU Cohesion Policy determine how universities can deliver these activities whilst finding synergies between teaching, research and the third mission. There can be a significant mismatch of performance indicators set for the SF Operational programmes and national higher education policies, which diminishes the overall role of the university in the implementation of the SF projects.

These findings reinforce the view, that combining all three university missions remain very challenging (Chatterton & Goddard, 2009) also in the Structural Funds activities. As Etzkowitz argues, an entrepreneurial university should be capable of transforming ideas into practice by “broadening the input into the creation of academic knowledge” and “organizing new entities and managing risks” while incorporating multiple missions to enhance regional competitiveness and industrial innovation. This interactive, collaborative approach seeks solutions for problems in the industry and society, most typically through the university’s technology transfer / liaison office (Etzkowitz 2013, p. 489). In accordance with previous studies, the findings suggest that responding to external needs can be easier for the university at the unit level instead of institutional level (Goddard *et al.*, 2013) e.g. through ‘entrepreneurial departments’ (Pugh *et al.*, 2018), such as TTOs (UATEC at UA) and other specialised units. In this study, the remote university units and satellite campuses (UC-Pori, Holbeach and Riseholm at UoL) with a strong regional focus were indeed more capable to balance between these different expectations (academic and regional), as well as benefit from the Structural Funds schemes through all four types of the university-led SF projects. The Structural Funds projects are characterised by their strong networking component, which can increase universities interaction with different kind of stakeholders. Thus, the SF schemes can provide

seed money to build collaborative large-scale research projects on the long-term, which applies to all four different types of university-led SF projects. The SF projects also allow individual researchers and research groups to increase their skills base, which also contributes to knowledge transfer activities and general capacity building of the region. Yet, the management of these activities at the institutional level remains complicated, which decreases their capacity to make a transformative contribution to the regional innovation systems: it is not only restricted by the policies, but also a number of institutional issues within the university, such as the mismatch of expected outcomes, lack of communication and varying attitudes towards the overall university engagement. Based on these findings, it was evident the Structural Funds activities are not highly recognised nor valued within the universities - even if the university in question has a specific regional mission. Unless the top management is heavily involved in the regional networks (UoL and UA vs. UC-Pori), which is only the case in Top-down institutional SF projects, the university-led Structural Funds projects tend to remain as small-scale, 'one-off' activities with a low long-term impact on the regional development (economic and / or societal).

As D'Este and Perkmann (2011) observed, monetary incentives alone are not sufficient for initiating successful university-industry collaboration unless missions support one another (Etzkowitz & Klofsten, 2005; Etzkowitz, 2013), which requires further alignment of the university missions on the institutional level. The typology of the university-led Structural Funds projects reinforces that the university third mission remains mostly formalised in regional policies and R&D funding schemes (Vorley & Nelles, 2009; Nelles & Vorley, 2010), whereas the implementation of these activities, including SF projects, remains very complex. The management of funding from Structural Funds schemes was considered to be complicated. The universities' internal mechanisms were more compatible with other sources of funding, suggesting that there is not sufficient organisational capacity and / or motivation to engage with funding instruments targeted to support regional development. The findings suggest that universities, although often being professional project organisations, have a limited institutional capacity to handle SF administrative procedures efficiently. Thus, a diversified funding base is not automatically a step towards entrepreneurial behaviour or obtaining institutional autonomy through monetary incentives (Gibb & Hannon, 2006; Armbruster, 2008), unless universities are capable of developing more efficient internal mechanisms to

manage these issues. As the case studies revealed, in the most extreme cases the SF projects were not 'profitable' for the university even when the match-funding was covered by a third party, which is, however, heavily dependent on the national SF funding rates.

A more practical challenge of the SF is that they do not usually allow cross-regional collaboration (Uyarra *et al.*, 2018), which hinders achieving ambitious policy goals set at the regional level. Universities might be keener to implement SF activities if they were less restricted by the harsh administrative guidelines (Spilanis *et al.*, 2016) and the geographic borders of the region, and acknowledged as 'leaky' knowledge institutions (Kempton, 2015) creating spillovers eventually having a cross-regional impact. However, the case studies demonstrated that the national and regional policies determine the conditions in which universities can transform towards entrepreneurial organisations (Stensaker & Benner, 2013) and what kind of funding is available for these activities (Tripl *et al.*, 2015). A diversified funding base is not necessarily a step towards an entrepreneurial university or institutional autonomy (Armbruster, 2008), nor do the SF activities automatically form a channel to deliver third mission successfully, unless the organisation has the capacity to combine these externally funded tasks related to regional priorities with institutional goals. In the worst-case scenario, the SF projects can be considered to be mere 'add-ons', applied for the sake of external funds.

The potential contributions of the university-led Structural Funds activities to the university third mission were considered to be obvious. At the same time, how exactly these activities can support delivering the third mission was articulated or even recognised on the institutional level, though their role was seen as relevant in open science and increasing universities' regional impact. In the case studies, the linkages between SF activities and the third mission were described in many different ways; In the case of the University Consortium of Pori, the local researchers and professional staff saw added value in bringing university activities to a heavily industry-based region with little academic traditions, which can be further reinforced through Academic-led and Professional-led SF projects: the former in collaborative incentives with local businesses permitting 'user inspired basic research' (Goddard *et al.*, 2013), and the latter through supporting the absorptive capacity of local SMEs and promoting networking and knowledge exchange (Brown, 2016). In particular, the Academic-led SF activities could ideally lead to large-scale research projects, which in rural regions are challenges to develop because

of an inefficient R&D environment and low level of inter-institutional interaction (Huggins & Johnston, 2009; Rodrigues *et al.*, 2001). However, these project types rarely have sufficient institutional commitment to make a transformative change, and they tend to remain as ‘one-off’ activities. On the opposite, the University of Lincoln’s and the University of Aveiro’s overall approach to SF project were based on large-scale incentives built on regional priority sectors and increasing the innovation capacity of the local SME landscape by providing an access point to the university knowledge (e.g. innovation vouchers, proof of concept grants). However, the implementation of these types of SF projects suffered from insufficient regional coordination resulting in analogous project activities as well as communication issues within the university. Also ‘matching’ the researchers with local business was complicated and even demotivated researchers to work with SMEs. This implies that the case universities lack internal engagement mechanisms to support delivering the third mission as well efficient strategies for managing the third mission that would take individual, disciplinary and institutional issues into account (Pineiro *et al.*, 2015).

As discussed in Chapter 2, the role of universities has become crucial both in regional innovation strategy formulation, especially in RIS3 – Research and Innovation Strategies for Smart Specialisation – processes identifying the regional priorities (e.g. Foray *et al.*, 2009) as well as in the implementation of these strategies (Santos & Caseiro, 2015) through the Structural Funds schemes. Working with public sector stakeholders in different stages of policy processes can have an effect on local policies, in particular through RIS3 formulation, which is a concrete example of universities’ engagement role outside of academia. However, as previous studies indicate, universities’ role in regional policy processes can be restricted by the national higher system (e.g. Vallance *et al.*, 2017): this was evident especially in the case of UC-Pori: the parent universities’ management widely overlooked the importance of these processes within the overall university organisation, whereas the remote units were considered as key players in both the design and the implementation phases of the RIS3. From the management’s point of view, the management of the consortia, including the third mission activities, remains complicated because these remote units are built on a regional will and commitment to local higher education and there is a strong political push with earmarked state funding, so their (research) activities redeem more reactive than strategic. Thus, the university’ capacity to be involved with the RIS3 and its implementation is also constricted by the



opposing goals of Cohesion policy – regional specialisation opportunities – and ‘borderless academic excellence’ (Goddard & Vallance, 2013), although there is some evidence that the university-industry engagement can have a positive impact also on the research quality (Degl’Innocenti *et al.*, 2019). Currently, this distinction makes SF funding less appealing and overlooked in universities’ strategic planning, though the findings from different case studies indicated, that if collaboration in the Structural Funds projects is based on long-term partnerships and strategically planned as part of research group’s agenda, different university missions come together naturally (e.g. larger research projects based on regional SF pilots, contributions to continuing education) in all projects types.

To conclude, the case studies suggests that there is unused potential to deliver the university third mission through Structural Funds projects more efficiently. The findings reinforce that universities’ third mission remains formalised in regional policies and R&D funding schemes (Vorley & Nelles, 2009) instead of institutional strategies, and that its successful implementation and alignment with teaching and research remains complicated (Chatterton & Goddard, 2000), even when there are additional resources from external sources to support these activities, such as SF. Instead of mere monetary incentives, more tailored, strategic and transparent approaches are needed for initiating successful university-industry collaboration to ensure finding synergies between different missions (Etzkowitz & Klofsten, 2005; Etzkowitz, 2013). Otherwise universities are more inclined to opportunistic than strategically entrepreneurial behavior (Stensaker & Benner, 2013), even in dedicated units with a mission to engage with the surrounding region, in which the third mission could be more easily managed (Goddard *et al.*, 2013). This is the case in the absence strategy for managing the third mission that would take individual, disciplinary and institutional issues into account (Pineiro *et al.*, 2015), nor assessed the engagement on a unit level beyond the concept of entrepreneurial universities (Pugh *et al.*, 2018).

**Table 18. Potential contribution to the university third mission and estimated regional impact of different types of university-led SF projects**

Type of university-led SF Projects	Characteristics	Potential contribution to the university third mission	Estimated capacity to create a transformative impact on the regional innovation system in rural regions	
			Positive	Negative
Top-down institutional SF projects	Large-scale strategic initiatives build on regional priorities, designed by the university management; university as an intermediary between businesses and SF funding.	<ul style="list-style-type: none"> <li>• Human resources</li> <li>• Contracts with the industry</li> <li>• Spin-offs (knowledge transfer through entrepreneurship)</li> </ul>	Strong aligned with the regional priorities set in the policies reinforce the quality of implementation; can strengthen the innovation capacity of the local SMEs by creating an access point to the university knowledge.	High quality implementation restricted by insufficient regional coordination and lack of communication with the lower level of the university organisation and matching the right academics with the business partners.
Academic-led SF projects	Projects vary in scale and scope, based on both fundamental and applied research. ERDF project driven by business-partnerships, ESF by public service and educational mission.	<ul style="list-style-type: none"> <li>• Contracts with the industry</li> <li>• Involvement in social and cultural life</li> <li>• Public understand of science</li> </ul>	Seed money to build on larger research projects with a regional value; increased skills level and employability can have a transformative effect to the economic landscape of the region in a long term.	One-off activities unless collaboration based on long-term partnerships; The applied SF projects not valued within the universities diminishing the visibility and the impact of the implemented activities; Low absorptive capacity of the regional partners to build on new generated knowledge.
Professional led SF projects	Capacity building (e.g. internationalisation, IP) and educational projects (e.g. continuous education).	<ul style="list-style-type: none"> <li>• Intellectual property</li> <li>• Human resources</li> </ul>	Increased institutional entrepreneurial capacity to act as a leading knowledge institution within the region.	One-off activities without reaching the right target groups and sufficient institutional commitment.
Outsourced SF projects	Small-scale activities, providing knowledge and / equipment for local stakeholders,	<ul style="list-style-type: none"> <li>• Contracts with public bodies</li> <li>• Spin-offs (knowledge transfer through entrepreneurship)</li> <li>• Contracts with industry</li> </ul>	May lead to KTPs or other forms of industry collaboration increasing the regional R&D capacity.	Very small-scale activities can stay hidden within the universities; collaboration and results not widely disseminated, which decreases the regional impact of the delivered services.

Source: Author's own elaboration.

## 8. Conclusions

Although there have been increasingly high expectations towards higher education institutions in the past decades, and the growing body of literature on the university third mission as well as the role of universities in designing regional development policies, such as RIS3 - Research and Innovation Strategy for Smart Specialisation (e.g. Goddard *et al.*, 2013; Kempton 2015), the university's contribution to the implementation of these policies has been largely absent in academic research. There is a consensus that universities are expected to play the role of central regional knowledge institutions, especially in rural regions (Charles, 2016). The universities have indeed become more active in different stages of the policy formulation of Cohesion Policy, as well as delivering the set policy goals.

Based on previous studies, more context-sensitive, empirical case studies would be useful in assessing and strengthening the ways in which universities manage and deliver their engagement activities (Kitagawa *et al.*, 2016; Pinheiro *et al.*, 2012). This would also be useful for better alignment of these activities with regional policy goals, which are set e.g. through the EU Cohesion Policy transformed into Structural Funds Operational Programmes either on national or regional level. Thus empirical studies would also provide relevant knowledge for the national and subnational policy formulation processes on the effectiveness of the delivery mechanisms on the SF Operational programme level (Bachtler & Wren, 2006; Fratesi & Wishlade, 2017) and would help to gain further insights on the implementation of the EU Cohesion Policy in practise (Blom-Hansen, 2005).

This study aimed to fill in the gap in the academic literature by generating new knowledge on the organisation of the university-led Structural Funds projects and their alignment with the university third mission in universities located in peripheral areas. The findings discussed in previous sections implies, that there is yet unused potential to maximise both regional and academic benefits through these identified four types of university-led SF projects, that are related to national and regional adaptations of the Cohesion policy in designing Operational programmes, the capacity of university organisations to make use of the this type of funding efficiently, communications systems in linking together key stakeholders and finally, to the lack of strategic approach to designing SF projects within universities.

In the following sections, the theoretical contributions of the research are summarised. Then, a set of recommendations is presented for improving the alignment of the university third mission and SF activities beyond the current challenges. Finally, the validity, generalisability and limitations of the study are discussed, and suggestions for further research presented.

## 8.1. Contributions of the study

The theoretical contributions of this study are twofold. Firstly, it strived to fill in a gap in the university engagement literature by further detecting the impact of a particular regional context, in this case the rural region, to the third stream activities. This was done by further developing the Entrepreneurial Architecture (Vorley & Nelles, 2009) framework in order to create a theoretical approach to assess these contextual issues.

Previous studies indicate, that both the regional and national context of the university are crucial in the development of engagement activities (Breznitz & Feldman, 2012; Foss & Gibson, 2015), requiring more context-sensitive approaches for understanding the third mission instead of simplistic one-size-fits-all solutions (Benneworth *et al.*, 2016b; Kitagawa *et al.*, 2016). This study sought to explore university engagement in rural regions within the framework of Structural Funds programmes. Firstly, the empirical evidence collected on three case studies enabled assessment of the overall impact of a rural region on the university engagement through the expanded Entrepreneurial architecture framework. Through the cases of the University of Lincoln, University of Aveiro and the University Consortium of Pori, the impact of the rural context on the university engagement activities was assessed on an institutional level. The original Entrepreneurial Architecture framework (Vorley & Nelles, 2009, 2012; Nelles & Vorley, 2010a, 2010b, 2011) complemented with a contextual element, a rural region, allowed investigating the characteristics of the university engagement in a sparse innovation environment through multiple case studies.

The findings indicated that particular contexts can have a major impact on all the dimensions of the Entrepreneurial Architecture framework as well as on the overall university engagement. In particular, a rural context steers the university's institutional responses towards the third mission especially through the establishment of a wide range of *structures*, mainly to compensate for the absence of other knowledge institutions in the region, excluding the small-scale remote units with less resources to establish heavy entrepreneurial interface structures. In

addition, networks and individual linkages (*systems*) and personal engagement (*leadership*) of top management have an impact on the universities' engagement activities (e.g. Lindeman, 2015; Oftedal & Foss, 2015) in rural regions. These relationships are based on individual commitment rather than institutional mechanisms, making them challenging to plan and manage, and vulnerable to staff changes. The personal commitment of the top management is aligned with Foss and Gibson's (2015) remark, that entrepreneurialism is not linked to institutional, but the personal characteristics of leaders. In rural regions people are known and there is less distance between university, public and private sector (Oftedal & Foss, 2015; Oftedal & Iakovleva, 2015), which facilitates academics' cooperation with local stakeholders. The top-down approach to university engagement maintained within the top management may exclude other staff members from the engagement activities, especially if the *strategy* focuses on a high-level infrastructure initiative aimed at local priority sectors and serving the local job market. The findings indicate that universities can struggle to deliver engagement activities unless all the elements of the university's Entrepreneurial Architecture are balanced, and the operational context taken into account in designing and delivering the third mission.

The data indicates that the rural context plays a role in shaping the overall institutional approach to the third mission. A particular context, in combination with institutional and individual linkages, shape the systems, structures and strategies. To conclude, all the elements of the Entrepreneurial Architecture framework observed in the case studies are rooted, as Foss and Gibson (2015) noted, in a particular context affecting the way in which the university can deliver and manage third mission activities. In order to better address the impact of the operational environment on the overall university engagement, the local economic and social environment affecting the need, volume and potential means of engagement should be analysed as part of the universities' EA.

Hitherto, this is the first large-scale, comparative research project studying the role of universities in delivering projects funded by the Structural Funds. Although their involvement in the policy design phase have drawn more systematically scholars 'attention ever since the emergence of the concept of smart specialisation, the university's role in the implementation of these strategies have been widely overlooked. This study aimed to fill in this gap by providing a glimpse of the possible delivery mechanisms producing transformative regional impact. The empirical evidence indicates the roles played by the universities in regional development are context-dependent, but based on the multiple case studies the findings suggest

that the alignment of the Structural Funds activities and the third mission is possible. Currently, there are many challenges hindering maximising outputs from these activities, mostly on the policy and the institutional level, which implies that there is yet unused potential in the university-led Structural Funds activities.

The typology presented in section 7.5. is the first theoretically rooted categorisation of the university-led Structural Funds projects, providing a framework for further examining the linkages between the university third mission and regional development activities delivered through the SF schemes (see Table 18.) To conclude, the flow of the research process and the key findings are summarised in Table 19.

**Table 19. Units of analysis, research questions and key findings.**

UNIT OF ANALYSIS	Premise	Research question(s)	Data	Expected findings	Key findings
HIGHER EDUCATION AND REGIONAL POLICIES; SF FUNDING INSTRUMENTS	Regional development policies expect universities to be entrepreneurial actors and made them ‘organizational umbrellas’ (Wildavsky, 2010) or ‘empty boxes (Stensaker & Benner 2013) filled with economic and societal missions. These policies play a significant role in defining the conditions of success of entrepreneurial university’s engagement (Armbruster 2008; Gibb & Hannon, 2006; Vorley & Nelles, 2012; Rhoades & Stensaker, 2017).	What is expected from universities in regional development policies transformed into Structural Funds programmes?	SF Operational programme documents; RIS3 documents	Highlighting how entrepreneurial universities’ role in regional development is articulated in regional policy documents.	The key strategic policy documents from all three cases highlight the strong role of universities in supporting regional innovation in the set priority areas. They are seen as a key regional knowledge institutions, with a strong organisational and collaborative capacity to implement the planned activities. The findings suggest, that the stronger the participation is to the smart specialisation strategies on the institutional level, the higher the university’s participation in the implementation phase. (Aveiro & Lincoln vs. Satakunta)
(ENTREPRENEURIAL) CASE UNIVERSITIES	Participation to regional development projects can be strategically planned, entrepreneurial activity that also benefits the local economy when the entrepreneurial paradigm is rooted across the university organisation. The internal characteristics and strategies steer universities’ regional orientation, and organisations have different ways to carry out third mission (Jongbloed <i>et al.</i> , 2008; Etzkowitz <i>et al.</i> , 2005; Stensaker & Benner 2013), though literature and policies are concentrated on ‘one-size-fits-all’ approach (Benneworth <i>et al.</i> , 2016a; Benneworth <i>et al.</i> , 2016b; Kitagawa <i>et al.</i> , 2016).	Is engagement with SF programmes strategic or individual entrepreneurial activity? Is the engagement recognised or valued on institutional level? Or is it merely an ‘add-on’ to raise university’s regional profile?	Interviews with key stakeholders: university personnel involved with SF programmes and top management.	Revealing how and why entrepreneurial universities have responded regional expectations through SF funded projects, and how they are linked to universities’ strategies and institutional goals.	While the case universities have all embedded a stronger focus on entrepreneurship and wider societal mission and to their key strategic documents, none of the case universities mention’s SF as a key funding source.
REGIONAL ENGAGEMENT AND ACADEMIC CORE; UNIVERSITY-LED SF PROJECTS	University institutions are expected to address complex societal challenges through different engagement activities and embed these activities into its core missions (Gunasekara, 2004; Vorley & Nelles, 2009; 2010; 2011; Benneworth & Cunha, 2015).	Can participation to SF projects be a concrete way to implement universities’ third mission? Do the main outcomes from these projects correlate with universities core missions? What are their (potential) impact(s) to regional development?	Interviews with key stakeholders: university personnel involved with SF programmes and local authorities.	Identifying the most typical academic outcomes from SF projects, and the specific benefits of university-led projects for regional development.	Four different types of university-led SF projects were identified and how they can deliver the different dimensions of the third mission (economic - societal) were assessed (Table 16).

## 8.2. Recommendations

As discussed in the empirical parts of the study, in all cases the SF Operational programmes placed weight on the local universities in supporting the regional innovation and overall research and development activities based on regional priorities. Due to the smart specialisation approach universities have become more important players in the regional policy formulation, but their institutional interests, largely steered by the national higher education policies, are not automatically aligned with the regional priorities. The universities could be more able to respond to the expectations set in the regional policies, if the national HE policies would recognise more explicitly the regional role of higher education. The findings of the research projects confirms, that there is a gap between the HE policy goals and the potential third mission indicators (Lee *et al.*, 2020) set for regional development in the SF Operational programmes. Thus, a more inclusive approach to the HE and regional policy formulation and goal setting, acknowledging that academic research can have a role in increasing the absorptive capacity of the local SMEs and up-scaling the skills of the employees – not excluding the academic outputs of traditional science-based activities (Freel *et al.*, 2019) – could reduce the mismatch between policy goals. Overall, a more realistic goal setting on different levels of the policy formulation would facilitate creating tailored programmes and delivery mechanisms that would increase the university's motivation to engage with SF-projects and play the roles designed for them on the regional policy level without compromising the academic core.

The findings of the study also suggest that universities may struggle to match SF activities with their internal administrative mechanisms. A stronger leadership and a wider acknowledgement of the university third mission on institutional level would also facilitate identifying how SF activities can contribute to delivering the third mission more efficiently. The academics should be made more aware of the collaboration possibilities within the framework of SF as well as the scope of the regional policies in order to respond to the local needs to unleash unused third mission capacity (Freel *et al.*, 2019.) This is partly a question of increasing communication on the system level (the university's internal and external communication), enabling to find more synergies between academic basic and applied research through business collaboration. Academics could also benefit from a tailored training helping them reflect the linkages between the identified regional needs and their own discipline in more depth. Finally, a more strategic approach to designing the SF projects within universities in collaboration between the top



management and academics would enable a more efficiently implemented, high-quality SF projects producing both academic outputs and true contribution to regional development.

**Table 20. Key recommendations to strengthen universities’ contributions towards regional development (through SF schemes).**

Observed challenge	Recommendation	Potential delivery mechanisms	Expected impact
Lack of alignment between regional priorities and national higher education policies	Implication for national HE policy framework to recognise regional role in assessment and funding schemes.	<p><u>Ministries, SF Funding authorities:</u> Reassessment of the indicators - Universities’ contributions could be perceived more broadly in building the RDI activities related to regional priority sectors, which can also generate traditional outputs (new jobs and businesses) on the long-term.</p> <p><u>Universities:</u> Better advice to academics on regional policies and local needs – regional development offices in universities providing support and training .</p>	Stronger engagement with regional stakeholders and finding synergies between research excellence and regional priority areas.
Lack of alignment between SF and university administrative procedures	Simplification of the SF schemes to be less bureaucratic and risk averse for research organisations.	<p><u>Ministries, SF Funding authorities:</u> Targeted funding schemes to motivate universities to engage more with Structural Funds Operational Programmes (e.g. tailored R&amp;D services/training to local businesses); SF schemes promoting cross-regional collaboration; simplified bidding and reporting procedures (in particular ESF schemes); transparent guidelines for implementation.</p> <p><u>Funding authorities, regional partners, universities:</u> Training initiatives for raising knowledge on the key regional development areas and SF funding opportunities; Universities to share expertise internationally on managing SF projects; Development of internal administrative procedures to match with different kinds of funding instruments.</p>	Stronger institutional and individual capacities and motivation within universities to contribute to regional development through SF participation.
The role of the third mission in the university organisational culture	Funding initiatives and (institutional) strategic approach to reinforce the third mission.	<p><u>Ministries, SF Funding authorities:</u> initiating SF joint calls e.g. with national science foundations (combination of applied and basic research).</p> <p><u>Universities, regional partners:</u> Involving academic staff members from key disciplinary areas into the planning processes to ensures more effective implementation of the SF projects.</p>	Optimisation of both regional and academic outputs from the university-led SF projects; Releasing unused third mission capacity by acknowledging the importance of the engagement activities as a part of the core missions and involving new staff members (e.g. Freel <i>et al.</i> , 2020).

To conclude, the findings from all three case studies implies that there is unused potential in strengthening universities' role in regional development through the Structural Funds Operational Programmes. Large-scale university-led SF projects can be efficient in increasing engagement with local businesses and the level of RDI investment, but academic staff members should be more involved in the design phase to ensure high-quality implementation and possibilities to initiate long-term university-business collaboration. Even a bigger challenge is that the objects set for regional policies do not match with national higher education agendas, but yet universities are expected to contribute to the implementation of the SF programmes – and this is why more diverse national and regional adaptations of the SF OPs are needed;

- *Universities' contributions could be perceived more broadly in building the RDI activities related to regional priority sectors, which can also generate traditional outputs (new jobs and businesses) on the long-term.*
- *Targeted schemes can motivate universities to engage more with Structural Funds Operational Programmes (e.g. tailored R&D services/training to local businesses).*

In addition, the university's' regional contributions through Structural Funds programmes could be reinforced by;

- *Initiating joint calls with national science foundations (combination of applied and basic research).*
- *Promoting cross-regional collaboration opportunities.*

### 8.3. Validity and limitations of the study

There is a range of different scholarly approaches towards assessing the validity in qualitative research processes. According to Cho and Trent (2006), there are two opposing approaches, being 'transactional approach' emphasizing the continuous interaction between the research processes and its participants e.g. through triangulation (e.g. Denzin, 1989) and 'transformational validity' referring a more radical approach rejecting the traditional understanding of the concept (e.g. Lather, 1986; Wolcott, 1990). They define the latter as "a progressive, emancipatory process leading toward social change that is to be achieved by the research endeavor itself" (Cho & Trent, 2006, p.332). This approach resonates well with the research project, aiming to generate new knowledge on university-led projects for producing

more efficient delivery mechanisms for the regional policies, finally leading to changes in the society. In this study, the transactional approach to validity of the research project can be assessed in the triangulation of different qualitative methods (policy analysis, thick descriptions of the interview data), which enable combining different perspectives. This allows for systematically expanding the gained knowledge compared to a single approach method, and enables extending the study to address the phenomenon more comprehensively (Flick, 2011), in this study namely through 1) policy level(s), 2) practice (implementation of the SF funded projects) and 3) institutional background (characteristics of entrepreneurial universities in rural regions).

However, these approaches are better suited to assess the validity either through gained societal impact on a long-term or constant re-evaluation of the validity throughout the research process. Therefore, another overlapping approach, namely the ‘interpretive validity’ (Maxwell, 1992) was employed to assess “the unique, idiosyncratic meaning and perspectives constructed by individuals, groups, or both who live/act in a particular context” (Cho & Trent, 2006, p.327), as thick descriptions are more concerned with constructing locally constructed meanings instead of transferable, ‘grand’ conclusions (Donmoyer, 2001). Thus, assessing the validity of the study requires a more holistic understanding of the process as well prolonged engagement to understand the ‘reality in a certain context’ (Cho & Trent, 2006). This can be assessed according to the following criteria: 1) descriptive presentation of the data, letting the readers ‘see’ for themselves (Wolcott, 1990) and 2) researcher’s capability to make sense of the reality of the participants, e.g. through prolonged engagement, triangulation and member checking (Geertz, 1973), which diminishes the transferability by rejecting ‘truth seeking’ (Lincoln & Guba, 1985).

Considering this study, the rich empirical data set, presented in Chapters 4, 5 and 6 supports the interpretive validity of the research process by providing in-depth knowledge on each case. This enables following the logic of the analysis based on empirical evidence. Moreover, the researcher’s specific knowledge of the participants’ reality gained through personal working experience (Finnish higher education sector / Tampere University, UK higher education sector / University of Lincoln) or prolonged research exchanges (two secondments in the University of Aveiro, Portugal) increased the understanding of the operational contexts of the selected case studies. In this approach, the interpretive component between ‘actualities and texts’ (Cho & Trent, 2006) is the key in responding to ‘what end’ and ‘to whom’ the research is targeted.

A complementary set of verification strategies to reinforce validity ‘as a means of rigour’ can include the methodological coherence, the sample, collecting and analysing the data, theoretical thinking and theory-development (Morse *et al.*, 2002). These aspects of the research process were discussed in detail in Chapter 3, considering the appropriateness of the selected method and selected samples, methods for collecting the data and theory-driven analysis. The contribution of the study to the theory-building develops through a shift from the micro perspective towards more profound conceptual understanding of the phenomenon (*ibid.*). In this study, the theory-development is an outcome of the research process through three individual, but overlapping theoretical contributions, namely the characterization of the university third mission in rural regions through the expanded Entrepreneurial Architecture framework (Salomaa, 2019), the challenges related to aligning the university third mission and academic core through Structural Funds projects (Salomaa & Charles, 2019) and the typology of university-led SF projects.

Generalisability of the case studies is also among of the most common issues related to academic debate on qualitative research (e.g. Bassegy, 1999; Denscombe, 2007). Instead of scientific – ‘absolute truth’ – generalisation, Bassegy (1999) proposes another approach to generalise studies in the field of social sciences, in particular for case studies (Bell, 2010), titled ‘fuzzy generalization’, which “arises from studies of singularities and typical claims that it is possible, or likely, or unlikely that what was found in the singularity will be found in similar situations elsewhere: it is a qualitative measure.” (p. 12). By investigating ‘atypical’ cases (Flyvjeberg, 2006), being universities with an enhanced regional mission or stronger commitment to regional stakeholders in sparse innovation environments, the study aimed to generate a more comprehensive overview of the issues shaping the university engagement in such operational environments, producing claims arising from singularities. Despite the fact that all the chosen case universities are regionally focused, the differences of the regional and national policy contexts had a significant impact on the way in which the third mission was perceived within the case university. This was even more visible in the university’s engagement with Structural Funds programmes, being deeply context-bound policy instruments despite the unifying umbrella of the European Cohesion Policy. While this might not support the generalisability of the research finding, the study generates new knowledge on the diversity of the university-led SF projects to build on further research.

## 8.4. Suggestions for further research

As discussed in the literature review, in-depth empirical studies could provide new knowledge for the national and subnational policy formulation processes on the effectiveness of the delivery mechanisms on the Structural Funds Operational Programmes (Bachtler & Wren, 2006; Fratesi & Wishlade, 2017). The characteristics, impact and the alignment of the university third mission delivered through Structural Funds funded activities being a largely under researched area, further empirical studies with a comparative element would bring more insights to these issues. This would also generate more knowledge on the different roles the university is expected to play in the national adaptations of the Cohesion Policy through Structural Funds Operational Programmes, and highlight effective delivery methods of the policies. In-depth studies concentrating on university-led, individual SF projects would enable evaluating better their impact to the regional development as well as their contribution to generating academic outputs. This would also help to gain further insights on the implementation of the EU Cohesion Policy in practise (Blom-Hansen, 2005).

Another possible research trajectory could focus on comparative studies on a national level. It has been noted throughout the research process, that the scope and volume of the Structural Funds investments is very dependent on the national context (Bachtler & Wren, 2006), but the regional allocation of these funds has been less discussed, although there can be significant differences in the amount of the available SF funds within a country (e.g. Northern Finland and Sweden, Wales and Cornwall in the UK). This might affect the university's motivation and strategic approach towards engaging with the SF. Therefore, further empirical studies on how the amount of available SF funding shapes the university involvement would bring new insights on the alignment – or mismatch – of the university third mission and SF activities through multiple case studies, expanding the proposed typology to identify different delivery mechanisms, their institutional foundations and best practices for maximising the outputs.

Finally, there are several possible avenues to further examine both institutional and policy barriers hindering universities to deliver third mission activities successfully, e.g. through the university's involvement with the SF, or more generically by assessing the impact of different types of operational environments to the Entrepreneurial Architecture.

## References

Aalto University (2015): Shaping the Future. Aalto University Vision, Mission and Strategies 2016–2020. Retrieved from:

[https://www.aalto.fi/sites/g/files/flghsv161/files/2018-04/aalto-yliopisto\\_strategy\\_english.pdf](https://www.aalto.fi/sites/g/files/flghsv161/files/2018-04/aalto-yliopisto_strategy_english.pdf)

Adler, P. & Adler, P. (2012): Expert voice, in S.E. Baker and R. Edwards (eds.), *How Many Qualitative Interviews are Enough?*, National Centre for Research Methods Review Discussion Paper, pp. 8–11.

Agrawal, A. (2001): University-to-Industry knowledge transfer: literature review and unanswered questions, *International Journal of Management Reviews*, Vol. 3, Issue 4, pp. 285–302.

Arbo, P. & Benneworth, P. (2007): *Understanding the Regional Contribution of Higher Education Institutions: A Literature Review*, OECD Education Working Papers, No. 9, OECD Publishing, Paris.

Aristotle (1976): *The Ethics of Aristotle: Nicomachean Ethics*, Penguin Books.

Armbruster, C. (2008): Research Universities: autonomy and self-reliance after the Entrepreneurial University, *Policy Futures in Education*, Vol. 6, No. 4, pp. 372–389.

Autonomous Robot Ecosystem, project website

<https://www.tuni.fi/en/research/autonomous-robot-ecosystem>, accessed 2<sup>nd</sup> August 2019.

Bacchi, C. (2000): Policy as discourse: What does it mean? Where does it get us?, *Discourse*, Vol. 21, No. 1, pp. 45–57.

Bachtler, J. & Wislade, F. (2004): *Searching for Consensus: The Debate on Reforming EU Cohesion Policy*, European Policies Research Paper 55 (2004), European Policies Research Centre.

Bachtler, J. & Wren, C. (2006): Evaluation of European Union Cohesion policy: Research questions and policy challenges, *Regional Studies*, Vol. 40, No. 2, pp. 143–153.

Ball, S. (1993): What is policy? Texts, trajectories and toolboxes, *Discourse*, Vol. 3, No. 2, pp. 10–17.

Barnett, R. (1994): Studying higher education: A matter of discourse, *Studies in Higher Education*, Vol. 19, No. 2, pp. 123–4.

Bassey, M. (1999): *Case Study Research in Educational Settings*, Open University Press, Buckingham.

Begg, I. (2016): The economic theory of Cohesion policy, Piattoni, S. & Polverari, L. (eds.) *Handbook on Cohesion Policy in the EU*, pp. 325–338 Elgar 2016.

Bell, J. (2010): *Doing Your Research Project. A guide for first-time researchers in education, health and social science*, 5<sup>th</sup> edition, Open University Press.

Benneworth, P. & Sanderson, A. (2009): The regional engagement of universities: Building capacity in a sparse innovation environment, *Higher Education Management and Policy*, Vol. 21, No.1, pp. 1–18.

Benneworth, P. & Cunha, J. (2015): Universities' contributions to social innovation: reflections in theory & practice, *European Journal of Innovation Management*, Vol. 18, No. 4., pp. 508–527.

Benneworth, P. (2013): *University Engagement with Socially Excluded Communities*, Dordrecht: Springer.

Benneworth, P., Charles, D. and Madanipour, A. (2010): Building localized interactions between universities and cities through university spatial development, *European Planning Studies*, Vol. 18, No. 10, pp. 1611–1629.

Benneworth, P., Pinheiro and R., Karlsen, J. (2016b): One size does not fit all! New perspectives on the university in the social knowledge economy, *Science and Public Policy*, Vol. 46, Issue 6, pp. 731–735.

Benneworth, P., Pinheiro, R. and Sánchez-Barrioluengo, M. (2016a): Strategic agency and institutional change: investigating the role of universities in regional innovation systems (RISs), *Regional Studies*, Vol. 51, Issue 2, pp. 235–429.

Benneworth, P., Young, M., & Normann, R. (2017): Between Rigour and Regional Relevance? Conceptualising Tensions in University Engagement for Socio-Economic Development, *Higher Education Policy*, 30(4), pp. 443–462.

Blom-Hansen, J. (2005): Principals, agents, and the implementation of EU cohesion policy, *Journal of European Public Policy*, 12:4, pp. 624–648.

Boucher, G., Conway, C., & Van der Meer, E. (2003): Tiers of engagement by universities in their region's development, *Regional Studies*, 37(9), pp. 887–897.

Breznitz, M.S. & Feldman, M.P. (2012): The engaged university, *Journal of Technology Transfer*, 37, pp. 139–157.

Brinkmann, S. (2013): *Qualitative Interviewing*. Oxford: Oxford University Press (Series in Understanding Measurement). Available at: <https://search-ebSCOhost-com.proxy.library.lincoln.ac.uk/login.aspx?direct=true&db=nlebk&AN=603936&site=eds-live&scope=site> Accessed 20<sup>th</sup> of August 2019.

Brown, R. (2016): Mission impossible? Entrepreneurial universities and peripheral regional innovation systems, *Industry and Innovation*, 23:2, pp. 189–205.

Campusbased competence building for social welfare and healthcare services, website <https://sites.tuni.fi/kampusote/in-english/>, Accessed 2<sup>nd</sup> of Aug 2019.

Cappelen, A., Castellacci, F., Fagerberg, J. and Verspagen, B. (2003): The impact of EU regional Support on Growth and Convergence in the European Union, *Journal of Common Market Studies*, Vol. 41, No. 4., pp. 621–644.

Carayannis, E. & Campbell, D.F.J. (2012) : Mode 3 Knowledge Production in Quadruple Helix Innovation Systems. 21<sup>st</sup>-Century Democracy, Innovation, and Entrepreneurship for Development, Springer, Verlag New York.

Carr, W. & Kemmis, S. (1986): Becoming critical: Education Knowledge and Action Research, 1st edition, Routledge.

Castellanelli, C.A., Castellanelli, L. and Nunes Resende, D. (2019): Universities' contributions to regional development: A systematic review of smart specialisation case studies in Europe, 43rd International Scientific Conference on Economic and Social Development –"Rethinking Management in the Digital Era: Challenges from Industry 4.0 to Retail Management", Aveiro, 15-16 July 2019.

CCDRC (2014a): Programa Operacional Regional do Centro 2014-2020. Retrieved from: <https://www.portugal2020.pt/Portal2020/Media/Default/Docs/Programas%20Operacionais/BROCHURAS%20PO/BrochuraCentro2020.pdf>

CCDRC (2014b): RIS3 do Centro de Portugal: Estratégia de Investigação e Inovação para uma Especialização Inteligente. Retrieved from Portugal 2020.

Central Lincolnshire Local Plan 2012-2036 (2017). Retrieved from: <https://www.n-kesteven.gov.uk/EasySiteWeb/GatewayLink.aspx?alId=54815>

Centre for Educational research and innovation (1982): The university and the community: the problems of changing relationships. Paris: OECD-CERI.

CENTRO 2020 (2019): Projetos aprovados, website: <http://centro.portugal2020.pt/index.php/projetos-aprovados>, accessed 11<sup>th</sup> April 2019.

Charles, D. & Michie, R. (2013): Evaluation of the main achievements of cohesion policy programmes and projects over the longer term in 15 selected regions. Case Study North East England.

Charles, D. (2016): The rural university campus and support for rural innovation, Science and Public Policy Vol. 43, No. 6. pp. 763–773.

Charles, D., Kitagawa, F. and Uyarra, E. (2014): University in Crisis? - new challenges and strategies in two English city-regions, Cambridge Journal of Regions, Economy and Society, pp. 327–348.

Chatterton, P. & Goddard, J. (2000): The Response of Higher Education Institutions to Regional Needs, European Journal of Education, Vol. 35, No. 4., pp. 475–496.

Cho, J. & Trent, A. (2006): Validity in qualitative research revisited, Qualitative Research, Vol. 6(3), pp. 319–340.

CIRA & UA (2014): Estratégia Integrada de Desenvolvimento Territorial 2014-2020 Quadro Comum de Investimentos da Região de Aveiro. Retrieved from [https://www.regiaoaveiro.pt/regiaoaveiro/uploads/writer\\_file/document/210/estrategia\\_integrada\\_de\\_desenvolvimento\\_territorial\\_da\\_regiao\\_de\\_aveiro.pdf](https://www.regiaoaveiro.pt/regiaoaveiro/uploads/writer_file/document/210/estrategia_integrada_de_desenvolvimento_territorial_da_regiao_de_aveiro.pdf)

Clark, B.R. (1998a): Creating Entrepreneurial Universities. Organizational Pathways of Transformation, IAU Press.



- Clark, B.R. (1998b): The entrepreneurial university: Demand and Response, in *Tertiary Education and Management*, Vol 4:1, pp. 5–6.
- Clark, B.R. (2004): Delineating the character of the entrepreneurial university, *Higher Education Policy* 17, pp. 355–370.
- Comunian, R., Gilmore, A. and Jacobi, S. (2015): Higher Education and the Creative Economy: Creative Graduates, Knowledge Transfer and Regional Impact Debates, *Geography Compass*, 9, pp. 371–383.
- Crescenzi, R. & de Filippis, F. (2016): Cohesion policy and rural development, in Piattoni, S. & Polverari, L. (eds.) *Handbook on Cohesion Policy in the EU*, pp. 325–338, Elgar 2016.
- Dabic, M., Svarc, J. Gonzalez-Loureiro, M. (2018): Entrepreneurial universities in innovation-seeking countries: challenges and opportunities, *Palgrave Studies in Democracy, Innovation, and Entrepreneurship for Growth*, Palgrave Macmillan.
- Degl’Innocenti, M., Matousek, R., Tzeremes, N.G. (2019): The interconnections of academic research and universities “third mission”: Evidence from the UK, *Research Policy*, 48.
- D’Este, P., & Perkmann, M. (2011): Why do academics engage with industry? The entrepreneurial university and individual motivations. *The Journal of Technology Transfer*, 36(3), pp. 316–339.
- D’Adda, D, Iacobucci, D. & Palloni, R. (2019): Relatedness in the implementation of Smart Specialisation Strategy: a first empirical assessment, *Papers in Regional science*, 1– 21.
- Denscombe, M. (2007): *The Good Research Guide for Small-scale Social Research Projects*, 3<sup>rd</sup> Edition, Open University Press, Maidenhead.
- Denzin, N. K. (1989): *Interpretive interactionism*. Newbury Park, CA: Sage.
- Department for Business, Innovation and Skills, BIS (2012a): *A Review of business-university collaboration: The Wilson review*.
- Department for Business, Innovation and Skills, BIS (2012b): *Small Business Survey 2012: SME Employers*.
- Department for Business, Innovation and Skills, BIS (2013): *Encouraging a British Invention Revolution: Sir Andrew Witty’s Review of Universities and Growth*.
- Donmoyer, R. (2001): Paradigm talk reconsidered. In V. Richardson (Ed.), *Handbook of research in teaching*, pp. 174–197, American Educational Research Association, Washington DC.
- Dubois, A. & Araujo, L. (2004): Research methods in industrial marketing studies, in Hakanson, H., Harrison, D. & Waluszewski (eds.) *Rethinking marketing: developing a new understanding of markets*, pp. 207–227, Chichester, UK: Wiley.

- Dubois, A. & Gadde, L-E. (2002): Systematic combining: an abductive approach to case research, *Journal of Business Research*, vol. 55, pp. 553–560.
- Eisenhardt, K. (1989): Building theories from case study research. *Academic Management Review*, 214(4), pp. 532–50.
- Enders, J. (2004): Higher education, internationalization, and the nation-state: Recent developments and challenges to governance theory, *Higher Education* 47, pp. 361–382.
- England 2014 to 2020 European Structural and Investment Funds.  
Information about the European Structural and Investment Funds programme for 2014 to 2020 in England. Retrieved from: <https://www.gov.uk/guidance/england-2014-to-2020-european-structural-and-investment-funds> 28<sup>th</sup> February 2018.
- Etzkowitz, H. & Kloften, M. (2005): The innovating region: toward a theory of knowledge-based regional development, *R&D Management* 35:3, pp. 243–255.
- Etzkowitz, H. & Leydesdorff, L. (eds.) (1997): *Universities in the Global Economy: A Triple Helix of University-Industry-Government Relations*, London: Cassell Academic.
- Etzkowitz, H. (2013): Anatomy of the entrepreneurial university, *Social Science Information* 52(3), pp. 486–511.
- Etzkowitz, H., & Kloften, M. (2005): The innovating region: Toward a theory of knowledge-based regional development. *R&D Management*, 35(3), pp. 243–255.
- Etzkowitz, H., Ranga, M., Benner, M., Guarany, L., Macukan, A. M., and Kneller, R. (2008): Pathways to the entrepreneurial university: Towards a global convergence, *Science and Public Policy* 35, pp. 681–695.
- European Commission (2010): EUROPE 2020. A European strategy for smart, sustainable and inclusive growth. Retrieved from: <http://ec.europa.eu/eu2020/pdf/COMPLET%20EN%20BARROSO%20%20%20007%20-%20Europe%202020%20-%20EN%20version.pdf>
- European Commission (2014): Cohesion Policy and the United Kingdom. Retrieved from: [https://ec.europa.eu/regional\\_policy/sources/information/cohesion-policy-achievement-and-future-investment/factsheet/united\\_kingdom\\_en.pdf](https://ec.europa.eu/regional_policy/sources/information/cohesion-policy-achievement-and-future-investment/factsheet/united_kingdom_en.pdf)
- European Commission (2019): Centro Region of Portugal – Complete Regional Profile. Growth - Internal Market, Industry, Entrepreneurship and SMEs website: <https://ec.europa.eu/growth/tools-databases/regional-innovationmonitor/base-profile/centro-region-portugal>, accessed 10<sup>th</sup> of April 2019.
- European Commission, Cohesion Policy website [https://ec.europa.eu/regional\\_policy/en/policy/how/priorities/](https://ec.europa.eu/regional_policy/en/policy/how/priorities/), accessed 1<sup>st</sup> August 2019. [https://ec.europa.eu/regional\\_policy/en/atlas/programmes?countryCode=PT](https://ec.europa.eu/regional_policy/en/atlas/programmes?countryCode=PT), accessed 7<sup>th</sup> of January 2020.

[https://ec.europa.eu/growth/industry/innovation/facts-figures/regional\\_en](https://ec.europa.eu/growth/industry/innovation/facts-figures/regional_en)., accessed 7th of January 2020.

European Commission, Finland – ERDF programme description, website, available at: <https://ec.europa.eu/growth/tools-databases/regional-innovation-monitor/policy-document/manner-suomi/sustainable-growth-and-jobs-2014-2020-finlands-structural-fund>, accessed 12th of December 2019.  
[https://ec.europa.eu/regional\\_policy/en/atlas/programmes/2014-2020/finland/2014fi16m2op001](https://ec.europa.eu/regional_policy/en/atlas/programmes/2014-2020/finland/2014fi16m2op001), accessed 12th of December 2019

European Commission, United Kingdom – ERDF England programme description, website, available at: [https://ec.europa.eu/regional\\_policy/en/atlas/programmes/2014-2020/united-kingdom/2014uk16rfop001](https://ec.europa.eu/regional_policy/en/atlas/programmes/2014-2020/united-kingdom/2014uk16rfop001) accessed 2nd of December 2019.

European Regional Development Fund and on specific provisions concerning the Investment for growth and jobs goal and repealing, Regulation (EC) No 1080/2006. Retrieved from: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32013R1301&from=EN>

Eurostat (2018), website:

<https://ec.europa.eu/eurostat/web/lucas/data/primary-data/2018>, accessed 1<sup>st</sup> of June 2020.

Feyerabend, P. (1987): *Farewell to Reason*, Verso.

Finnish Ministry of Education and Culture (2015): *Vastuullinen ja vaikuttava. Tulokulmia korkeakoulujen yhteiskunnalliseen vaikuttavuuteen* (Responsible and effective. Perspectives on higher education's societal impact), 2015:13. Report available in Finnish at: <http://julkaisut.valtioneuvosto.fi/bitstream/handle/10024/75117/okm13.pdf>, accessed 30<sup>th</sup> August 2017.

Flick, U. (2011): *Methodological Triangulation in Qualitative Research*, in *Managing Quality in Qualitative Research* pp. 55–74, SAGE Publications.

Flyvbjerg, B. (2006): *Five Misunderstandings About Case-Study Research*. *Qualitative Inquiry*, vol. 12 no. 2, pp. 219–245.

Flyvbjerg, B. (2001): *Making Social Science Matter: Why Social Inquiry Fails and How it Can Succeed Again*, Cambridge University Press.

Fonseca, L. and Salomaa, M. (2019): *Entrepreneurial Universities and Regional Innovation: Matching Smart Specialisation Strategies to Regional Needs?*, pp. 260–285 in Daniel, A.D., Teixeira, A.A.C. and Preto, M.T. (Eds.) *Examining the Role of Entrepreneurial Universities in Regional Development*. IGI Global.

Fonseca, L., Nieth, L., Salomaa, M. & Benneworth, P. (*forthcoming*). *Universities and Place Leadership – A question of agency and alignment* in M. Sotarauta & A. Beer (eds.) *Handbook on City and Regional Leadership*, Cheltenham: Edward Elgar Publishing.

Foray, D. (2016). *On the policy space of smart specialization strategies*, *European Planning Studies*, 24(8), pp. 1428–1437.

- Foray, D., David, P. A., & Hall, B. H. (2011): Smart Specialisation from Academic Idea to Political Instrument, the Surprising Career of a Concept and the Difficulties Involved in its Implementation. Retrieved from: <https://infoscience.epfl.ch/record/>
- Foss, L. & Gibson eds. (2015): *The Entrepreneurial University. Context and institutional change* Routledge studies in Innovation, Organization and Technology.
- Fratesi, U. & Wishlade, F. (2017): The impact of European Cohesion Policy in different contexts, *Regional Studies* Vol. 51, pp. 817–821.
- Freel, M., Persaud, A. & Chamberlin, T. (2019): Faculty ideals and universities' third mission, *Technological Forecasting & Social Change*, 147, pp. 10–21.
- Frodenzi, R., Colasanti, N., Fantouzzi, C. & Fiorani, G. (2019): Intellectual Capital and the University Third Mission: an Evaluation Framework, *Qualitative Research in Intangibles, Intellectual Capital and Integrated Reporting Practices*, Università degli studi Roma 3. Retrieved from: <http://romatrepress.uniroma3.it/wp-content/uploads/2019/05/Intellectual-Capital-and-the-University-Third-Mission-an-Evaluation-Framework.pdf>
- Gagliardi, L. & Percoco, M. (2017): The impact of European Cohesion Policy in urban and rural regions, *Regional Studies* 51:6, 857–868.
- Geertz, C. (1973): *The interpretation of cultures: selected essays*. New York: Basic Books.
- Gibb, B. & Hannon, P. (2006): Towards the Entrepreneurial University?, *International Journal of Entrepreneurship Education* 4, pp. 73–110.
- Gibson, E., Daim, T.U. & Dabic, M. (2019): Evaluating university industry collaborative research centers, *Technological Forecasting & Social Change*, 146, pp. 181–202.
- Goddard, J. (2009): Reinventing the Civic University, *Provocation* 12, NESTA. Retrieved from: <https://www.nesta.org.uk/report/re-inventing-the-civic-university/>
- Goddard, J. & Vallance, P. (2013): *The University and the City*, London: Routledge.
- Goldstein, H.A. and Glaser, K. (2012): Research universities as actors in the governance of local and regional development, *The Journal of Technology Transfer*, 37, pp. 158–174.
- Goddard, J., Kempton, L. & Vallance, P. (2013): Universities and Smart Specialisation: challenges, tensions and opportunities for the innovation strategies of European regions. Retrieved from: [https://eprint.ncl.ac.uk/file\\_store/production/193760/67ED3072-C5F5-4864-AE3F-F8C88BAC709D.pdf](https://eprint.ncl.ac.uk/file_store/production/193760/67ED3072-C5F5-4864-AE3F-F8C88BAC709D.pdf)
- Göransson, B., Maharajh, R. & Schmoch, U. (2009): New activities of universities in transfer and extension: multiple requirements and manifold solutions, *Science and Public Policy*, 36(2), pp. 157–164.
- Greater Lincolnshire Local Enterprise Partnership, website: <http://www.research-lincs.org.uk/lep-evidence-smallbusiness.aspx>, accessed 1<sup>st</sup> of June 2020.

Greater Lincolnshire Local Enterprise Partnership (2016): The Greater Lincolnshire Local Enterprise Partnership EU Structural and Investment Strategy 2014-2020. Retrieved from: [https://www.greaterlincolnshirelep.co.uk/assets/documents/EU\\_SIF\\_%28Structural\\_Investment\\_Fund%29.pdf](https://www.greaterlincolnshirelep.co.uk/assets/documents/EU_SIF_%28Structural_Investment_Fund%29.pdf)

Greater Lincolnshire Local Economic Partnership Strategic Economic Plan 2014–2030(2016). Retrieved from: [https://www.greaterlincolnshirelep.co.uk/assets/documents/Strategic\\_Economic\\_Plan\\_2016\\_Refresh.pdf](https://www.greaterlincolnshirelep.co.uk/assets/documents/Strategic_Economic_Plan_2016_Refresh.pdf)

Grove, R. (1988): An analysis of the constant comparative method, *International Journal of Qualitative Studies in Education*, pp. 273–279.

Gunasekara, C. (2004): The Third Role of Australian Universities in Human Capital Formation, *Journal of Education Policy and Management*, Vol. 26, Issue 3, pp. 329–343.

Heckathorn, D.D. (1997): Respondent-Driven Sampling: A New Approach to the Study of Hidden Populations, *Social Problems* vol. 44 no. 2, pp. 174–199.

Hogan, J., Dolan, P. and Donnelly, P. (2009): *Approaches to Qualitative Research : Theory & Its Practical Application - A Guide for Dissertation Students*. Cork: Oak Tree Press. Available at: <https://search-ebSCOhost.com.proxy.library.lincoln.ac.uk/login.aspx?direct=true&db=nlebk&AN=1008507&site=eds-live&scope=site> (Accessed: 21 August 2019).

Hooghe, L and Marks, G. (2001): ‘Types of multi-level governance: what, where, why?’ Paper prepared for the Multi-Level Governance Conference, 28–30 June, Halifax Hall, Sheffield, UK.

Hooghe, L. (ed.) (1996): *Cohesion Policy and European Integration*, Oxford: Oxford University Press.

Huggins, R., & Johnston, A. (2009): The economic and innovation contribution of universities: a regional perspective, *Environment and Planning C: Government and Policy*, 27(6), pp. 1088–1106.

Huggins, R., Johnston, A. & Stride, C. (2012): Knowledge networks and universities: Locational and organisational aspects of knowledge transfer interactions, *Entrepreneurship & Regional Development*, Vol 24, Issue 7-8, pp. 475–502.

J. Ferreira & M. Ranga (eds.): *Regional Helix Ecosystems and Sustainable Growth: Innovation, Entrepreneurship and Technology Transfer*, Springer.

Jongbloed, B., Enders, J. & Salerno, C. (2008): Higher education and its communities: Interconnections, interdependencies and a research agenda, *Volume 56, Issue 3*, pp. 303–324.

Kempton, L. (2015): Delivering smart specialization in peripheral regions: the role of Universities, *Regional Studies, Regional Science*, Vol. 2, Issue 1, pp. 489-496.

Kestavaa kasvua ja työtä. Rakennerahasto-ohjelma 2014-2020. SF Operational Programme for Finland 2014-2020. Retrieved from:

[https://www.rakennerahastot.fi/documents/10179/43399/TEM\\_Rakennerahastot\\_2014-2020\\_Esite\\_070514\\_PRINT.pdf/317d9a54-c3f2-4a6c-8005-4c5bc565fa88](https://www.rakennerahastot.fi/documents/10179/43399/TEM_Rakennerahastot_2014-2020_Esite_070514_PRINT.pdf/317d9a54-c3f2-4a6c-8005-4c5bc565fa88)

Kirk, J. & Miller, L. (1986): *Reliability and Validity in Qualitative Research*, Sage publications.

Kitagawa, F., Sánchez-Barrioluengo M. and Uyarra, E. (2016): Third mission as institutional strategies: Between isomorphic forces and heterogeneous pathways, *Science and Public Policy* 43(6), pp. 736–750.

Klofsten, M., Jones-Evans, D., (2000): Comparing academic entrepreneurship in Europe: the case of Sweden and Ireland, *Small Business Economics* 14, pp. 299–309.

Kuhn, T. (1970): *The Structure of Scientific Revolutions*, 2<sup>nd</sup> edition, University of Chicago Press.

Lahikainen, K., Kolhinen, J., Ruskovaara, E. & Pihkala, T. (2019): Challenges to the development of an entrepreneurial university ecosystem: The case of a Finnish university campus, *Industry and Higher Education*, 33(2), pp. 96-107.

Laredo, P. (2007): Revisiting the Third Mission of Universities: Toward a Renewed Categorization of University Activities?, *Higher Education Policy* Volume 20, Issue 4.

Lather, P. (1986): Issues of validity in openly ideological research: Between a rock and a soft place. *Interchange* 17, pp. 63–8.

Lebeau, Y. & Cochrane, A. (2015): Rethinking the ‘third mission’: UK universities and regional engagement in challenging times, *European Journal of Higher Education*, pp. 250–263.

Lee, J.J., Vance, H., Stensaker, B. & Ghosh, S. (2020): Global rankings at a local cost? The strategic pursuit of status and the third mission, *Comparative Education*, 56:2, pp. 236–256.

Leydesdorff, L. & Etzkowitz, H. (1996): Emergence of a Triple Helix of university–industry–government relations, *Science and Public Policy*, Vol. 23:5, 279–286.

Leydesdorff, L. (2012): The Triple Helix, Quadruple Helix, ...and an N-Tuple of Helices: Explanatory Models for Analyzing the Knowledge-Based Economy?, *Journal of the Knowledge Economy* 3, pp. 25–35.

Lincoln, Y.S. and Denzin, N.K. (2011): *The Sage handbook of qualitative research*, 4<sup>th</sup> edition. Thousand Oaks; Sage.

Lincoln, Y. S. & Guba, E. G. (1985): *Naturalistic inquiry*. Beverly Hills, CA, SAGE Publications.

Lindeman, A. (2015): Kymenlaakso University of Applied Sciences, Finland in search of university-wide. In L. Foss & Gibson (Eds.), *The entrepreneurial university. Context and institutional change* (pp. 167–190). Abingdon: Routledge. *Studies in Innovation, Organization and Technology*.

- Maxwell, J. (1992): *Understanding and Validity in Qualitative Research*, Harvard Educational Review, Vol. 62, No. 3, pp. 279–301.
- Marks, G. (1992): ‘Structural policy in the European Community’, in A. Sbragia (ed.), *Euro-Politics: Institutions and Policymaking in the ‘New’ European Community*, Washington, DC: Brookings Institutions.
- Marks, G., Hooghe, L. and Blank, K. (1996): ‘European integration from the 1980s: state-centric v. multi-level governance’, *Journal of Common Market Studies* 34(3), pp. 341–78.
- McCann, P. and Ortega-Argilés, R. (2013): *Transforming European regional policy: a results-driven agenda and smart specialization*, Oxford Review of Economic Policy, Volume 29, Number 2, 2013, pp. 405–431.
- McCann, P., & Ortega-Argilés, R. (2015): *Smart Specialization, Regional Growth and Applications to European Union Cohesion Policy*, *Regional Studies* 49:8, pp. 1291–1302.
- Miles, M. B., Huberman, M. A. & Saldana, J. (2014): *Qualitative Data Analysis. A Methods Sourcebook*, SAGE Publications, US.
- Ministry for Housing, Communities and Local Government, MHCLG (2019): *European Regional Development Fund. England Operational Programme 2014 to 2020*. Retrieved from: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/825676/190121-European\\_Regional\\_Development\\_Fund\\_OP\\_edited-P.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/825676/190121-European_Regional_Development_Fund_OP_edited-P.pdf)
- Ministry for Housing, Communities and Local Government, MHCLG (2019): *European Structural and Investment Funds List of Operations 2014 to 2020*, updated 22<sup>nd</sup> of July 2019. Retrieved from: <https://www.gov.uk/government/publications/european-structural-and-investment-funds-useful-resources#history>
- Ministry of Economic Affairs and Employment in Finland, website: <https://tem.fi/en/sustainable-growth-and-employment-2014-2020>, accessed 15<sup>th</sup> of December 2019.
- Ministry of Education and Culture in Finland, website: <https://minedu.fi/en/steering-financing-and-agreements>, accessed 11<sup>th</sup> of November 2018.
- Morse, J. M., Barrett, M., Mayan, M., Olson, K. & Sprier, J. (2002): *Verification Strategies for Establishing Reliability and Validity in Qualitative Research*, *International Journal of Qualitative Methods*, 1(2).
- Muizniece, L. & Peiseniece, L. (2012): *EU Structural Funds Investment in R&D and its influence on innovation development – the case of university of Latvia*, in *European Integration Studies* No. 6.
- Mulhall, S. (2007): *The Conversation of Humanity*, University of Virginia Press.
- Needs and constraints analysis of the three dimensions of third mission activities (2012): *European Indicators and Ranking Methodology for University Third Mission (EM3) project*. Retrieved from: <http://www.e3mproject.eu/docs/Three-dim-third-mission-act.pdf>



Nelles, J. & Vorley, T. (2010a): From Policy to Practice: engaging and embedding the third mission in contemporary universities, *International Journal of Sociology and Social Policy*, Vol. 30 No. 7/8, pp. 341–353.

Nelles, J., & Vorley, T. (2010b). Constructing an entrepreneurial architecture: An emergent framework for studying the contemporary university beyond the entrepreneurial turn. *Innovative Higher Education*, 35(3), pp. 161–176.

Nelles, J., & Vorley, T. (2011). Entrepreneurial architecture: A blueprint for entrepreneurial universities. *Canadian Journal of Administrative Sciences/Revue Canadienne des Sciences de L'Administration*, 28(3), pp. 341–353.

Nieth, L. & Benneworth, P. (2019): Challenges of knowledge combination in strategic regional innovation processes - the Creative Science Park in Aveiro, *European Planning Studies*, <https://doi.org/10.1080/09654313.2019.1699908>

Nieth, L., Benneworth, P., Charles, D., Fonseca, L., Rodrigues, C., Salomaa, M., & Stienstra, M. (2018). Embedding entrepreneurial regional innovation ecosystems: Reflecting on the role of effectual entrepreneurial discovery processes. *European Planning Studies*, 26(11), pp. 2147–2166.

Official Statistics of Finland (2017): Population structure  
[http://www.stat.fi/til/vaerak/index\\_en.html](http://www.stat.fi/til/vaerak/index_en.html), accessed 12<sup>th</sup> November 2018.

Oftedal, E., & Foss, L. (2015): Ut The Arctic University of Norway challenges at the arctic crossroads. In L. Foss & Gibson (Eds.), *The entrepreneurial university. Context and institutional change* (pp. 190–220). Abingdon: Routledge. *Studies in Innovation, Organization and Technology*.

Oftedal, E., & Iakovleva, T. (2015): Stavanger from petroleum focus to diversified competence through crisis and consensus. In L. Foss & Gibson (Eds.), *The entrepreneurial university. Context and institutional change* (pp. 221–249). Abingdon: Routledge. *Studies in Innovation, Organization and Technology*.

Olsson, J. (2003): Democracy paradoxes in multi-level governance: theorizing on structural fund system research, *Journal of European Public Policy*, 10:2, pp. 283–300.

Patton, M. Q. (2015): *Qualitative Research & Evaluation Methods: Integrating Theory and Practise*, 4th edition, SAGE publications Inc.

Percoco, M. (2017): Impact of European Cohesion Policy on regional growth: does local economic structure matter? *Regional Studies*, 51:6, pp. 833–843.

Philpott, K., Dooley, L., O'Reilly, C. and Lupton, G. (2011): The entrepreneurial university: Examining the underlying academic tensions, *Technovation*, Volume 31, Issue 4, pp. 161-170.



- Piekkari, R., Welch, C. & Paavilainen, E. (2009): The Case Study as Disciplinary Convention. Evidence from International Business Journals, *Organizational Research Methods*, Vol. 12 No. 3, pp. 567–589.
- Pinheiro, R., Benneworth, P., & Jones, G. (2012): Understanding regions and the institutionalization of universities. In R. Pinheiro, P. Benneworth, & G. Jones (Eds.), *Universities and Regional Development: An Assessment of Tensions and Contradictions* (pp. 11–32). London: Routledge.
- Pinheiro, R., Langa, P. V. & Pausits, A. (2015): The institutionalization of universities' third mission: introduction to the special issue, *European Journal of Higher Education*, 5:3, pp. 227–232.
- Prasad, P. (2015): *Crafting Qualitative Research: Working in the Postpositivist Traditions : Working in the Postpositivist Traditions*. London: Routledge. Available at: <https://search-ebSCOhost-com.proxy.library.lincoln.ac.uk/login.aspx?direct=true&db=e020mww&AN=959213&site=eds-live&scope=site>, Accessed: 19 August 2019.
- Pugh, R., Lamine, W., Jack, S. & Hamilton, E. (2018): The entrepreneurial university and the region: what role for entrepreneurship departments?, *European Planning Studies*, 26, pp. 1835–1855.
- Puusa, A. (2008): Käsitemanalyysi tutkimusmenetelmänä, *Premissi* 4/2008, pp. 36–43.
- Rapley, T. (2011): Some Pragmatics of Data Analysis, in Silverman, D. (ed.) *Qualitative Research*, 3<sup>rd</sup> edition, pp. 273–291, Sage.
- Regeneris Consulting (2017): *The Social, Cultural & Economic Contribution of the University of Lincoln - A Final report*.
- Regional Council of Satakunta, website: <http://www.satakuntaliitto.fi/english>, accessed 12<sup>th</sup> of November 2018.  
<http://www.satakuntaliitto.fi/regional-development-and-planning>, accessed 18<sup>th</sup> of April 2019.
- Regional strategic plan of the Satakunta region 2018-2021. Retrieved from [http://www.satakuntaliitto.fi/sites/satakuntaliitto.fi/files/tiedostot/Aluekehitys/MAKO\\_2018\\_2021/Satakunnan\\_maakuntaohjelma\\_2018-2021\\_SahkoinenJulkaisu\\_LowRes.pdf](http://www.satakuntaliitto.fi/sites/satakuntaliitto.fi/files/tiedostot/Aluekehitys/MAKO_2018_2021/Satakunnan_maakuntaohjelma_2018-2021_SahkoinenJulkaisu_LowRes.pdf)
- Rhoades, G. & Stensaker, B. (2017): Bringing Organisations and Systems Back Together: Extending Clark's Entrepreneurial University. *Higher Education Quarterly*, 71, pp. 129-140.
- Rhodes, R.A.W. (1990): 'Policy networks: a British perspective', *Journal of Theoretical Politics* 2, pp. 293–317.
- Rhodes, R.A.W., Bache, I. and George, S. (1996): 'Policy networks and policy-making in the European Union: a critical appraisal', in L. Hooghe (ed.), *Cohesion Policy and European Integration. Building Multilevel Governance*, Oxford: Oxford University Press, pp. 367–88.

- Rodrigues, C., & Melo, A. I. (2013): The Triple Helix Model as Inspiration for Local Development Policies: An Experience-Based Perspective: The triple helix model and local development in Portugal. *International Journal of Urban and Regional Research*, 37(5), pp. 1675–1687.
- Rodrigues, C., & Teles, F. (2017): The Fourth Helix in Smart Specialization Strategies: The Gap Between Discourse and Practice. In S. P. De Oliveira Monteiro & E. G. Carayannis (Eds.), *The Quadruple Innovation Helix Nexus*, pp. 205–226.
- Rodrigues, C.; Da Rosa Pires, A.; De Castro, E. (2001): Innovative universities and regional institutional capacity building: the case of Aveiro, Portugal, *Industry and Higher Education* (4), pp. 251–255.
- Rodriguez-Pose A., Fratesi, U. (2004): Between Development and Social Policies: The impact of European Structural Funds in Objective 1 regions, *Regional Studies*, Vol. 38, 1, pp. 97–113.
- Roper, C.D. & Hirth, M. A. (2005): A History of Change in the Third Mission of Higher Education: The Evolution of One-way Service to Interactive Engagement, *Journal of Higher Education Outreach and Engagement*, Volume 10, Number 3/2005, pp. 3–20.
- Rossi, F. & Goglio, V. (2020): Satellite university campuses and economic development in peripheral regions, *Studies in Higher Education*, 45:1, pp. 34-54.
- RUNIN - The Role of Universities in Innovation and Regional Development, website. Available at: <http://runinproject.eu>
- Saarinen, T. (2008): Position of the text and discourse analysis in higher education policy research, *Studies in Higher Education* Vol. 33 No. 6, pp. 719–728.
- Saldaña, J. (2011): *Fundamentals of Qualitative Research*, Oxford University Press, USA.
- Salomaa, M. & Charles, D. (2019): The university third mission and the European Structural Funds in peripheral regions: Insights from Finland. RUNIN Working Paper series 07/2019. [https://ris.utwente.nl/ws/portalfiles/portal/138694426/07.2019\\_Salomaa\\_Charles.pdf](https://ris.utwente.nl/ws/portalfiles/portal/138694426/07.2019_Salomaa_Charles.pdf)
- Salomaa, M. (2019): Third mission and regional context: assessing universities' entrepreneurial architecture in rural regions, *Regional Studies*, *Regional Science*, 6:1, pp. 233–249.
- Salomaa, M., Nieth, L., Benneworth, P. & Fonseca, L. (2020): The role of universities in building dense triple helix ecosystems in sparse regional environments, in L. Farinha, D. Santos, J. Ferreira & M. Ranga (eds.) *Regional Helix Ecosystems and Sustainable Growth: Innovation, Entrepreneurship and Technology Transfer*, Springer.
- Sánchez-Barrioluengo, M. (2014): 'Turning the tables': regions shaping university performance, *Regional Studies*, *Regional Science*, 1:1, pp. 276–285.
- Sánchez-Barrioluengo, M. & Benneworth, P. (2019): Is the entrepreneurial university also regionally engaged? Analysing the influence of university's structural configuration on third mission performance, *Technological Forecasting & Social Change* 141, pp. 206–218.

Santos, D., & Caseiro, N. (2015): The Challenges of Smart Specialization Strategies and the Role of Entrepreneurial Universities: A New Competitive Paradigm. In Carmo Farinha, L. M., Ferreira, J. J. M., Smith, H. L. & Bagchi Sen, S. (Eds.), Handbook of Research on Global Competitive Advantage through Innovation and Entrepreneurship.

Satakunta Region: RIS3 strategy (2014). Retrieved from [http://www.satakuntaliitto.fi/sites/satakuntaliitto.fi/files/RIS3\\_Satakunta2014\\_TEM.pdf](http://www.satakuntaliitto.fi/sites/satakuntaliitto.fi/files/RIS3_Satakunta2014_TEM.pdf)

Satakunta Regional Programme 2014-2017: <http://www.satakuntaliitto.fi/sites/satakuntaliitto.fi/files/tiedostot/Aluekehitys/Satakunta%20Regional%20Programme%202014-2017.pdf> accessed 12<sup>th</sup> November 2018.

Satamittari (Satakunta statistics), website: [http://www.satamittari.fi/sites/satamittari.fi/files/asiakaskuvat/Satamittari/Satakunnan\\_talous/TalouskatsausII2018/TIEDOTE%20Satakunnan%20talous%20joulukuu%202018.pdf](http://www.satamittari.fi/sites/satamittari.fi/files/asiakaskuvat/Satamittari/Satakunnan_talous/TalouskatsausII2018/TIEDOTE%20Satakunnan%20talous%20joulukuu%202018.pdf), accessed 17<sup>th</sup> of April 2019  
[http://www.satamittari.fi/Taloukasvu\\_17th\\_April\\_2019](http://www.satamittari.fi/Taloukasvu_17th_April_2019) accessed 17<sup>th</sup> of April 2019  
[http://www.satamittari.fi/Tutkimus- ja\\_kehitt%C3%A4mist%C3%B6iminta](http://www.satamittari.fi/Tutkimus- ja_kehitt%C3%A4mist%C3%B6iminta), accessed 17<sup>th</sup> of April 2019.

Saunders, M. & Townsend, K. (2016): Reporting and Justifying the Number of Interview Participants in Organization and Workplace Research, *British Journal of Management*, Vol 27, Issue 4, pp. 836–852.

Saunders, M., Lewis, P. & Thornhill, A. (2016): *Research Methods for Business Students* (7th edn.), Pearson.

Schoen, A. et al. (2006). Strategic Management of University Research Activities, Methodological Guide, PRIME Project ‘Observatory of the European University’.

Secundo, G., Elena-Perez, S., Martinaitis, Z., and Leitner, K.H. (2017): An Intellectual Capital framework to measure universities' third mission activities, *Technological Forecasting & Social Change* 123, pp. 229–239.

Silverman, D. (2005): *Doing Qualitative Research: A Practical Handbook*, Sage Publications.

Slaughter, S. & Leslie, L. (1997): *Academic Capitalism: Politics, Policies and the Entrepreneurial University*, Johns Hopkins University Press.

Sotarauta, M. (2014): Reflections on ‘Mobilizing leadership in cities and regions’, *Regional Studies, Regional Science*, 1(1), pp. 28–31.

Sotarauta, M. and Kosonen, K-M. (2003): Institutional Capacity and Strategic Adaptation in Less Favoured Regions: A South Ostrobothnia University Network as a Case in Point. Industrial Performance Center, Massachusetts Institute of Technology IPC Working Paper Series.

Sparkhouse website, available at: <http://www.sparkhouselincoln.co.uk/> accessed 15<sup>th</sup> of April 2017.

Spilanis, I., Kizos, T., & Giordano, B. (2016): The effectiveness of European Regional Development Fund projects in Greece: Views from planners, management staff and beneficiaries. *European Urban and Regional Studies*, 23(2), pp. 182–197.

Stablein, R. (1996): Data in Organization Studies, in Clegg, S.R. & Hardy, C. (eds.) *Studying Organization: Theory and Method*, pp. 255–272, Sage publications.

Stefaan De Rynck & Paul McAleavey (2001): The cohesion deficit in Structural Fund policy, *Journal of European Public Policy*, 8:4, pp. 541-557.

Stensaker, B., & Benner, M. (2013): Doomed to be entrepreneurial: Institutional transformation or institutional lock-ins of ‘new’ universities? *Minerva*, 51, pp. 399–416.

Structural Fund information service: European Regional Development Funds and European Social Funds projects in Finland during the 2014-2020 programme period, <https://www.eura2014.fi/rrtiepa/?lang=en>, first accessed on the 1<sup>st</sup> of September 2017.

Sustainable growth and jobs 2014 - 2020 - Finland's structural funds programme. Available in Finnish at <https://www.rakenerahastot.fi/documents/10179/43217/Ohjelma-asiakirja+valmis.pdf/>, accessed 30<sup>th</sup> of August 2017.

Tampere University, website:

<https://www.tuni.fi/en/about-us/get-to-know-tampere-universities>, accessed the 9<sup>th</sup> of December 2019.

The Finnish Higher Education Evaluation Council, FINHEEC (2013): Korkeakoulut yhteiskunnan kehittäjinä. Korkeakoulujen yhteiskunnallisen ja alueellisen vaikuttavuuden arviointiryhmän loppuraportti (Evaluation of higher education institutions' social and regional impact), 5:2013. Report available in Finnish at: [https://karvi.fi/app/uploads/2014/09/KKA\\_0513.pdf](https://karvi.fi/app/uploads/2014/09/KKA_0513.pdf)

The Regional Council of Satakunta (2017): The impact of EU-funding to higher education in the Satakunta Region, a PowerPoint presentation provided by RCS.

Thomas, E. & Pugh., R. (2020): From ‘entrepreneurial’ to ‘engaged’ universities: social innovation for regional development in the Global South, *Regional Studies*. DOI: 10.1080/00343404.2020.1749586

Tisdell, E. J. & Merriam, S. B. (2015): *Qualitative Research: A Guide to Design and Implementation*, 4<sup>th</sup> Edition, Jossey Bass.

Trencher, G., Yarime, M., McCormick, K. B., Doll, C.H.M, and Kraines, S.B. (2014): Beyond the third mission: Exploring the emerging university function of co-creation for sustainability, *Science and Public Policy* 41, pp. 151–179.

Tripp, M, Sinozic, T. & Lawton Smith, H. (2015): The Role of Universities in Regional Development: Conceptual Models and Policy Institutions in the UK, Sweden and Austria. *European Planning Studies*, 23:9, pp. 1722–174.

Tuchman, G. (2009): *Wannabe U: Inside the corporate university*. Chicago: University of Chicago Press.

Unger, M., Marsan, G.A., Meissner, D., Polt, W. & Cervantes, M. (2020): New challenges for universities in the knowledge triangle, *The Journal of technology transfer*, Vol.45 (3), pp. 806-819.

Universities Act 558/2009 (Finland).

<http://www.finlex.fi/en/laki/kaannokset/2009/en20090558>, accessed 30<sup>th</sup> of August 2017.

Universities core funding model from 2017, Ministry of Culture and Education, website: [https://minedu.fi/documents/1410845/4392480/Universities\\_funding\\_2017.pdf/abc0974d-b8d5-4486-a12a-aa141d54b66f/Universities\\_funding\\_2017.pdf.pdf](https://minedu.fi/documents/1410845/4392480/Universities_funding_2017.pdf/abc0974d-b8d5-4486-a12a-aa141d54b66f/Universities_funding_2017.pdf.pdf) accessed 20<sup>th</sup> of February 2019.

Universities UK (2001): *The Regional Mission - the regional contribution of higher education*. East Midlands: Innovation through diversity.

Universities UK (2014): *The Economic impact of the East Midlands Higher Education Sector*.

University Consortium of Pori, website:

<http://www.ucpori.fi/>, accessed 12<sup>th</sup> November 2018.

University of Aveiro, website:

<http://www.ciceco.ua.pt/index.php?menu=197&language=eng&tabela=geral>, accessed 7<sup>th</sup> of January 2020,

<https://www.ua.pt/en/regional-influence>, accessed 9<sup>th</sup> of January 2020.

University of Aveiro: Plano estratégico da Universidade de Aveiro para o quadriénio 2019-2022. Retrieved from: [file:///H:/Downloads/Plano%20Estrate%C2%B4gico\\_09.pdf](file:///H:/Downloads/Plano%20Estrate%C2%B4gico_09.pdf)

University of Lincoln (2010), *Community Engagement. Impact of the University of Lincoln*.

University of Lincoln (2016), *Graduate Destination Survey 2014/2015*.

University of Lincoln (2016), *Thinking Ahead 2016-2021. University of Lincoln Strategic Plan*. Retrieved from:

[https://www.lincoln.ac.uk/home/media/responsive2017/abouttheuniversity/managementandstrategy/UOL,Strategic,Plan,\(MAR,2016\),V5Final.pdf](https://www.lincoln.ac.uk/home/media/responsive2017/abouttheuniversity/managementandstrategy/UOL,Strategic,Plan,(MAR,2016),V5Final.pdf)

University of Lincoln, website:

<http://www.lincoln.ac.uk/home/llmc/> accessed 4<sup>th</sup> of April 2017

<http://www.lincoln.ac.uk/home/abouttheuniversity/keyfacts/> accessed 4<sup>th</sup> of April 2017.

University of Turku: *Strategy 2016-2020*. Retrieved from:

<https://apps.utu.fi/media/nakoislehdet/strategy2020/#/article/1/page/1>

Uyarra, E. (2010): *Conceptualizing the Regional Roles of Universities, Implications and Contradictions*, *European Planning Studies* Vol. 18, No 8, pp. 1227–1246.

Uyarra, E., Marzocchi, C. & Sorvik, J. (2018): *How outward looking is smart specialisation? Rationales, drivers and barriers*, *European Planning Studies*, 26, pp. 2344–2363.

- Vallance, P, Blazek, J., Edwards, J. & Kveton, V. (2017): Smart specialisation in regions with less-developed research and innovation systems: A changing role for universities? *Environment and Planning C: Politics and Space*, Vol. 36, pp. 219–238.
- Van Maanen, John (1979): Reclaiming Qualitative Methods for Organizational Research: A Preface, *Administrative Science Quarterly*, Vol. 24, No 4, pp. 520–526.
- Vorley, T. & Nelles, J. (2009): Building Entrepreneurial Architectures: a conceptual interpretation of the Third Mission, *Policy Futures in Education*, Vol 7. No. 3, pp. 284–296.
- Vorley, T. and Nelles, J. (2012): Scaling entrepreneurial architecture: the challenge of managing regional technology transfer in Hamburg, in Pinheiro R., Benneworth P. and Jones G. A. (Eds.) *Universities and Regional Development: A critical assessment of tensions and contradictions*, pp. 181–198. Routledge, Milton Park and New York.
- Walle, A. H. (2015): *Qualitative Research in Business: A Practical Overview*. Newcastle upon Tyne, United Kingdom: Cambridge Scholars Publishing.
- Weick, K. E. (1976): Educational Organizations as Loosely Coupled Systems. *Administrative Science Quarterly*, 21(1), pp.1-19.
- Wildavsky, B. (2010): *The great brain race. How global universities are reshaping the world*. Princeton: Princeton University Press.
- Wolcott, H. (1990): *Writing Up Qualitative Research*, *Qualitative Research Methods Series* 20, SAGE Publications.
- Yin, R. (1994): *Case study research. Design and methods*. Thousand Oaks: Sage publications.
- Yin, R. (2003): *Case study research: Design and methods*. Third edition. Thousand Oaks: Sage publications.
- Zomer, A. & Benneworth, P. (2011): The Rise of the University's Third Mission, *Reform of Higher Education in Europe*, Enders, J., de Boer H.F. and Westerheijden, D.F. (eds.) pp. 81–102, Sense Publishers.

## Annexes



# Third mission and regional context: assessing universities' entrepreneurial architecture in rural regions

Maria Salomaa

To cite this article: Maria Salomaa (2019) Third mission and regional context: assessing universities' entrepreneurial architecture in rural regions, *Regional Studies, Regional Science*, 6:1, 233-249, DOI: [10.1080/21681376.2019.1586574](https://doi.org/10.1080/21681376.2019.1586574)

To link to this article: <https://doi.org/10.1080/21681376.2019.1586574>



© 2019 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group



Published online: 08 May 2019.



[Submit your article to this journal](#)



Article views: 1339



[View related articles](#)



[View Crossmark data](#)



Citing articles: 5 [View citing articles](#)



# Third mission and regional context: assessing universities' entrepreneurial architecture in rural regions

Maria Salomaa 

## ABSTRACT

Universities are expected to contribute to regional development through the 'third mission' going beyond traditional academic core functions. Hitherto, the literature has focused on a rather idealistic 'one-size-fits-all' approach to university engagement, though in reality universities have different ways to carry out third-stream activities. This has been partly explained by geographical factors. Therefore, this paper focuses on how a particular context – in this case a rural region – can shape universities' institutional responses towards the third mission. A single case study of the University of Lincoln (UK) demonstrates that a rural context has an impact on the way universities develop their entrepreneurial architectures. A contextual element, namely a rural region, was added to the entrepreneurial architecture framework, originally conceptualized by Vorley and Nelles in 2009 to study how the rural context affects the other dimensions of the entrepreneurial architectures framework. Tentative findings from the case study suggest that in rural regions universities face increased expectations to take leadership outside academia in the lack of other local knowledge institutions. The engagement is largely based on personal linkages with external stakeholders instead of a formal collaboration mechanism, while the structures and strategic choices are oriented towards serving the local job market and regional priority sectors. These results imply that a particular context shapes the university's orientation and institutional responses to third-stream activities, and thus further context-sensitive studies on universities' entrepreneurial architectures would be beneficial for exploring how universities can efficiently contribute to regional development in different environments.

## ARTICLE HISTORY

Received 17 September 2018; Accepted 12 February 2019

## KEYWORDS

entrepreneurial architecture framework; third mission; entrepreneurial university; rural region

## JEL

I23; P48; R58

## INTRODUCTION

Universities have always contributed to the regional development of their locations (Chatterton & Goddard, 2000), but over the past two decades, demands on higher education have been on the increase (Clark, 1998; Uyarra, 2010). The universities' regional role has become widely recognized, and the local and regional partners have come to regard higher education as an important

## CONTACT

(Corresponding author)  [msalomaa@lincoln.ac.uk](mailto:msalomaa@lincoln.ac.uk)

Lincoln International Business School, University of Lincoln, Lincoln, UK

engine of economic growth and a tool for delivering prosperity (Arbo & Benneworth, 2007; Breznitz & Feldman, 2012).

Universities are expected to contribute to regional development through the ‘third mission’ going beyond their traditional core functions (Jongbloed, Enders, & Salerno, 2008). Though the overall comprehension of universities’ engagement activities has become ‘embodied’ by the rise of this third mission (Benneworth & Sanderson, 2009), the phenomenon itself has remained broadly defined (Jongbloed et al., 2008). Currently, the third-mission literature has focused on a rather idealistic ‘one-size-fits-all’ approach to university engagement in both policies and institutional responses (Benneworth, Pinheiro, & Karlsen, 2016; Kitagawa, Sánchez-Barrioluengo, & Uyarra, 2016), though in reality universities have different motivations (Benneworth, Pinheiro, & Sánchez-Barrioluengo, 2017) and ways to carry out third-stream activities. This has created a need for further discussion on universities’ engagement activities beyond simplistic policy document reading of the third mission (Benneworth et al., 2016), which should be embedded in the universities’ core missions (Vorley & Nelles, 2009) to amplify and enlarge the scope of teaching and research (Etzkowitz, 2013).

This study contributes to the ongoing discussion about universities’ engagement by providing a more context-sensitive reading on how a rural region shapes a university’s third mission. There is a consensus that the globalized knowledge economy has increased the importance of universities to the places in which they are located (Breznitz & Feldman, 2012), emphasizing that universities and their locations shape each other. The different ways universities undertake the third mission have been partly explained by geographical factors (Kitagawa et al., 2016). In the context of rural regions, universities have to deal with a diverse economic base dominated by small businesses and a lack of knowledge institutions (Charles, 2016); such regions also have less qualified human capital to build on innovative activities and support the knowledge economy (Sotariuta & Kosonen, 2003). Therefore, a rural context is not a straightforward innovation environment and may pose further challenges for universities’ third-stream activities. Hitherto, single case studies of universities based in rural regions tend to emphasize the importance of entrepreneurial leadership and personal commitment (e.g., Lindeman, 2015; Oftedal & Foss, 2015), but they do not identify how exactly such less munificent context shapes universities’ third mission.

As the literature has not sufficiently addressed different institutional adaptations of the third mission, the entrepreneurial architecture (EA) framework, conceptualized by Vorley and Nelles (2009), was employed to create a deeper understanding of the specific institutional characteristics of the third mission in entrepreneurial universities based in rural regions. The EA framework is based on five key elements that aim to illustrate in more depth how entrepreneurial activities can be embedded into institutional structures oriented towards teaching and research. Ideally these dimensions can help to analyze and manage universities’ internal mechanisms that together, when integrated with the core activities, reinforce implementation of the third mission (Nelles & Vorley, 2010a, 2010b, 2011; Vorley & Nelles, 2009, 2012). However, the EA literature has focused on universities’ internal dynamics and has not assessed how external forces affect universities’ engagement (Vorley & Nelles, 2012). This implies that the EA framework can provide further insights into the development of the third mission in universities, but it overlooks the impact of the context, even though the surrounding environment is one of the key factors in universities’ move towards an entrepreneurial turn (Foss & Gibson, 2015).

The research question set for the study is: How does rural context impact on the way universities develop EA? To answer, I will focus on a single case study of the University of Lincoln (UoL) located in the East Midlands of UK because empirical studies can provide more insight into the complex relations and processes of how universities and partners in different regional contexts shape each other (Foss & Gibson, 2015). This qualitative study draws mainly from secondary data, for example, the UoL’s strategic documents and complementary research interviews

with university personnel and regional authorities. First, this paper concentrates on the five dimensions of the EA, which are further discussed in relation to contextual element, a rural region. The case of the UoL then provides a platform from which to identify how rurality shapes these elements in order to draw a stylized description of universities' EA in a particular context. Tentative findings suggest that in rural regions universities have to deal with increased expectations in order to take leadership outside academia and establish more personal linkages with external stakeholders, which steers both the structures and the strategic choices towards serving the local job market and regional priority sectors.

## UNDERSTANDING THE THIRD MISSION IN A RURAL REGION

This section first discusses how EA can provide a means to conceptualize universities' entrepreneurial behaviour and provides an overview on the different elements of the EA. The EA framework is then further elaborated to include a contextual element, which is finally discussed in relation to the predicted effects of a rural context on EA in order to operationalize the research question, and to study the extent to which the impact of a rural region could be identified in practice.

### From entrepreneurial university to entrepreneurial architecture

The 'entrepreneurial turn' has become part of universities' third mission integrated into teaching and research (Nelles & Vorley, 2010a, 2010b, 2011; Vorley & Nelles, 2012); the expectation is that an 'entrepreneurial university' can embed economic and social development in their core functions, combining research, teaching and knowledge exchange so that each academic mission enhances the other (Etzkowitz, 2013; Etzkowitz & Klofsten, 2005). Thus, an entrepreneurial university seeks to balance a variety of external demands with institutional responses while safeguarding its academic excellence (Clark, 1998). This can be complicated because universities are increasingly expected to address regional issues, and at the same time they are affected by agendas of different stakeholders (Charles, Kitagawa, & Uyarra, 2014; Stensaker & Benner, 2013). However, universities have a limited capability to respond to external demands, especially in the traditional academic infrastructure (Clark, 1998), which draws attention to the development of institutionalized mechanisms to implement regional engagement. One approach that addresses this complex issue and provides a theoretical framework to analyze the different ways entrepreneurial universities can embed regional engagement in their organizational structures is the EA framework conceptualized by Vorley and Nelles (2009). The EA framework is based on five interrelated dimensions: structures, systems, leadership, strategies and culture (Table 1). Building on these dimensions, the framework can help to produce a wider understanding about how the university has integrated third-stream activities with its core missions at an institutional level (Nelles & Vorley, 2010a, 2010b, 2011).

In the EA framework, *structure* refers to entrepreneurial infrastructure, such as technology transfer offices, incubators, technology parks and business portals (Nelles & Vorley, 2010a, 2011), which are the most visible expression of the university's engagement (Vorley & Nelles, 2012). However, the structures cannot be separated from the university's attitudes towards entrepreneurship (*leadership* and *culture*) nor from the specific features of the surrounding region (Foss & Gibson, 2015). They should also be integrated with *systems* supporting engagement activities (Vorley & Nelles, 2012), which suggests that external factors, a particular context, partly steer the establishment of these structures.

Implementation of the third mission requires activities that reach outside academia (Foss & Gibson, 2015): systems, such as a university's networks of communication and configuration linkages between structures and departments (Nelles & Vorley, 2010a, 2011). The leadership dimension in EA refers to the qualification and orientation of key leaders towards the third

**Table 1.** Five elements of entrepreneurial architecture (EA), their operationalization and regional dimensions.

EA element	Operationalization	Regional dimensions
Structure	Entrepreneurial infrastructure: technology transfer offices (TTOs), incubators, tech parks, business portals	Collaboration with local knowledge institutions, working with the surrounding business environment
System	Networks of communication and configuration linkages between structures and departments	Engagement and links with key regional stakeholders, institutional mechanisms to support entrepreneurial activities
Leadership	Qualification and orientation of key leaders toward the third mission	Leaders' formal and informal regional engagement inside and outside academia
Strategy	Institutional goals elaborated in planning documents: internally determined formal incentive structures	Strategic initiatives to respond to regional needs
Culture	Institutional, departmental, and individual attitudes and norms towards the third stream: links with leaderships, systems and strategy, and overall success of the implementation of the third mission	Environmental context affecting individuals' attitudes towards entrepreneurship

Source: Author's own elaboration after Vorley and Nelles (2009).

mission (Nelles & Vorley, 2010a, 2011). It includes both formal and informal opinion leaders from within the university having influence inside and outside academia. The engagement is usually more associated with leaders' personal characters than institutional identity (Foss & Gibson, 2015). *Strategy* reveals the institutional goals, internally determined formal incentive structures, which are elaborated in planning documents (Nelles & Vorley, 2010a, 2011). The growing diversity of partnerships (systems) makes universities more integrated with society, which demands more from the management (leadership) so that Higher education institutions (HEIs) do not become overburdened by the claims of the stakeholders (Jongbloed et al., 2008). Hence, creating a sustainable strategy can be a concrete tool to speed up the university's entrepreneurial turn and facilitate balancing between academic goals and regional needs. Culture reflects institutional, departmental and individual attitudes and norms towards the third-stream activities (Nelles & Vorley, 2010a, 2011), which are somewhat challenging to assess. However, Vorley and Nelles (2012) emphasize the importance of a strong entrepreneurial culture in ensuring the efficiency of other dimensions of the framework. Culture is heavily interrelated with all five dimensions, but especially with leadership, systems and strategy (Foss & Gibson, 2015). Therefore, it can be assessed through these three dimensions and the overall success of the university's regional engagement.

### Context: the missing dimension of the EA framework?

The impact of the regional and national context cannot be overlooked in the university's path towards the entrepreneurial turn (Sotarauta & Kosonen, 2003). Universities are not able to drive economic change alone as the socioeconomic conditions of the region influence its general ability to absorb knowledge. Therefore, their role in regional development is dependent on local factors such as employment opportunities, government funding, cultural and historic aspects of the region (Breznitz & Feldman, 2012). As previous studies state, proximity is inevitably one of the features determining whom universities engage with (OECD, 1982), but finding synergies with specific local conditions and institutional responses is problematic (Benneworth et al., 2016). Despite these potential limitations and challenges, context can be considered to be the

key determinant of the speed and success of a university's entrepreneurial turn (Foss & Gibson, 2015), though a particular context alone does not determine if the university is capable of becoming entrepreneurial.

The five elements of the EA framework refer to internal dimensions of the university. They do not explicitly take into account how external context impacts on the EA. The elements are overlapping, rather loosely defined and operationalized, especially culture, which is strongly linked with the university's context (Foss & Gibson, 2015), a potential sixth element of the EA framework. If context is considered to be the leading dimension, as suggested by Foss and Gibson (2015), the organization's internal architecture is partly built as a response to external demands.

A particular context has an impact on the culture, either increasing or decreasing the motivation and need for the university's contribution to regional engagement. It also determines what kind of systems – and with whom – can be established outside academia; the volume and quality of local stakeholders define the demand and potential success of these partnerships. This in turn affects how university leaders respond to regional needs, build strategies and structures supporting the entrepreneurial turn. Their strategic choices may be heavily steered by the regional priorities and local job market, especially when local stakeholders are represented on the university's governing body. For example, a higher demand for local knowledge transfer may encourage development of a central controlling engagement point and thus contribute to entrepreneurial culture by engaging more academics in different projects and development programmes. Therefore, in order to comprehend a particular university's efforts to build EA, we also have to develop an understanding of specific characters of the surrounding region, the context.

### Entrepreneurial architectures in rural regions

Typically establishing entrepreneurial activities is more challenging for universities based in rural regions. They have to deal with a diverse economic base, lower skills level, geographical remoteness (Charles, 2016) and weaker entrepreneurial traditions (Ofstedal & Foss, 2015), all of which have a significant impact on institutions' EA (Table 2). The other regional key players may have a limited capacity to absorb knowledge (Breznitz & Feldman, 2012), which decreases the need for enterprise support services and narrows down the number of potential external research and development (R&D) partnerships. These universities, typically being smaller branch campuses, also struggle to respond to the regional expectations often based on the capacity of full-range universities. They contribute to regional development primarily by increasing skills levels by offering local access to higher education and responding to regional educational needs (Charles, 2016). This implies that universities in such an environment can have a stronger regional focus; for example, their strategic choices can be employer led and largely based on regional priority sectors. However, the local educational needs can be somewhat generic and therefore problematic to address with a limited curriculum (Charles, 2016).

Universities based in rural regions are expected to invest in research fields that are beneficial to local industries, but the capacity of smaller, specialized campuses to do so is somewhat limited. Some rural campuses fail to meet both expectations: either they cannot respond to the educational needs or are unable to create true collaboration with local industries (Charles, 2016). They also tend to create more networks in disciplines that are relevant in regional and industry needs. In some cases, this narrows down the third mission simply to supplying graduates to the local job market.

Previous case studies from Norway (Ofstedal & Foss, 2015; Ofstedal & Iakovleva, 2015) highlight that in such environments people are known: this narrows down the distance between academics, business leaders and public authorities. The close public–private partnerships in rural regions 'get things done', but do not foster thinking outside of the box as a small group of people

**Table 2.** Predicted effect of rural context on entrepreneurial architecture (EA).

EA element	Operationalization	Regional dimension	Predicted effect of rural context on EA
Structure	Entrepreneurial infrastructure: TTOs, incubators, tech parks, business portals	Collaboration with local knowledge institutions, working with surrounding business environment	Regional partners have a limited capacity to absorb knowledge, which diminishes the need for knowledge transfer and establishment of business support structures
System	Networks of communication and configuration linkages between structures and departments	Engagement and links with key regional stakeholders, institutional mechanisms to support entrepreneurial activities	Less large-scale business collaboration; a little distance between academia and the public sector; a small number of people have a lot of influence in different networks
Leadership	Qualification an orientation of key leaders toward the third mission	Leaders' formal and informal regional engagement inside and outside academia	High expectations for universities to take leadership in the absence of other regional knowledge organizations
Strategy	Institutional goals elaborated in planning documents: internally determined formal incentive structures	Strategic initiatives to respond to regional needs	Restricted capacity to address regional needs in both education and research; employer-led strategies built on regional priorities
Culture	Institutional, departmental and individual attitudes and norms towards the third stream	Environmental context affecting to individuals' attitudes towards entrepreneurship	Less demand and opportunities to initiate entrepreneurial activities; traditional academic culture oriented towards teaching activities to produce graduates for the local job market

Source: Author's own elaboration.

end up having a lot of influence (Foss & Gibson, 2015) – at the same time, a majority of university personnel are excluded from engagement activities. Taking these barriers into account, there is a need to deepen the understanding of how universities in rural regions can successfully support and implement the third mission.

## SETTING THE SCENE

### Methodology

This is an exploratory study seeking to answer how rural context impacts on the way universities develop their EA. The analysis is based on the conceptual framework, discussed in the previous section, which presents the predicted effect of rurality on a university's EA. The research approach is hermeneutic, aiming to create a deeper understanding about how the phenomena



appears in a particular case. A single case study was chosen to explore the impact of rurality on the university's EA, because case studies specifically emphasize understanding of the context (Saunders, Lewis, & Thornhill, 2015). The UoL based in a rural region of Lincolnshire serves as a critical case (Flyvbjerg, 2006) through which to obtain information on how a university can build institutional mechanisms to initiate structured engagement in a rural context. First established in 1996 as a small branch campus, UoL has expanded rapidly. It is still a rather young university that has experienced high expectations to support regional development. Thus, the UoL matches the characteristics of typical engaged universities, which are described as being a 'single, relatively large university located in peripheral regions' lagging behind the socioeconomic development of core metropolitan regions (Boucher, Conway, & Van der Meer, 2003, p. 985).

The EA framework assesses different internal aspects of university organization. An examination of its five conceptual elements for producing a stylized reading of the university's EA in a rural context requires access to sufficient and multiple sources of information. To understand how the regional context has shaped EA in the case of the UoL, the author has collected a mixed data set: regional policy documents, key reports and strategies highlighting the university's entrepreneurial dimensions, namely to assess the UoL's entrepreneurial systems, structures and strategy. The documents include the UoL's strategy for 2016–21, a recent impact study, regional policies and websites of innovation support networks in the area. These documents were also used when analyzing the organizational culture and leadership, which are more complex dimensions to assess as they reflect institutional and individual attitudes towards entrepreneurship.

In addition, six additional semi-structured research interviews were conducted with UoL's Research and Enterprise personnel, senior management and regional authorities working with the local economy and innovation in May and September 2017 and April 2018.<sup>1</sup> The length of the interviews varied from 40 to 60 min, and the choice of interviewees was based on their positions as they all focus on regional development. Their experience of long-term collaboration between the UoL and the county council was essential not only for assessing collaboration (systems) and entrepreneurial attitudes (leadership & culture), but also in reflecting the different ways in which the UoL is engaged with the region (context). The interviews were recorded and transcribed. The most meaningful material regarding the research question and conceptual construct of the predicted effect of rural context on EA was retrieved with a thick description (Denzin, 1989; Geertz, 1973) finally to collate a stylized description of how a rural context impacts universities' EA.

### Case study overview

Lincolnshire is a widely rural region, struggling with a lower skills base and a diverse economic, social and environmental base (UUK, 2001). Being dominated by very small businesses, its key sectors are agri-food, manufacturing and tourism. In addition, the city of Lincoln aims to grow in retail and business services sector together with local universities' joint ventures, such as the Lincolnshire Science and Innovation Park (Lincolnshire, 2016). The establishment of a new university in Lincoln was a result of a common political will, and its very presence was estimated to be beneficial for the region. Not typically for rural HEIs, it expanded rather quickly from a branch campus to a full-range university (UoL, 2016), aiming to become a more research-oriented institution rather than merely a vocational institution responding to the needs of the local job market.

Thus, the UoL is an interesting case for assessing how the rural context has affected its EA: it has developed a set of mechanisms to support the regional economy and tried to address the problem related to retaining graduates with a number of graduate entrepreneurship services (Regeneris Consulting, 2017). The UoL's regional role is described as twofold: it is both creating the need for business support and providing the services. The establishment of these support activities and large-scale collaborative initiatives, for example, the Lincoln Science and Innovation

Park, is seen as a way to attract more companies to the region, though the activities are mostly located in the Lincoln area. These efforts to build entrepreneurial activities have also been noted at a national level;<sup>2</sup> they are identified and further examined within the EA framework in the following section.

## THE CASE OF LINCOLN

This section discusses the EA of the case of the UoL, followed by a stylized narrative of the UoL's engagement activities through the five key concepts of the EA framework in relation to the specific features of a rural context.

### Entrepreneurial architecture in the University of Lincoln *Structures*

The UoL's efforts to implement the third mission are most identifiable through its range of activities to support local businesses and student entrepreneurship beyond 'traditional' academic infrastructure. The activities have resulted in establishing more structured engagement mechanisms, including the incubation centre Sparkhouse. Established in 2002 by Lincolnshire County Council, it mostly provided entrepreneur services to students and graduates, especially in the field of arts and creative industries. In 2004, Sparkhouse became officially part of the UoL, and expanded its focus to serve also external partners, namely local start-ups and small and medium-sized enterprises (SMEs).

The UoL currently runs the city council's innovation centre, Think Tank, under a five-year management contract. Think Tank seeks to support innovative businesses with high-growth ambitions, and it is partially used to accommodate academic activities. Sparkhouse and Think Tank have together supported over 400 businesses and facilitated the creation of 433 new jobs (Regeneris Consulting, 2017). The third key structure to support large-scale innovation and R&D activities is the UoL's newly established Lincoln Science and Innovation Park, which is a joint venture with the Lincolnshire Co-operative Society, which also owns the land. In addition, there are individual initiatives and externally funded projects to support engagement.

### *Systems*

The UoL works in close collaboration with various regional stakeholders, including local authorities and businesses. The strongest partnership is with the county council. They collaborate regularly through meetings and projects, but there are no formal networks or partnerships despite the management contract of Think Tank and the joint-initiative Science and Innovation Park. As the interviewees described, the collaboration has remained rather 'organic' as it relies more on personal connections.

The UoL's active role in regional networks was emphasized in all interviews. Strategic partnerships have also led to structural changes; the most successful of these partnerships, long-term collaboration between the UoL and Siemens Industrial Turbomachinery Ltd, enabled the opening of a purpose-built engineering school in 2011 – the first in the UK for the past 25 years (GLLEP, 2016). The UoL takes part in local business support networks (Greater Lincolnshire Local Enterprise Partnership – GLLEP) and regional partnerships (e.g., Midlands Engine<sup>3</sup>). It has facilitated in the identification of local gaps hindering economic growth, such as insufficient access to local investment, and it has resulted in new mechanisms to enable cooperation between businesses and local investors, such as the Lincoln Investment Network (LIN).

The strategic engagement is largely concentrated on mobilizing high-level infrastructure initiatives which creates a systemic gap with the coordination of individual academics. Despite many collaboration linkages outside academia, the interviewees indicated that the UoL's internal mechanisms do not support developing external links on lower levels of the organization, and that



engagement relies on individual academics' efforts. Excluding the successful Siemens collaboration, the UoL's business support mechanisms tend to fall outside the traditional academic infrastructure and there have not been very clear internal linkages between the Research and Enterprise unit and schools and colleges.

### *Leadership*

The UoL's staff across the organization is claimed to be well connected, for example, some of the personnel are jointly employed by the UoL and GLLEP to facilitate knowledge transfer (Regeneris Consulting, 2017) and the Lincoln International Business School (LIBS) has recently launched LIBS Connect, a series of networking events to bring together academics and local business community.<sup>4</sup> This connectivity implies that the UoL aims to play a role as an opinion leader outside academia. As the interviewees repeated, the top management is committed to regional development, though the general engagement is 'very much contained within the vice-chancellor' (UoL, staff). The deputy vice-chancellors of external relations and research and innovation being more concentrated on research activities, the interviewees disclosed the issue of lack of lower level leadership in the area. All data emphasized that the vice-chancellor (VC), recently awarded for her 'services to higher education',<sup>5</sup> is indeed the one who provides a strong leadership in engagement activities, whereas middle managers or the Research and Enterprise unit do not sufficiently focus on leading engagement within the organization.

### *Strategy*

The UoL's strategy for 2016–21 states that the university seeks to conduct 'research with impact', aligning the research agenda with local and economic priorities, especially in personalized health, agri-food technology, creativity, digital arts and archivy and rural communities (UoL Strategic Plan 2016–2021, p. 14), which are also the key sectors of Lincolnshire's Strategic Economic Plan (2016): 'We rely entirely on the local enterprise partnership (LEP) sectors, which you know, but we could work with any business. But we will focus on the priority sectors' (UoL, staff). According to the strategic plan, the UoL aims to generate more employer-led curricula to serve the local job market better, which demonstrates how the university can contribute to regional economic growth by providing graduates and facilitating knowledge transfer. One idea mentioned in the strategy is that of the living laboratory, conducting research that contributes to addressing local challenges, but also seeking to create a wider global contribution (UoL Strategic Plan 2016–2021). However, the strategic aims to strive for entrepreneurial activities are focused mostly on supporting student entrepreneurship with placements, mobility schemes and start-ups, and the strategic plan does not specify the UoL's internal goals to promote a 'culture of enterprise and innovation' (p. 5) within the other levels of the organization. Currently, the internal mechanisms do not explicitly support regional development; for example, the workload model emphasizes teaching, research and administration tasks, whereas enterprise was described as a rather recent and rarely used add-on.

### *Culture*

Despite the UoL's wide range of activities supporting entrepreneurial activities (structures) and the VC's personal engagement to regional development (leadership), its dominant culture was described to be rather 'conventional' (UoL, staff) and focused on teaching. Also, the UoL's strategy is mostly concentrated on enhancing teaching activities, supporting graduate entrepreneurship and building research on local priority sectors, though it sets a goal to 'be entrepreneurial in our activities and practice across the whole institution' (UoL Strategic Plan 2016–2021, p. 5).

Many of the UoL's staff members are in the early phase of their careers, and lots of people commute to Lincolnshire from elsewhere, which decreases their commitment to the local region; 'the university isn't able to attract those with a strong industrial focus' (UoL, staff). In addition, a

large number of international staff members do not have linkages with local businesses and the constant staff changes hinder the establishment of personal engagement: ‘And develop that culture throughout the university will be ongoing challenge because universities change staff all the time’ (county council). All this, together with a lack of lower level leadership to support regional engagement, makes ‘enterprise unimportant’ (UoL, staff).

## The contextual effects of a rural region on the entrepreneurial architecture of the UoL

### *Structures*

The UoL’s role in regional development was described as both a catalyst and a response to local needs. Despite the UoL’s wide range of activities to support regional growth, the Sparkhouse, Think Tank and Innovation Park, it currently has a limited number of large-scale R&D collaborations beyond the successful collaboration with Siemens. In the lack of local business partners, the facilities are partly used for the UoL’s own activities; for example, Think tank has fewer than 50% of commercial tenants, and at the time of the interviews, Sparkhouse’s office facilities were not used to full capacity.<sup>6</sup>

Some of the support services, such as the Greater Lincolnshire Innovation Programme, rely on external funding, namely European Regional Development Funds, which makes them less sustainable. However, these top-down built initiatives were seen as highly important at reaching more potential business partners: ‘one of the reasons we are running the Innovation Programme is that it brings university in contact with more businesses’ (UoL, staff), but creating a local market for business support services and institutionalizing these entrepreneurial activities require a long-term commitment.

### *System*

The university’s active engagement in local networks was repeatedly highlighted in the interviews: ‘I struggle to think of a partnership that I sit at and the university is not part of’ (county council). As is typical for rural areas, a small group of actors has a lot of influence and the UoL’s links with external actors rely heavily on a limited number of personal partnerships. This ‘organic way of doing things’ is more challenging to plan and manage at the lower level of organization, and also makes it more vulnerable to staff changes, especially as the engagement being embodied by the VC: ‘I cannot imagine vice-chancellor saying that right, I want to do some strategy here and some operation here, some tactics here, it’s not the way it happens’ (county council). The UoL has managed to create collaboration in the key sectors supporting economic growth in Lincolnshire, namely agriculture and food production, and succeeded in creating a local ‘buzz’ in Lincoln, but there is still a need to promote collaboration between university and businesses for ‘breaking that barrier between academia and businesses’ to increase knowledge transfer within the area (county council). The UoL is still a rather young university, which means it has a limited number of established partnerships also because the local businesses have a tradition to collaborate with other universities in the surrounding regions: ‘it’s about making sure that the businesses know that Lincoln University has the capacity, for ex. many of our manufacturing businesses were going to Nottingham, and we’ve said that well, actually we’ve got fantastic facilities built in Lincolnshire’ (county council).

### *Leadership*

In the absence of other key knowledge institutions, the UoL’s role was emphasized in all interviews: ‘We have some very good supporters of innovation, in the University of Lincoln and beyond, but not that many of them’ (county council). Therefore, the UoL has taken the leadership in providing support structures that are not only built in collaboration with external partners but also are partly initiatives that have been designated to the UoL outside academia:

The City Council had quite a few challenges running it (Think Tank), the occupancy rate was low and they had challenges to get other people to run it for them, and they came to us asking if we would run it for them. (UoL, staff)

Excluding the VC's active role in engagement, the UoL is still largely missing internal leadership for entrepreneurial activities as internal linkages between entrepreneurial activities; teaching and research were described to be 'weak'.

### Strategy

The UoL's strategy sets a goal to conduct research that contributes to local challenges: the proposed 'living lab' approach strives to find solutions for regional problems that can be transferred multinationally in priority sectors (UoL Strategic Plan 2016–2021). It is a natural way of linking academics with local actors, but the nature and specialization of local businesses and ventures encourages collaboration only in few prospective fields. This may limit the university's capability and volume to engage with external actors unless it manages to reach the small-scale businesses 'hidden in the region' (county council) and to establish multidisciplinary teams to work on these regional priority sectors.

The strategy states that the UoL wishes to serve local businesses by establishing more employer-led curricula, thus the employer-driven approach was linked to both the university's core missions. The interviewees raised a concern about rooting the university's activities too much to the local needs at the expense of academic excellence, but the UoL's staff pointed out that all entrepreneurial efforts are still linked to the core mission as 'the more businesses we have involved in the more we have research and innovation – it's a route for impact for us'. However, the strategy does not address how the UoL aims to promote 'a culture of enterprise and innovation' (UoL Strategic Plan 2016–2021, p. 5) at different levels of organization. As one interviewee pointed out, 'the strategy says where the university wants to be but not enough on how to get there' (UoL, staff).

### Culture

Although the UoL's efforts to build entrepreneurial activities bring together external partners from the county, the current engagement mechanisms have not reached their full potential. They fall somewhat outside the academic structures, and their linkages with colleges and schools are vague. A majority of staff members are concentrated on teaching activities; there is a lack of local collaboration possibilities and personnel see engagement being spearheaded almost exclusively by top management.

Some of the interviewees also raised the issue of how much more can be expected from the university, because 'just the very fact that the university exists is very strong for regional development' (county council). Taking into account the limitations of the surrounding region, it is reasonable to question how much more the university can and should support entrepreneurial activities when there is less need for knowledge transfer and less possibilities for collaboration.

## UNIVERSITIES' ENTREPRENEURIAL ARCHITECTURE IN A RURAL REGION: LESSONS LEARNED FROM THE CASE OF LINCOLN

The case of Lincoln illustrates that the local needs of a rural region shape universities' EA in many ways. The identified effects on each element of the EA are summarized in Table 3. In the case of the UoL, the establishment of a wide range of support activities, some of which have become more sustainable structural engagement mechanisms, compensates for the lack of other knowledge institutions in the region. These structures are either the result of collaboration with external partners (e.g., Lincolnshire Science and Innovation Park) or activities that had been

**Table 3.** Effect of rural context on entrepreneurial architecture (EA).

EA element	Predicted effect of rural context on EA	Observed EA element (UoL)	Effect of rural context on EA
Structure	Regional partners have a limited capacity to absorb knowledge which diminishes the need for knowledge transfer and the establishment of a business support structures	Large-scale initiatives to attract more businesses to the region by providing state-of-the-art facilities (e.g., Lincolnshire Science and Innovation Park); Research and Enterprise unit has developed a number of incubating services and development programmes to reach small-scale businesses hidden in the region and to reinforce student entrepreneurship	University compensates for the lack of other knowledge institutions by providing a wide range of support services beyond academic infrastructure; structures established in collaboration with external partners or handed over to the university from the outside; focuses on supporting student entrepreneurship to tackle regional issue in retaining graduates
System	Less large-scale business collaboration; a little distance between academia and the public sector; a small number of people have a lot of influence in different networks	A lot of collaboration networks (e.g., Greater Lincolnshire Local Enterprise Partnership (GLLEP), Midlands Engine) and strong public partnerships (county council); engagement spearheaded by a limited number of university personnel; recent initiatives (e.g., Lincoln International Business School (LIBS) connect) to bring together more academics with the local business community	Few large-scale business partners; little distance between academia, businesses and regional authorities; a small group of people have a lot of influence; individual efforts compensate weak internal linkages between entrepreneurial systems and departments and colleges
Leadership	High expectations for universities to take leadership in the absence of other regional knowledge organizations	Personal engagement of the top management (especially the vice-chancellor and senior managers); weak internal leadership of engagement activities	In the absence of other regional partners the university leaders are expected to play leadership roles outside academia; engagement linked more to individuals than institutions; vulnerable to staff changes
Strategy	A restricted capacity to address regional needs in both education and research; employer-led strategies built on regional priorities	Strong service identity in both core missions (e.g., establishment of an engineering school in collaboration with Siemens Ltd); emphasizes student and graduate entrepreneurship for retaining graduates within the region; relies on regional development strategies (e.g., living lab)	Employer-led approach steers curricula design; provides a broad range of study programmes for responding to diverse needs of the region; research orientation steered by regional priority sectors; favours large-scale infrastructure initiatives instead of coordination of individual academics

*(Continued)*

**Table 3.** Continued.

EA element	Predicted effect of rural context on EA	Observed EA element (UoL)	Effect of rural context on EA
Culture	Less demand and opportunities to initiate entrepreneurial activities; traditional academic culture oriented towards teaching activities to produce graduates to the local job market	Orientation and nature of staff 'conventional'; difficult to attract personnel with a strong engagement focus; overall success of the third mission based on individual efforts, few successful partnerships and large-scale infrastructure initiatives	Lack of tradition of university-business collaboration and culture of innovation in the region; limited number of potential partners; only few prospective fields for initiating local research collaboration; strong focus on teaching activities; vulnerable to staff changes

Source: Author's own elaboration.

handed over to the university from local stakeholders (e.g., Sparkhouse, Think Tank) and they tend to fall outside of traditional academic infrastructure. The existence of these structures demonstrates mainly the university's will to support regional development and to fill in a gap in local knowledge transfer, but it is difficult to reach their full potential in an environment where there is less demand for such services and fewer potential partners. On the one hand, universities are expected to contribute to creating a local market for these services, mainly by attracting large-scale companies to the area.

As is typical for rural regions, in Lincoln the academic community works closely with the public and private sector. There is not much distance between academia, businesses and regional authorities, and the collaboration has remained rather 'organic' than strategic. The local networks rely heavily on the university's input and these systems are mainly built on personal connections outside academia. The overall university engagement is led by few dedicated individuals who are particularly active in providing a leadership in regional networks. Typically for rural environments, a small number of people have a lot of influence, which makes a successful engagement particularly vulnerable to staff changes. These external linkages are also challenging to plan and manage at an institutional level as they are built on personal relationships instead of formal networks. Thus, the overall engagement is more based on individuals' than the organization's characteristics. In the absence of internal engagement, systems and lower-level leadership, many of the staff members are excluded from these activities.

The UoL's rapid growth and expansion demonstrates that a full-range, multidisciplinary HEI is more likely to be able to cater to the complex needs of a rural area. Currently, its strategy focuses on employer-led curricula design in order to adapt to the emerging local education needs and support graduate entrepreneurship. The regional priority sectors also steer heavily towards a research orientation (e.g., living lab approach). This leads to an assumption that universities in rural regions aim to build strategic goals for education and research activities in response to local needs and strengths, which reflects a strengthened service identity. However, the UoL's strategy does not address how engagement can be linked to a university's core missions; the strategic aim to cultivate entrepreneurialism in all its activities is rather generic. The internal mechanisms still focus mainly on teaching, and the links between regional engagement and core missions remain weak. This decreases building entrepreneurial culture beyond serving the region by producing graduates and conducting research on local priority sectors. The UoL is still strongly focused on teaching, which is partly explained by the fact that there is less demand and opportunities to initiate engagement activities and fewer potential partners. In addition, the university, due to its geographical remoteness, has not been able to attract personnel with a strong engagement focus.

**Table 4.** Proposed addition to entrepreneurial architecture (EA) framework.

EA element	Definition
Structure	Entrepreneurial infrastructure: TTOs, incubators, tech parks, business portals
System	Networks of communication and configuration linkages between structures and departments
Leadership	Qualification and orientation of key leaders toward the third mission
Strategy	Institutional goals elaborated in planning documents: internally determined formal incentive structures
Culture	Institutional, departmental and individual attitudes and norms towards the third stream: links with leaderships, systems and strategy
Context	Local economic and social environment affecting to the need, volume and potential means of engagement

Source: Author's own elaboration after Vorley and Nelles (2009).

The establishment of a range of engagement activities beyond traditional academic infrastructure, mainly entrepreneurial support services, demonstrates how a university in a rural region can be proactive in reinforcing entrepreneurial culture within the region. In the absence of a tradition of local university–industry collaboration, it is not straightforward to create a market for these services. However, universities are expected not only to deal with a diverse economic base but also to enhance it by attracting large-scale businesses to the region with state-of-the-art facilities. Thus, strategic engagement focuses on high-level infrastructure initiatives, which creates a systemic gap in the coordination of individual academics' engagement activities. Therefore, the overall culture may remain rather conventional and focused on teaching.

To conclude, all the elements of the EA framework are rooted, as Foss and Gibson (2015) noted, in a particular context, as summarized in Table 4. The empirical study of the UoL suggests that in a rural region, especially the systems, external linkages with local stakeholders, shape a university's structures and strategic approach to university engagement. The UoL's other engagement activities, state-of-the-art facilities and a range of business support services (structures) mainly result from a tight collaboration with other regional stakeholders (systems), implying that the university is filling in the gap in the absence of other local knowledge institutions in a rural region (context). These partnerships and external demands have also expanded the UoL's curricula design, for example, by the establishment of the engineering school and the local priority sectors steer its research orientation (strategy). The close collaboration and strategic aim to develop employer-led curricula and research reflects a strong service identity in both core missions.

## CONCLUSIONS

The impact of the regional and national context of the university are crucial for the development of engagement activities (Breznitz & Feldman, 2012; Foss & Gibson, 2015), which highlights the importance of more context-sensitive approaches for understanding the third mission instead of simplistic one-size-fits-all solutions (Benneworth et al., 2017; Kitagawa et al., 2016). The aim of this exploratory study was to examine how rural context impacts on the way universities develop their EA. The original EA framework (Nelles & Vorley, 2010a, 2010b, 2011; Vorley & Nelles, 2009, 2012) was expanded to include a contextual element, in this case a rural region, and its predicted impact on EA was examined with a single case study of the UoL.

The case of the UoL illustrates that a particular context has an impact on all the dimensions of the EA framework. A rural context can steer the university's institutional responses towards the



third mission, especially through the establishment of a wide range of structures to compensate for the absence of other knowledge institutions in the region. These structures can result from collaboration networks and external linkages (systems) or tasks designated to the university from local stakeholders. In a rural region, especially partnerships (systems) and personal engagement (leadership) of top management shape universities' engagement activities (e.g., Lindeman, 2015; Oftedal & Foss, 2015). These relationships are based on an individual commitment rather than institutional mechanisms, which makes them challenging to plan and manage, and also vulnerable to staff changes.

As in the case of Lincoln, the personal engagement of the VC is aligned with Foss and Gibson's (2015) remark that entrepreneurialism is not linked to institutional but to the personal characteristics of leaders. This is emphasized in a rural region where people are known and there is little distance between the university, public and private sector. At the same time, many of the university staff members are excluded from the engagement activities, as the strategy focuses on high-level infrastructure initiatives, local priority sectors and serving the local job market. All this together with insufficient coordination systems of individual engagement, fewer potential partners, nature of staff members and strategic focus in teaching activities hinders creating an entrepreneurial culture in universities based in rural regions.

These tentative results from a single case study of a university's EA in a rural region demonstrate how a particular surrounding shapes a university's orientation and institutional responses to third-stream activities. Therefore, further studies on universities' EA, acknowledging that a particular context has an impact on the way universities build institutional mechanisms towards the third mission, would be beneficial for revealing how universities can contribute to regional development in different contexts, and how the engagement is embedded to their internal mechanisms in these different regional surroundings.

## ACKNOWLEDGEMENTS

The author thanks Dr Paul Benneworth for valuable feedback and support throughout the writing process. She is also grateful to her doctoral supervisors, Professor David Charles and Dr Gary Bosworth, for guidance in the case study elaboration.

## DISCLOSURE STATEMENT

No potential conflict of interest was reported by the author.

## FUNDING

This study has received funding from the European Union's Horizon 2020 Research and Innovation Programme under grant agreement No 722295.

## NOTES

<sup>1</sup> The interview data are part of a larger data set collected for research individual doctoral project related to H2020-MSCA-ITN RUNIN – 'The Role of Universities in Innovation and Regional Development'. Some preliminary findings were published by Nieth et al. (2018).

<sup>2</sup> For example, three shortlist nominations of the Times Higher Education 'Entrepreneurial University of the Year'(see <http://ncee.org.uk/20162017-2/>) (accessed on January 30, 2018).

<sup>3</sup> A government-driven initiative partnership of the region's 11 LEP areas, businesses, universities, local authorities and other stakeholders launched in 2015 (SIA, 2016).

<sup>4</sup> See The University of Lincoln, <https://www.lincoln.ac.uk/home/lbs/executivedevelopment/libconnect/> (accessed on July 28, 2018).

<sup>5</sup> See The University of Lincoln, <http://www.lincoln.ac.uk/news/2018/05/1461.asp> (accessed on May 19, 2018).

<sup>6</sup> The Think Tank had 41.57% of commercial tenants (the situation on 1 August 2017) and the Sparkhouse had seven empty offices (UoL, staff).

## ORCID

Maria Salomaa  <http://orcid.org/0000-0002-4415-0161>

## REFERENCES

- Arbo, P., & Benneworth, P. (2007). *Understanding the regional contribution of higher education institutions: A literature review*. OECD Education Working Papers, No. 9. Paris: OECD Publishing.
- Benneworth, P., Pinheiro, R., & Karlsen, J. (2016). One size does not fit all! New perspectives on the university in the social knowledge economy. *Science and Public Policy*, 46(6), 731–735.
- Benneworth, P., Pinheiro, R., & Sánchez-Barrioluengo, M. (2017). Strategic agency and institutional change: Investigating the role of universities in regional innovation systems (RISs). *Regional Studies*, 51(2), 235–248.
- Benneworth, P., & Sanderson, A. (2009). The regional engagement of universities: Building capacity in a sparse innovation environment. *Higher Education Management and Policy*, 21(1), 1–18.
- Boucher, G., Conway, C., & Van der Meer, E. (2003). Tiers of engagement by universities in their region's development. *Regional Studies*, 37(9), 887–897.
- Brenzitz, M. S., & Feldman, M. P. (2012). The engaged university. *The Journal of Technology Transfer*, 37, 139–157.
- Centre for Educational research and innovation. (1982). *The university and the community: The problems of changing relationships*. Paris: OECD-CERI.
- Charles, D. (2016). The rural university campus and support for rural innovation. *Science and Public Policy*, 43(6), 763–773.
- Charles, D., Kitagawa, F., & Uyarra, E. (2014). University in Crisis? – New challenges and strategies in two English city-regions. *Cambridge Journal of Regions, Economy and Society*, 7, 327–348.
- Chatterton, P., & Goddard, J. (2000). The response of higher education institutions to regional needs. *European Journal of Education*, 35(4), 475–496.
- Clark, B. R. (1998). *Entrepreneurial universities. Organizational pathways of transformation*. IAU Press.
- Denzin, N. K. (1989). *Interpretive interactionism*. Newbury Park, CA: Sage.
- Etzkowitz, H. (2013). Anatomy of the entrepreneurial university. *Social Science Information*, 52(3), 486–511.
- Etzkowitz, H., & Klofsten, M. (2005). The innovating region: Toward a theory of knowledge-based regional development. *R&D Management*, 35(3), 243–255.
- Flyvbjerg, B. (2006). Five misunderstandings about case-study research. *Qualitative Inquiry*, 12(2), 219–245.
- Foss, L., & Gibson (Eds.). (2015). *The entrepreneurial university. Context and institutional change*. Routledge studies in Innovation, Organization and Technology.
- Geertz, C. (1973). *The interpretation of cultures: Selected essays*. New York, NY: Basic Books.
- Greater Lincolnshire Local Economic Partnership Strategic Economic Plan 2014–2030. (2016). Retrieved from [https://www.greaterlincolnshirelep.co.uk/assets/documents/Strategic\\_Economic\\_Plan\\_2016\\_Refresh.pdf](https://www.greaterlincolnshirelep.co.uk/assets/documents/Strategic_Economic_Plan_2016_Refresh.pdf)
- Jongbloed, B., Enders, J., & Salerno, C. (2008). Higher education and its communities: Interconnections, interdependencies and a research agenda. *Higher Education*, 56, 303–324.
- Kitagawa, F., Sánchez-Barrioluengo, M., & Uyarra, E. (2016). Third mission as institutional strategies: Between isomorphic forces and heterogeneous pathways. *Science and Public Policy*, 43(6), 736–750.



- Lindeman, A. (2015). Kymenlaakso University of Applied Sciences, Finland in search of university-wide. In L. Foss & Gibson (Eds.), *The entrepreneurial university. Context and institutional change* (pp. 167–190). Abingdon: Routledge. Studies in Innovation, Organization and Technology.
- Nelles, J., & Vorley, T. (2010a). Constructing an entrepreneurial architecture: An emergent framework for studying the contemporary university beyond the entrepreneurial turn. *Innovative Higher Education*, 35(3), 161–176.
- Nelles, J., & Vorley, T. (2010b). From policy to practice: Engaging and embedding the third mission in contemporary universities. *International Journal of Sociology and Social Policy*, 30(7/8), 341–353.
- Nelles, J., & Vorley, T. (2011). Entrepreneurial architecture: A blueprint for entrepreneurial universities. *Canadian Journal of Administrative Sciences/Revue Canadienne des Sciences de L'Administration*, 28(3), 341–353.
- Nieth, L., Benneworth, P., Charles, D., Fonseca, L., Rodrigues, C., Salomaa, M., & Stienstra, M. (2018). Embedding entrepreneurial regional innovation ecosystems: Reflecting on the role of effectual entrepreneurial discovery processes. *European Planning Studies*, 26(11), 2147–2166.
- Ofsted, E., & Foss, L. (2015). Uit The Arctic University of Norway challenges at the arctic crossroads. In L. Foss & Gibson (Eds.), *The entrepreneurial university. Context and institutional change* (pp. 190–220). Abingdon: Routledge. Studies in Innovation, Organization and Technology.
- Ofsted, E., & Iakovleva, T. (2015). Stavanger from petroleum focus to diversified competence through crisis and consensus. In L. Foss & Gibson (Eds.), *The entrepreneurial university. Context and institutional change* (pp. 221–249). Abingdon: Routledge. Studies in Innovation, Organization and Technology.
- Regeneris Consulting. (2017). The social, cultural & economic contribution of the University of Lincoln – A final report.
- Saunders, M., Lewis, P., & Thornhill, A. (2015). *Research methods for business students* (7th ed.). Delhi: Pearson Education.
- Science and Innovation Audit. (2016). *A science and innovation audit (SLA) report for the midlands engine*. Department for Business, Energy & Industrial Strategy. Volume 1: Main Report.
- Sotarauta, M., & Kosonen, K.-M. (2003). *Institutional capacity and strategic adaptation in less favoured regions: A South Ostrobothnia University network as a case in point*. Industrial Performance Center, Massachusetts Institute of Technology IPC Working Paper Series.
- Stensaker, B., & Benner, M. (2013). Doomed to be entrepreneurial: Institutional transformation or institutional lock-ins of 'new' universities? *Minerva*, 51, 399–416.
- Universities UK. (2001). *The regional mission – The regional contribution of higher education*. East Midlands: Innovation through diversity.
- University of Lincoln. (2016). *Thinking ahead 2016–2021*. Lincoln: University of Lincoln Strategic Plan.
- Uyara, E. (2010). Conceptualizing the regional roles of universities, implications and contradictions. *European Planning Studies*, 18(8), 1227–1246.
- Vorley, T., & Nelles, J. (2009). Building entrepreneurial architectures: A conceptual interpretation of the third mission. *Policy Futures in Education*, 7(3), 284–296.
- Vorley, T., & Nelles, J. (2012). Scaling entrepreneurial architecture: The challenge of managing regional technology transfer in Hamburg. In R. Pinheiro, P. Benneworth, & G. A. Jones (Eds.), *Universities and regional development: A critical assessment of tensions and contradictions* (pp. 181–198). Milton Park: Routledge.

# **The university third mission and the European Structural Funds in peripheral regions**

## Insights from Finland

---

**WORKING PAPER 07/2019**

**DOI:** 10.3990/4.2535-5686.2019.07

Available at <https://runinproject.eu/results/working-paper-series/>

### **Maria Salomaa**

University of Lincoln (UK)

✉ [msalomaa@lincoln.ac.uk](mailto:msalomaa@lincoln.ac.uk)

### **David Charles**

Northumbria University (UK)

✉ [david.charles@northumbria.ac.uk](mailto:david.charles@northumbria.ac.uk)



# The university third mission and the European Structural Funds in peripheral regions

Insights from Finland

---

## Abstract

Current EU policies prioritise supporting national and regional R&D activities and innovation systems. In particular, Cohesion Policy transformed into national Structural Funds (SF) Operational Programmes aim to foster local level innovation. At the same time, the discussion on universities' 'third mission' has expanded and the role of universities has become crucial both in regional innovation strategy formulation and implementation of these strategies, which partly guide the access to local SF funding. However, binding the third mission to interaction with regional industry and fostering regional entrepreneurship and economic growth is not uncomplicated. This is also the case with university-led SF projects, though they can enable matching research better with local priorities. Through a case study of the University Consortium of Pori, a multi-disciplinary higher education network located in a peripheral region of Satakunta in Western Finland, this paper investigates how entrepreneurial universities can manage and deliver their third mission through Structural Funds programmes in a rural region. The tentative findings reveal individual researchers' strong commitment to regional engagement, but the implementation of SF projects remains challenging for Finnish universities because of institutional issues, higher education policies focusing on traditional academic outputs and the strict guidelines of SF funding. Only strategically planned university-led SF projects can generate synergies between teaching, research and engagement activities, which is not easily achieved without a strong engagement of the university management. As the SF programmes are heavily dependent on the regional context, further comparative studies on university-led SF projects could provide more insights on the ways the third mission activities can be delivered and managed more efficiently.

**Keywords:** Structural Funds, entrepreneurial university, third mission, regional development, University Consortia

**JEL:** R58; I23; O31

# The university third mission and the European Structural Funds in peripheral regions

Insights from Finland

---

## Contents

Abstract .....	2
1. Introduction .....	4
2. Universities, third mission and Structural Fund programmes .....	7
2.1. <i>Towards entrepreneurial universities</i> .....	7
2.2. <i>Universities and Structural Fund programmes</i> .....	9
2.3. <i>Universities engagement with Structural Funds: current challenges</i> .....	11
3. Methods and case study .....	14
3.1. <i>Methodology</i> .....	14
3.2. <i>The case study overview</i> .....	16
4. Structural Funds at the University Consortium of Pori.....	18
4.1. <i>Collaboration</i> .....	20
4.2. <i>SF administrative procedures</i> .....	23
4.3. <i>University organisation culture</i> .....	25
4.4. <i>SF Project outputs</i> .....	28
5. Discussion: Academic core and SF activities .....	29
5.1. <i>Characteristics of university-led SF projects</i> .....	30
5.2. <i>Managing of regional engagement activities in entrepreneurial universities</i> .....	34
6. Conclusion: Academic core and regional development – Managing universities’ third mission through Structural Funds programmes.....	37
References.....	39

## Tables

Table 1. Challenges of university-led SF projects.....	14
Table 2. The impact of current challenges in university-led SF projects in the case of UC-Pori .....	33

### 1. Introduction

Current EU policies place an increasingly important role in supporting national and regional R&D activities and innovation systems (European Commission, 2010). One of the EU's key instruments, Cohesion Policy implemented through national Structural Funds (SF) Operational Programmes, aims to support local level innovation to reduce economic and social disparities (EU 1301/2013). This is currently implemented through the smart specialisation concept, which drives more place-based EU policies (McCann & Ortega-Argilés, 2015). The role of universities has become crucial both in regional innovation strategy formulation, especially in RIS3<sup>1</sup> processes identifying the regional priorities (e.g. Foray *et al.*, 2009), but also in implementation of the strategies (Santos & Caseiro, 2015). These strategies guide the access to local European Regional Development Fund (ERDF) and European Social Fund (ESF) programmes, which can facilitate matching universities' research more closely with regional needs (Fonseca & Salomaa, 2019).

Universities are increasingly recognised as important actors in regional development (Charles *et al.*, 2014) and a 'third mission' focused on engagement and external services has been acknowledged as an addition to the traditional core functions of teaching and research (Chatterton & Goddard, 2000; Jongbloed *et al.*, 2008). Policymakers expect universities to facilitate entrepreneurship and technology transfer, binding the third mission to interaction with regional industry and society (Arbo & Benneworth, 2007; Roper & Hirth, 2005; Zomer & Benneworth, 2012), but this role of fostering regional entrepreneurship and economic growth may be challenging for universities (Gibb & Hannon, 2006). Overall, the discussion

---

<sup>1</sup> Research and Innovation Strategy for Smart Specialisation.

## The university third mission and the European Structural Funds in peripheral regions

Insights from Finland

---

has been widely dominated by the concept of the 'entrepreneurial university' (Clark, 1998; 2004; Vorley & Nelles 2009), which is strongly linked with universities' enhanced engagement role. The entrepreneurial university has been described as an organisation that embeds economic and social development more closely into research, education and technology transfer activities so that all three academic missions support one another (Etzkowitz & Kloften, 2005; Etzkowitz, 2013). In practise, the volume of expected entrepreneurial spillovers from academia has not been realistic in recent policy frameworks, even more so in peripheral regions with a limited innovation capacity. In such regions, it has been suggested that the focus of innovation policies should be on supporting the absorptive capacity of local SMEs and promoting networking and knowledge exchange (Brown, 2016), which resonates well with ERDF funding priorities for the programme period 2014–2020<sup>2</sup>.

However, universities seeking to become entrepreneurial should acknowledge that their regional contexts steer the way they can implement third stream activities (Salomaa, 2019), and identify how the third mission can be delivered on a micro scale instead of using the concept merely in 'promotional terms' (Lebeau & Cochrane, 2015). SF programmes can support universities to deliver engagement activities, especially in less-developed regions: previous case studies show that they have contributed to creating the foundations of regional systems of innovation as well as having reinforced universities' regional engagement (Charles & Michie, 2013). Universities are also among the key beneficiaries of these funds (e.g. Spilanis *et al.*, 2016). In Finland, so far universities are the lead beneficiaries of 519 ESF and ERDF projects with ca. 140M EUR of granted SF funding in programme

---

<sup>2</sup> [https://ec.europa.eu/regional\\_policy/en/policy/how/priorities/](https://ec.europa.eu/regional_policy/en/policy/how/priorities/), 1<sup>st</sup> Aug 2019.

# The university third mission and the European Structural Funds in peripheral regions

Insights from Finland

---

period 2014–2020.<sup>3</sup> Taking part or leading Structural Funds projects may be a concrete way to engage with regional development and initiate entrepreneurial activities beyond spinoffs and other research spillovers.

In Finland, the enhanced regional role of universities is emphasised in higher education policies: *the third mission has become more closely linked with regional development, which has resulted in the establishment of university consortia to foster the economic growth in locations lacking universities, and to coordinate and improve universities' collaboration building on local strengths* (MoEC<sup>4</sup>, 2015; FINHEEC,<sup>5</sup> 2013). Since 2004, six university consortia have been established in more peripheral areas of Finland. In other countries, peripheral university campuses struggle to respond to the expectations of regional partners compared with the experiences of full-range universities (Charles, 2016), but the unique organisational structure of the Finnish university consortia, which combines different disciplines and the expertise of several home universities, may overcome this issue.

Through a case study of the University Consortium of Pori (UC-Pori), a multi-disciplinary higher education network of four Finnish universities, *this paper investigates how entrepreneurial universities can manage and deliver their third mission through Structural Funds programmes by examining the specific characteristics of university-led SF activities*. A qualitative analysis of the UC-Pori's engagement with SF programmes identifies how universities can respond to regional needs while linking the projects to teaching and research, and how the management of these activities could be enhanced. First, the entrepreneurial

---

<sup>3</sup> Structural Funds Information Service, <https://www.eura2014.fi/rttiepa/index.php?lang=en>, 2<sup>nd</sup> Aug 2019.

<sup>4</sup> The Ministry of Education and Culture.

<sup>5</sup> The Finnish Higher Education Evaluation Council.

# The university third mission and the European Structural Funds in peripheral regions

Insights from Finland

---

university literature is reviewed in relation to how universities engage with SF, particularly paying attention to the current challenges. Then the case of UC-Pori is introduced and their use of SF funding analysed in order to identify how these activities are or are not aligned with the core missions. Finally, based on the key findings from UC-Pori, the characteristics of university-led SF projects are identified and the overall management of third mission activities further discussed.

## **2. Universities, third mission and Structural Fund programmes**

### *2.1. Towards entrepreneurial universities*

The development of the concept of the entrepreneurial university (Clark, 1998) emerged in parallel with policymakers' increasingly high expectations of universities' contributions to regional development (Arbo & Benneworth, 2007; Breznitz & Feldman, 2012). University organisations have become portrayed as highly flexible, integrated and strategic actors (Uyarra, 2010), though in reality, universities can respond to the regional needs only up to a certain level, especially when operating in a traditional academic infrastructure (Clark, 1998). Whilst policymakers' expectations for universities to meet regional needs and embed a range of new tasks to their core missions may be unrealistic (Uyarra, 2010), the universities' 'third' engagement role has grown to be widely acknowledged and formalised particularly in regional policies and R&D funding incentives (Vorley & Nelles, 2009; Nelles & Vorley, 2010). As a result, universities have become more connected to regional partners through various engagement mechanisms (Uyarra, 2010), but also via relationships with non-academic collaborators (Agrawal, 2001).



## The university third mission and the European Structural Funds in peripheral regions

Insights from Finland

---

Universities have embedded a regional focus more strongly in their missions (Charles *et al.*, 2014), but it remains challenging to combine the third mission with the two other core functions in universities' internal mechanisms (Chatterton & Goddard, 2000). This push towards third stream activities has broadened the scope of universities from teaching and research activities and made them 'organizational umbrellas' for different tasks from scholarship to entrepreneurial activities. (Stensaker & Benner, 2013). Ideally, an "entrepreneurial university" is something that has a capability to embed both economic and social development into the core functions so that each academic mission enhances one another (Etzkowitz, 2013). All this emphasises the importance of institutional strategies addressing the different disciplinary, institutional and individual academics' characteristics (Pinheiro *et al.*, 2015).

National policies have a major role in creating the context and conditions that enable universities to transform strategically towards entrepreneurial organisations (Stensaker & Benner, 2013) and define the conditions of funding for universities' regional engagement activities (Trippel *et al.*, 2015). However, universities should be cautious in their responses to regional needs; for example, a broadened curriculum and pragmatically developed research portfolio to match with local knowledge interests might steer organisational behaviour towards opportunism rather than intentionally entrepreneurial strategies (Stensaker & Benner, 2013). In the Finnish HE policies, the third mission may include a number of different activities, which demand strategic planning and management, such as exploitation of research results outside of the academic community, contributing to innovation processes and establishing start-ups, graduates entering the job market, Open University education and providing complementary training, collaboration with local

# The university third mission and the European Structural Funds in peripheral regions

Insights from Finland

---

stakeholders, participation to public discussion, but also being part of a university consortium to deliver these activities in smaller towns (FINHEEC, 2013).

## *2.2. Universities and Structural Fund programmes*

The European Structural Funds have evolved considerably from their origin as a form of resource transfer for economic infrastructure. Since the 1990s the dominance of the knowledge economy concept in EU policies, and an emphasis on supporting economic competitiveness through innovation and knowledge, has led to a general shift in EU programmes towards multi-sectoral and multi-disciplinary collaboration to address grand societal challenges that go beyond merely fostering economic growth (Benneworth & Cunha, 2015). The SF have therefore become a key policy instrument to support local level innovation and economic growth through multi-level collaboration. They are implemented through Operational Programmes, which among other aims, seek to increase regional collaboration between higher education, businesses and other local stakeholders.<sup>6</sup> Hence, the SF funding may also play a significant role in universities' transformation towards the entrepreneurial university. A diversified funding base increases institutional autonomy (Gibb & Hannon, 2006; Armbruster, 2008), though monetary incentives alone are not sufficient for promoting university-industry collaboration (D'Este & Perkmann, 2011). Therefore, it is important to evaluate the outcomes and impact of university-led SF projects in-depth: do they contribute to core missions or are they considered as mere 'add-ons'? What kind of regional benefits can be generated?

---

<sup>6</sup> See Sustainable growth and jobs 2014 - 2020 - Finland's structural funds programme, <https://www.rakennerahastot.fi/documents/10179/43217/Ohjelma-asiakirja+valmis.pdf/>, accessed 30<sup>th</sup> of August 2017.

## The university third mission and the European Structural Funds in peripheral regions

Insights from Finland

---

The Operational Programmes are nationally differentiated and very dependent on regional circumstances (Bachtler & Wren, 2007), thus the existing studies of their operation and impact remain heavily rooted in specific territorial contexts. In general, SF activities have not been studied much from the beneficiaries' point of view, though also beneficiary objectives vary enormously; public actors receiving SF funds are more interested with projects having an immediate effect to demonstrate their efficiency whereas private entities use SF funding for financing start ups or enhancing their operational capacity (Spilanis *et al.*, 2015). However, a few lessons can be learned from previous studies. In Latvia, SF projects have contributed to achieving core academic results, such as PhD degrees and publications (Muizniece & Peiseniece, 2012), whereas a case study of North England reveals that SF programmes have brought together industry and university representatives, especially in university-based projects focused on engagement and building a culture of collaboration. A strong university sector in regions with little R&D infrastructure can initiate industry-focused innovation support services with SF project funding, especially aimed at SMEs. (Charles & Michie, 2013.)

The implementation of the SF projects demands both strategic and financial planning, but also knowledge of the national guidelines of the Operational Programmes. In Latvia, most of the university-led projects are non-commercial, because such projects can realise a higher funding rate compared to SF projects aimed at commercial activity (Muizniece & Peiseniece, 2012). This is an interesting observation when thinking of the narrow gap between universities' entrepreneurial and opportunistic organisational behaviour (e.g. Stensaker & Benner, 2013) – even if the participation in SF projects is considered to be an entrepreneurial activity, the choice to go for non-commercial projects may demonstrate a lack of

## The university third mission and the European Structural Funds in peripheral regions

Insights from Finland

---

organisational (financial) commitment or unwillingness to collaborate with non-academic partners, both of which may hinder universities' contribution to regional R&D activities.

### *2.3. Universities engagement with Structural Funds: current challenges*

Previous studies have disclosed a number of challenges hindering universities from taking part in Structural Funds projects. These somewhat overlapping constraints are linked to the nature of the SF programmes themselves, the outcomes of the implemented projects, difficulties in establishing successful collaboration and internal issues related to university organisations. SF programmes operate through a partnership framework and often require some degree of collaboration to ensure university activities contribute to economic development. As regional programmes, funded projects are restricted to regional boundaries. This can make collaboration difficult where desired partners are in other regions and can even lead to undesirable competition between regional actors (FINHEEC, 2013). As the Latvian case study reveals, it can also be difficult to engage with local businesses in the framework of SF projects (Muizniece & Peiseniece, 2012), which is a general problem for universities based in more peripheral regions lacking other knowledge institutions and potential business partners (Charles, 2016).

Universities have also a number of internal barriers that hinders their participation in SF activities. On a very practical level, the timetable demands of teaching restrict the scale and timing of such 'extra' work (FINHEEC, 2013), but also the increasing pressure to prioritise institutional success over wider public benefits can create tensions (Benneworth & Cunha, 2015): unless engagement activities are linked to a broader institutional change, these activities will remain peripheral (Benneworth and Sanderson, 2009). Therefore, SF projects can be considered as a distraction

## The university third mission and the European Structural Funds in peripheral regions

Insights from Finland

---

unless strongly aligned with teaching and research. In the case of Finnish university consortia, their regional role has become somewhat less emphasised because of their home universities' strategic focus steers the consortia towards traditional academic outputs (FINHEEC, 2013). This indicates that linking SF projects – or other engagement activities – strategically to universities' traditional core functions is not straightforward. Another challenge for Finnish universities is the state's core funding model (MoEC, 2017) that favours traditional academic outcomes (FINHEEC, 2013). This may reduce the motivation to carry out third stream activities even though universities' societal role has been formally acknowledged (e.g. Universities Act 558/2009). Thus, universities have funded their regional development activities with supplementary funds from the municipalities, regions and SF programmes (MoEC, 2015). In particular, the university consortia regard SF programmes as an important funding instrument for regional development (FINHEEC, 2013), though they cannot directly fund basic research.

The administrative burden of SF has made the programmes less appealing. According to evaluations of previous programme periods, some operational programmes have ended up suffering from low demand because of the bureaucracy (Bachtler & Wishlade, 2004). Also, universities consider the SF funding instruments to be very bureaucratic and a high-risk form of funding (Spilanis *et al.*, 2016; FINHEEC, 2013). The complexity of administration hinders using SF effectively to promote competitiveness and more innovative initiatives have been funded from national sources (Bachtler & Wishlade, 2004). Despite the large number of evaluation activities, the overall impact of SF on sustainable economic growth and convergence of lagging regions remains questionable and difficult to assess (Percoco, 2017), which is partly due to these administrative constraints (Rodriguez-

## The university third mission and the European Structural Funds in peripheral regions

Insights from Finland

---

Pose & Fratesi, 2003), but also due to an insufficient tailoring of the territorial approach for different areas (Gagliardi & Percoco, 2017), e.g. rural regions. Also, a strong regional and organisational coordination is essential in ensuring that beneficiaries are not implementing identical or analogous SF activities (Muizniece & Peiseniece, 2012). Participation in Structural Funds programmes diversifies universities funding base, but they are considered 'risky' as they require some percentage of the match funding from the beneficiaries themselves, and the payment of the grant is linked to a successful implementation of the project. Finnish universities have indeed had problems with the high match-funding rates, which again make the SF funding less attractive (FINHEEC, 2013).

Finally, there are challenges in terms of the kinds of outputs and outcomes needed from SF projects. There is a tendency for SF projects to set unrealistic goals for outputs, sometimes just to ensure funding, resulting in over-claimed number of firms assisted and jobs created (Charles & Michie, 2013), though the outputs of university-led SF projects can vary enormously. In Latvia, the SF have been significant in developing the university's research capacity and contributed to R&D activities in the absence of other available external funding streams, but obtaining commercial outcomes, such as licensed patents and commercialisation of research, have been less successful. (Muizniece & Peiseniece, 2012.) However, SF projects have facilitated entrepreneurial engagement activities within universities (e.g. Charles & Michie, 2013), which can be beneficial especially in peripheral regions. Such projects can also facilitate achieving regional policy objectives – in rural regions namely increasing the absorptive capacity of local SMEs and promoting networking and knowledge exchange (Brown, 2016.)

# The university third mission and the European Structural Funds in peripheral regions

Insights from Finland

These challenges are summarised in *Table 1* in four groups, which form the basis of analysing the specific characteristics of university-led SF activities in the case of UC-Pori. The aim is to reveal how universities in rural regions can respond to local needs while linking the SF project activities to teaching and research.

*Table 1. Challenges of university-led SF projects*

<b>Challenge</b>	<b>Impact</b>
<i>Collaboration</i>	Create non-desirable competition Lack of regional coordination Lack of business partners (peripheral regions)
<i>SF administrative procedures</i>	High bureaucracy High risk form of funding High match-funding rates Difficulties in cross-regional collaboration
<i>University organisational culture</i>	Embedding projects to academic core complicated Lack of financial resources for match-funding Lack of internal coordination Lack of academic outputs
<i>SF Project outputs</i>	Over-estimated outputs Lack of academic outputs Low number of commercial results

## **3. Methods and case study**

### *3.1. Methodology*

This is an exploratory study on how universities are able to manage and deliver their regional engagement activities through Structural Funds funded projects: the assumption being that SF programmes support implementation of universities' third mission. However, as discussed in the previous section, there are a number of challenges related to SF funding instruments, university organisations and national

## The university third mission and the European Structural Funds in peripheral regions

Insights from Finland

---

higher education policies that hinder participation and reaching maximum benefits of such activities. These issues are examined with a single case study of the University Consortium of Pori (UC-Pori), a Finnish university network consisting of four university organisations located in the Satakunta region. The case study of UC-Pori aims to highlight university consortia's engagement to SF programmes to receive further insights on how the current barriers can be overcome, given especial focus on how the SF projects can be embedded into universities core missions.

Despite the rigorous monitoring and evaluation of SF, there is a need for further programme and project level studies to "*gain more insight into the effectiveness of interventions and delivery mechanisms*" (Bachtler & Wren 2006, p. 151). Also, university participation in SF projects and its impact is yet largely under-researched. Instead of attempting to assess the 'total' impact of SF programmes, there has been a shift towards studying 'conditioning factors' that may explain the effectiveness of policies. Operational Programme level evaluations have more potential to contribute to national and subnational policy formulation processes (Fratesi & Wislade, 2017.)

A case study approach was chosen on the basis that it enables the examination of the phenomenon in more depth, and the case selection followed the logic of 'atypical cases' to obtain a richer data set to create a deeper understanding on the phenomenon (Flyvbjerg, 2006). In the Satakunta region more than 30% of the regionally allocated SF funds are granted to higher education (RCS, 2017), and at the time of the interviews, UC-Pori was involved with 19 SF projects generating up to 9.5 million EUR of external funding<sup>1</sup>. In addition to being actively engaged with SF funding, UC-Pori, as all the Finnish University consortia, has a special focus on



# The university third mission and the European Structural Funds in peripheral regions

Insights from Finland

---

regional development, and its unique organisational structure enables the inclusion of four Finnish case universities within a 'single' case study.

This paper presents tentative results from a data set that was gathered between December 2017 and December 2018. It draws from 25 interviews with UC-Pori units' and their home universities' personnel working with SF funded projects, including both academics and supporting staff members, and top management, namely rectorate, deans and research and enterprise personnel. The choice of interviewees was based on the public information on university beneficiaries of funded ERDF and ESF projects in the Satakunta region<sup>7</sup>: a request for a research interview was sent out to every PI and/or contact person of these projects. The database was checked regularly in order to obtain up-to-date information on funded projects to secure a comprehensive data set and further interviewees were detected through the snow-ball approach (e.g. Saunders *et al.*, 2012). The interviews were recorded, transcribed and coded with NVivo 11 to ease categorising similar data chunks for further analysis, and finally drawing conclusions (Miles *et al.*, 2014) on the characteristics of university-led SF projects.

### 3.2. The case study overview

Finnish university consortia are higher education collaboration networks that coordinate the education and research activities of several 'parent universities' in areas otherwise lacking access to university activities. Their position was legitimised in 2009, when they were added to the Finnish University Act (Universities Act 558/2009), and later in 2012, when additional regulations on their state funding

---

<sup>7</sup> Structural Fund information service: ERDF and ESF projects in Finland during the 2014-2020 programme period, <https://www.eura2014.fi/rriiepa/?lang=en>, 1<sup>st</sup> of Sept 2017.

## The university third mission and the European Structural Funds in peripheral regions

Insights from Finland

---

allocation were approved. The establishment of these consortia was justified by the enhanced societal role of higher education, and they were designed to respond to local needs. (FINHEEC, 2013.) Besides providing a local access to higher education and being a source of skilled workforce, these consortia are expected to play an enhanced role in regional development and they have been especially active in taking part in Structural Funds (SF) projects.

The University Consortium of Pori is a higher education network located in the Satakunta region on the southwest coast of Finland. The population of the region is 220,398<sup>8</sup> and it has two regional centers, the cities of Pori and Rauma. The regional economy is based on energy production, engineering, offshore process industry, ports and logistics and the food industry.<sup>9</sup> The Tampere University of Technology (TUT) has provided degree education in engineering in the area since the late 1980s, and today it is the coordinating university of the UC-Pori, established in its current form in 2003. The other universities, all working under the same roof in a historic factory building in the central Pori, are the University of Tampere (UTA)<sup>10</sup>, University of Turku (UTU) and Aalto University (Aalto). Together these universities form an umbrella organisation for 2500 students and 170 staff members in the city of Pori, focusing on education and research activities mainly in arts and media (Aalto), engineering and technology (TUT), social sciences (UTA) and business and maritime studies (UTU).<sup>11</sup> The personnel are directly recruited by their parent universities, but the staff members work permanently at the Pori

---

<sup>8</sup>[https://www.tilastokeskus.fi/tup/suoluk/suoluk\\_vaesto\\_en.html#demographicdependencyratiobymunicipality,2017](https://www.tilastokeskus.fi/tup/suoluk/suoluk_vaesto_en.html#demographicdependencyratiobymunicipality,2017), 20<sup>th</sup> of Feb 2019.

<sup>9</sup> Regional Council of Satakunta website, <http://www.satakuntaliitto.fi/english>, 12<sup>th</sup> Nov 2018.

<sup>10</sup> After a long planning process, TUT and UTA merged together with Tampere University of Applied Sciences in the beginning of 2019 (<https://www.tuni.fi/en/about-us>, 20<sup>th</sup> of Feb 2019).

<sup>11</sup> UCPori website, <http://www.ucpori.fi/>, 12<sup>th</sup> Nov 2018.

## The university third mission and the European Structural Funds in peripheral regions

Insights from Finland

---

campus in their respective units. The coordinating unit nominates a director and is also responsible for promoting collaboration between UC-Pori units, parent universities and regional stakeholders.

The Regional Council of Satakunta (RCS) regards local higher education as one of the strategic factors that increases the region's general attractiveness and contributes to knowledge capital (Satakunta Regional Programme 2014-2017). According to their report, UC-Pori has raised the local skills level as well as increased the inflow and rate of R&D activities (RCS, 2017). From a historic perspective, the SF have been important in establishing regional university branch units in the Satakunta region. In the early 2000, the SF funding was indeed a central element in developing research capacity in the area and supporting the presence of higher education in the region. Especially bringing in new disciplines to the Pori campus to increase the local knowledge base demanded supplementary funding, but since then the importance of SF – as well as the amount of available funding – has decreased, which is mostly due to the renewed University Act and the shift towards more performance-based state funding indicators. However, all units of the UC-Pori participate actively in SF programmes, though TUT and UTU were granted more projects than Aalto and UTA, both of which have smaller and very specialised units in the Pori campus.

### **4. Structural Funds at the University Consortium of Pori**

UC-Pori units typically collaborate with local businesses, public organisations especially in healthcare sector, and the city of Pori. Many SF projects result from long-term collaboration with these regional actors. The majority of the UC-Pori

## The university third mission and the European Structural Funds in peripheral regions

Insights from Finland

---

personnel have been working with SF projects for a long period of time, and it is very common to apply for extensions to projects. The interviewees described very different agendas, individual motivations and benefits from SF projects, but their role was acknowledged as particularly important in setting up the UC-Pori units: *"In the very beginning of the millennium, the SF funding was central in developing research capacity in the area"* (TUT, researcher).

In general, SF programmes were seen as an important source of funding for universities, especially for such remote branch campuses that have a stronger regional mission. At the same time, many respondents also recognized that their home universities remain more focused on funding instruments that directly contribute to teaching and research activities, which makes SF funding less appealing and overlooked in strategic planning. Some of the interviewees described SF projects as *"a catalyst of change"* (UTU, researcher), that enable finding new ways to work, also regarding basic missions, e.g. developing online teaching platforms.

The somewhat differing orientation of UC-Pori's home universities towards high profile research projects was seen as quite contrary to these more regionally focused units located in the Pori campus. Especially for the HEIs located in the capital area of Finland *"the whole concept of SF is unknown"* (Aalto, researcher). In the following sections, these issues are presented highlighting the challenges of university-led SF projects (see *Table 1*) at UC-Pori and finally discussed further in the relation to entrepreneurial university literature.

### 4.1. Collaboration

One of the most repeated advantages of SF projects was that they encourage collaboration with other higher education institutions and businesses, which facilitates knowledge transfer and capacity building. The projects were seen as “*a natural way for us to approach businesses*” (TUT, researcher) and collaboration was described to be meaningful for both academics themselves and the region of Satakunta:

*“I find it interesting to combine business collaboration with more applied approach and academic research.” (UTU, researcher).*

*“--you feel that you can do something good for the partners” (UTU, researcher).*

The regional policies were considered to be one of the key factors affecting UC-Pori’s motivation to engage with SF funding. There is an increased demand from the Satakunta region towards UC-Pori, but also the personnel in the Pori campus deliberately seek ways to engage with local stakeholders through SF programmes. The UC-Pori’s knowledge base is considered as an advantage in the RIS3<sup>12</sup> strategy and it was represented in the design process of the regional strategic plan<sup>13</sup> through series of future workshops. Some units were also involved in setting success indicators for regional goals. Curiously, the management of the parent universities did not recognize how these regional programmes are built or how UC-Pori is actually involved with these processes. Generally, the top management

---

<sup>12</sup> [http://www.satakuntaliitto.fi/sites/satakuntaliitto.fi/files/RIS3\\_Satakunta2014\\_TEM.pdf](http://www.satakuntaliitto.fi/sites/satakuntaliitto.fi/files/RIS3_Satakunta2014_TEM.pdf) 1st of Jan 2019.

<sup>13</sup> [http://www.satakuntaliitto.fi/sites/satakuntaliitto.fi/files/tiedostot/Aluekehitys/MAKO\\_2018\\_2021/Sataku\\_nnan\\_maakuntaohjelma\\_2018-2021\\_SahkoinenJulkaisu\\_LowRes.pdf](http://www.satakuntaliitto.fi/sites/satakuntaliitto.fi/files/tiedostot/Aluekehitys/MAKO_2018_2021/Sataku_nnan_maakuntaohjelma_2018-2021_SahkoinenJulkaisu_LowRes.pdf) 1st of Jan 2019.

## The university third mission and the European Structural Funds in peripheral regions

Insights from Finland

---

of the parent universities are not very active in regional networks, and they only visit the Pori campus once a year or even less frequently.

In contrast, the local researchers brought up the importance of following the regional strategic plan "*it defines the key areas, so we have to do our homework before starting to build new ideas and project consortia*" (TUT, researcher). It was seen as rather easy to find common angles, because the both the RIS3 strategy and the SF calls' themes echo UC-Pori's central disciplines, especially in the circular economy, wellbeing technology and automation and robotics. However, it can be challenging to find suitable business partners from the region. Although UC-Pori aims to fill these local skills gaps stated in the strategies, the parent universities criticised the UC-Pori's curricula for not being developed as a response to local needs but rather based on individual academics' interests to work in the Satakunta region. Even if all the SF activities are not aligned with regional priorities, UC-Pori has been able to bring in much needed knowledge and initiate SF projects e.g. in health sector and robotics (e.g. KAMPUS-SOTE<sup>14</sup> and AutoRobo<sup>15</sup>).

Most projects are multidisciplinary in nature; big changes in the business environment require multidisciplinary responses. The proximity of different universities of UC-Pori increases internal collaboration, also with parent universities. The UC-Pori units are highly specialised, so it might be challenging to find common interfaces, though it was also considered as an advance:

---

<sup>14</sup> Campusbased competence building for social welfare and healthcare services, <https://sites.tuni.fi/kampussote/in-english/> 2<sup>nd</sup> of Aug 2019.

<sup>15</sup> Autonomous Robot Ecosystem, <https://www.tuni.fi/en/research/autonomous-robot-ecosystem>, 2<sup>nd</sup> of Aug 2019.

## The university third mission and the European Structural Funds in peripheral regions

Insights from Finland

---

*“There is an added value in having four universities together -- it is easy to step out of your own scientific field and establish projects with researchers from different fields, which enables examining the research problem from different aspects and finding new solutions.” (UC-Pori, management).*

The regional RIS3 strategy highlights local HEIs, UC-Pori in particular, as key players in supporting regional growth, but the focus is largely on technology transfer and supporting entrepreneurship, thus different units of the UC-Pori are in an unequal position when applying for SF funding. These disciplinary issues are evident also when examining the funded SF projects. Social science and arts and culture are marginal compared with technology and business projects: *“It is so easy for us to create concrete applications and programmes -- maybe it is more difficult for humanities”* (TUT, researcher).

In the absence of a tradition of cooperation between academics and other stakeholders in the Satakunta region, the SF project activities have contributed to creating a culture of collaboration: *“In the beginning they were suspicious and thought that we are in some ivory tower”* (UTU, researcher). SF projects allow researchers to work *“in the field”* (Aalto, researcher), get in touch and discuss with different actors. The interviewees also thought that regional engagement through SF projects may have an impact on local authorities and policymaking: *“this is what I hope from the SF projects: to increase the regional impact and mission”* (UTU, researcher).

Some of the interviewees agreed that responding to regional needs should be prioritised in all UC-Pori’s activities: the UC-Pori is supported by the city of Pori, so *“we should bring something back”* (TUT, researcher), also the Regional Council of Satakunta expects universities to participate in SF projects, though the researchers

## The university third mission and the European Structural Funds in peripheral regions

Insights from Finland

---

struggle to justify these engagement activities as "*the main campus does not necessarily know what we are doing here*" (TUT, researcher). The same concern was raised also in regard to funding authorities, which are currently more scattered across Finland. Currently, the SF projects are managed by many funding authorities located in different regions, namely government bodies and most importantly, four Finnish Centres for Economic Development, Transport and the Environment (ELY Centres) having a specific task to coordinate SF programmes. The interviewees thought that this might affect to the allocation of SF funds as the funding authorities located in different regions lack the local knowledge. Therefore, the bidding processes were not always considered to be transparent or fair. In addition, some of the interviewees thought that there is not enough regional coordination for creating synergies or optimising the benefits from on-going SF projects.

### *4.2. SF administrative procedures*

One of the appeals of SF funding is the high success rate of proposals in comparison to applications to other funding instruments. However, despite the recent national efforts to simplify the administration work, many of the researchers struggled with the bureaucracy, especially in ESF projects. The funding authorities do not provide consistent guidelines on eligibility criteria, which causes extra work, or in the worst case, clawbacks. There were big differences also in the support offered by the UC-Pori units' parent universities, some of which had rather straightforwardly signalled, that SF projects are an unwanted form of external funding. Even though the city of Pori has provided generous support for SF projects' match-funding, which is typically very complicated to generate from external sources, universities' internal administration mechanism, the so called 'full cost model' is more compatible with other research funding (e.g. Academy of



## The university third mission and the European Structural Funds in peripheral regions

Insights from Finland

---

Finland, Business Finland). However, the interviewees stated that “--we have learned how to use SF instruments here in Pori” (Aalto, researcher).

In some cases, research group’s bidding success rate was as high as 100% and there is a strong tradition of carrying out SF projects at the UC-Pori: “we have always got a lot of money from SF funding” (TUT, researcher). This raised concerns about rooting the research too much on the local needs at the expense of academic excellence: “-- many of our research groups are used to getting a lot of ERDF funding, so they do not see need to go for the other research funding. They have used to getting funding too easily.” (UC-Pori, management). SF funding was considered to be very accessible mainly because of regional factors, which can also have a negative impact:

“—the competition (in SF) is not so tough because of its regional limitations. In the long term, it can lead to the dominance of SF projects, which makes their role distorted and decreases research ambition as people will finally mix it up with research funding instruments.” (UC-Pori, management).

Sometimes SF projects were applied for just to safeguard jobs. This was more often the case for project researchers, typically PhD students working on their research projects ‘on the side’, and for other staff members, such as personnel working on continuing education services. The latter typically had permanent contracts – however, they were also expected to “get funding from somewhere” (TUT, staff).

Although some of the SF projects have generated new content for continuous education, e.g. in maritime studies, or even piloted degree study programmes, the current SF guidelines no longer allow such activities: “ERDF funding has diminished and become more business-oriented, which makes it complicated at the moment”

## The university third mission and the European Structural Funds in peripheral regions

Insights from Finland

---

(UTU, researcher). Therefore, the current development projects have remained less beneficial for the degree study programmes: *"I hope these could be more linked. There is a possibility to run a course on robotics (based on SF activities) and there are few publications from the project."* (TUT, researcher).

All these aspects combined may threaten the quality of SF projects: *"some of the SF projects are applied just for the sake of getting external funds, so the projects themselves are not always so excellent"* (UTU, researcher). Particularly the researchers working full-time in these projects thought that a further decrease of SF funds in the coming programme period is not just a threat for single employees, but to the whole regional engagement activities of university units in the Pori campus.

### 4.3. University organisation culture

The project initiatives came typically from single researchers or research groups without coordination or intervention of UC-Pori or their parent university. Only one of the HEIs present in UC-Pori described that its parent university has tightened the monitoring on a project level due to ongoing large scale organisational changes, but the others could still work somewhat independently, though they needed a formal authorisation for bids from their universities: *"When we win a project, the university do not care very much, someone just takes care of it"* (TUT, researcher). The researchers are typically very enthusiastic to plan and initiate cooperation with many stakeholders, but without strategic planning the activities tend to end together with the external funds. On the other hand, the personnel of UC-Pori widely suggested that the researchers currently work 'as entrepreneurs within the university' without a strong strategic guidance from their home organisations. Failure to win external funding would have a drastic effect for

## The university third mission and the European Structural Funds in peripheral regions

Insights from Finland

---

individual researchers: *"you get sacked when there is no more funding. No one intervenes to our activities as long as we can generate funds"*. (UTU, researcher).

The importance of SF funded projects was described in very different ways: whereas the researchers thought it is 'a relief' to concentrate on the regional priorities and objectives of the project instead of traditional measurements of academic success (e.g. the performance indicators of the state funding model), the management of parent universities either worried that these projects do not advance scientific research because of their more applied approach or they were not sufficiently aware of the SF activities in detail. In general, the SF projects are not usually based on cutting-edge technology, but their function is more likely to transfer existing results, so the focus is more on capacity building of the region, which does not necessarily foster research excellence.

The management expressed their concern also on the amount of granted SF funding. SF instruments are more common in the remote units, such as university consortia, and the parent universities need to 'compensate' this by generating more external funds from sources that are applicable with universities' internal 'full cost model' – only funding from these streams can help to secure sufficient funding from the state: *"If it would be the other way around, things would go financially wrong"* (TUT, management). The management also considered the amount of available SF funding to be too small so that it would be truly attractive for universities: *"We aim to win long-term funding and bigger amounts"* (TUT, management). On the contrary, the researchers working with SF projects stated rather bluntly, that SF funding is crucial for engagement activities: *"If we want to do regional development, we need ERDF funding"* (TUT, researcher). However,

## The university third mission and the European Structural Funds in peripheral regions

Insights from Finland

---

most interviewees largely believed SF projects to be a potential means to deliver third stream activities in practice:

*“SF funding gives possibility to truly implement projects that are aimed for societal impact in universities: It allows us to concentrate more on the actual content of the projects rather than on academic results that measure ‘success’.” (Aalto, researcher).*

The lack of internal coordination of project portfolio on the UC-Pori might lead to situations where different units of the UC-Pori compete with themselves for SF funds. This was not seen as a problem, because *“it is the funding authority’s task to choose which bids are granted funding”* (TUT, researcher), and UC-Pori has strived to tighten internal collaboration in the recent years. Few of the interviewees emphasised, that SF projects should be taken into account when designing long-term research agendas, and there should be more critical discussion on role of the SF projects within the universities:

*“I agree that also here in remote campus we should have other sources of funding, so in that sense it is important to think how SF projects fits in the unit's strategy. We cannot build all our activities on SF funding, but the decision-making authority should be here (in Pori, not in the main campus).” (TUT, researcher)*

Some of the challenges were linked to internal logic of the instruments, which typically are not very agile and the guidelines being even counter-effective in relation to the desired effect, especially in supporting SMEs. However, the researchers felt that:

*“--it is not just about the (SF) instrument, it is also about the internal chain. To be frank, they have wanted us to be more part of the main campus, and not a separate unit. I guess it is the same thing with all the units of UC-Pori.” (TUT, researcher).*

## The university third mission and the European Structural Funds in peripheral regions

Insights from Finland

---

The centralised coordination was indeed mentioned as one of the issues that complicates implementation of the SF projects, but the researchers were still highly motivated to apply for these funds, though if these remote units *"fail to sell the idea (of regional engagement activities) to their parent organisation, they will stay on a very small scale"* (TUT, researcher).

### 4.4. SF Project outputs

Though the UC-Pori units' parent universities have little interest in engaging in SF activities, the local researchers had increasingly thought about maximising the benefits from such activities, especially finding ways to combine regional engagement activities with other core functions: *"We think about these links for every projects, I think there has to be a synergy there."* (TUT, researcher). All researchers had faced expectations to deliver more academic outputs: *"Everybody that calls her/himself a researcher has to publish"* (UTU, researcher), though it is increasingly challenging in SF projects because of their strict timeframes and guidelines that do not allow allocating time for basic research work. In many cases they can result in conference papers and provide rich data sets for further research, but SF activities can also facilitate achieving individual researcher's and research group's goals:

*"In our team we require two publications per year; it is possible to link these three (missions)"* (TUT, researcher)

*"We require that all our project researchers are PhD students. PhD students that work in SF projects make more progress than those who teach."* (TUT, researcher)

As discussed earlier, the strong collaboration element of SF funded projects was seen as a two-way street: *"—we get (knowledge) from the firms and they get from*

## The university third mission and the European Structural Funds in peripheral regions

Insights from Finland

---

us" (TUT, researcher), though there is a limited number of potential partners in the region and businesses have not exploited SF funding and project's results as much as they could have – partly because of the strict limitations of SF instruments. However, the collaboration has brought people together and some researchers have ended up working in the local firms. In addition, SF projects can be seen as 'seed money', so that they generate academic results more indirectly: "*They (SF projects) enable small-scale pilots and publishing preliminary results, which makes it easier to apply for larger projects in the same area.*" (UC-Pori, management).

The longer the researchers had been working with SF projects, the clearer they described the change after the renewed University Act (558/2009), which led to performance-based state funding. After the reform, the universities have become more focused on traditional academic outputs, which has made SF funding even more problematic. The interviewees with less experience did not recognize other research funding instruments being more desirable, while the senior staff members had received a clear signal from their home universities to focus on other calls. The more senior researchers were generally concerned about the rise of managerialism in the university: after the new state funding model, the researchers implementing SF projects have become forced to work on "*some sort of publications on the side*" (UTU, researcher).

### 5. Discussion: Academic core and SF activities

In this section, the findings from the case of UC-Pori are further discussed in order to identify specific characteristics of university-led SF activities in relation to four overlapping key challenges derived from literature; collaboration, university

## The university third mission and the European Structural Funds in peripheral regions

Insights from Finland

---

organisational culture, SF administrative procedures and SF project outputs. The impact of these challenges to characteristics of university-led SF-projects are finally summarised in *Table 2*.

### *5.1. Characteristics of university-led SF projects*

In the case of UC-Pori, the SF funding have helped universities to initiate longer term collaboration with HEIs and other stakeholders, though the university-industry cooperation is less established in the region of Satakunta and there is a lack of potential business partners. The collaboration through SF projects allows individual researchers and research groups to increase their skills base. It also contributes to knowledge transfer activities and general capacity building of the region as the university-led SF projects are largely based on local priority sectors. Working with public sector stakeholders in different stages of policy processes can have an effect to local policy processes, in particular through RIS3 formulation.

UC-Pori carries out different types of SF activities, which typically have a strong networking element. Whereas some SF projects engage with a variety of local stakeholders, many are more targeted to business partners. In both cases, the dissemination activities are important, as they "*provide a possibility for the firms to exploit developed tools*" (UC-Pori, management), though also sharing results is more complicated in a rural region with less tradition to work with companies.

UC-Pori's regional role is to strengthen the regional skills level, offer local access to higher education and attract students from other parts of the country. The researchers working at the Pori campus and the top management of parent universities brought up the important regional role of UC-Pori referring largely to the third mission. The local researchers also saw added value in bringing university

## The university third mission and the European Structural Funds in peripheral regions

Insights from Finland

---

activities to a heavily industry-based region with little academic traditions, which can be reinforced through SF activities, especially in the establishment phase of the UC-Pori units:

*“SF funding has enabled local university activities that would not have been possible otherwise. The region of Satakunta wants us here, because we provide access to higher education and research, whatever kind it would be, because it brings know-how to the area.” (UTU, researcher).*

Over the past decade, some UC-Pori units have managed to build their research agendas systematically on SF funded projects from practise to theory, *“creating social innovations with practical orientation”* (TUT, researcher) despite the limitations of SF funding instrument – such as heavy administrative procedures, unsuitable output indicators and high match funding rates – and the lack of internal coordination and strategic management within parent universities. The SF projects can provide a channel for academics to get in touch with different target groups, but they also indirectly contribute to generating research outputs: *“They can provide a rich empiric data and show how the real life works; collaboration with different stakeholders provides two-way social communication.”* (UTU, researcher). The SF activities can thus facilitate obtaining PhD degrees and generate conference papers, despite the purely networking-based activities, that do not typically lead to any kind of academic outputs.

Responding to regional needs through SF projects was partly seen as having a negative impact on research excellence, especially by the management of the parent universities: *“Regional research is a delusion, there is no such thing. Of course, the research has to generate benefit for the local area, but the results have to be transferable also outside of the Satakunta region”* (UC-Pori, management).



## The university third mission and the European Structural Funds in peripheral regions

Insights from Finland

---

The SF projects also typically lack an international aspect. Therefore, it is not an easy task to design and implement SF projects that are both beneficial for the region and create academic outputs. Currently, the focus of university-led SF projects tends to be on the former:

*“SF project have an applied research approach, which is contradictory when compared to other university's activities.” (Aalto, researcher)*

*“Universities do not want to participate to SF projects. They are unprofitable, and it is hard to cover the match-financing and they do not serve the two core missions.” (UTU, researcher)*

Because of this mismatch the researchers at the Pori campus felt that they are forced to balance between the differing views of their local partners and their home universities: *“The biggest challenge is to find balance between universities' increasingly results-based approach and this regional development mission, like we have here in Pori” (TUT, researcher).* In the best-case scenario, typically when SF collaboration was based on long-term partnerships and strategically planned as part of research group's agenda, different missions come together naturally. Then the SF activities can have clear links with research and knowledge transfer activities:

*“I think that this kind of project work allows us to do both academic research and transfer knowledge to business sector. In addition to business collaboration, regional development and more practical work we conduct academic research on the side.” (UTU, researcher)*

# The university third mission and the European Structural Funds in peripheral regions

Insights from Finland

Table 2. The impact of current challenges in university-led SF projects in the case of UC-Pori

Challenge	Impact	Observed key elements	Impact
<i>Collaboration</i>	Create non-desirable competition; Lack of regional coordination; Lack of business partners (peripheral regions).	Contribute to creating long-term collaboration with other HEIs, businesses and public organisations; more complicated in remote regions with less potential partners.	Facilitate knowledge transfer and capacity building; Foster creating a culture of collaboration with academia and regional stakeholders; May have an impact on policy-making.
<i>SF administrative procedures</i>	High bureaucracy; High risk form of funding; High match-funding rates; Difficulties in cross-regional collaboration.	Do not fund basic research or degree education; High success rates; Regional policies favour STEM; Bureaucratic, non-transparent and complicated to manage; Internal guidelines complicated with business collaboration.	Unclear guidelines may lead to clawbacks and accessibility to opportunistic behaviour; Lower quality of implemented projects; forces to build research agendas too much on local needs; Unused potential in supporting entrepreneurial activities.
<i>University organisational culture</i>	Embedding projects to academic core complicated; Lack of financial resources for match-funding; Lack of internal coordination; Lack of academic outputs.	Enable finding new ways to work in regard to basic mission; Lack of strategic planning and top management's involvement with regional engagement activities; Focus widely on generating traditional academic outputs.	Important source of funding in delivering third stream activities; Forces individual researchers to work as 'entrepreneurs'; Less attractive funding source for universities in regards to state funding model; Forces academics to camouflage research activities.
<i>SF Project outputs</i>	Over-estimated outputs; Lack of academic outputs; Low number of commercial results.	Applied approach; Allow researchers to 'work in the field'; Enable small-scale regional pilots.	Projects based on transferring existing results instead of cutting-edge technology; Offers rich data sets for further research; Publishing initial results can be 'stepping stones' to large-scale research projects.

## The university third mission and the European Structural Funds in peripheral regions

Insights from Finland

---

### *5.2. Managing of regional engagement activities in entrepreneurial universities*

The case of the UC-Pori tells a story of four Finnish universities, whose remote units located in more peripheral area are forced to juggle between regional engagement activities and delivering traditional academic outputs. The Structural Funds programmes are one of the tools to support the former, though the national guidelines of the instruments are not suitable for directly generating the latter. This has forced researchers to 'camouflage' research outputs from these development projects or to work on publications or PhD degrees 'on the side' of SF activities. This is partly due to the rise of managerialism and other recent changes in the higher education policies in Finland. Especially the performance-based indicators in the state funding model has steered universities to focus more on the generation of academic outputs such as degrees and peer-reviewed publications.

The top management of the four home organisations emphasised, that the lack of suitable indicators for the engagement activities in the current state funding model forces them to measure success solely with publications and degrees: "*The state is the most important source of funding, so it easily leads us to follow their indicators*" (TUT, management). Even though national HE policies and many of the key funding instruments, e.g. the Academy of Finland, underline the importance of societal impact of university activities, the overall absence of proper indicators and difficulties to gain access to information (e.g. collaboration projects with firms may be classified) makes the issue very complicated.

*"SF has their own aims, and maybe university tries to combine those to its own objectives, but they do not go hand in hand. Universities don't have a need for the regional engagement, -- it cannot be measured and it is unimportant in the funding model. (UTU, researcher).*

## The university third mission and the European Structural Funds in peripheral regions

Insights from Finland

---

However, the interviewed management would rather not change the current indicators than to replace them with too constricted ones: *"In the worst case scenario we just end up counting patents. And that is a very narrow way to measure impact"* (TUT, management). Some pointed out, that external research funding and publications are suitable also for measuring impact, though as an exception, University of Turku was currently working on internal performance indicators for societal impact, in which the amount of granted SF funding was one of the measurements of success. Overall the case of UC-Pori demonstrates how national and regional policies determine the conditions in which universities can transform towards entrepreneurial organisations (Stensaker & Benner, 2013), also what kind of funding is available for these activities (Tripl et al., 2015).

SF funding was considered to be complicated also in relation to universities' internal mechanisms, though the researchers pointed out that these are organisational issues that could be resolved with a support of university management. In the case of UC-Pori, it seems that a diversified funding base is not necessarily a step towards an entrepreneurial university or obtaining institutional autonomy (Gibb & Hannon, 2006; Armbruster, 2008) unless universities learn how to deal with these internal issues. Currently, the SF project were not seen as profitable even when the match-funding was covered by a third party. Although universities' third mission is mainly formalised in regional policies and R&D funding schemes (Vorley & Nelles, 2009; Nelles & Vorley, 2010), the implementation of these incentives remains very complex, and as noted by D'Este and Perkmann (2011), it is obvious that monetary incentives alone are not sufficient for initiating successful university-industry collaboration unless mission support one another (Etzkowitz & Klofsten, 2005; Etzkowitz, 2013).

## The university third mission and the European Structural Funds in peripheral regions

Insights from Finland

---

In the case of UC-Pori, the lack of strategic planning of regional engagement activities was repeatedly emphasised. The burden to find ways to combine all the three missions falls mostly on the shoulders of individual researchers, though it is evident that "*the regional needs and the core mission do not always meet*" (UTU, researcher). This implies that UC-Pori and its parent universities have not managed to design a successful strategy for managing the third mission that would take individual, disciplinary and institutional issues into account (Pinheiro *et al.*, 2015). In particular, the researchers specialised in non-STEM fields hoped, that the overall comprehension and discourse on science in HE policies would go beyond publications and rankings, focusing more on open science and universities' regional impact, in which SF programmes were seen as a very important source of funding.

The fact that researchers have managed to win larger project funding from the SF without any 'payback' from the state funding model can cause frustration among the academic staff and demotivate them to apply for the SF funding. Overall, the parent universities' management suggested that SF funding and other applied science projects fits better with universities of applied Sciences. Universities' third mission was considered to be delivered indirectly through education and research, also in university consortia, which supposedly have an enhanced regional mission. In reality, combining all three mission remain very challenging (Chatterton & Goddard, 2009). From the management's point of view, the consortia are even more complicated, because these remote units are built on a regional will and commitment to local higher education and there is a strong political push with earmarked state funding, so their (research) activities redeem more reactive than strategic.

## The university third mission and the European Structural Funds in peripheral regions

Insights from Finland

---

As Clark (1998) noted, responding to regional needs is complicated in a traditional academic infrastructure, but it remains challenging also in a network of universities with a specific regional mission: the lack of clear common research agenda (FINHEEC, 2013) and overlapping – and sometimes contradictory needs – of different stakeholders and parent universities makes regional activities very complicated to plan and deliver. Finally, the data collected from UC-Pori reveals that Finnish universities mainly continue to run these remote units in peripheral regions, because they generate more state funding through degrees. Thus, their existence is linked to the financial conditions, including external resources from the municipalities and SF funding, which demonstrates how universities are more inclined to go for opportunistic rather than strategically entrepreneurial behaviour (Stensaker & Benner, 2013).

### **6. Conclusion: Academic core and regional development – Managing universities' third mission through Structural Funds programmes**

This study sought to contribute to the current discussion on universities' third mission and entrepreneurial universities through examining how European Cohesion Policy transformed into national SF Operational Programmes can enhance universities' regional engagement. Through a single case study of the University Consortium of Pori, the aim was to explore how universities can manage and deliver their third mission through SF programmes and to investigate the specific characteristic of SF activities conducted by universities. The tentative findings from UC-Pori's engagement with SF programmes are supported by previous studies: SF projects can indeed strengthen universities regional engagement (Charles & Michie, 2013) and their R&D capacity (Muizniece &

## The university third mission and the European Structural Funds in peripheral regions

Insights from Finland

---

Peiseniece, 2012), but the implementation of SF projects within a Finnish university framework remains challenging because of a number of organisational issues, higher education policies that focus solely on traditional academic outputs and finally, strict guidelines of SF funding.

SF programmes may enable universities to respond to regional needs through collaborative research projects (Fonseca & Salomaa, 2019), but the administrative burden of the Operational Programmes (Spilanis *et al.*, 2016) hinders obtaining the potential of these activities, which was evident in the case of UC-Pori. This pushes beneficiaries towards alternative national funding in more innovative initiatives (Bachtler & Wislade, 2004), though in the case of Pori, this is also due to the fact that the Finnish state funding model steers universities towards traditional academic outputs, which are not automatically – or easily – aligned with SF projects' deliverables. Another big mismatch detected from the interview data was UC-Pori's strong orientation towards regional engagement; whereas UC-Pori's personnel found that SF instruments are one of the key tools in delivering their regional mission, their parent universities' top management regarded such activities as irrelevant, even though SF projects could support further development of key disciplines and even contribute to planning and implementation of new study programmes.

However, through an enhanced strategic planning (Muizniece & Peiseniece, 2012), more active engagement of the university management and carefully planned project portfolio, universities could strengthen their regional engagement activities through SF projects (Charles & Michie, 2013) instead of the current, rather ad-hoc approach based on individual academics' effort to support their regions and generate external funding – and to safeguard their jobs. In doing so, the

# The university third mission and the European Structural Funds in peripheral regions

Insights from Finland

---

universities could set and achieve more realistic entrepreneurial goals assigned in regional development policies, such as supporting local SMEs, networking and knowledge transfer in peripheral areas (Brown, 2016) through SF activities.

Previous studies emphasise, that universities' third mission is heavily shaped by their regional context (Salomaa, 2019); As also the formulation and implementation of SF Operational Programmes are nationally differentiated and very dependent on regional circumstances (Bachtler & Wren, 2007), further comparative studies on entrepreneurial universities' engagement with SF projects could provide more insight on the ways their third stream activities are delivered on a micro scale (Lebeau & Cochrane, 2015). Further evidence could facilitate designing institutional strategies for managing the third mission more efficiently so that each mission enhances one another (Etzkowitz & Klofsten, 2005; Etzkowitz, 2013), taking different individual, disciplinary and institutional issues into account (Pinheiro *et al.*, 2015). This would also enable maximising the regional benefits of university-led SF activities.

## References

Agrawal, A. (2001). University-to-Industry knowledge transfer: literature review and unanswered questions. *International Journal of Management Reviews*, 3, 285–302.

Arbo, P. & Benneworth, P. (2007). Understanding the Regional Contribution of Higher Education Institutions: A Literature Review, OECD Education Working Papers 9, OECD Publishing, Paris.

Armbruster, C. (2008). Research Universities: autonomy and self-reliance after the Entrepreneurial University. *Policy Futures in Education*, 6, 372–389.

Autonomous Robot Ecosystem, website

<https://www.tuni.fi/en/research/autonomous-robot-ecosystem>, accessed 2<sup>nd</sup> August 2019.

Bachtler, J. & Wislade, F. (2014). Searching for Consensus: The Debate on Reforming EU



# The university third mission and the European Structural Funds in peripheral regions

Insights from Finland

---

Cohesion Policy. European Policies Research Paper 55, European Policies Research Centre.

Bachtler, J. & Wren, C. (2006). Evaluation of European Union Cohesion policy: Research questions and policy challenges. *Regional Studies*, 40:2, 143–153.

Benneworth, P. & Sanderson, A. (2009). The regional engagement of universities: Building capacity in a sparse innovation environment. *Higher Education Management and Policy*, 21:1, 123–140.

Benneworth, P. & Cunha, J. (2015). Universities' contributions to social innovation: reflections in theory & practice. *European Journal of Innovation Management*, 18, 508–527.

Breznitz, M.S. & Feldman, M.P. (2012). The engaged university. *Journal of Technology Transfer*, 37, 139–157.

Brown, R. (2016). Mission impossible? Entrepreneurial universities and peripheral regional innovation systems. *Industry and Innovation*, 23:2, 189–205.

Campusbased competence building for social welfare and healthcare services, website <https://sites.tuni.fi/kampusote/in-english/>, accessed 2<sup>nd</sup> August 2019.

Charles, D. (2016). The rural university campus and support for rural innovation. *Science and Public Policy*, 43:6, 763–773.

Charles, D. & Michie, R. (2013). Evaluation of the main achievements of cohesion policy programmes and projects over the longer term in 15 selected regions. Case Study North East England.

Charles, D., Kitagawa, F. and Uyarra, E. (2014). University in Crisis? - new challenges and strategies in two English city-regions. *Cambridge Journal of Regions, Economy and Society*, 7:2, 475–496.

Chatterton, P. & Goddard, J. (2000). The Response of Higher Education Institutions to Regional Needs. *European Journal of Education*, 35:4, 475–496.

Clark, B.R. (1998). *Entrepreneurial Universities. Organizational Pathways of Transformation*, IAU Press.

Clark, B.R. (2004). Delineating the character of the entrepreneurial university. *Higher Education Policy*, 17, 355–370.

DELTA Research database, <http://delta.ucpori.fi/?lang=en>, first accessed 30<sup>th</sup> of August 2017.

# The university third mission and the European Structural Funds in peripheral regions

Insights from Finland

---

D'Este, P., & Perkmann, M. (2011). Why do academics engage with industry? The entrepreneurial university and individual motivations. *The Journal of Technology Transfer*, 36:3, 316–339.

Etzkowitz, H. (2013): Anatomy of the entrepreneurial university, *Social Science Information*, 52:3, 486–511.

Etzkowitz, H. & Kloften, M. (2005). The innovating region: toward a theory of knowledge-based regional development. *R&D Management*, 35:3, 243–255.

European Commission (2010): EUROPE 2020. A European strategy for smart, sustainable and inclusive growth. Retrieved from

<http://ec.europa.eu/eu2020/pdf/COMPLET%20EN%20BARROSO%20%20%20007%20-%20Europe%202020%20-%20EN%20version.pdf>

European Commission, Cohesion Policy website

[https://ec.europa.eu/regional\\_policy/en/policy/how/priorities/](https://ec.europa.eu/regional_policy/en/policy/how/priorities/), accessed 1<sup>st</sup> August 2019.

European Regional Development Fund and on specific provisions concerning the Investment for growth and jobs goal and repealing, Regulation (EC) No 1080/2006.

Retrieved from

<https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32013R1301&from=EN>,

Finnish Ministry of Culture and Education (2017). Universities core funding model.

Retrieved from

[https://minedu.fi/documents/1410845/4392480/Universities\\_funding\\_2017.pdf/abc0974d-b8d5-4486-a12a-aa141d54b66f/Universities\\_funding\\_2017.pdf](https://minedu.fi/documents/1410845/4392480/Universities_funding_2017.pdf/abc0974d-b8d5-4486-a12a-aa141d54b66f/Universities_funding_2017.pdf)

Finnish Ministry of Education and Culture, MoEC (2015): Vastuullinen ja vaikuttava. Tulokulmia korkeakoulujen yhteiskunnalliseen vaikuttavuuteen, 2015:13. Retrieved from

<http://julkaisut.valtioneuvosto.fi/bitstream/handle/10024/75117/okm13.pdf>

Flyvbjerg, B. (2006). Five Misunderstandings about Case-Study Research. *Qualitative Inquiry*, 12:2, 219–245.

Fonseca, L. & Salomaa, M. (2019). Entrepreneurial universities and regional innovation: matching smart specialisation strategies to regional needs? RUNIN Working paper series, 03/2019.

Foray, D., David, P. A., & Hall, B. H. (2011). Smart Specialisation from Academic Idea to Political Instrument, the Surprising Career of a Concept and the Difficulties Involved in its Implementation. Retrieved from <https://infoscience.epfl.ch/record/170252>

Fratesi, U. & Wislade, F. G. (2017). The impact of European Cohesion Policy in different contexts. *Regional Studies*, 50:6, 817–821.

# The university third mission and the European Structural Funds in peripheral regions

Insights from Finland

---

Gagliardi, L. & Percoco, M. (2017). The impact of European Cohesion Policy in urban and rural regions. *Regional Studies*, 51:6, 857–868.

Gibb, B. & Hannon, P. (2006). Towards the Entrepreneurial University? *International Journal of Entrepreneurship Education*, 4, 73–110.

Jongbloed, B., Enders, J. & Salerno, C. (2008). Higher education and its communities: Interconnections, interdependencies and a research agenda. *Higher Education*, 56, 303–324.

Lebeau, Y. & Cochrane, A. (2015). Rethinking the 'third mission': UK universities and regional engagement in challenging times. *European Journal of Higher Education*, 5:3, 250–263.

McCann, P., & Ortega-Argilés, R. (2015). Smart Specialization, Regional Growth and Applications to European Union Cohesion Policy. *Regional Studies*, 49:8, 1291-1302.

Miles, M. B., Huberman, M. A. & Saldana, J. (2014). *Qualitative Data Analysis. A Methods Sourcebook*, SAGE Publications, US.

Muizniece, L. & Peiseniece, L. (2012). EU Structural Funds Investment in R&D and its influence on innovation development – the case of university of Latvia. in *European Integration Studies*, 6.

Nelles, J. & Vorley, T. (2010). From Policy to Practice: engaging and embedding the third mission in contemporary universities. *International Journal of Sociology and Social Policy*, 30:7, 341–353.

Percoco, M. (2017): Impact of European Cohesion Policy on regional growth: does local economic structure matter? *Regional Studies*, 51:6, 833–843.

Pinheiro, R., Langa, P. V. & Pausits, A. (2015). The institutionalization of universities' third mission: introduction to the special issue. *European Journal of Higher Education*, 5:3, 227–232.

Regional Council of Satakunta, website

<http://www.satakuntaliitto.fi/english>, accessed 12th November 2018.

Regional strategic plan of the Satakunta region 2018-2021. Retrieved from [http://www.satakuntaliitto.fi/sites/satakuntaliitto.fi/files/tiedostot/Aluekehitys/MAKO\\_2018\\_2021/Satakunnan\\_maakuntaohjelma\\_2018-2021\\_SahkoinenJulkaisu\\_LowRes.pdf](http://www.satakuntaliitto.fi/sites/satakuntaliitto.fi/files/tiedostot/Aluekehitys/MAKO_2018_2021/Satakunnan_maakuntaohjelma_2018-2021_SahkoinenJulkaisu_LowRes.pdf)

Rodriguez-Pose A. & Fratesi, U. (2004). Between Development and Social Policies: The impact of European Structural Funds in Objective 1 regions. *Regional Studies*, 38:1, 97–113.

# The university third mission and the European Structural Funds in peripheral regions

Insights from Finland

---

Roper, C.D. & Hirth, M. A. (2005). A History of Change in the Third Mission of Higher Education: The Evolution of One-way Service to Interactive Engagement. *Journal of Higher Education Outreach and Engagement*,10:3, 3–20.

Santos, D., & Caseiro, N. (2015). The Challenges of Smart Specialization Strategies and the Role of Entrepreneurial Universities: A New Competitive Paradigm. In Carmo Farinha, L. M., Ferreira, J. J. M., Smith, H. L. & Bagchi Sen, S. (Eds.), *Handbook of Research on Global Competitive Advantage through Innovation and Entrepreneurship*.

Salomaa, M (2019). Third mission and regional context: assessing universities' entrepreneurial architecture in rural regions- *Regional Studies, Regional Science*, 6:1, 233-249.

Satakunta Region: RIS3 strategy (2014). Retrieved from [http://www.satakuntaliitto.fi/sites/satakuntaliitto.fi/files/RIS3\\_Satakunta2014\\_TEM.pdf](http://www.satakuntaliitto.fi/sites/satakuntaliitto.fi/files/RIS3_Satakunta2014_TEM.pdf)

Saunders, M., Lewis, P. & Thornhill, A. (2016). *Research Methods for Business Students* (7th edn.), Pearson.

Spilanis, I., Kizos, T., & Giordano, B. (2016). The effectiveness of European Regional Development Fund projects in Greece: Views from planners, management staff and beneficiaries. *European Urban and Regional Studies*, 23:2, 182–197.

Statistics Finland. Retrieved from [https://www.tilastokeskus.fi/tup/suoluk/suoluk\\_vaesto\\_en.html#demographicdependencyratiobymunicipality,2017](https://www.tilastokeskus.fi/tup/suoluk/suoluk_vaesto_en.html#demographicdependencyratiobymunicipality,2017)

Stensaker, B. & Benner, M. (2013). Doomed to be Entrepreneurial: Institutional Transformation of Institutional Lock-Ins of 'New' Universities?. *Minerva*, 51:4, 399–416.

Structural Fund information service: ERDF and ESD projects in Finland during the 2014-2020 programme period, <https://www.eura2014.fi/rrtiepa/?lang=en>, first accessed on the 1<sup>st</sup> of September 2017.

Sustainable growth and jobs 2014 - 2020 - Finland's structural funds programme. Retrieved from <https://www.rakennerahastot.fi/documents/10179/43217/Ohjelma-asiakirja+valmis.pdf/>

Tampere university, website <https://www.tuni.fi/en/about-us>, accessed 20<sup>th</sup> February 2019.

The Finnish Higher Education Evaluation Council, FINHEEC (2013). *Korkeakoulut yhteiskunnan kehittäjinä. Korkeakoulujen yhteiskunnallisen ja alueellisen vaikuttavuuden*

# The university third mission and the European Structural Funds in peripheral regions

Insights from Finland

---

arviointiryhmän loppuraportti, 5:2013. Retrieved from [https://karvi.fi/app/uploads/2014/09/KKA\\_0513.pdf](https://karvi.fi/app/uploads/2014/09/KKA_0513.pdf)

Trippl, M, Sinozic, T. & Lawton Smith, H. (2015). The Role of Universities in Regional Development: Conceptual Models and Policy Institutions in the UK, Sweden and Austria. *European Planning Studies*, 23:9, 1722–1740

Universities Act 558/2009. Retrieved from <http://www.finlex.fi/en/laki/kaannokset/2009/en20090558>

Uyarra, E. (2010). Conceptualizing the Regional Roles of Universities, Implications and Contradictions. *European Planning Studies*, 18:8, 1227–1246.

Vorley, T. & Nelles, J. (2009). Building Entrepreneurial Architectures: a conceptual interpretation of the Third Mission. *Policy Futures in Education*, 7:3, 284–296.

Zomer, A. & Benneworth, P. (2011). The Rise of the University's Third Mission. In Enders, J., de Boer H.F. & Westerheijden, D.F. (Eds.), *Reform of Higher Education in Europe* (pp. 81–102). Sense Publishers.

## Chapter 14

# Entrepreneurial Universities and Regional Innovation: Matching Smart Specialisation Strategies to Regional Needs?

**Liliana Fonseca**

 <https://orcid.org/0000-0002-9041-0921>

*University of Aveiro, Portugal*

**Maria Salomaa**

 <https://orcid.org/0000-0002-4415-0161>

*University of Lincoln, UK*

### ABSTRACT

*Universities are expected to play a leading role in the smart specialisation strategy process, However, a gap between discourse and practice is marking the RIS3-related regional development programmes, which can be extended to the involvement of universities in the process. A mismatch can be speculated between the expectations towards universities' roles in RIS3 implementation and actual practice, and its repercussions on a regional innovation ecosystem. This chapter addresses the extent to which the role played by universities in a region's innovation and entrepreneurial practice aligns with the smart specialisation strategic outline. As an in-depth case-study of the University of Aveiro (Portugal), it draws on both quantitative and qualitative data, with an analysis of RIS3 approved projects in the Portuguese NUTS II Centro region, and interviews with key actors within the university and the regional administration. Through this, it weighs the contribution of entrepreneurial universities to the RIS3 goals, drawing lessons for public policy and discussing the future of RIS3.*

## **INTRODUCTION**

Universities are expected to contribute to the development of their regions, not just through their teaching and research missions, but increasingly through a “third mission” of dynamic engagement with external, and mainly regional partners (Charles, Kitagawa, & Uyerra, 2014; Chatterton & Goddard, 2000). In turn, the promotion of interaction between the university and other regional institutional actors through diverse engagement mechanisms is believed to stimulate innovation processes (Uyerra, 2010). Adapting to the strain of these growing expectations, and in search of alternative funding sources, universities have assumed a more entrepreneurial approach in their regional engagement. This is exemplified by their involvement in the development of incubators and science parks, and by their increasing pursuit of contract research, consultancy services and partnerships (Jongbloed, Enders, & Salerno, 2008). The importance of these relationships has been progressively underlined and encouraged in the political discourse, more evidently within EU’s most recent Cohesion Policy, which in its incorporation of the smart specialisation concept has linked structural funds (SF) and ERDF particularly to research and innovation initiatives (Goddard, Kempton, & Vallance, 2013).

Universities are also considered crucial institutions in the regional development dynamics associated with smart specialisation, and particularly the research and innovation smart specialisation strategies (RIS3). The basic underlying argument is that development potential inherent to the knowledge generation, diffusion and dissemination capacity of academia is instrumental in a regional development policy context inspired by the smart specialisation concept (Begg, 2016). In other words, universities are expected to play a leading role in strategy implementation, relying on what is unique in a given region, namely the R&D and innovation domains in which that region can hope to excel (Foray, David, & Hall, 2009).

There is, however, evidence that a gap between discourse and practice is marking the RIS3-related regional development programmes (e.g. Iacobucci, 2012; Kroll, 2017), particularly evident in less-developed regions (LDRs), and which can be extended to the involvement of universities in the process. Universities themselves manage different forms of incorporation of the RIS3 processes, which are very much dependent on territorial context, historical legacy (Breznitz & Feldman, 2012) and overall entrepreneurial architecture (Salomaa, 2019). As can often be the case of universities in peripheral regions, even entrepreneurial ones, if there is a divergence between the universities’ activities and the needs of the surrounding local innovation ecosystem (Charles, 2016), it is likely entrepreneurial spillovers will remain minimal (Brown, 2016) and RIS3 processes fail to further them. Accordingly, one can speculate about a mismatch between the expectations towards the role of universities in RIS3 implementation and actual practice, and its repercussions on a regional innovation ecosystem.

This chapter reflects on an entrepreneurial university’s potential to contribute towards regional development through its involvement in the RIS3 process and resulting projects funded through SF. Empirically, it presents an in-depth case study of a university – the University of Aveiro – in a particular regional context – the less-developed Centro NUTS II region of Portugal –, aiming to address the relation between the regional government authority, the RIS3 process and the university in responding to regional needs and in fomenting the innovation and entrepreneurial ecosystem. The study strives to contribute to the debate on the implementation issues of regional policies driven by smart specialisation, focusing particularly on the role of academia.

## **BACKGROUND**

### **Knowledge-Based Innovation Policy: RIS3 and Universities' Role in Creating an Entrepreneurial Ecosystem**

Scholars from the fields of regional studies and economics have widely acknowledged innovation, in the form of creative technological discovery, as a key factor in unlocking territorial development and competitiveness (Freeman, 2002; Gibson & Naquin, 2011; Krammer, 2017; Rosenberg, 2004). As conceptualisations evolved, innovation processes transformed from more linear, chain-like technical models to more systemic frameworks that considered their spatial, organisational and institutional dimensions (Cooke, Gomez Uranga, & Etxebarria, 1997; Etzkowitz & Leydesdorff, 2000; Landabaso, 1997; Lundvall, 2010). In the latter, innovation was finally perceived as an inherently complex, interactive, territorial and combinatorial process between markets, policy, science, technology and, ultimately, knowledge and learning (Edquist, 1997; Santos & Caseiro, 2015). Territorial competitiveness, in this sense, is progressively dependent upon the generation of knowledge and the promotion of collective learning mechanisms (Morgan, 1997; Santos & Caseiro, 2015). This has been approached paradigmatically in the literature on innovation systems and the 'learning region', which brought the role of knowledge and institutions to the centrefold of these dynamic and creative innovation processes (Gunasekara, 2006; Lundvall, 2010; Morgan, 1997).

Institutional and social dimensions are thus assumed by some authors (Morgan & Henderson, 2002; Morgan & Nauwelaers, 2003; Santos & Caseiro, 2015) as equally, if not more important than infrastructural and fundamentally quantitative and economic factors in fostering territorial competitiveness and innovation, particularly in less-developed and peripheral regions. For example, regional actors should not just be able to access knowledge but also have the capacity to learn and adapt, something facilitated by relational processes (Godin, 2006; Morgan, 1997). As such, regional and innovation policies seeking to address the issue of territorial competitiveness and 'bridge the gap' between more and less-developed regions have started emphasising institutional capabilities and endogenous potential by fostering interaction among regional actors to spur collective learning.

In the European context, the recent cohesion policy framework of smart specialisation emphasises this approach (Foray et al., 2009; Fröhlich & Hassink, 2018). As the basis for interventions in research and innovation through the European Regional Development Fund (ERDF), the smart specialisation concept and resulting strategies (Smart Specialisation Strategies – S3 – or Research and Innovation Strategies for Smart Specialisation – RIS3) are now an integral part of any EU region's economic development efforts, and an ex-ante condition to access regional funds. The guiding principles of smart specialisation consider the collaborative character of innovation within a participatory process designated as the entrepreneurial discovery process. Within it a diverse set of regional stakeholders and institutions (e.g. local and regional government, industry, universities and research institutions, third sector organisations, entrepreneurs) come together to discuss and develop regional futures, progressively identifying and supporting areas of strategic potential that can generate competitive regional advantage (Foray & Goenaga, 2013). By setting R&D and investment priorities based on regional uniqueness, S3 not only inherently emphasises endogenous potential and place-based (rather than 'one-size fit all') innovation strategies (Barca, McCann, & Rodríguez-Pose, 2012), but also increases the focus on knowledge-based and collaborative innovation as a way to boost regional competitiveness and development (Santos & Caseiro, 2015). Thus, universities have been brought to the centrefold of regional innovation policies, with RIS3



highlighting them as key institutions in guiding the strategy process and the identification of regional advantages and trends (Foray et al., 2009). By helping leverage existing knowledge stock to create new regional trajectories through the diversification and upgrading of the R&D system, entrepreneurial and regionally-engaged universities, in particular, have become a critical asset for the design and implementation of RIS3 strategies to better connect with regional context and needs (Santos & Caseiro, 2015).

### **Entrepreneurial and Regionally-Engaged Universities**

Universities' roles have shifted throughout the years in the face of both external demands and endogenous processes that required their engagement with society (Clark, 1998; Etzkowitz et al., 2008). Whereas in the past their mission was that of predominantly disseminating knowledge through teaching, the concept of research-based teaching presented in the 19<sup>th</sup> century by Wilhelm von Humboldt added to universities the function of knowledge producer. More recently, expectations regarding universities' ability to drive economic development and innovation dynamics (Etzkowitz & Leydesdorff, 2000; European Commission, 2011), to anchor and combine global knowledge assets with local processes, and to create a potential for regeneration and development, particularly at the regional level (Charles, 2016), have influenced the incorporation of a "third mission" of external and regional engagement within these institutions. This typically refers to activities of social, entrepreneurial and collaborative character undertaken by universities with external partners (Etzkowitz & Leydesdorff, 2000; Zomer & Benneworth, 2011), potentiated by proximity and territorially-specific processes, and therefore more emphasised at the local and regional level (Morgan, 1997). These shifts in the academic *ethos* reflect a clear trend in institutional adaptation, a transition from knowledge for its own sake to knowledge valued by its applicable potential, and even beyond with more network-based knowledge generation/creation activities (Etzkowitz & Leydesdorff, 2000; Gibbons et al., 1994).

With society now relying primarily on (scientific and technological) knowledge to be able to compete in an increasingly globalised economy, a greater emphasis has thus been placed on a university that can contribute towards the development and competitiveness of its surroundings (Brown, 2016; Etzkowitz & Leydesdorff, 2000; Gunasekara, 2006). State agencies have increasingly sought to support "third mission" activities, to interlink knowledge producers and users, and to maximise the impact of universities in the region (Brown, 2016; Drucker & Goldstein, 2007; Etzkowitz & Leydesdorff, 2000). This is particularly the case of regional innovation policies like S3, which by considering universities' potential in building-up regional economic, technologic and institutional capacity, progressively brought them to the forefront of regional innovation and entrepreneurial ecosystems (Audretsch, 2014; Brown, 2016; Charles et al., 2014; Cooke et al., 1997).

Universities' incorporation of the "third mission" and their more pronounced role in economic development inevitably materialised in a more entrepreneurial turn (Etzkowitz & Leydesdorff, 2000), with the emergence of new functions and bodies that could facilitate the connection between knowledge and the territory. Specialised infrastructures were created for this effect, namely technology transfer offices, incubators, science parks and other intermediate facilities that could promote and manage this relationship with external entities (Brown, 2016; Jongbloed et al., 2008). This could thus stimulate the innovation system in which the university was integrated, accruing alternative funding sources and outside recognition in the process. In seeking to play a more prominent role in knowledge-based innovation processes alongside other relevant institutions in the region, like industry and the state, the university has become more entrepreneurial, more active in its interactions with other actors and in the combined performance

of its main missions (teaching, research and engagement) (Etzkowitz & Leydesdorff, 2000). As Santos & Caseiro (2015, p. 541) state, this requires universities to be imbued with a sense of discovery and risk, to approach knowledge as “an asset which can be created, developed, transmitted and valued,” and to take on a more anticipative, active and strategic role in the promotion of its transfer to society (Etzkowitz & Leydesdorff, 2000).

## **Contribution of the Entrepreneurial University to Regional Innovation**

An entrepreneurial university is thus believed to have the potential to foster interactivity and collective initiatives in a regional context (Clark, 1998; Etzkowitz & Leydesdorff, 2000), adapting its organisational architecture in the face of external demands and according to its institutional objectives (Clark, 1998; Etzkowitz et al., 2008). The regional and institutional context, such as funding availability and financial constraints, local employment opportunities, and other socio-historic factors will therefore be highly influential in defining the entrepreneurial universities’ regional role (Breznitz & Feldman, 2012; Salomaa, 2019). If the university’s entrepreneurial endeavours are disconnected or disassociated from the regional socio-economic landscape, knowledge spillovers and effective learning dynamics are less likely to occur. This is particularly the case in LDRs, where the knowledge being produced and transferred is often unable to be absorbed by the local economic and entrepreneurial ecosystem (Bonaccorsi, 2016; Brown, 2016). Despite such restrictions, universities are widely acknowledged as sources of knowledge that can stimulate the regional economy. They present and stimulate generative, absorptive, collaborative, and leadership capacities (Goddard et al., 2013) that can play a key role for innovation policy initiatives to build new niches of knowledge and have impactful and positive outcomes.

According to Santos & Caseiro (2015), the concept of the entrepreneurial university and the smart specialisation framework are mutually reinforcing and amplified. A university that pursues an entrepreneurial approach, promoting an adjusted institutional architecture and culture (Salomaa, 2019) and facilitating collaboration with regional partners, can be easily linked with the more relational and networked vision of innovation present in S3. Furthermore, by encouraging an entrepreneurial mindset and ultimately a society that stimulates a culture of “risk, search and discovery” (Santos & Caseiro, 2015, p. 541), entrepreneurial universities can more easily identify, exploit and carve out unexplored economic opportunities – a central tenet within the S3’s entrepreneurial discovery process. In turn, S3 aims to support regional innovation capabilities on pair with entrepreneurial universities by fostering actor networks and interaction and enhancing collective learning processes capable of producing strategic knowledge. Ultimately, universities’ roles in the RIS3 as relevant stakeholders and social connectors, partner institutions, policy actors and knowledge producers can be of great importance to strategy implementation, and enable the construction of a sustainable entrepreneurial ecosystem (Santos & Caseiro, 2015).

It is nevertheless important to recognise that the promotion of an entrepreneurial culture or of the “third mission” more generally within universities is not straightforward and far from reaching effective institutionalisation and operationalisation (Fonseca, 2018). The integration of entrepreneurial activities with more traditional academic functions is still incongruent and disordered, lacking clear strategic institutional alignment capable of directing such activities and with little incentives in place to support academic engagement. Despite entrepreneurialism in academia being partly driven by the need for alternative funding sources, monetary incentives seem insufficient (D’Este & Perkmann, 2011), with these activities that not being prioritised and rarely playing a role in academics’ career evaluation.

## **Can the Entrepreneurial University Help Match RIS3 to Regional Needs?**

RIS3 can be summarised as an attempt to create a regional and dynamic entrepreneurial ecosystem conducive to territorial collective learning and innovation (Santos & Caseiro, 2015). In practice, while smart specialisation has gained momentum as a policy concept and instrument (Foray, David, & Hall, 2011), it has been faced with several implementation difficulties, particularly in the case of LDRs (Krammer, 2017). More developed regions with stronger innovation and entrepreneurial ecosystems generally succeed in supporting innovation endeavours, namely in translating knowledge into the productive sector. However, LDRs can face certain shortcomings that hamper this: insufficient and/or inefficient locally-based R&D activities; a lack of absorptive capacity for R&D by local firms; and a weak or fragmented entrepreneurial ecosystem, with a lack of interaction between economic and institutional agents (Bonaccorsi, 2016; Huggins & Johnston, 2009; Krammer, 2017). More generally, RIS3 are still believed to have a weak conceptual basis, hindering the effective leverage of collective processes. Kroll (2017) highlights that current regional stakeholder participation and consultation in RIS3 cannot be rightfully called entrepreneurial discovery processes, as the bartering of individual interests still overshadows larger community-oriented visions and practice. Iacobucci (2012) warns RIS3 can tend toward ambiguity by diluting the focus on R&D-based innovation and specialisation, and that regions with weak research infrastructure may need a balanced mix of research and innovation policy to help correct infrastructural problems and simultaneously stimulate the innovation system.

In this, the presence of an entrepreneurially-veered university in a region can substantiate the current smart specialisation framework by providing the RIS3 process with key incremental organisational support, promoting an entrepreneurial culture within the region and among regional actors that can strengthen regional competitiveness and development. While this potential is present, universities' role in effectively linking the RIS3 with the regional fabric, and in developing collective learning and absorptive capabilities, is still unexplored (Santos & Caseiro, 2015). Without disregarding other actors' contribution to RIS3 and in the building of the entrepreneurial ecosystem (Santos & Caseiro, 2015), or the role of policy in creating the conditions for such a system to emerge (Huggins & Johnston, 2009), this chapter considers relevant to explore the role of entrepreneurial universities as key actors in driving RIS3 policy and in linking it with regional needs, analysing their agency in the process, in particular in the formulation and implementation stages.

### **THE CASE OF THE UNIVERSITY OF AVEIRO: RESEARCH AND INNOVATION POLICY AND REGIONAL PRIORITIES**

This section focuses on the participation of an entrepreneurial university in the RIS3 strategy process. It considers the engagement in both the formulation and the implementation stages of the process to provide a more comprehensive view of a university's influence on the policy's orientation, its own adaptation to the strategy and, its contribution to its application. While it discusses the issue of universities' contribution towards matching a RIS3 to regional needs in a specific institutional and geographic context, the intent is to draw theoretical reflections and policy lessons that will allow for broader consideration.

A single case-study approach was deemed fitting by the authors given its potential for more in-depth exploration (Flyvbjerg, 2006). The University of Aveiro (UA), in Portugal, was chosen for three main reasons. First, it is a relatively young university that has assumed a strong connection to its region since

its creation in the 1970s, embodying an entrepreneurial discourse and approach in regional engagement. Second, its location in the peripheral and less-developed regions of Centro (NUTS II) and Aveiro (NUTS III) provides a useful context to explore the matching of entrepreneurial and innovative activities with regional needs in an LDR, where there may be shortcomings in infrastructural, institutional and connective capabilities. Third, UA has been increasingly active and involved in regional innovation policy and SF projects at regional, sub-regional and local level, engaging often as a relevant partner to government authorities and other relevant institutional stakeholders. More prominently, and as will be discussed in this chapter, UA has participated in the RIS3 of Centro region for the period 2014 to 2020, and has partnered with the sub-regional authority of Aveiro region – the Intermunicipal Community of the Region of Aveiro (CIRA) – in the design and management of SF for two territorial development strategies in the periods of 2007-2013 and 2014-2020.

Concretely, this chapter draws on data from the Centro regional authority (CCDRC) concerning projects financed by the Portugal 2020 programme (supported by the ERDF, and therefore S3) from 2015 to 2019. The available data (CENTRO 2020, 2019), last updated on March 31<sup>st</sup>, 2019, provides information on the set of supported innovation projects, namely their geographical and sectoral distribution, the partners involved and the volume of allocated funding. It thus permits investigating the extent to which the projects match the specialisation domains of the RIS3, as well as the nature and focus of universities' involvement. Complementing this is a qualitative analysis of 31 semi-structured, in-depth interviews with key actors within the university and the regional (CCDRC) and sub-regional (CIRA) administrations, conducted by the authors in Spring and Autumn of 2018. Discussions centred on the extent and nature of UA's engagement within these strategies, particularly the RIS3; UA's institutional and organisational adaptation in the face of its engagement in regional innovation policies; and, finally, the dynamics of UA's participation in RIS3 Centro-funded ERDF projects. The interviews cover 21 projects funded from the scheme, 10 of them small-scale grants for intellectual/industrial property projects, mainly covering patent costs for promising research outcomes. These were centrally applied and managed by UATEC, UA's technology transfer office. The other UA-led projects vary from large-scale initiatives within regional "platforms", to small and medium size projects with a stronger regional focus. Two of these projects strive to reinforce internationalisation by encouraging researchers to bid for grants from Horizon 2020, whereas the others have stronger links with external stakeholders such as local businesses and government authorities.

## **Brief Picture of the Regional Context**

The Centro region (Figure 1) is located in the central-most area of continental Portugal, benefitting from a strategic positioning between the country's major metropolitan centres – Lisbon, the capital, and Porto. Centro is one of seven Portuguese administrative regions, corresponding to the NUTS II European statistical subdivision, and encompasses approximately 30% of the country's total area, with a population of over 2 million inhabitants (European Commission, 2019). This population is unevenly spread out throughout the region, with a greater density in the more urbanised coastal areas (like Coimbra, the region's capital, and Aveiro), and a characteristic 'desertification' of the more rural interior, except for some urban centres (e.g., Viseu, Castelo Branco).

In economic terms, its GDP corresponds to roughly 19% of the national one, but its purchasing power is still below both national and European averages (European Commission, 2019). It is considered an LDR in a country that is, nevertheless, a moderate innovator, according to the EU's Regional Innovation

*Figure 1. Map of Portugal displaying nuts ii statistical divisions and the nuts III Aveiro Region*



Scoreboard of 2018. Given that the region encompasses a great territorial area, Centro benefits from a rich variety of (natural) resources that have contributed to its economy becoming relatively diversified. It is both competitive in low technological industrial sectors – like ceramics, agro-food and forest industries – and increasingly in medium to high-tech sectors – namely ICT, biotechnology and health, renewable energies – which are bringing new applications to more traditional industries (Rodrigues & Teles, 2017).

Centro is the third highest ranked region in Portugal in gross expenditure on R&D with growing investment over time (European Commission, 2019). In this, its economy and innovation-related endeavours, Centro owes a lot to its higher education institutions, which include three universities – the University of Coimbra (UC), University of Beira Interior (UBI) and University of Aveiro (UA) – five public polytechnics and many other private education and research institutes. Nearly half of the R&D expenditure in the region results from activities implemented by higher education institutions, with businesses following suit and lastly government and other private institutions (European Commission, 2019).

Not following a regionalised tradition, Portugal's central government is the one responsible for regional development and, in the most part, for the definition of research and innovation policies. Regional commissions, such as the CCDR of Centro, possess administrative and financial autonomy but are merely decentralised bodies of the central government. Their competencies include, nonetheless, regional and urban planning and development, environment, inter-regional and transnational cooperation, and the management of financial instruments and EU programmes based on funds allocated to Portugal (European Commission, 2019). The RIS3 Centro is one such instance. By designing a RIS3, the region can access ERDF, and aim to enhance its overall performance in GDP and R&D in the national context and reinforce internal territorial cohesion and resilience (European Commission, 2019). To achieve this, and together with regional stakeholders, eight strategic priorities have been defined in RIS3 Centro, linked to the above-mentioned main regional industrial sectors but also including sea-related economic activities and tourism. Combination of these areas has been promoted through three main transversal scopes: i) sustainable industrial productivity; ii) energy efficiency; and iii) rural innovation (CCDRC, 2014b). The 2014-2020 RIS3 was implemented within the overarching CENTRO 2020 strategy, which had around €1.8 billion of European Regional Development Funds (ERDF) and €404 million European Social Funds (ESF) to work with (European Commission, 2019). Within this (CCDRC, 2014a), ten priority axes were defined to orient investment, namely:

1. Research, development and innovation (IDEIAS);
2. Competitiveness and internationalisation of the regional economy (COMPETIR);
3. Develop human potential (APRENDER);
4. Promote and stimulate employability (EMPREGAR and CONVERGIR);
5. Strengthen social and territorial cohesion (APROXIMAR and CONVERGIR);
6. Affirm the sustainability of resources (SUSTENTAR);
7. Affirm the sustainability of territories (CONSERVAR);
8. Reinforce institutional capacity of regional entities (CAPACITAR);
9. Reinforce the urban network (CIDADES);
10. Technical assistance.

According to the available data set of CENTRO 2020's funded projects (CENTRO 2020, 2019), from 2014 until March 2019 an open call process yielded the approval of 5166 projects to a total funding of €1.303.231.907,03. While the majority of these were granted to the private sector (Figure 2 and 3), other regional bodies, like scientific and knowledge institutes and sub-regional and local government authorities, were able to become main beneficiaries in these projects. Intermunicipal communities, in particular, having been allowed since 2008 the partial management of regional funds provided their elaboration of a territorial development plan, emerged in this 2014-2020 period as major actors in RIS3 project management and fund implementation, granting local government nearly 20% of the allocated funding (Figure 2).

While territorial cohesion was one of the main goals in the elaboration of the RIS3, the data still demonstrates the existence of an asymmetry in fund allocation (Figure 4), a result of coast-interior economic disparities. Sub-regions like Aveiro, Coimbra and Leiria, benefitted from more developed industrial and service sectors, as well as institutions – such as UA and UC – capable of providing greater support to innovative initiatives. At the exception of the sub-region of Beiras e Serra da Estrela, where the UBI has made efforts in stimulating the surrounding economy, the other more rural and peripheral regions were inevitably at a disadvantage in the attraction of investment.

## Entrepreneurial Universities and Regional Innovation

Figure 2. Centro 2020 distribution of approved funding by organisation type

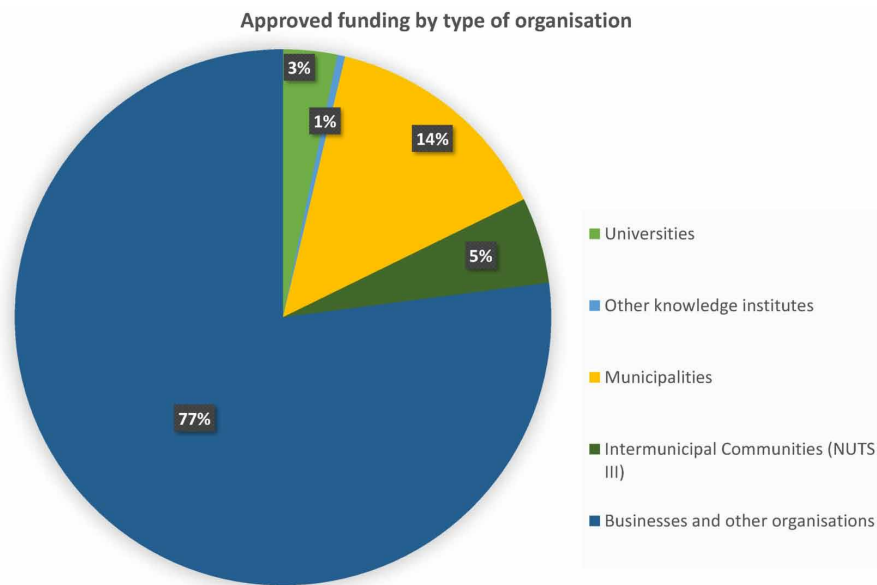
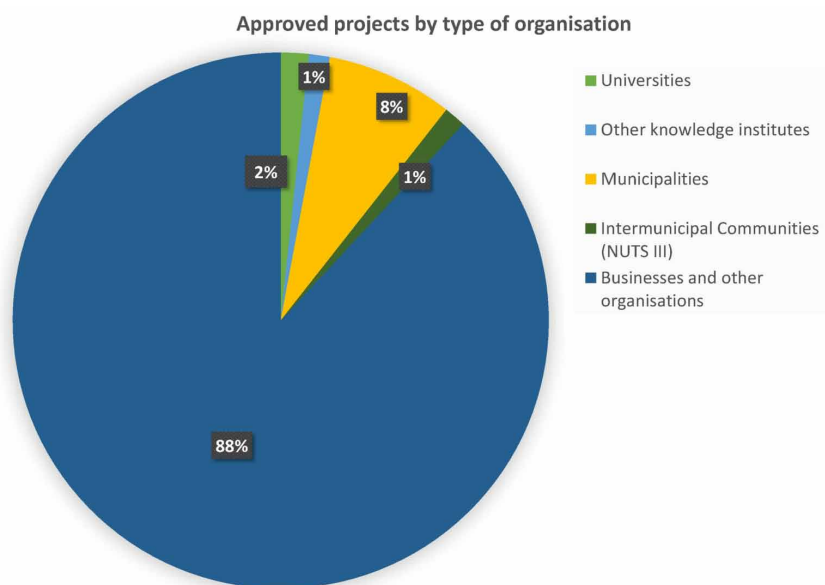
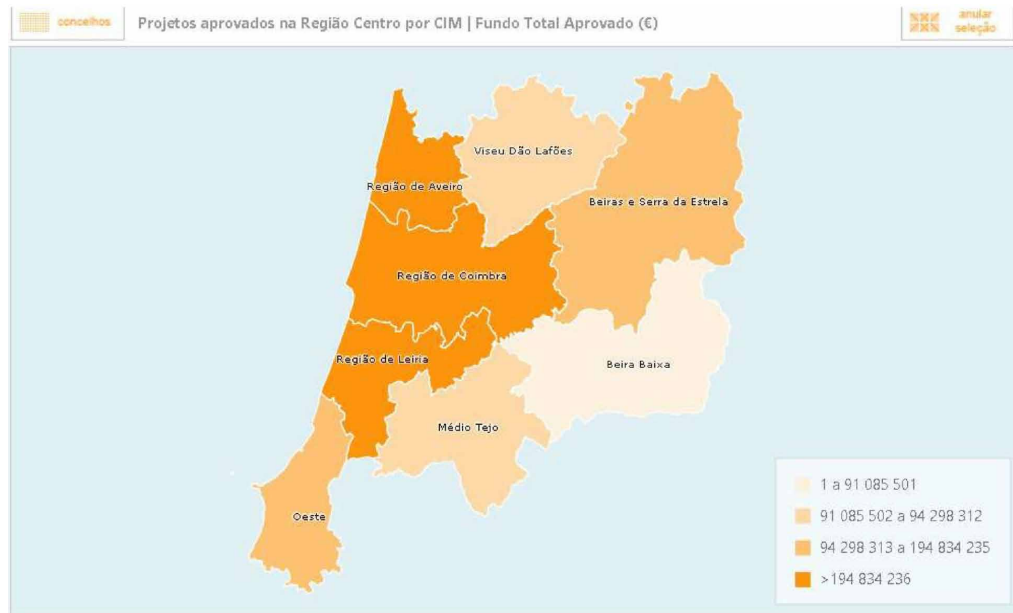


Figure 3. CENTRO 2020 distribution of approved projects by organisation type



*Figure 4. Distribution of approved funding (€) in the Centro region by Nuts III*  
 Source: Centro 2020 (2019)



### **Universities in the RIS3: UA's Engagement, Alignment and Entrepreneurial Practice**

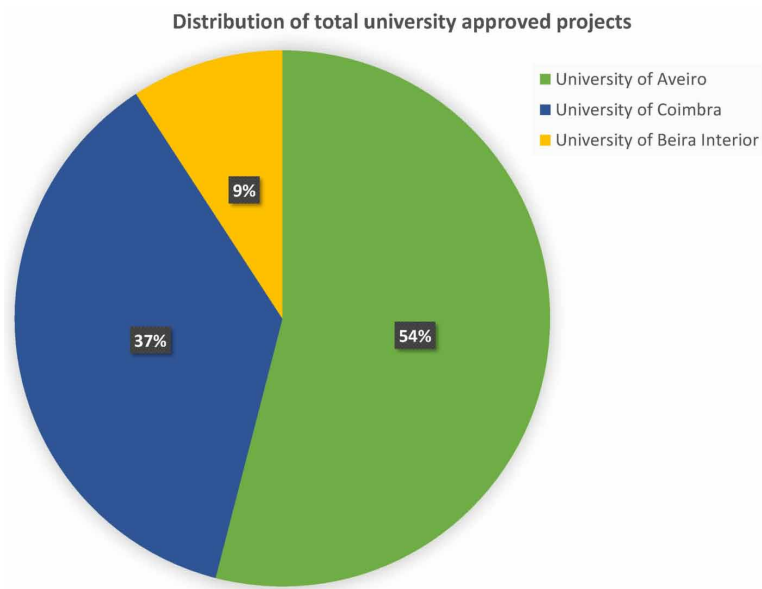
Considering knowledge institutions and, particularly, universities as central actors in the S3 and overall regional innovation policy process (Foray et al., 2009), it is curious to observe that in the Centro region, these bodies were only the main beneficiaries in 3% of the projects and 4% of the allocated funding. Their role in the process, nevertheless, cannot be solely perceived by this factor. Their engagement in the strategy's formulation and involvement in projects where they were not necessarily the leading actor, should be explored as well, and that is how the authors approach the case of UA. First, dissecting the capture of RIS3 projects and funding of each of the three Centro region's universities, there is a clearer competition between UA and UC: while UA was able to attain the approval of more projects (47 projects in total), with less projects the UC was granted more funding (Figures 5 and 6). The UBI has, so far, accrued the less projects and funding. This dynamic can be partly explained by historical, contextual and institutional aspects.

Of the three universities located in the Centro region, only the UC is over 50 years old. It was created in the late 13<sup>th</sup> century and is one of the oldest universities in Europe. Unsurprisingly, it is a pivot in the Portuguese higher education (and political) system and has been associated with a more traditional academic orientation. On the other hand, UA and UBI are two young entrepreneurial universities created in the 1970s, a time of massification and restructuring of higher education in Portugal, and as a result of a need for innovative alternatives in a period of industrial decline. This beginning led UA and UBI to structure their organisations to respond to new academic and societal challenges, and thus become more entrepreneurial. In the case of UBI this was nevertheless more difficult to accomplish, as its surrounding region faces characteristic problems of the Portuguese interior: ageing population and insufficient infrastructure and communication links that hinder the formation and stimulation of an innovation system.

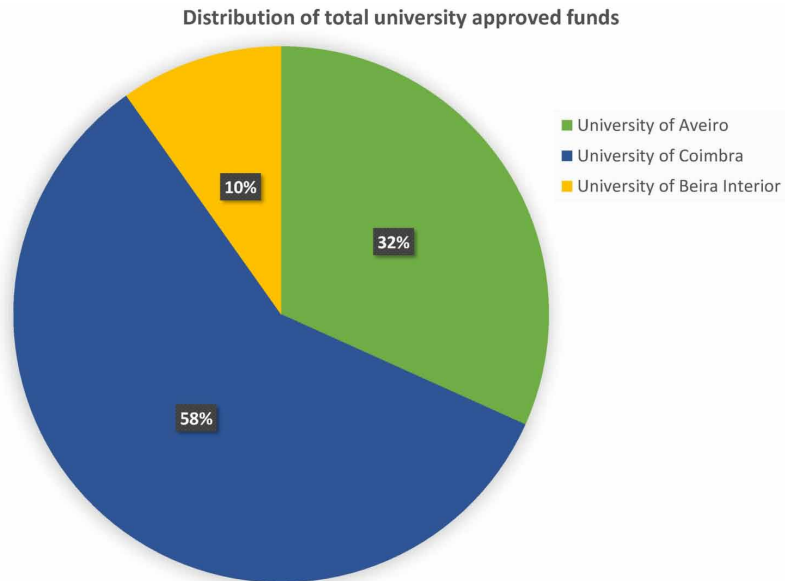


**Entrepreneurial Universities and Regional Innovation**

*Figure 5. Centro 2020 distribution of university-led projects by institution*



*Figure 6. Centro 2020 distribution of university-led project funding per institution. author's own analysis*



Focusing on UA, as an interviewee confessed, “we can say that university of Aveiro from the beginning, from its origin was much more outward looking to its regional ecosystem, let’s say, than the others.” Its creation was the result of local lobbying for a knowledge institution that could revitalise and support the increasingly stagnant industry. But it was nevertheless an already highly-industrialised coastal region with good links to the main economic and knowledge hubs: Porto, Coimbra and Lisbon. Its implantation was also accompanied, in the same decade, by the opening of the Innovation Centre of Portugal Telecom in the city of Aveiro, in whose facilities the university started its activities. UA’s initial regional orientation inevitably became strongly defined by regional needs and industry demands, with a focus on characteristic regional sectors (e.g. ceramics and materials, agro-food), and new areas of scientific and technological potential (e.g. ICT, sea and environment, tourism, biosciences and pedagogy) (Rodrigues & Teles, 2017). To support this, UA has created several interface units to build its academic strengths and stimulate entrepreneurial endeavours. Namely, the Office for University-Business relations, that has created a portfolio of university resources and contacts available for firms; UATEC, a more proactive structure that has sought to strengthen internal coordination and external network collaboration; key management positions and boundary spanners, like the Vice-Rector for University-Society relations and the Pro-Rector for Regional Development, the latter specifically responsible for managing cooperation with government authorities; and other bodies like the incubator and the new science park that are helping to promote technology transfer and business creation.

Besides the more common university-business relationship within the entrepreneurial framework, UA has also been consistently and increasingly engaged with the local and regional government. This is more evident in its consultancy work with surrounding municipalities and in its partnership agreements with CIRA, which sought UA’s collaboration in developing two territorial development plans for the periods of 2007-2013 and 2014-2020 (Fonseca, 2019; Rodrigues & Melo, 2013; Rodrigues & Teles, 2017). The university was thus well-positioned to significantly contribute to the RIS3 policy process and engage more extensively with its immediate region to maximise the outcomes. UA was involved in the regional and sub-regional policy formulation stages. In the RIS3 process, it was present as a stakeholder at the table to assess opportunities in the territory and guide the discourse. Namely, UA participated in several thematic and working groups that advanced the discussion on the priority sectors and transversal areas of RIS3, specifically leading the working group and RIS3 platform on Sustainable Industrial Solutions. Interviewees unanimously considered UA as one of the most active and participating stakeholders, designating representatives to all working tables. One interviewee from CCDRC presented some reasons as to why UA’s role in the RIS3 might have been so relevant:

*Aveiro had a strong role, not just as a university, but... a lot of the companies and some of the autarchs were connected to Aveiro. For example, to discuss ICT, I know that a lot of people from Aveiro participated, both from the university and the pole that is physically situated in Aveiro. (...) Aveiro is also a region that has a strong component of science and technology. It has some of the competitiveness poles that were invited to participate in RIS3. So, it had already people that were perhaps more aware of the RIS3 discussion dynamics.*

The existing entrepreneurial fabric within the Aveiro region, and the heightened connectivity between it and the university, therefore created the opportunity and the entry points for the university to be more engaged within the policy process and shape the emerging discourse. As another interviewee stated, “[The University of] Aveiro benefits from being more integrated in the regional ecosystem”. They go on

to give the example of UA's commitment to the region in the form of its close partnership with CIRA, considering it as a "meaningful" demonstration of the university's active support and effort in aligning the regional policy at multiple levels.

UA's organisational structure was also highlighted as a facilitating factor for more strategic and unified dialogue between the institution and the regional authority. Specifically, UA has no faculties. Instead, it is endowed with a 'matrix structure', in which above the departments there is only the rector. This allows, according to an interviewee, for a clearer direction and alignment between the management level and the rest of the university, as "messages flow much more smoothly to the departments and it's easier to engage." Internally, UA has chosen to adapt to the S3 framework by creating eight so-called "technological platforms", cluster-like networks for regional engagement and project stimulation, focused on the themes defined within the RIS3 Centro and its own disciplinary strengths (e.g. sustainable habitat, agro-food, sea, smart communities, moulds and plastics). While the CCDRC has still not integrated these platforms within its overall plan of action, their creation was associated with regional priorities, and it was an adaptation where UA remains at the vanguard of other Centro universities.

Therefore, it appears that in the early stages of the process UA played a relevant role by not only seeking to participate in the dialogue between stakeholders organised by the CCDRC for the RIS3 – i.e. the entrepreneurial discovery processes – but also in creating and promoting this interchange and connectivity in its immediate surroundings, namely by its cooperation with CIRA and the creation of organisational structures to support knowledge transfer and network collaboration (e.g. technological platforms). For interviewees from the CCDRC, this interaction, paired with the transmission of expert knowledge and the promotion of learning dynamics, was the most important contribution of universities in the RIS3, and their main aim with the process. It was also a big advantage in the project proposals that included universities. According to an interviewee, "[universities] understood better than others how they should present their projects, and that to align themselves with RIS3 they needed to state how what they were proposing could have an impact. We are not experts in those small, these specific scientific fields." Ultimately, UA was the main beneficiary in 47 RIS3 projects, mainly within the priority axes of IDEIAS, COMPETIR, and APRENDER, the three most related with research, education and competitiveness, emphasising their role in stimulating regional knowledge-based innovation. With these projects UA accrued € 13 488 934,37. Nevertheless, through their partnership with local municipalities and CIRA, they became involved in cultural and natural heritage and digitalisation projects relating to the axes CONSERVAR and CAPACITAR, which on their own granted funding of over € 4 million. In this sense, the degree of UA's regional engagement through the RIS3 Centro appears much more diversified.

### **Implications in Implementation**

Historically, SF instruments have been an important source of funding for universities in the Centro region and, particularly, for UA. As one interviewee remarks, they have enabled significant investments for capacitation and the upgrading of infrastructure and resources: Many things were constructed, like the incubator, many labs in all the universities of the region, Aveiro, Coimbra... research centres that are associations of universities and companies, all funded by FEDER in the last 30 years.

Nevertheless, while this same investment has improved UA's entrepreneurial capacity to connect to its region, there has been a shift not only in the availability of funding, but also in the way this funding and projects is viewed within the academic institution. Although there is currently more emphasis regarding research and development projects over capital/infrastructure projects, SF from CENTRO

2020 are being resorted to more as a question of ‘survival’ of the academic institution rather than as a means of reinforcing institutional engagement with regional development activities. This has made the latter somewhat unimportant on both an institutional and individual level. Interviewees suggested that the reinforcement of entrepreneurialism has translated into an almost forceful pursuit of funding for academics to maintain their position: “you have to fund yourself and that’s it.” That same ‘survival’ through SF funds was echoed throughout the institution, where “the orders are that the university should go for anything we can” or otherwise “many things would stop. Because there is no budget for research.”

There is an evident, stronger push from the university to apply for external funds, and CENTRO 2020 was considered one of the most accessible funding sources. ERDF funding was seen by academic interviewees as a valuable tool to interact with local SMEs. However, a number of challenges associated to its utilisation by UA still remain, from academics lacking the skills to collaborate with businesses (“to change your paradigm as a scientist, to think about the productive sector, it is a huge challenge”), to UA not viewing collaboration as valuable as researchers would hope (“...the ultimate mission of knowledge institutions, which is to bring to the productive sector the knowledge generated in the university, I think that this is not valued”). Academics’ motivation to engage with local stakeholders and respond to regional needs thus greatly varied. Whereas some researchers sought to engage with regional development projects to give back to the community, serve local companies and transfer academic results, others did not distinguish between regional, national or even international project activities. As one interviewee admitted, “the origin of the money does not matter much”. They also pointed out that “what really counts is the possibility to establish networks”, which suggests the establishment of collaborative partnerships with other actors is seen as relevant for increasing the success of project bids, the quality of research and, somewhat, for the continuation of innovative endeavours.

The unimportance of regional engagement activities was also explained by a lack of strategic management, accompanied by cultural issues and its insignificance in universities’ national evaluation framework. However, in many cases personal commitment and the ability to understand regional needs, to “speak the language of the people in the region – and translate the position of the university to the municipalities,” was considered a key feature in establishing projects and collaboration with stronger regional focus. According to interviewees, building a strong relationship with local authorities required individual engagement and commitment, and a lot of effort on UA’s part. Today, these links are more established.

Even though UA has been one of the key players in the RIS3, interviewees found that the regional strategy was not well communicated from the top-level. While UA’s matrix structure could have allowed for a broader informed interest, integration and coordination regarding the policy’s progress, due to a lack of strategic planning and effective management many academics are not considering S3 relevant or they are unaware of what it entails. Nonetheless, researchers involved with SF projects have articulated the potential regional impact of their research activities in the bidding phase. This was considered a good exercise for increasing academics’ mindfulness of societal needs as well as a way to establish a closer connection with the community.

Frequently highlighted regional benefits of SF projects’ activities included promoting research, providing information for policy-making processes, developing links with businesses and job creation, especially in regional priority sectors like ceramics and ICT. Part of the UA-led CENTRO-FEDER projects have propelled grassroots endeavors and multidisciplinary collaboration around these themes, both within UA and with external partners. SmartWalk<sup>1</sup> is a positive example of a student-led initiative growing into a bigger project in the health sector:

## **Entrepreneurial Universities and Regional Innovation**

*We are in the health department; we work with them (public sector). UA chose to intensify this cooperation with hospital and primary care. I think it's important, maybe because it's my area, to also intensify the social care. Because they really need technologic solutions.*

Such projects were considered beneficial for the region, but typically their continuation after the pilot phase – and more importantly, the end of the project funding – depends on local agents' commitment. Ultimately, while SF funding opportunities can make “universities keener to cooperate with regions and regional agents,” in practice, the regionally-funded SF projects were not perceived as very aligned with RIS3 objectives. The latter also have a minimal role in the projects' design; only larger scale institutional initiatives had a somewhat strategic approach to regional development, whereas smaller SF projects were designed more opportunistically by individual researchers. One of these large-scale institutional initiatives designed at the rectory level – CENTeR – focuses on communities' role in innovation processes. It was described as a successful example of an entrepreneurial discovery process to scale up a certain a regionally relevant substance area. This contrasts with smaller, more specialised SF projects focusing on fundamental research. As one of the interviewed UA researchers stated, “there's always, always a box that we need to fill in, trying to mention and justify why this research is aligned with the RIS3... I really don't believe that it has an impact.”

In some CENTRO 2020 calls, there are limitations about the amount of applications per institution, which can create internal competition, but also lead to more collaboration. As one researcher admits, “if it wasn't for this funding opportunity, we would not be working together (internally) as intensively as we are now doing.” On the other hand, it can also force universities to manage project portfolios more strategically in the future. Some of the interviewees believed that this strong relationship with government authorities has had an impact on the amount of granted project funding:

*There is a really good relation between the university and CIRA, and the city [of Aveiro], a very good one. And that type of interaction helps us to get structural funds. Because we understand the reality and they understand the HEIs' role. And perhaps it's one of the reasons that we have so many SF projects funded.*

Interviewees agreed that the knowledge UA has provided to both regional and sub-regional entities has played an important role in improving collective learning, particularly considering that more scientific and technical language of innovation is not these authorities' central domain. Nevertheless, they suggest there is still a lot of work to be done in optimising communication. Ultimately, the steering impact of regional funding instruments was repeatedly emphasised and considered positive as SF programmes are promoting new ways of collaborating and pushing academics to work more closely with their regions. As a UA professor remarked, “the most effective way of putting universities to work according to the direction of S3 is through funding. It's the only way, I think.”

## **Challenging Entrepreneurial Universities' Regional Impact**

The role of entrepreneurial universities in stimulating regional innovation has been widely emphasised in the literature, particularly for their capability in valuing knowledge and translating it into a useful asset for society. This chapter sought to understand if, in a context of smart specialisation in which regional priorities, knowledge-based innovation and collective learning mechanisms are being prioritised, the

entrepreneurial university emerges as a key actor in the process. Particularly, if the regional potential of an entrepreneurial university is furthered or realised in this policy framework, namely through its effective collaboration in the RIS3 policy formulation process and in the implementation of the resulting projects.

Within the RIS3 Centro process analysed, knowledge institutions, but especially universities, were considered key actors, and they were integrated as much as possible in the entrepreneurial discovery process being carried out. Some universities had the capacity or the will to do so more than others, and UA was seen by interviewees as standing out in this aspect. These opportunities for universities and other stakeholders to interact within this entrepreneurial discovery process organised by CCDRC allowed for the establishment and/or the strengthening of networks, observed by interviewees within the regional authority as later leading to projects.

In the implementation stages, UA can also be considered as possessing the organisational structure and institutional partnerships needed to maximise its gains in SF and manage its involvement with other regional actors. Aside from the bodies and infrastructure already in place within the university that had been supporting its entrepreneurial activities throughout the years – e.g. UATEC, the incubator, the University-Business office and the Pro-Rector for Regional Development – others were created specifically to answer the challenge being posed by the S3 framework and the regional authority – namely UA's Technological Platforms, and more recently, the science park, which aims to be a connecting point between regional stakeholders.

Regarding projects in which UA was involved in, it is possible to draw some lessons about the impacts of these innovation endeavours in regional development:

1. UA was able to leverage its own internal resources and regional capabilities to influence the RIS3 entrepreneurial discovery processes and increase the probability of getting projects funded. This was enabled by its established regional ties and the dedication of key boundary spanners within UA and partner organisations.
2. SF projects were found to promote (even basic) research, job creation and university-business links in regional priority sectors, and encourage evidence-based policy. Nonetheless, fundamental research projects were found to be forcefully and opportunistically 'shoved' into the RIS3 box, questioning researchers' projections of regional impact.
3. Funding often enabled grassroots projects to scale up (e.g. SmartWalk), and garner multidisciplinary collaboration. This can be a way of promoting regional engagement in the broader academic community. However, while considered regionally beneficial, such projects often end after the pilot phase, with their sustainability dependent on local partners' commitment.
4. Larger scale projects were more strategically aligned to RIS3 and purposefully designed for sustained regional impact (e.g. CENTeR). Smaller projects tended to be more individualistic (focused on one researcher, unit or field, rather than multidisciplinary) and opportunistic ('stretching' the project's alignment with RIS3 goals to get funding). Collaboration may thus result in more effective planning and accountability.

Ultimately, UA was the main beneficiary in 47 CENTRO-FEDER projects, but it was its multiple partnerships and agreements with other regional actors, particularly with CIRA and local government, that enabled it to be a partner in a few other projects throughout the region. Through them, UA contributed not only to projects within the more common academic scope of education, research and innovation, but also to those within the areas of sustainability, environment, culture and public services. Its connection

to the region, and its interaction with multiple local actors, allowed it then to upgrade regional R&D and knowledge assets and to diversify its natural range of action to respond to regional needs in a more comprehensive manner. This follows Brown's (2016) and Santos and Caseiro's (2015) argument that entrepreneurial universities should expand their activities to realms beyond those typically associated with commercialisation and technology transfer. Instead, and especially in LDRs and peripheral regions, the involvement of universities in institutional capacity-building can be fundamental for more directly matching regional priorities and funding with regional needs (Fonseca, 2019).

There are, nonetheless, hindering factors in UA's contribution to the implementation phase of RIS3 that can potentially be expanded to universities in other contexts. While SF, and the projects thus supported, have been historically important for UA and other universities in the region, enabling investments in the capacitation and upgrading of infrastructure and resources, there are insufficient institutional mechanisms and culture that can enable their linkages with a regional mission. There is a push at the institutional level for academics to apply for such project funding, but this is viewed as opportunistic and necessary for the survival of their research, and in no way related to a pursuit for a strategic orientation to regional priorities. Ultimately, communicated strategic planning regarding regional engagement is lacking from the institutional level, leaving academics' engagement endeavours feeling 'scattered' and lacking concrete long-term impact.

There is, nonetheless, potential for the 'combination' of entrepreneurial universities and RIS3. Interviewees believed that the required consideration of impact in the SF bidding process was a much-needed prompt for academics to reflect societal needs and outreach. It was also widely agreed that SF projects helped promote research, developed links with businesses, and provided crucial information and knowledge for policy processes. Even though all UA-led SF projects might not have been intentionally directly aligned with RIS3 objectives, despite such expectations in the strategies and funding guidelines, especially when the university itself has engaged in the policy-design process, the wide-range of benefits can sustain the argument that they served to substantiate UA's regional engagement and even the current S3 framework. The lingering interactivity present in UA's surrounding region was enhanced as a result of this policy intention set with the RIS3, that provided a clearer direction to regional needs. In turn, UA provided the key organisational support and played a role in building the needed institutional capacity to implement RIS3, echoing Fonseca (2019) and Fröhlich & Hassink (2018) conclusions. UA's efforts to support the entrepreneurial ecosystem and stimulate collective learning, and the positive impact of its projects, suggest the university provided RIS3 with more much needed tools for what is the first specialisation period.

### **From Policy Discourse to Integrated Collective Learning**

The strategy processes initiated with RIS3 are still in the beginning stages of what is an experiment of spurring collective vision-definition for a region. One of the interviewees stated that it was unclear for anyone involved "how that definition was going to relate with the design and implementation of the funds", leading regional authorities to often seek to "maintain the maximum space possible to accommodate what was their maneuverability for the implementation of the community framework programmes." Therefore, it is pressing to understand if the rhetoric of valuing endogenous resources, of defining and identifying regional opportunities through the pursuit of collective network processes for knowledge-based innovation, is being translated into practice. As a key actor in stimulating these processes, the

entrepreneurial university (namely UA) was chosen for this analysis, as through its multidisciplinary and varied engagement mechanisms it had the greatest potential in bridging this dichotomy between discourse and practice. While the data suggests this, there is a need for further work to attain this:

1. Enhancement of communication, so it is more frequent and effective about regional strategy/objectives. Most academics were unaware of the smart specialisation framework and its particularities in the Centro region. In Centro, regional actors were uninformed about achievement of RIS3 goals and the overall development of the process. The clarification of what the regional authority expects of each actor could boost participation and accountability. Enhancing communication both within the university and between it and all stakeholders and regional actors on RIS3 objectives and the development of the policy process could allow for better actor integration throughout the process and permit more effective and strategic coordination. It is a task of not only the regional government authority, but also of each institution involved. Universities, given their loosely-coupled character, would find in this a worthy challenge that could define an oriented regional mission and promote internal interactivity.
2. Foster the involvement of often-excluded actors in order to avoid individual interests and ‘monopolies’ to overshadow community-oriented visions and practice. In the case of this chapter, an excluded actor could refer to the UBI, a university in a peripheral and less-favoured setting that faded in its involvement relative to the other universities. It could also extend third sector organisations or other actors that do not benefit from being a part of a dynamic entrepreneurial network and region, but that can nevertheless bring something to the table.
3. Emphasise the collective and immaterial benefits that can emerge from the strategy process, namely the fostering of collective learning dynamics, of which territorial competitiveness is often dependent on. Promote stakeholder linkages that go beyond economic outcomes and that present a pedagogical and innovative approach to their interactions and projects, in order to build wider institutional capacity.

For universities, the main key lesson to consider is the need for a strategic orientation for regional engagement from the institutional level (i.e. top-managers). While UA entertained a regional connection from its creation, this discourse often clashes with the more strategically defined and goal-oriented teaching and research missions. If regional engagement was given institution-wide objectives (e.g. 30% of overall projects including regional collaboration and/or regional impact) and incentivised (e.g. providing schedule flexibility for academics more oriented towards engagement to be able to focus on such projects) (Fonseca, 2018), academic projects might consider effective regional impact and go beyond mere questions of “survival” and “opportunism”. Benefits from regional engagement also need to be stressed, namely the opportunity for networking and sustained collaborative activities and for the creation and improvement of the innovation and entrepreneurial ecosystem.

## **FURTHER RESEARCH DIRECTIONS**

Further study to complement this assessment could comparatively explore each actor’s role within the RIS3 process to evaluate their impact in promoting dialogue and the strategy’s implementation. Similarly, a more granular, in-depth analysis of each funded project led by the university has the potential to



identify further organisational constraints and provide a detailed evaluation on the effective impact of these projects on regional development. Lastly, an analysis of other universities in other contexts where RIS3 is taking place would enrich the debate and strengthen reliability of the findings.

## **CONCLUSION**

The results obtained from this analysis allow for an overall assessment of the level of involvement of an entrepreneurial university in the RIS3 process, and how this played a part in matching the S3 domains with regional needs. They also weigh on the contribution of entrepreneurial universities to the general and fundamental goals of the RIS3 approach, drawing lessons for public policy and opening the discussion on the future of RIS3 in EU regional policy. As such, the chapter addresses the extent to which the role played by universities in a region's innovation and entrepreneurial practice matches smart specialisation strategies to regional needs.

The case of the University of Aveiro, located in the Portuguese Centro region, enabled the furthering of this debate as it provided a perspective of an entrepreneurial university within the context of an LDR, that nevertheless strives to actively engage in the regional policy process. Observed difficulties include the promotion of an effective link between regional domains defined within the regional policy to the academic community, as university's institutional strategic and engagement mission is not always communicated and operationalised successfully. It is possible to discern the inefficiency of certain institutional mechanisms that may be hindering regional engagement, particularly in the framework of entrepreneurial universities. Nevertheless, the S3 framework and the funding therein provided seems to have contributed to more directly link UA's research to regional needs, going beyond this chapter's initial propositions. In turn, the university's strong local partnerships enabled it to more effectively leverage the received funding, and advanced and diversified its action throughout the region, ensuring the promotion of a more dynamic entrepreneurial ecosystem and collective learning.

There are, therefore, clear and broad benefits to be had in entrepreneurial universities' more active involvement in the RIS3 process. While UA benefitted from an early connection to the region, it sought to build upon this by linking its infrastructure and organisational bodies to regional priority areas. This has permitted it to distinguish itself from other universities in the region, in the country, and to be a renowned institution in those same key areas (e.g. ceramics, ICT, sea and environment). Other universities that might lack either the infrastructure or a strong regional network may benefit from this example by defining a regional strategy that can allow them to prioritise on a few key strengths and contacts. This network can then be developed with the proper commitment. But it is nevertheless important to emphasise the role of effective institutional mechanisms, culture and of the diverse set of actors that complement this work.

## **ACKNOWLEDGMENT**

This project has received funding from the European Union's Horizon 2020 research and innovation programme under Marie Skłodowska-Curie grant agreement No. 722295.

## REFERENCES

- Audretsch, D. B. (2014). From the entrepreneurial university to the university for the entrepreneurial society. *The Journal of Technology Transfer*, 39(3), 313–321. doi:10.1007/10961-012-9288-1
- Barca, F., McCann, P., & Rodríguez-Pose, A. (2012). The case for regional development intervention: Place-Based versus Place-Neutral Approaches. *Journal of Regional Science*, 52(1), 134–152. doi:10.1111/j.1467-9787.2011.00756.x
- Begg, I. (2016). The economic theory of Cohesion policy. In *Handbook on Cohesion Policy in the EU*. Edward Elgar Publishing. Retrieved from <https://www.elgaronline.com/view/9781784715663.00016.xml>
- Bonaccorsi, A. (2016). Addressing the disenchantment: Universities and regional development in peripheral regions. *Journal of Economic Policy Reform*, 1–28. doi:10.1080/17487870.2016.1212711
- Breznitz, S. M., & Feldman, M. P. (2012). The engaged university. *The Journal of Technology Transfer*, 37(2), 139–157. doi:10.1007/10961-010-9183-6
- Brown, R. (2016). Mission impossible? Entrepreneurial universities and peripheral regional innovation systems. *Industry and Innovation*, 23(2), 189–205. doi:10.1080/13662716.2016.1145575
- CCDRC. (2014a). *Programa Operacional Regional do Centro 2014-2020* (p. 48). Retrieved from <https://www.portugal2020.pt/Portal2020/Media/Default/Docs/Programas%20Operacionais/BROCHURAS%20PO/BrochuraCentro2020.pdf>
- CCDRC. (2014b). RIS3 do Centro de Portugal: Estratégia de Investigação e Inovação para uma Especialização Inteligente.
- CENTRO 2020. (2019). Projetos aprovados. Retrieved <http://centro.portugal2020.pt/index.php/projetos-aprovados>
- Charles, D. (2016). The rural university campus and support for rural innovation. *Science & Public Policy*, 43(6), 763–773. doi:10.1093/cipolcw017
- Charles, D., Kitagawa, F., & Uyarra, E. (2014). “Universities in crisis?” New challenges and strategies in two English city-regions. *Cambridge Journal of Regions, Economy and Society*, 7(2), 327–348. doi:10.1093/cjres/rst029
- Chatterton, P., & Goddard, J. (2000). The Response of Higher Education Institutions to Regional Needs. *European Journal of Education*, 35(4), 475–496. doi:10.1111/1467-3435.00041
- Clark, B. R. (1998). The entrepreneurial university: Demand and response. *Tertiary Education and Management*, 4(1), 5–16. doi:10.1080/13583883.1998.9966941
- Cooke, P., Gomez Uranga, M., & Etxebarria, G. (1997). Regional innovation systems: Institutional and organisational dimensions. *Research Policy*, 26(4–5), 475–491. doi:10.1016/S0048-7333(97)00025-5
- D’Este, P., & Perkmann, M. (2011). Why do academics engage with industry? The entrepreneurial university and individual motivations. *The Journal of Technology Transfer*, 36(3), 316–339. doi:10.1007/10961-010-9153-z

## ***Entrepreneurial Universities and Regional Innovation***

- Drucker, J., & Goldstein, H. (2007). Assessing the Regional Economic Development Impacts of Universities: A Review of Current Approaches. *International Regional Science Review*, 30(1), 20–46. doi:10.1177/0160017606296731
- Edquist, C. (Ed.). (1997). *Systems of innovation: Technologies, institutions, and organizations*. London, Washington: Pinter.
- Etzkowitz, H., & Leydesdorff, L. (2000). The dynamics of innovation: From National Systems and “Mode 2” to a Triple Helix of university–industry–government relations. *Research Policy*, 29(2), 109–123. doi:10.1016/S0048-7333(99)00055-4
- Etzkowitz, H., Ranga, M., Benner, M., Guarany, L., Maculan, A. M., & Kneller, R. (2008). Pathways to the entrepreneurial university: Towards a global convergence. *Science & Public Policy*, 35(9), 681–695. doi:10.3152/030234208X389701
- European Commission. (2011). *Connecting Universities to Regional Growth: A Practical Guide*. Retrieved from [https://ec.europa.eu/regional\\_policy/sources/docgener/presenta/universities2011/universities2011\\_en.pdf](https://ec.europa.eu/regional_policy/sources/docgener/presenta/universities2011/universities2011_en.pdf)
- European Commission. (2019, February 18). “Centro Region of Portugal” Complete Regional Profile. Retrieved from <https://ec.europa.eu/growth/tools-databases/regional-innovation-monitor/base-profile/centro-region-portugal>
- Flyvbjerg, B. (2006). Five Misunderstandings About Case-Study Research. *Qualitative Inquiry*, 12(2), 219–245. doi:10.1177/1077800405284363
- Fonseca, L. (2018). Developing Academic Drivers for Collaborating with Local and Regional Government. *RSA Regions*, 2. doi:10.1080/13673882.2018.00001011
- Fonseca, L. (2019). Designing Regional Development? Exploring the University of Aveiro’s Role in the Innovation Policy Process. *Regional Studies. Regional Science*, 6(1), 186–202. doi:10.1080/21681376.2019.1584050
- Foray, D., David, P., & Hall, B. (2009). “Smart Specialisation” The Concept. *Knowledge for Growth Expert Group*. Retrieved from <http://cemi.epfl.ch/files/content/sites/cemi/files/users/178044/public/Measuring%20smart%20specialisation.doc>
- Foray, D., David, P. A., & Hall, B. H. (2011). *Smart Specialisation from Academic Idea to Political Instrument, the Surprising Career of a Concept and the Difficulties Involved in its Implementation*. EPFL. Retrieved from <https://infoscience.epfl.ch/record/170252/>
- Foray, D., & Goenaga, X. (2013). *The Goals of Smart Specialisation*. Retrieved from <http://dx.publications.europa.eu/10.2791/20158>
- Freeman, C. (2002). Continental, national and sub-national innovation systems—Complementarity and economic growth. *Research Policy*, 31(2), 191–211. doi:10.1016/S0048-7333(01)00136-6
- Fröhlich, K., & Hassink, R. (2018). Smart Specialization and the Role of Universities and Science Parks. *World Technopolis Review*, (7), 74–81. doi:10.7165/wtr18s1122.19

Gibbons, M., Limoges, C., Nowotny, H., Schwartzman, S., Scott, P., & Trow, M. (1994). *The New Production of Knowledge: The Dynamics of Science and Research in Contemporary Societies*. Sage (Atlanta, Ga.).

Gibson, D. V., & Naquin, H. (2011). Investing in innovation to enable global competitiveness: The case of Portugal. *Technological Forecasting and Social Change*, 78(8), 1299–1309. doi:10.1016/j.techfore.2011.04.004

Goddard, J., Kempton, L., & Vallance, P. (2013). Universities and Smart Specialisation: Challenges, Tensions and Opportunities. *Ekonomiaz*, (83).

Godin, B. (2006). The Knowledge-Based Economy: Conceptual Framework or Buzzword? *The Journal of Technology Transfer*, 31(1), 17–30. doi:10.1007/10961-005-5010-x

Gunasekara, C. (2006). Reframing the role of universities in the development of regional innovation systems. *The Journal of Technology Transfer*, 31(1), 101–113. doi:10.1007/10961-005-5016-4

Huggins, R., & Johnston, A. (2009). The economic and innovation contribution of universities: A regional perspective. *Environment and Planning, C, Government & Policy*, 27(6), 1088–1106. doi:10.1068/c08125b

Iacobucci, D. (2012). Developing and implementing a smart specialisation strategy at regional level: Some open questions. *Centro Interuniversitario d’Economia Applicata Alle Politiche per l’Industria La Sviluppo Locale e l’Internationalizzazione*, (5), 21.

Jongbloed, B., Enders, J., & Salerno, C. (2008). Higher education and its communities: Interconnections, interdependencies and a research agenda. *Higher Education*, 56(3), 303–324. doi:10.1007/10734-008-9128-2

Krammer, S. M. S. (2017). Science, technology, and innovation for economic competitiveness: The role of smart specialization in less-developed countries. *Technological Forecasting and Social Change*, 123, 95–107. doi:10.1016/j.techfore.2017.06.028

Kroll, H. (2017). The Challenge of Smart Specialisation in less fa-voured Regions. *Fraunhofer ISI*, (No. R1/2017), 33.

Landabaso, M. (1997). The promotion of innovation in regional policy: Proposals for a regional innovation strategy. *Entrepreneurship and Regional Development*, 9(1), 1–24. doi:10.1080/08985629700000001

Lundvall, B.-Å. (Ed.). (2010). *National Systems of Innovation*. Retrieved from <http://www.jstor.org/stable/j.ctt1gxp7cs>

Morgan, & Henderson, D. (2002). Regions as Laboratories: The Rise of Regional Experimentalism in Europe. In M. S. Gertler & D. A. Wolfe (Eds.), *Innovation and Social Learning: Institutional Adaptation in an Era of Technological Change* (pp. 204–226). doi:10.1057/9781403907301\_10

Morgan, & Nauwelaers, C. (2003). A Regional Perspective on Innovation: From Theory to Strategy. In K. Morgan & C. Nauwelaers (Eds.), *Regional innovation strategies: The challenge for less-favoured regions*. New York: Routledge.

## ***Entrepreneurial Universities and Regional Innovation***

Morgan. (1997). The Learning Region: Institutions, Innovation and Regional Renewal. *Regional Studies*, 31(5), 491–503. doi:10.1080/00343409750132289

Rodrigues, C., & Melo, A. I. (2013). The Triple Helix Model as Inspiration for Local Development Policies: An Experience-Based Perspective. *International Journal of Urban and Regional Research*, 37(5), 1675–1687. doi:10.1111/j.1468-2427.2012.01117.x

Rodrigues, C., & Teles, F. (2017). The Fourth Helix in Smart Specialization Strategies: The Gap Between Discourse and Practice. In S. P. De Oliveira Monteiro & E. G. Carayannis (Eds.), *The Quadruple Innovation Helix Nexus* (pp. 205–226). Academic Press. doi:10.1057/978-1-137-55577-9\_5

Rosenberg, N. (2004). Innovation and Economic Growth. OECD, 6.

Salomaa, M. (2019). Third mission and regional context: Assessing universities' entrepreneurial architecture in rural regions. *Regional Studies. Regional Science*, 6(1), 233–249. doi:10.1080/21681376.2019.1586574

Santos, D., & Caseiro, N. (2015). The Challenges of Smart Specialization Strategies and the Role of Entrepreneurial Universities: A New Competitive Paradigm. In L. M. Carmo Farinha, J. J. M. Ferreira, H. L. Smith, & S. Bagchi-Sen (Eds.), *Handbook of Research on Global Competitive Advantage through Innovation and Entrepreneurship*. Hershey, PA: IGI Global. doi:10.4018/978-1-4666-8348-8.ch029

Uyarra, E. (2010). Conceptualizing the Regional Roles of Universities, Implications and Contradictions. *European Planning Studies*, 18(8), 1227–1246. doi:10.1080/09654311003791275

Zomer, A., & Benneworth, P. (2011). The Rise of the University's Third Mission. In J. Enders, H. F. de Boer, & D. F. Westerheijden (Eds.), *Reform of Higher Education in Europe* (pp. 81–101). Springer. doi:10.1007/978-94-6091-555-0\_6

## **ADDITIONAL READING**

Benneworth, P., Pinheiro, R., & Karlsen, J. (2014). *Strategic Agency and Institutional Change: Investigating the Role of Universities in Regional Innovation Systems*. Louisville: RePEc, Federal Reserve Bank of St. Louis.

Clark, B. (1998). *Creating entrepreneurial universities: organizational pathways of transformation*. New York: Pergamon.

Fonseca, L., Nieth, L., Salomaa, M., & Benneworth, P. (2020). Universities and Place Leadership – A question of agency and alignment. In M. Sotarauta & A. Beer (Eds.), *Handbook on City and Regional Leadership*. Cheltenham: Edward Elgar Publishing.

Nedeva, M. (2008). New tricks and old dogs? The 'third mission' and the re-production of the university. In D. Epstein, R. Boden, R. Deem, F. Rizvi, & S. Wright (Eds.), *The World Yearbook of Education 2008. Geographies of Knowledge, Geometries of Power: Framing the Future of Higher Education* (pp. 85–105). New York: Routledge.

Vorley, T., & Nelles, J. (2009). Building Entrepreneurial Architectures: A conceptual interpretation of the Third Mission. *Policy Futures in Education*, 7(3), 284–296.

## KEY TERMS AND DEFINITIONS

**Entrepreneurial Architecture:** The routines, norms, structures and channels that influence the behaviour of individuals within a certain strategic mould and enable the flow of knowledge and innovation from the university to society. Vorley and Nelles (2009) have proposed a framework to illustrate the internal mechanisms involved in how entrepreneurial activities are embedded into the core institutional missions of the university. Salomaa (2019) has expanded this conceptualisation of entrepreneurial architecture to include contextual influences.

**Entrepreneurial Ecosystem:** The socio-economic environment shaping and fostering local and regional entrepreneurship as an economic development strategy. Within this framework, actors orient their focus to regional development and value-creation. The entrepreneurial ecosystem encompasses key players that are adopting an entrepreneurial mindset (risk and discovery) and developing related activities. It is considered by Santos and Caseiro (2015) as a required element for the implementation of a collective strategy and learning approach based on innovative assets and opportunities, and the result of dynamics between entrepreneurial universities and smart specialisation strategies.

**Entrepreneurial Discovery Process:** A bottom-up learning process which frames the interaction and inclusion of varied regional actors (policy, business, academia, social sector) who provide their knowledge and expertise. This helps in the analysis of regional strengths and in the identification and exploration of emerging trends and opportunities to define and shape the regional strategy for heightened competitiveness and development.

**Entrepreneurial University:** Universities that contribute to the development of the wider entrepreneurial and innovative environment, on a regional, national and international level. These higher education institutions consider knowledge as an asset that should be approached dynamically – to be created, transmitted and developed. Seeking to seize new opportunities in this, entrepreneurial universities often take on a more pro-active and strategic role in society and the market.

**Less-Developed Regions:** An economic categorisation of the European Union’s cohesion framework. In the period 2014-2020, less-developed regions were considered those that had a GDP less than 75% of the EU average. They would thus be eligible to receive more funding.

**Smart Specialisation:** An academic concept that entered the forum of EU policy. It is characterised by a place-based, tailored approach, contrasting the previously criticised “one-size fits all” policies. Smart specialisation also seeks to encompass a broader view of innovation, beyond technology-oriented approaches. It aims toward the identification of regional strengths and strategic areas of intervention. These are identified and defined through a knowledge-based analysis and a regional stakeholder involvement in an entrepreneurial discovery process, supported by monitorisation and constant adaptation as challenges and opportunities emerge.

**Smart Specialisation Strategies (S3) or Research and Innovation Strategies for Smart Specialisation (RIS3):** A strategic approach defined by the EU and implemented in the 2014-2020 framework. It targets support for research and innovation, aiming to supplement previous industrial policies to include more educational and innovation policy approaches. Specifically aimed at the regional level for a more granular, place-based approach to EU cohesion, it is a process of identification, definition and development of regional strengths for enhanced competitiveness. While S3 engenders the involvement of varied regional stakeholders in the strategy process, it highlights the role of higher education institutions as guides in what is ultimately a knowledge-based innovation strategy.

**Third Academic Mission or “Third Mission”:** Term asserting the additional responsibilities of universities in engaging with society and responding to market demands and developmental needs. Besides the other two core functions of teaching and research, universities are now imbued with a “third mission” of external, and often, regional engagement, through which they aim to create strategic links with other societal agents.

## **ENDNOTE**

- <sup>1</sup> A Smart Cities project for active seniors. More information at <https://uaonline.ua.pt/pub/detail.asp?lg=pt&c=55630>

# THE ROLE OF UNIVERSITIES IN BUILDING DENSE TRIPLE HELIX ECOSYSTEMS IN SPARSE REGIONAL ENVIRONMENTS

Maria Salomaa, Liliana Fonseca, Lisa Nieth, & Paul Benneworth

## 1. Introduction

It has become increasingly common to talk about university-industry-government relationships stimulating innovation using the shorthand of the 'Triple Helix'. In Europe, the terminology has been used to refer to any arena where these partners come together to stimulate better co-operations. But the rapid expansion of the idea's use risks it becoming a 'policy concept' (Böhme & Glørsen, 2010), something that creates consensus by hiding disagreement. In effect, triple helix collaborations are agreed to be good despite different visions of what constitute good relationships, and specifically obscuring tensions in arising collaborations between public, private and civil society partners. In the original Triple Helix model (THM) of Etzkowitz and Leydesdorff (2000) the underlying mechanism was the *tertius gaudens*, the honest third party, helping to address the stalemates that emerge between partners with very different goals, norms, values and intentions around regional innovation. In much of what is written about triple helix partnerships, there is a risk that these tensions are ignored and the mechanisms by which they are addressed shift into the background behind 'happy family stories' of well-functioning regional partnerships (Lagendijk and Oinas, 2005).

We bring these two trends together to explore how triple helix mechanisms build up in places lacking long histories of collaborative relationships between partners, and therefore lack the experience in addressing these problems. We focus on places with 'sparse' regional innovation ecosystems, where a university may be a dominant innovation driver but without necessarily meeting regional partners' expressed needs. Although all partners would benefit from denser interaction, these mismatches between partners' capacities and goals inhibit building closer relationships and thereby addressing these mismatches, trapping the regions in a sparse triple helix vicious circle. We therefore ask the research question: "what roles do universities play in sparse environments in building up triple helix relationships stimulating regional innovation processes?".



We use empirics from five regions with relatively sparse Triple Helix environments where universities played leading roles in attempting to build up relationships between Triple- and Quadruple-Helix partners<sup>1</sup>. Applying the empirical material to the conceptual framework derived, the chapter presents evidence from these five regions on the ways in which the universities have sought to play this *tertius gaudens* role, of the honest broker, to address the tensions that can arise, specifically using their global connections to help build better local interactions. The chapter identifies several processes through which universities can play this role and thereby contribute to densifying sparse innovation environments, increasing agglomeration and diversity whilst helping to address the tensions and problems that densification brings. This chapter therefore helps understand the ways in which universities can help build more fertile innovation and entrepreneurial ecosystems, thereby contributing to driving regional growth and wellbeing.

## 2. Literature Review

### 2.1 The problem of sparse innovation environments

Solving the innovation challenge in ways that produce socially equitable as well as economically efficient solutions requires understanding how innovation processes occur. This is particularly applicable to peripheral regions, that face materially different challenges to those of the most successful regions from which examples are most frequently drawn (Eder, 2019). While diverse sets of challenges for these groups of regions have been identified by various authors (for an overview see Nieth and Benneworth (2018)), Todtling and Trippl (2005) highlight that peripheral regions lack structural density, with insufficient actors to achieve critical mass; old industrial regions may become “locked-in”, incapable of creating new pathways or interactions, resulting in “ties that blind” (Grabher, 1993).

These challenges have been addressed in practice in weak(er) regional innovation ecosystems in diverse ways. One approach can be linking the peripheral region to urban areas on a national or even international scale (Eder, 2019, Isaksen and Karlsen, 2013). Firms and universities can become important regional actors using international contacts to facilitate knowledge exchange and learning. Isaksen and Karlsen (2013) even argue that “less emphasis [should be placed] on the endogenous development capacity” of the region, with other geographic scales (national, international) potentially being equally important for innovation. These approaches nevertheless

---

<sup>1</sup> The Quadruple Helix refers to the fact that civil society organisations can be considered as a distinct sector of regional innovation networks and therefore deserve their own separate inclusion.

assume that a region has assets, actors and capacities that are sufficiently attractive to external partners to develop these wider linkages.

## 2.2 The Triple Helix Approach

The THM conceptualises the partnering of regional actors for boosting regional innovation capacity (Etzkowitz and Leydesdorff, 2000, Leydesdorff and Etzkowitz, 1998), focusing on the interactive innovation dynamics between three main cooperating actors: industry, government and university. Bilateral relationships concatenate and drive their regional innovation environments forward, in a heuristic of a helical model of overlaid and reciprocal exchanges (sometimes depicted to resemble the DNA double helix). In its initial formulation, its tryptic form was proposed in consideration of emerging tensions and contrasts stemming from dualistic collaborative arrangements. In the introduction of a third element, cooperative actor relationships could be better managed.

The THM was developed from a relatively limited set of paradigmatic cases (e.g. Silicon Valley), assuming a spontaneous emergence of these cooperative links and the development of functional regional partnerships (Lagendijk and Oinas, 2005). However, the original model saw that conflict was a potential driver of innovation: in the *tertius gaudens* mechanism, the “third who benefits”, this refers to a third party that can work to create balance and address emerging tensions when otherwise productive innovation relationships founder. This third party would act as an “honest broker”, moderating these different intentions, values, goals and norms between actors, mediating rigidities and compensating for any absences, enabling the potential of those innovation relationships otherwise held back by those tensions.

The THM of various stakeholders is part of a much wider family of Territorial Innovation Models (Moulaert and Sekia, 2003). The Triple Helix model is similar – although not identical – to concepts of ‘regional innovation coalitions’ (Benneworth, 2007), ‘regional innovation networks’ (Rodrigues and Teles, 2017) or ‘multi-level partnerships’ (Morgan and Nauwelaers, 2003), all-encompassing the idea of different stakeholders coming together and providing potential solutions to varied problems (Wilgaard Larsen, 2017). While the idea of partnerships becoming regional “possibility-making machines” (Åkerstrøm Andersen, 2008) is attractive, it obscures the fact that different partners have different aims, motivations, desires and goals. Harmonious and uncomplicated cooperation in ‘happy regions’ (Lagendijk and Oinas, 2005) cannot be seen as the status-quo, as a variety of stakeholders “each with their own assumptions, ideas, goals and expectations” (van

Drooge and Spaapen, 2017, "7 Discussion & Conclusion", para. 1) need to be aligned, while facing different tensions (Nieth, 2019).

In this chapter we combine these two literatures to ask whether these regional partnerships can drive densification processes in these sparse innovation environments, thereby addressing an important lacuna in the literature: moving beyond thinking of sparse innovation environments in terms of processes that operate in successful/ dense innovation regions. We specifically address the role of different actors in triple helix partnerships, how they play different roles to address tensions and create new innovation assets. We ask the research question: "what roles do universities play in sparse environments in building up triple helix relationships that stimulate regional innovation processes?".

### 3. Methodology & Case Studies

#### 3.1 Methods

To answer this research question, this study comparatively analyses five universities in sparse innovation environments across varying national and regional contexts: the five universities are all located in sparse innovation environments, and all have actively sought to manage their contributions to regional development. The study draws on desk-based research and data from a total of 194 semi-structured interviews, split as following throughout the case-studies: 35 interviews in Satakunta (FI), 36 in Lincolnshire (UK), 40 in Twente (NL), 38 in Aalborg (DN), 45 in Aveiro (PT). These were conducted between 2017 and 2019 with academics, local authorities and other relevant stakeholders (e.g. businesses, intermediary and civil organisations) exploring how universities contributed to supporting regional innovation and entrepreneurial co-operative environments. Questions addressed engagement activities and collaborative projects of relevance undertaken with external stakeholders, emerging tensions and opportunities and the effective or foreseen impact these had on the region and the institutions involved. Interviews were recorded, transcribed and translated into English where applicable.

#### 3.2 Cases

The University of Aveiro has played an active and relevant role in the entrepreneurial ecosystem of Aveiro (NUTS III) and Centro region (NUTS II), evidenced in previous studies (Fonseca, 2019, Rodrigues and Teles, 2017). Despite its location in a less developed region, it benefits from a unique lagoon setting in the Portuguese coast, and its positioning between the major metropolitan areas – Lisbon and Porto – creating opportunities to develop its innovative assets in the areas of environment, agro-food, ICT and others related to the local industry. UA has boosted regional

innovation by engaging in inter-institutional collaborations with both big, medium and small businesses, but especially with its continued work with local (municipalities) and regional government (intermunicipal community of Aveiro and Centro region's commission) in the support of development initiatives, like the incubator network, the science park and the technological platforms.

The University of Twente has been contributing to the regional innovation environment through diverse channels, such as teaching entrepreneurship courses, as well as contributing to regional strategy platforms and supporting a start-up/spin-out system which encourages students and researchers to contribute to regional development (mainly in the high-tech sector). Established in 1961, it was created with the aim to revitalise the regions lagging industry and creating a knowledge-based environment that would attract students, researchers and companies alike. It has been working with governmental actors such as the 14 municipalities of Twente, cities (especially Enschede and Hengelo) and the Twente region, as well as with industrial partners and societal stakeholders (Nieth, 2019). The region as well as the university have been focusing on expanding as well as supporting high-tech related projects, activities and sectors.

Aalborg University, opened in 1974 after active lobbying of diverse regional interest groups, is situated in the most Northern part of Denmark and combines 11 municipalities. The city of Aalborg constitutes the centre of the region, with the university and much of the industry being located there. Since its creation the university has been an integral part of the regional innovation ecosystem through its active involvement in joint initiatives and platforms (especially internationally known clusters). At the same time, AAU has adopted the problem-based approach for teaching, learning and research, allowing active interaction of students (and to a lesser degree also academics) with the private and public regional stakeholders. The regional industry, which is heavily based on SMEs, used to be dominated by traditional and labour-intensive industries, counts on more growth-oriented knowledge industries today.

University Consortium of Pori, coordinated by the new Tampere University<sup>2</sup>, is a network of three Finnish universities. Altogether, there are six university consortia scattered across the country in more peripheral regions otherwise lacking access to HE. UC-Pori is located in the Satakunta region

---

<sup>2</sup> University of Tampere and Tampere University of Technology merged in January 2019.

in the Southwest of Finland, where the former Tampere University of Technology has offered degree studies in engineering since the late 1980s. It was officially established in 2003, and later on the position of the university consortia was legitimised in 2009 (Ministry of Education and Culture, 2009) to reinforce the societal role of higher education. Currently, the UC-Pori contributes to building a regional innovation ecosystem not only by increasing the local skills-level with local access to higher education, but also by engaging with regional authorities in policy design and evaluation processes, and supporting local SMEs through ERDF funded activities (Salomaa & Charles, 2019). It is active in all regional priority sectors such as energy production, offshore process industry, ports and logistics.

University of Lincoln, located in the rural region of Lincolnshire in North East of England, has had a strong regional mission since its establishment in 1996. Since then, it has expanded rather quickly and become an important driver of regional development, especially through intensive collaboration with regional authorities (Salomaa, 2019). UoL has strived to support regional economic growth by focusing on large-scale, collaborative infrastructure initiatives such as the establishment of Lincoln Science and Innovation Park together with the Lincolnshire Co-Op to attract more large-scale companies to the area. It has also sought to serve the local job market by providing tailored degree education e.g. in engineering, but also increasingly in other local priority sectors, namely in agri-food and food manufacturing, through National Centre for Food Manufacturing at the Holbeach campus and the Lincoln Institute for Agri-Food Technology at the Riseholm campus.

#### 4. The dynamics of university collaboration activities in sparse innovation environments

In this chapter we focus on a set of concrete collaborative projects that fulfilled our criteria in that they involved actors from all three sectors, represented an increase in the density of the regional innovation environment, and actors played different roles in each of these sectors. Four of the cases represent efforts to create density by the development of new networks between different partners, the network for sustainable business development & matchmaking schemes in North Denmark, Aveiro's Network for Innovation and Collaboration and health sector and robotics collaboration in Pori. Four of the cases involved developing specific physical infrastructures for improved collaboration, the living lab for lighting in Aveiro, rural campuses and technology hubs in Lincolnshire, and Enschede's smart city infrastructure in Twente. A final example was the

University of Twente's Professional Doctorate of Engineering scheme, P.D. Eng, which contributed to raising high-level innovation skills in the region.

#### 4.1 Network for Sustainable Business Development (North Denmark)

The Network for Sustainable Business Development (NSBD) is a collaboration between various municipalities of North Denmark, local business centres, Aalborg University, a local energy firm and several companies (Aalborg Kommune, n.d.), aimed at managing different activities in the area of green and sustainable development. The municipality of Aalborg, which secured the network's initial developments, was already engaging actively within the field of sustainability and has been "recognized as a pioneering municipality for crafting local authority commitment to sustainability initiatives" (Normann et al., 2017). Today, the network is managed by two municipalities, Aalborg and Hjørring, with a secretariat involving actors from municipalities, university and different technological experts. It is primarily financed by municipalities, but also received some EU Structural Funds, and - reflecting the national priority for green and sustainable development in Denmark - there have also been national funds. A NSBD researcher claimed that the idea to create the network emerged in 2008 as a result of an ongoing between researchers at Aalborg university and their municipal counterparts. A project participant noted that this initiative was a "a very collaborative effort between the three main partners" (public, private and university) aiming to create tasks and benefits for everyone: The municipality drove the "environmental rationality aimed at monitoring and adjusting operational practices in polluting industries", the university acted as knowledge specialists promoting technical advancements (Normann et al., 2017). A member argued the network was important for experience and knowledge transfer:

"building up the capabilities of the municipality, and teach the people how to transform from being regulators to being advisors or dialogue partners. We are upgrading both the industry but also the public organizations".

#### 4.2 Matchmaking Scheme (North Denmark)

Aalborg University (AAU) and the North Denmark Region created a new cooperation infrastructure in 2007/08 seeking to facilitate cooperation with the existing business infrastructure in the region, particularly in the region's remoter rural areas and with SMEs. The original idea of this matchmaking scheme was creating new access points for university knowledge; one of the scheme's initiators describing this as a "no wrong door policy" (Nieth and Benneworth, 2019). The project was constructed to match regional needs, thereby ensuring funding from the regional Growth Forum, the body distributing European and national economic development funds. The

new scheme involved two elements: the first was a matchmaking secretariat responsible for project management and organising matchmaking activities, and the second were the “matchmakers”. There were three varieties of matchmaker created to stimulate knowledge exchange and build up new connections: internal matchmakers (academics and managers from different faculties), external matchmakers (employees of municipalities, business associations or similar institutions), and students matchers (individuals facilitating connections between students and regional businesses). These matchmakers were identified and connected to each other, and as they were usually well connected, this extended many small networks into a large consolidated arrangement with more perspective of partners’ different interests and needs. The secretariat also organised “municipality tours” and project fairs were initiated, creating new ways for engagement between researchers, students and companies. More recently, new university management decided to refocus the programme as part of a rationalisation of all university knowledge exchange arrangements, partly reflecting national policy shifts in Denmark, shifting the focus to student-business connections.

#### 4.3 Network for Innovation and Competitiveness (Aveiro)

The Network for Innovation and Competitiveness, (Rede para a Inovação e Competitividade, RIC), was established in 2008 as a one-year partnership between Águeda municipality (in Aveiro region), UA and its Águeda polytechnic school, and firms and entrepreneurial associations. Funded by the EU’s regional innovative actions programme, RIC’s creation was a purposeful “introduction of the triple helix model into the political discourse” in Aveiro region (Rodrigues & Melo, 2013, p. 1681), following a belief that this arrangement would help boost local competitive capacity and innovative dynamics. The proposal was driven by the Mayor of Águeda’s generally recognised innovative mindset. In turn, UA regarded RIC as an opportunity to implement its regional engagement discourse. Entrepreneurs and firms were enticed by the prospect of accessing and developing innovation assets. More than 100 ideas were proposed (CMA, 2009) although most were rejected due to their impracticality or lack of innovativeness. Six developed into projects, of which the Lighting Living Lab (LLL) was the most notable (see below). While RIC produced few tangible results, it represented the first step to connecting actors and legitimising the inclusion of academic resources in development efforts in Aveiro region. This was profited from in future projects and experiments (see e.g. Fonseca, 2019), including the RunUp network which sought to create more competence networks linking universities and local sectors (habitat, mobility, culture and tourism) in Águeda. National recognition for the RIC led to further similar projects including the Urban



Network for Innovation and Competitiveness (RUCI) encompassing all 11 of Aveiro's municipalities.

#### 4.4 Lighting Living Lab (Aveiro)

The Lighting Living Lab (LLL) emerged out of the RIC and demonstrates the way that the network drove substantive collaboration between different stakeholders in Águeda. The mayor of Águeda first initiated the notion of the LLL in 2006/07 in articulating the desire of creating “an association to create open innovation” in lighting, one of his municipality's most important industries (70% of Portugal's lighting industry are located in Águeda). The concept of a living lab was then relatively innovative, and close cooperation between the public, private and research sector persuaded actors to undertake the experiment. From the outset, the municipality served as “the main testing environment” for new lighting solutions, with citizens involved “to explore the social and behaviour implications of the new technologies and co-design new solutions” (World Bank and ENoLL, 2015). The initiative sought to address regional problems of high energy consumption and local companies' competitive challenges such as intense local competition along with technological challenges incorporating digital electronic technology in diverse lighting products. The LLL's main activities involved organising conferences and workshops, technology development and demonstration, joint participation in exhibitions, joint development & implementation of projects, and (research) studies. The university was an important partner as a knowledge provider, but also serving as a neutral connector between the different, sometimes very conflicting stakeholders. More recently, challenges such as financing, severe competition between the companies, and a failure of the university to develop industry-specific training have led to a significant slowdown in LLLs' activities.

#### 4.5 UC-Pori's Collaboration with Healthcare Institutions (Pori)

The University Consortium of Pori (UC-Pori) launched several projects together with local healthcare institutions supported by the Satakunta Regional Council and European Regional Development Funds. The consortium was extensively funded by the city council, and researchers felt that that wanted to ‘give something back to the community’. These initiatives built on individual connections, as UC-Pori researchers were required to actively search for partners to find ways to contribute to regional priority sectors (e.g. (Salomaa and Charles, 2019). One project sought to assist healthcare professionals using mobile robots with specific functions targeted to elderly people with memory illnesses. The researchers had contacted a local healthcare institution to explore how robotics could be applied in elderly care, and the challenges they faced in their daily activities. One



issue was that dementia patients easily get lost and need constantly assistance, for example, in navigating out of their room. A set of such repetitive tasks were identified with healthcare professionals and then partly automated, with engineers developing a mobile assistance robot to assist the demented patients. The researchers also invited local businesses to take part in the pilots and creating a new ecosystem through implementing open-source software. A second project together with local hospitals aimed to assist surgery patients discharged from the hospital through gamification. In this case, researchers developed a game that measured whether patients understood the instructions for treatment during home-based convalescence. Both these pilots, producing academic outputs as well as new healthcare innovations beyond regional boundaries, were also potential steppingstones towards larger, international research projects.

#### 4.6 Rural Campuses Riseholm and Holbeach (Lincoln)

The University of Lincoln (UoL) aimed to support regional priority sectors, notably agri-food, by establishing satellite campuses located in more rural areas of Lincolnshire. The Holbeach campus, previously a satellite campus of an agricultural college, officially joined UoL in 2002 with a strong support from the local government. The campus subsequently grew rapidly increasing collaboration with local industries (Salomaa, 2019). Following the UoL takeover, the Holbeach campus provided “a higher level of technical science based skills that the industries didn’t have before,” an access point for agricultural industries to academic knowledge, alongside helping researchers with relevant expertise for the food sector, such as life and computer science, to better engage. Since 2008, the Holbeach campus hosted the National Centre for Food Manufacturing (NCFM) offering apprenticeships and short courses for food industry employers, as well as state-of-the-art R&D facilities used by both local and bigger international food producers, e.g. Nestlé and Heineken. Following the NCFM’s opening, UoL has been actively working with regional partners to develop the food sector (Salomaa, 2019). In 2016, the Lincoln Institute for Agri-Food Technology (LIAT), located at the Riseholm campus, was established to coordinate and enhance UoL’s contributions to food production and agriculture. Collaboration between LIAT, School of Science and NCFM secured large-scale projects from both national and European funding sources, notably in agri-robotics, where UoL’s management identified a possible strategic opportunity: “when you think about the alignment with the regional need and the agricultural sector, and our understanding of where the technological maturity is, we could see agro-robotics would become a bigger thing”.

#### 4.7 Lincoln Technology Hubs (Lincoln)

Lincolnshire County Council (LCC) has used European Regional Development Funds (ERDF) to deliver business support programmes: one such initiative sought to encourage local SMEs to apply cutting edge technology by showcasing modern technology in “Digital Hubs” located throughout Lincolnshire. These would demonstrate how modern technology, for ex. motion capture cameras, could be applied in manufacturing processes, such as fault detection in production lines. As LCC lacked capacity to operate the equipment and hubs, they were contracted to third parties, with one being located at the University of Lincoln. University personnel contacted LCC during LCC’s search for partners, suggesting that UoL could host a hub:

“I think I submitted a proposal to them to say what kind of equipment we'd want and what kind of support we would offer companies in return for that equipment, in return for the council investing in us”.

There were originally five hubs across Lincolnshire, but a review saw this reduced to three as not all hubs were performing equally well: the UoL hub was perceived as running smoothly having engaged with more businesses than expected. One LCC interviewee noted: “the university uses the hub in a more advanced way I would suggest, tending to use it in a more in-depth-way with businesses looking for technological support”. The problem for the university was in persuading academics to engage with the project as the funds only cover capital investment, the UoL interview noting: “I have to work sometimes on some goodwill and I have to do quite a bit of persuading to help to get people engaged with this”. However, the collaboration through UoL Digital hub has been beneficial for all parties: it has generated PhD research projects and long-term knowledge transfer partnerships with regional partners.

#### 4.8 Smart City (Twente)

In Twente, the municipality of Enschede has adopted the smart city concept in the hope of stimulating the creation of new knowledge resources, attracting funding and promoting international cooperation. Several initiatives have emerged, led both by the municipality and other major regional institutions. The Smart City Enschede project was started in 2017 by the municipality, involving companies, residents and knowledge institutions, proposing Enschede as “a city where entrepreneurs can test and demonstrate their new concepts, products and services in an open field lab” (Novel-T, 2019). Simultaneously, the University of Twente (UT) launched its own Smart City Initiative, in close cooperation with Enschede’s municipality and, later, with the province of Overijssel. Despite UT’s initiative being predominantly focused on internally

coordinating strategic interdepartmental research and education activities and funding attraction on smart city topics, these two initiatives intersected to generate projects involving both UT and the municipality. The UT's Smart Campus project sought to create a living lab for advanced technologies involving other institutes and local companies. There has also been a focus on involving civil society actors in these partnerships, with one project addressing flooding in a city district using citizens to self-measure and report local groundwater levels. These initiatives were relatively small and lacked longer-term, deeper impacts, in part because of financial pressures. One interviewee noted: "Despite smart city being very important, there is hardly capacity or money to really make it successful". Therefore, albeit a strategic focus area of UT, smart city is not a priority area within the regional strategy, hindering its development and upscaling.

#### 4.9 UT's PDEngs (Twente)

The University of Twente (UT) created a professional doctorate in engineering (PDEng) to raise local skills levels through a practically-oriented training programme targeting the needs of industry partners, supported by the Cluster Smart Industry East Netherlands project partly funded through European Regional Development Funds (ERDF). There were lengthy discussions with local stakeholders on smart industries and manufacturing, with UT staff preparing an ERDF bid proposing to transfer scientific knowledge on smart industries to local SMES via 18 individual research projects. Another project motivation was identifying mechanisms to use a long-term ongoing training programme to bring together different regional actors more closely together, particularly business partners. The ERDF subsidy cover half the training costs paid by companies, although most PDEng candidates are university employees because that is most cost-effective for the companies. Because firms had no previous experience in accessing ERDF programmes or PDEngs, thus the whole process seemed rather daunting to firms, slowing their recruitment onto the programme, despite the university employing that recruitment to a third party. To facilitate this, regional funds paid for the university to employ PDEng candidates to work on projects of local relevance where there are no identified funding companies, thereby contributing to raising high-level skills in the field of smart industries and manufacturing.

## 5. Discussion

In this paper, we are asking the question of "which roles do universities play in sparse environments in building up triple helix relationships that stimulate regional innovation processes?". We are specifically interested in the ways in which universities become involved in projects that have wider benefits other than being purely bilateral knowledge transfer activities. Rather, the focus is on the

sharing of knowledge assets that also help other companies to access innovation resources. Although universities are not necessarily interested in generating a profit from their activities, collaborative innovation must nevertheless make sense from their own perspective, and they must derive advantages from it. It is clear from these examples that in regions with sparse innovation environments there are challenges for universities in participating in these collective activities. In the nine examples presented above, universities have had to play their regional roles in rather different ways to address these issues and ensure that they can benefit from undertaking those activities.

### 5.1 Universities' roles in stimulating triple helix collaboration in sparse innovation environments

One of the main issues identified was that, where universities were interested in stimulating new industries and adoption of new technologies, there were not always regional partners capable of absorbing this knowledge to create new industries and improve competitiveness. What emerged in the examples was, in the case of a mismatch or tension between universities and firms, that the role for government was to help foster interaction by attuning interests and objectives for greater potential. This can be clearly observed in the case of the LLL initiative in Aveiro, where there were both knowledge assets in the university and a set of lighting firms. The intense competition between the companies and within their markets meant that there were no attractive propositions for the university to engage with individual companies, but the LLL initiative created a set of activities, often further subsidised, which helped the university and companies to build up their linkages. We here see one possible *tertius gaudens* mechanism, namely purposeful mobilising actors' voices and aligning different stakeholders through networking activities to create links for further collaboration, and even pilot projects.

A second issue that arises here is that universities in more peripheral areas sometimes face a rather marginal existence. Therefore, external collaboration and societal contributions are regarded internally as a form of existential risk: a badly loss-making collaboration could potentially threaten the continuity of the HEI activities. In the case of rural campuses, support and demand from government can help stimulate the university to prioritise – or value – engaging with regional industrial partners. In Pori's case, local authorities provide substantial financial aid to the UC-Pori campus, which partly steered researchers towards bilateral interaction between local industries and public sector actors. In these collaborations, UC-Pori sought to develop pragmatic solutions to other parties' problems, alongside seeking external funding to support those activities. In this case, it is the university that the government partners must cajole to undertake regional engagement,

again with the same potential results of building up incidental relationships some of which then concatenate into more long-lived and sustainable regional innovation activities. In the case of Pori we also denote the exercise of agency by researchers, rather than institutional leadership. This second *tertius gaudens* mechanism could be considered as government enrolling university capacities to persuade university leaders to embrace engagement more systematically.

A third issue arose in the lack of well-expressed regional demands from partners for knowledge resources, making it hard for government to steer those activities strategically. What we see in both the cases of the Matchmaking Scheme and the rural campuses of UoL is that the universities undertook efforts to make their offer clearer to firms. Part of this involved better coordinating their internal knowledge resources, such as linking allied sectors such as manufacturing and computer science to food technology – as in the UoL case. But this also involved creating linkages outward, from the university to business contacts, to create pathways by which potentially interested business partners would be made aware – by matchmakers – of the existence of these concrete pathways into the university. In this case, the universities' agency helped resolve tensions between government and business, where there were no instruments that government could use to steer firms towards collective behaviours. In the Matchmaking Scheme, there was even the explicit involvement of matchmakers from the local municipalities to stimulate collective innovation activities. This third mechanism is the activity by the university to mobilise pathways to business users that then allowed government to steer policy to better aid businesses.

Another variety of this mechanism was evident where universities helped articulate the needs of sophisticated industrial sectors to government, encouraging government to use their strategic tools and resources to better support those sectors. Three examples showed universities and businesses working together to create a dynamic set of innovation activities, with these sectors then becoming adopted by regional governance partners as priority sectors. UoL's rural campuses helped identify a high-technology future for the agricultural sector by linking it to automation and company science technologies; UC-Pori used its links to local healthcare providers to mobilise an open-access cluster of robot developers which reinforce robotics' role as a strategic priority sector within the region. In the case of the LLL in Aveiro, the successful 'triple helix' collaboration - although initiated by the Mayor of Águeda - was able to win national recognition and become distinguished at the regional level. This also applies to the National Centre for Food Manufacturing located in the Holbeach campus (UoL), successfully bringing together university knowledge and local businesses through strategic collaborations, whilst mobilising national and international companies. The fourth mechanism is therefore that universities and firms work together to win external resources,

in this case often European Structural Funds, that represent a recognition of those sectors' innovative potential, and which then see them becoming stronger in regional strategic agendas. A final mechanism is in the role that universities can play in providing a sense of continuity to partners and provide an ongoing search and matching facility for complementarities between partners. In a sparse environment where resources are difficult to access and develop, the potential to build the concentration of certain capacities by bringing actors together whose assets can complement the needs of the others is an important step to systematising, potentiating and making innovation processes more effective. This is evident in the Aveiro cases of RIC and LLL as well as the case of the NSBD, where knowledge from the university, administrative and financial resources from the municipality, and needs, ideas, contacts and experiences from businesses and citizens combined to originate wider benefits. The third party, as can be the university or the municipality in these cases, creates a kind of system of deferred exchange, i.e., providing assets without expecting an immediate return on investment. Thus, while complementarities can imply a mutually beneficial transaction, particularly in the case of sparse environments there seems to be a need to have a stakeholder that can envision long-term effects and generate the effort to fulfil that potential. While creative turnover was relatively weak in the RIC case, possibly characteristic of the element of sparseness in such environments, the capacity to generate a degree of permanence of value is thus desired in the *tertius gaudens*.

## 5.2 Key barriers to constructive triple helix relationships in sparse innovation environments

The cases also provide some interesting insights into some of the issues that universities face in functioning constructively in triple helix partnerships in sparse innovation environments; we here identify four main issues. Firstly, universities are very complex actors and engage in these triple helix partnerships in various ways, as strategic leaders through to a kind of surreptitious individual interaction. Secondly, these elements do not interact in a straightforward way, in that researchers remain important in the delivery of the benefits, and strategic frameworks, on their own, are not enough to align universities towards delivering regional contributions. Thirdly, there is an issue of scale in these triple helix activities, in that it is possible to mobilise small activities, but it is much harder to then build those up into something that has a more general regional benefit. Finally, these change processes are extremely long-term, whilst the short-term benefits are not always evident or can even be costly, so there is the issue of who can persuade universities to engage for persistent regional good. It is not clear to us whether these problems are a function of the sparseness – for example that the issue of the complexity of universities as actors is less material in denser

innovation environments where there are more actors in general. But nevertheless, they seem to serve to constrain the contributions the universities can make to these dynamic forward-moving partnerships.

The first issue regarding universities' organisational complexity cements that the activities that support the triple helix development do not necessarily always originate at the leadership level of the university, nor is it that the university leaders lead in solving tensions in triple helix relationships. These issues were observed in the case of UC-Pori, where the roles of the 'honest broker' were played by researchers and not the university as an institution. This means that universities lack a single set of interests and goals and, in turn, can undermine developing relationships with other actors through this process of attuning divergent interests. Diverse projects in North Denmark, were dependent on the network of matchmakers. However, university (and student) matchmakers were restricted in their capacity to connect external partners to their own networks. What they could not always provide was an access to 'university networks' more generally, because they negotiated their participation based on their immediate contacts' interests – interests that were not necessarily those of other academics elsewhere in the university. Likewise, the PDEng programme was designed by a single individual within the UT, and although it could have potentially served to create engaged studentships across the university, its alignment to those particular university interests hindered its diffusion across the institution.

The second issue is that there are constructive relationships between different elements of universities allowing support to be demonstrated for regional activities, but these are not always available when regional partners demand them. With the case of UoL's technology hub, a highly committed individual can autonomously initiate projects with potential long-term effects, but it is not always possible for universities to align their strategic, infrastructure and academic interests in all potential opportunities. University managers may resist engagement – as an existential risk – or prioritise other areas, such as teaching or research quality, and unless engagement contributes to those, engagement cannot achieve an internal institutional traction. University managers are also far more exposed to the exigencies of other kinds of policy-making, so although the Matchmakers in Aalborg were generally satisfied with the role of the scheme, a change at the national level meant that it was necessary to reconfigure the whole scheme internally.

This leads to the third problem, which is that it is not simple to upscale from the basis of individual successful projects in the university to a situation where the university contributes more generally constructively to regional collaborative projects. The PDEng addressed one particular long-

standing problem that firms, and government had been unable to address: that of high-level skills for smart industries and manufacturing. But, despite creating a new accreditation structure, it was difficult to use that PDEng mechanism to create new pathways for all regional partners to access applied high-level skills within the university. One approach noted here is the creation of dedicated strategic spaces, such as Riseholm and Holbeach campuses, the LLL in Aveiro or the Lincolnshire Technology hub, in which universities are committed to invest in these sites that have a wider regional benefit. But this simply promotes a small activity to become strategically important by increasing the dependence of the university on that activity. It does not find ways to upscale and make more open-facing the universities' knowledge activities that could potentially create regional benefit.

The final issue relates to both the preceding issue of upscaling as well as the role universities may play in providing a long-term source of stability for complementarities in innovation actors and resources. Whilst small projects may have a very clear cost-benefit logic for universities at the individual level, universities, as much as other actors, may find it difficult to see a profitable way to stimulate engagement more strategically in the present, in order to produce longer-term regional benefits that will ultimately strengthen the university. Universities face urgent pressures on their resources and may therefore lack the freedom to systematically prioritise regional collaboration activities except in those conditions where they are organised as these stable, economically sustainable projects. This risks universities overlooking the informal interactions that their employees have with other triple helix actors, and hinder concatenating them to achieve the upscaling.

## 6. Conclusion

This chapter has asked the question of "what roles do universities play in sparse environments in building up triple helix relationships stimulating regional innovation processes?". We have traced out a set of triple helix partnerships and relationships in five different sparse regional innovation environments and are able to identify the ways in which universities might constructively contribute to improving regional innovation environments. In all these different kinds of relationships, universities and local authorities increase collaboration with the private sector, but the changes emerge through a complex 'spiral' model where both internal and external dynamics of the parties influence one another (Rodrigues and Melo, 2013). In these cases where there is not a 'natural' critical mass of interaction as a consequence of this sparseness of interaction – existing connections may slowly build sustainable mechanisms to improve the density of the innovation environment.



However, nurturing these partnerships into regional success stories requires a lot of work from all parties (Wilgaard Larsen, 2017), as they tend to be fragile and dependent upon the present support environment (Åkerstrøm Andersen, 2008).

A challenge for universities is in linking informal, functional relationships to more formal, strategic relationships in ways that allow universities to maximise their stability and minimise their exposure to volatility. Regional partners can play different kinds of roles to encourage universities to undertake those internal integration activities that can help with the upscaling of triple helix activities to drive these longer-term processes of regional shift. Government can play a regional leadership role, encouraging university leaders to acknowledge their academics' research strength; regional firms can create collectivities to engage with academics to build up a critical mass of interaction activities. In some cases, where necessary, governmental partners may even directly subsidise university leaderships, so they permit their academics to take the risk and create regional contributions responding to business needs. Although universities may have complex internal dynamics, our paper suggests that the *tertius gaudens* principle may apply to these tensions within the university, with external partners helping university internal actors to resolve their tensions and to align strategic priorities with the activities being delivered by their knowledge workers.

We acknowledge that this is a relatively small study of five universities in sparse regions, using research that has been repurposed from other studies to provide a retrospective comparative dimension. This constraint demands a degree of modesty in the claims that we make, and we are unable to claim that the repertoires that we find universities playing are universally present or represent a best practice for universities seeking to maximise their triple helix contributions. Concomitantly, we note that the study provides a nuancing of the original model – that of universities playing a *tertius gaudens* role with respect to government and industry actors to facilitate developing collective regional innovation assets.

There are a range of different repertoires and barriers to be observed here. In some cases, the role of the university is as one of the partners who become trapped through tensions with another, and it is the third partner that plays the honest broker role. In other examples there is more of an orchestration, as solving one problem between partners leads to a development and new tensions between different partners, with the necessary roles shifting as the innovation environment becomes denser. And it is this modified innovation model that is our contribution regarding the understanding of triple helix relationships in regional innovation contexts, as a diverse and dynamic process between actors with diverse internal and external interests. This issue of the role of internal

diversity in shaping triple helix dynamics is not something currently addressed in the literature and we contend that more reflection is needed to ensure that triple helix approaches retain their analytic salience and applicability to understanding contemporary regional innovation-based economic development processes.

## 7. Bibliography

- AALBORG KOMMUNE. n.d. Network for Sustainable Business Development [Online]. Nørresundby. Available: [www.xn--centerforgrnomstilling-gjc.dk/in-english/network-for-sustainable-business-development](http://www.xn--centerforgrnomstilling-gjc.dk/in-english/network-for-sustainable-business-development) [Accessed 28-08 2019].
- BENNEWORTH, P. 2007. Leading innovation: building effective regional coalitions for innovation. Research Report from the National Endowment for Science, Technology and the Arts (NESTA). .
- EDER, J. 2019. Innovation in the periphery: A critical survey and research agenda. *International Regional Science Review*, 42, 119-146.
- ETZKOWITZ, H. & LEYDESDORFF, L. 2000. The dynamics of innovation: from National Systems and "Mode 2" to a Triple Helix of university-industry-government relations. *Research Policy*, 29, 109-123.
- FONSECA, L. 2019. Designing regional development? Exploring the University of Aveiro's role in the innovation policy process. *Regional Studies, Regional Science*, 6, 186-202.
- GRABHER, G. 1993. The weakness of strong ties : the lock-in of regional development in the Ruhr area. In: BOSCHMA, R. & MARTIN, R. (eds.) *The Embedded Firm: On the socioeconomics of industrial networks*. London: Routledge.
- ISAKSEN, A. & KARLSEN, J. 2013. Can small regions construct regional advantages? The case of four Norwegian regions. *European Urban and Regional Studies*, 20, 243-257.
- LAGENDIJK, A. & OINAS, P. 2005. Proximity, External Relations, and Local Economic Development. In: LAGENDIJK, A. & OINAS, P. (eds.) *Proximity, Distance, and Diversity: Issues on Economic Interaction and Local Development*. London: Routledge.
- LEYDESDORFF, L. & ETZKOWITZ, H. 1998. The triple helix as a model for innovation studies. *Science and public policy*, 25, 195-203.
- MINISTRY OF EDUCATION AND CULTURE 2009. UNIVERSITIES ACT 558/2009. In: MINISTRY OF EDUCATION AND CULTURE, F. (ed.).
- MORGAN, K. & NAUWELAERS, C. 2003. A Regional Perspective on Innovation: From Theory to Strategy. In: MORGAN, K. & NAUWELAERS, C. (eds.) *Regional innovation strategies: The Challenge for Less-Favoured Regions*. London: Routledge.
- MOULAERT, F. & SEKIA, F. 2003. Territorial innovation models: A critical survey. *Regional Studies*, 37, 289–302.
- NIETH, L. 2019. Understanding the 'strategic black hole' in regional innovation coalitions - Reflections from the Twente region, Eastern Netherlands. *Regional Studies, Regional Science*, 6, 203-216.
- NIETH, L. & BENNEWORTH, P. 2018. Universities and neo-endogenous peripheral development: Towards a systematic classification (2). In: BENNEWORTH, P. (ed.) *Universities and Regional Economic Development - Engaging with the Periphery*. Abingdon, Oxon: Routledge.
- NIETH, L. & BENNEWORTH, P. 2019. Regional Policy Implications of the Entrepreneurial University –Lessons from the ECIU. In: DANIEL, A. D., TEIXEIRA, A. & TORRES PRETO, M. (eds.) *Examining the Role of Entrepreneurial Universities in Regional Development*.
- NORMANN, R. H., JOHNSEN, H. C. G., KNUDSEN, J. P., VASSTRÖM, M. & JOHNSEN, I. G. 2017. Emergence of regional leadership—a field approach. *Regional Studies*, 51, 273-284.
- NOVEL-T. 2019. Smart City Enschede [Online]. Available: <https://novelt.com/en/services/smart-city-enschede/> [Accessed 19 September 2019].
- RODRIGUES, C. & MELO, A. I. 2013. The Triple Helix Model as Inspiration for Local Development Policies: An Experience-Based Perspective: The triple helix model and local development in Portugal. . *International Journal of Urban and Regional Research*, 37, 1675–1687.

- RODRIGUES, C. & TELES, F. 2017. The Fourth Helix in Smart Specialisation Strategies: The Gap Between Discourse and Practice. In: MONTEIRO, S. D. O. & CARAYANNIS, E. (eds.) *The Quadruple Innovation Helix Nexus: A Smart Growth Model, Quantitative Empirical Validation and Operationalization for OECD Countries*. New York: Palgrave Macmillan.
- SALOMAA, M. 2019. Third mission and regional context: assessing universities' entrepreneurial architecture in rural regions. *Regional Studies, Regional Science*, 6, 233-249.
- SALOMAA, M. & CHARLES, D. 2019. The university third mission and the European Structural Funds in peripheral regions: Insights from Finland. *RUNIN Working Paper Series*, 07/2019.
- TODTLING, F. & TRIPPL, M. 2005. One size fits all? Towards a differentiated regional innovation policy approach. *Research Policy*, 34, 1203-1219.
- VAN DROOGE, L. & SPAAPEN, J. 2017. Evaluation and monitoring of transdisciplinary collaborations. *The Journal of Technology Transfer*.
- WILGAARD LARSEN, P. 2017. Delineating partnerships from other forms of collaboration in regional development planning. *International Planning Studies*, 22, 242-255.
- WORLD BANK & ENOLL 2015. *Citizen-Driven Innovation. A guidebook for city mayors and public administrators*. In: ESKELINEN, J., GARCÍA ROBLES, A., LINDY, I., MARSH, J. & MUENTE-KUNIGAMI, A. (eds.). Washington, DC: World Bank & European Network of Living labs (ENoLL).
- ÅKERSTRØM ANDERSEN, N. 2008. *Partnerships: machines of possibility*, Policy Press.

---

## 13. Universities and place leadership: a question of agency and alignment

*Liliana Fonseca, Lisa Nieth, Maria Salomaa and Paul Benneworth*

---

### INTRODUCTION

There is an increasing interest in and growing literature on place leadership, aimed at answering diverse questions around the agents and/or institutions that lead regions to desired future outcomes. Regional leadership has thus been labelled as a determinant of regional growth, and policymakers, practitioners and academics are eager to understand the nature, origins and different appearances of place leadership (see, for instance, Sotarauta et al. 2017). Concomitantly, higher education institutions (HEIs) are increasingly seen as important agents in regional development, providing generative activities like patenting and licensing, creating spin-offs and transferring technology, as well as offering more developmental activities that upgrade and improve their regional innovation ecosystem (Gunasekara 2006).

Universities' developmental roles can involve both the direct upgrading of the environment as well as cooperative activities to collectively achieve those improvements, including through the exercise of leadership. To date, there has been little systematic consideration of the ways in which universities exercise place-leadership (Benneworth et al. 2017a), and it is a natural process to wonder where HEIs can be situated in the leadership puzzle. Within this context, we pick up a discussion initiated recently, in that a better understanding of the role of agency in policy and development processes is needed (Uyarra et al. 2017). In parallel, we note that universities' place leadership roles inevitably reflect the complex institutionality of universities as 'loosely coupled' institutions facing mission overload and the struggles of internal leadership. Therefore, in this chapter, we reflect on the way that complex organizations (universities) can exert place leadership, and specifically on the relationship between universities' internal organizational structures and their capacity to exert place leadership. Interested in the ways 'strategic leadership' in universities contributes to innovation and regional development within the wider context of these overall institutional architectures, shaping their achievement potential, we ask: *To what extent does the university's institutional architecture affect their regional leadership roles?*

We address this using a comparative case study that crosses six national and regional settings (Aveiro (Portugal), Lincolnshire (United Kingdom), North Denmark (Denmark), Satakunta (Finland), Vallès Occidental (Spain) and Twente (the Netherlands)). Our analysis shows that the different leadership roles taken by

HEIs are dependent on a diverse set of factors, like regional settings, relationships with regional partners and the internal institutional structure within which universities operate. We use this empirical data to develop a better conceptualization of university place-leadership and the way internal structures (top-management, administrative machinery, academic tribes, support structures and coupling/coordinating institutions) interplay with top management. These five elements provide us with a basis to, first, sharpen the concept of university place leadership and problematize that internal complexities and misalignment of actors within the university structure often limit external leadership. On this basis, we argue that a model must be found in which alignment (internal and external) and individual agency are combined.

This chapter is structured as follows: the first section develops a model of university elements relevant for regional leadership activities and provides an overview of the literature relating to regional leadership roles and universities in regional development. The next section outlines the data and research method and provides an overview of the cases. Section 4 describes the empirical evidence from the six case universities along the outlined elements defined before. Section 5 discusses the nature of the five different elements and how they interact and support regional leadership. Finally, the chapter closes by highlighting the implications of our analysis for policy and presents concluding comments.

## UNDERSTANDING PRACTICAL CONSTRAINTS ON UNIVERSITY REGIONAL LEADERSHIP

Universities' regional policy roles are commonly discussed as if they were part of higher education's legally mandated responsibilities, which confuses two complementary elements of universities' contributions. Universities' generative contributions generally occur automatically and as a side effect, that is, through spillovers from university knowledge communities enabled by physical proximity and the mere presence of the HEI. However, developmental contributions rely on the exercise of leadership by university managers, with no *a priori* reason why universities should choose to do this. After all, universities are not development agencies or private businesses and, though they receive public funding, there is no reason why they should arbitrarily restrict their societal contributions to an arbitrary region chosen for strategy-making purposes. Concomitantly, universities benefit from their regions as those regions benefit the universities' knowledge communities. Therefore, the art of leadership by higher education must be understood as a search to construct mutually beneficial sets of knowledge activities that drive regional innovation as well as enrich innovation activities.

### **The Contemporary Innovation Policy Challenge**

In recent years, knowledge has become increasingly recognized as the key to unlocking economic growth, productivity and competitiveness. The rise of the

knowledge-based economy (cf. OECD 1996) has made the interactivity inherent in the transmission of knowledge between markets, policy, science and technology an essential driver of innovation dynamics (Edquist 1997; Krammer 2017). This is particularly the case when considering the territorial dimension, as collective learning mechanisms are more easily developed at more local and regional levels (Goddard and Chatterton 1999; Morgan 1997; Santos and Caseiro 2015). It is therefore unsurprising that public policies, namely science, technology and innovation policies, have emphasized the role of networks and knowledge-intensive actors – especially HEIs – in stimulating regional competitiveness in what is an increasingly global context (Arbo and Benneworth 2007; Drucker and Goldstein 2007; Smith 2002).

Innovation policy has become ever more important to driving regional economic development, and more place-based approaches reflecting on contextual variances have further emphasized this (Barca et al. 2012). McCann and Ortega-Argilés (2015) argue that innovation is highly influenced by factors such as population density, economic diversity and regional market potential. This implies that peripheral and less-developed regions tend to be disadvantaged, characteristically by low local business demand for innovation, inefficient locally based R&D activities and a lack of inter-institutional interaction (Huggins and Johnston 2009; Rodrigues et al. 2001). However, with policy discourse coordinating new knowledge-based, place-based and collective approaches to regional development innovation policy, which consider not just infrastructural but also institutional and social dimensions in fostering collective learning and territorial competitiveness (Morgan and Nauwelaers 2003; Santos and Caseiro 2015), these development gaps may be bridged.

The Smart Specialization framework emphasizes this explicitly, as a tailored policy aimed at decreasing regional disparities by exploiting and promoting innovation's collaborative character. Central to smart specialization is a partnership-based policy process of entrepreneurial discovery constructing regional advantage (Foray 2016) based upon a vision in which 'partnerships [...] are essential in order to elicit the knowledge regarding the most severe obstacles to growth, the major bottlenecks or missing links, the optimal remedies' (McCann and Ortega-Argilés 2015, 1298). These stakeholder partnerships have been referred to as multi-level partnerships (Morgan and Nauwelaers 2003), regional innovation coalitions (Benneworth 2007) and regional innovation networks (Rodrigues and Teles 2017). While these policies tend to expect stakeholders to work together straightforwardly (as 'happy family stories' (Legendijk and Oinas 2005)), recently, the urgent call for a consideration of agency has been voiced (Uyarra et al. 2017).

At the same time, the extent to which regional leadership is emerging in practice and enabling strategic steering of regional development is in question. Leadership, understood as a capacity to unlock collaborative engagement in a 'sustained' and 'purposeful' manner, can be seen as transformative and highly impactful in performance (Bass 1990; Stough et al. 2001). Regional place-based leadership in particular is necessarily a collective endeavour, delivered as much through the effective roles that key regional actors perform, their influence and significance, as their formal

institutional titles (Sotarauta 2014). This raises the issue of which leadership roles can be played by universities in regional innovation coalitions.

### **The Complex Institutional Dynamics of Universities**

The importance of higher education in supporting economic growth has become increasingly evident across a range of policy frameworks (Roper and Hirth 2005; Vorley and Nelles 2009; Zomer and Benneworth 2011). Universities' regional contributions may come through a variety of interventions, from mobilizing collective resources (Bergek et al. 2008) through developing a more robust regional knowledge base (Asheim et al. 2011) to directly constructing regional advantages. Policy places complex expectations on universities to function as flexible, integrated and strategic actors (Uyarra 2010), but, in reality, responding to regional needs and embedding engagement in the academic core can be somewhat problematic (Benneworth and Sanderson 2009; Uyarra 2010) because of universities' internal mechanisms (Chatterton and Goddard 2000; Foss and Gibson 2015).

Universities' depict their regional contributions through explicit engagement commitments (Pinheiro et al. 2012), such as strategic mission statements. But this downplays the fact that universities are not biddable organizations (Pinheiro et al. 2012) and external interests are not necessarily aligned with those of their regions (Benneworth et al. 2014a). Universities are complex and 'loosely coupled' (Weick 1976) organizations held together by institutional structures. Therefore, engagement with the region – and potential leading roles in regional development – is not a straightforward process.

Universities' regional orientations are shaped by several factors primarily related to the extent to which the knowledge activities they undertake around teaching and research can involve regional partners. This means universities' regional contributions are dependent on several external factors, such as the regional job market, public funding and the cultural and historic characteristics of the region (Breznitz and Feldman 2012; Vorley and Nelles 2012). Likewise, what universities can achieve in their regions is shaped by their existent portfolio of knowledge activities and the extent to which internal knowledge actors can involve regional actors in these activities (Benneworth et al. 2017b). Any serious consideration of universities' regional contributions – including their capacity to exert leadership in a regional context – reflects these factors, particularly regarding the extent to which universities' engagement activities are embedded into their internal dynamics (Vorley and Nelles 2012).

Contemporary regional innovation policy frameworks all too quickly assume rather simplistic 'one-size-fits-all' approaches to universities' engagement (Benneworth et al. 2016; Kitagawa et al. 2016). But universities' engagement cannot be effectively delivered by solely adding new engagement activities to the institutional periphery – it requires rooting engagement activities across the organization within its core missions (Foss and Gibson 2015; Gibb and Hannon 2006; Vorley and Nelles 2009). To date, there have been few considerations of how universities embed engagement within their internal architectures and the consequences this has on their regional

contributions (Salomaa 2019). Therefore, we consider the ways in which universities play regional leadership roles – enacted through their diverse portfolios of knowledge processes – and how they may become embedded in universities’ institutional architectures.

### **Universities and Regional Leadership**

Following Benneworth et al. (2014b), Clark (1998) and Nedeva (2008), we characterize university institutional architecture as comprising five elements, where each of these may or may not support the university’s institutional contribution (see Table 13.1). First, the ‘steering core/strategic leadership’ is represented by senior management, which is responsible for articulating the university’s strategy and policy documents, its mission and vision. The second component is the ‘administrative machinery’ of the university, which translates the strategic aims from top management and thereby aims to guarantee the quality of engagement, while also considering the diverse ‘academics tribes’ (Becher and Trowler 2001) and their different needs and interests. The third component is ‘academic tribes’, that is, either individual agents or groups of individuals. Fourth, ‘peripheral support structures’ are those that do not contribute directly to core teaching and research activities but give universities capacities in other areas, like student exchange or conference facilities. Finally, the fifth element is ‘internal coupling/COORDINATING mechanisms’ that validate and legitimize universities’ core activities: for example, committees exist to allow both medical and arts degrees – with their vastly different contact hours and teaching methods – to be seen as valid and to warrant the award of degree status.

Each of these may find an expression in terms of their regional contribution. However, we will foreground leadership as the primary determinant of university institutional change, given that strategic leadership has the greatest capacity to exert change. The strategic leader could, thus, decide to focus on and support regional engagement, leading a discourse of engagement and freeing necessary resources. Regional leadership has a dual nature, experienced by local partners but conditioned externally. Universities’ regional leadership is *dependent* on universities’ capacities and institutional architectures as a whole, and therefore we consider how institutional *architecture* influences universities’ capacities to exert leadership. We regard a university’s institutional architecture as defined by the way that five elements relate to each other (see Table 13.1). The university may create internal structures that coordinate regional engagement processes/activities internally and seek to ensure that they embody the activities already undertaken by academics. There may or may not be a widespread culture of involvement of regional partners in local knowledge activities in various formal or informal ways. Peripheral structures might help academics better involve external partners in their core knowledge activities and facilitate various kinds of knowledge spillovers from the university to the region. And finally, internal coupling mechanisms – such as promotion committees – might also shape universities’ capacities for regional engagement by legitimizing it within the university. This is summarized in Table 13.1.



*Table 13.1 University institutional architecture elements in regional engagement/leadership*

University element	Strategic engagement nexus element	External: deliver the visible benefits	Internal: build the activities into the university core structure
<i>Strategic leadership</i>	Rector+ ‘heroes’	The Rector ‘platform’ improving associative governance	Rector’s position evolves, seen as legitimate that wider management team pushing regional engagement
<i>Administrative machine</i>	The organ overseeing the rules and strategies of engagement	University administration more intertwined and integrated with regional funding and collective activities	Development of strategy and formal routines associated with engagement activities
<i>Academic tribes</i>	Engaged agents in academic tribes	Academics more engaged with external firms and politics fitted to core research/ teaching	More academics doing engagement and willing to undertake the task
<i>Peripheral support structures</i>	Structures for delivering university external engagement	Visible HEI structures (for example, technology transfer office) active in receiving regional funding	Peripheral structures better embedded into core: projects become central organizations/ institutions
<i>Coupling/ coordinating institutions</i>	The structure that exerts-asserts the power/ legitimacy of regional engagement	A clear set of policies for regional engagement that demonstrate HEI takes engagement seriously	Peripheral engagement activities (centres of special funding) develop legitimacy, power and significance

*Source:* Authors’ own design after Benneworth et al. (2014b), Clark (1998), Nedeva (2008).

Since the capacities to provide strategic leadership are a function of the university architecture (of which strategic leadership is one element), we here distinguish between the regional leadership contribution to collective innovation activities, and then the way that leadership is by the other four elements of this institutional architecture. Our overall research question is: *To what extent does the university’s institutional architecture affect their regional leadership roles?*

## METHODOLOGY AND CASES

### Methodology

To address this research question, we draw upon Table 13.1 which provides us with a conceptual framework of the way in which the ‘iceberg’ of the university affects the capacity of the ‘iceberg tip’ to exercise formal regional innovation leadership. Although derived from Benneworth et al. (2014b), this conceptual framework has not yet been extensively validated empirically. We choose an exploratory approach to understand whether the university’s institutional architecture does affect the

way they visibly play regional leadership roles. We are interested in the ways in which different configurations of university institutional architecture may affect these regional leadership roles. For this purpose, a comparative multiple case-study approach across different national and regional settings was deemed appropriate to facilitate identifying patterns across cases and furthering theory-building. The case studies were selected as corresponding sufficiently to the research needs of regions where universities have been active in regional development; universities where the region is an important partner for them; and universities that profess that they strategically choose to exert regional leadership. There is some variation here in the cases, from a small ‘edge city’ on the border of Barcelona’s urban space to a remote Finnish region, along with four other regions going through industrial transition and with substantial rural hinterlands (Aveiro, Twente, North Denmark, Lincolnshire). This mix of variety and similarity along with the intensive case study method chosen provides sufficient depth for interpretation through our conceptual framework to derive detailed place understandings of relationships between *internal institutional architecture* and *external visible leadership roles*.

Data collection took the form of secondary document analysis and primary data by way of in-depth, semi-structured interviews, with a similar approach in each of the regions analysed. Questions focused on the universities’ organizational structure and institutional mission, their role in their region and particularly their participation in regional strategy processes. Interviewees included university staff, such as top-managers at a central university level, technical and administrative staff, academics, intermediate officers and other regional stakeholders involved in regional coalitions, namely regional government authority staff (policymakers, managers, technicians) and other relevant institutional actors (for example, businesses, industrial or social associations). The total number of interviews conducted was 186, with the following distribution: 31 in Aveiro, 35 in Lincolnshire, 32 in North Denmark, 34 in Satakunta, 20 in Vallès Occidental and 34 in Twente. Interviews had an average duration of one hour and were recorded and transcribed by the authors.

## Case Studies

### Aveiro

Aveiro region is located in the coastal area of the NUTS II Centro region between the cities of Lisbon and Porto. Composed of 11 municipalities associated in 2008 under the Intermunicipal Community of the Region of Aveiro (CIRA), it has a population of around 370,000, mostly concentrated in the city of Aveiro. It is considered ‘less developed’ under EU’s categorization for NUTS II regions, is predominated by small and medium-sized enterprises (SMEs) and geographically and sectorally diffused. However, it ranks as the third best performing Portuguese region on the basis of its relative weight of GDP and exports (Rodrigues and Teles 2017). The creation of the University of Aveiro (UA) in the 1970s, was a result of a regional push for the presence of an HEI to help revitalize the regional industrial fabric. And it worked. Ever since the region has transitioned in great part from traditional agricultural and

previously stagnant industry towards more knowledge-intensive activities, mainly in the areas of ceramics, forestry, metallurgy, agro-food and information and communication technology (ICT).

Since 2007, regional development and part of funding management have been delegated by the Centro's regional authority to intermunicipal communities like CIRA, pending their elaboration of territorial development strategies. Thus, in recent periods (2007–2013; 2014–2020) CIRA has done so through a knowledge-based and collective approach, partnering with UA, the sole HEI in the region. UA has approximately 14,000 students, not only in its main Aveiro campus but also spread throughout the territory in its four polytechnic schools. Since its creation, it has developed close regional ties, emphasizing an entrepreneurial approach and technical areas of regional industrial relevance such as ceramics, biochemistry, agro-food and ICT. Furthermore, at a discursive and practical level, UA has progressively considered more governance- and associative-based forms of engagement, namely with local and regional government.

### **Lincolnshire**

Lincolnshire is a large, rural region in eastern England with around 750,000 inhabitants. Its primary land use is agricultural – the area is the UK's biggest vegetable producer – and the local business environment is largely dominated by SMEs. Lincolnshire County Council (LCC) is headquartered in the City of Lincoln, one of seven county districts. The most important strategic document driving local innovation and economy is the Greater Lincolnshire Local Economic Partnership's (GLLEP) Strategic Economic Plan. It was produced collaboratively by many local stakeholders, including the University of Lincoln (UoL), which assisted GLLEP in setting the priorities (for example, food production and engineering) and in writing the plan (Regeneris Consulting 2017).

UoL has always had a strong regional mission; the main campus in Lincoln was first established as a branch campus in 1996 after long regional lobbying for local higher education (University of Lincoln 2010). Since then, it has expanded quickly into a multidisciplinary full-range university. Currently, it has 14,000 students and 1,600 staff members across three campuses. The two smaller rural campuses, the Lincoln Institute for Agri-Food Technology (LIAT) in Riseholme and National Centre for Food Manufacturing in Holbeach in Southern Lincoln, both serve the local agri-food sector. UoL has actively sought to meet local job market needs, of which a good example is the establishment of an engineering school together with Siemens to facilitate access to skilled workers in the region. There are also several collaborative incentives to both strengthen graduate entrepreneurship and to attract larger businesses to the region.

### **North Denmark**

The region of North Denmark has around 600,000 inhabitants spread over 11 municipalities, with a strong divide between urbanized city centres and an agricultural, rural hinterland. In terms of its industrial profile, the region has undergone

significant structural changes since the 1990s. While being dependent on traditional labour-intensive manufacturing and primary industries in the past, today it can rely on growth-oriented knowledge industries (competence clusters in industries such as IT, communication, nanotechnology). Regional development was, until 2019, the task of the regional council and the Growth Forum (GF), the later consisting of representatives from the business sector, education and knowledge institutes and public authorities (North Denmark Region 2014). Together these representatives advise the region on a multi-year regional growth and development strategy (REVUS), as well as the distribution of funds. While the former REVUSs were described as very broad, current strategies (especially 2014–2018 and the one designed for 2019) were said to be more focused, highlighting regional assets.

The rector of Aalborg University (AAU) is a representative of knowledge and education institutions in the GF, alongside the director of the Center for Education and Business (EUC Nordvest) and the rector of the University of Applied Sciences (UCN). AAU, founded in 1974 and with some 21,000 students, played an important role in stimulating the transition to new growth areas, emphasizing education and research in technical and engineering fields. While AAU is currently shifting towards a stronger focus on global excellence and internationalization, the long-standing problem-based learning (PBL) approach uses joint projects that strongly connect the university to the region.

### **Satakunta**

The Satakunta region (Finland) consists of 17 municipalities with a population of 220,398 (OFS 2017) and two major regional centres: the cities of Pori and Rauma. The economy relies on energy production, engineering, offshore process industry, ports and logistics, and food, with automation, robotics and maritime performing well. However, annual R&D expenditure underperforms the national average, with clear GDP differences between urban centres and more remote municipalities (Regional Council of Satakunta 2018; Satamittari 2018). The Regional Council of Satakunta (RCS) has designed the Regional Strategic Plan (RSP), and RSP priorities (for example, bio-economy, ICT and maritime environment) form the basis for the regional Research and Innovation Strategies for Smart Specialisation's (RIS3). The RSP priorities include increasing local access to higher education. The University Consortium of Pori (UC-Pori), a higher education network located in Satakunta, plays an important role in achieving that goal.

The Finnish university consortia was created to enhance HEIs' societal role and respond to local needs (FINHEEC 2013). UC-Pori is coordinated by the former Tampere University of Technology (TUT),<sup>1</sup> providing engineering degrees within the region since 1989, along with the University of Tampere (UTA), University of Turku (UTU) and Aalto University (Aalto). Today, UC-Pori has 170 employees and 2,500 students, primarily pursuing qualifications in arts/culture (Aalto), technology/engineering (TUT), social sciences (UTA) and economics/maritime studies (UTU) (UCPori).

### **Twente**

The Twente region is situated within Overijssel Province in the Eastern Netherlands and has 650,000 residents in 14 municipalities. Having suffered industrial decline since the mid-twentieth century, Twente has actively sought to reindustrialize, and today manufacturing, trade and healthcare are the main economic sectors. Several strategic bodies merged to create the 'Twente Board' in 2012, intending to drive Twente's economic development. Currently, the Twente Board (TB) is actively involved in developing the Agenda for Twente (2018–2022), a regional development strategy initiated by the municipalities. The TB involves representatives from various societal partners including two knowledge institutes: Saxion University of Applied Sciences and the University of Twente (UT). UT opened in 1964, offering degrees in mathematics, applied physics and mechanical, electronic and chemical engineering with the aim of being closely connected to the region's industrial base. Today, the university has a more diversified research and educational profile, including social sciences, and has over 10,000 students. UT has been described as being successful in repeatedly reinventing itself, and for having become a source of regional growth and innovation as a consequence of its historic collaboration with diverse stakeholders, such as policymakers and companies (Benneworth and Pinheiro 2017). One such areas of reinvention was entrepreneurship and innovation, cementing it as a centre of regional innovation and knowledge networks (Stam et al. 2016) with a range of start-up initiatives.

### **Vallès Occidental**

Vallès Occidental is a county located in Catalonia, the most highly industrialized and highest GDP region in Spain. It comprises 23 municipalities with approximately 900,000 people, and its main centres are Sabadell and Terrassa, the dual county capitals which overshadow the other municipalities both economically and demographically. While a predominantly textile-based region since the nineteenth century, today it is more diversified, with other relevant sectors including metallurgy, mechanical engineering, biochemistry, agro-food, tourism, services, IT and industry 4.0. The County Council of Vallès Occidental (CCVO) provides policy and service coordination between municipalities, including cooperation for regional development, although the regional authority of Catalonia (Generalitat) retains most public policy and innovation competencies, including RIS3 and structural fund allocation. The county has promoted collective innovation support both autonomously and through RIS3-funded instruments; in these both its universities (Autonomous University of Barcelona (UAB) and the Polytechnic University of Catalonia (UPC)) have played a leading role alongside other technical schools.

UAB is by far the largest and most multidisciplinary HEI in Vallès Occidental. Established in 1968, and with around 37,000 students today, it has strengthened its campus's integration with the region as an innovation support resource. UAB focuses on the fields of social sciences and humanities, economics, bioscience, medicine and engineering, and emphasizes entrepreneurship and societal engagement along with international excellence.

## INSTITUTIONAL ARCHITECTURE ELEMENTS IN REGIONALLY ENGAGED HEIS

### **Strategic Leadership**

Out of the six cases, four prioritized regional engagement in their mission statements, often with this orientation being enacted at top-management levels. Nevertheless, a lack of appropriate organizational mechanisms to anchor it in the wider academic community and effectively promote engagement was sometimes evident. Several cases presented a ‘strategic mismatch’, in which strategic declarations of university strategic leadership did not correspond with what takes place in practice. In the Pori case, academics and staff choose to autonomously (and perhaps opportunistically) collaborate with the region, despite the absence of any strong strategic push to do so from the universities (Salomaa and Charles 2019). In both Barcelona and Aalborg, there is a strategic emphasis on regional engagement, but with a simultaneous emphasis on internationalization, with interviewees reporting that they have experienced tensions between these two goals. In Lincoln, there is a strong strategic goal to engage with the region, but only the vice-chancellor is providing leadership, whereas managers and academics mainly focus on more traditional missions, such as teaching. In Pori, Twente and Aalborg, the primary drivers for engagement were academic and student activities (such as Aalborg’s problem-based learning projects), which were promoted by institutional leaders, but were not particularly effective as they were limited in their reach.

There were four regions where the universities were institutionally involved in associated platforms that sought to develop collective regional strategies for innovation, namely Aveiro, Aalborg, Twente and Barcelona. In these four regions, the universities were perceived as necessary and legitimate partners for these platforms and the strategies they developed. This was due to their access to substantial volumes of knowledge and other needed resources for the eventual successful implementation of those projects and, ultimately, the construction of innovative regional advantage. The universities enjoyed an influential position in the development of regional rhetoric; this was most evident in the case of Twente, where the region adopted a strategic position in 2014 that foregrounded ‘technology’ as the single pillar for regional development, echoing UT’s desire to profile itself around its then slogan ‘high tech, human touch’. In Aalborg, AAU’s increased emphasis on internationalization was undermining its capability to contribute to regional strategy processes, leading to some frustration in the regional partnership. In Lincoln, UoL was heavily dependent on the vice-chancellor as the single external representative, and although this brought visibility for the university, it placed practical limits on what that engagement could achieve. In some cases, there have been efforts to create additional senior management positions to support engagement, notably in Lincoln and Aveiro, although there have been difficulties in ensuring that their external engagement remained coupled to institutional activity.

### **Administrative Machinery**

A range of different ‘administrative machineries’ to support engagement exists across the cases’ universities, varying from top-level activities focusing on specific regional priority sectors (Aveiro, Barcelona) to more practical models indirectly guiding institutional engagement (Aalborg’s PBL approach, Lincoln’s European Structural Funds projects). All six universities have collaborative activities, regional networks (Aveiro, Pori, Lincoln) and/or have made efforts to win external funding for engagement activities (Barcelona). Some universities have specific administrative departments to oversee these tasks (for example, Twente’s Department of Strategy and Policy, Lincoln’s Research and Enterprise Team, Aveiro’s Technology Transfer office (UATEC)). Pori lacks a formal administrative machinery, even though the region remains important for UC-Pori, the university consortium there. In the absence of these institutional mechanisms to support engagement, these activities are not built on strategic/formalized routines, but more on individual academics’ efforts to engage with the region. Even if the university has not formulated evident institutional strategies to encourage regional engagement, the region can still be regarded as an important partner for the university (for example, Twente, Pori, Aalborg). In some cases, the regional funds – such as the European Regional Development Fund (ERDF) – are the key resource for delivering regional engagement activities (Lincoln, Aveiro, Pori).

One tension in all the cases was the fact that these regional funds were not regarded as relevant for universities and, in practice, they were often managed in ways that held them at a degree of distance from the core institutional setting (for example, in Twente, Pori and Barcelona). It was not just the position of the administrative machinery that was affected by this institutional attitude to regional funding. In most cases, regional engagement was perceived as unimportant to career development, resulting in little natural impetus within the institution to align those core activities to external engagement activities. Some universities have tried to overcome this dilemma by prioritizing collaborative, large-scale initiatives that match academics and businesses to work together on regional priority sectors. Aveiro funded technical platforms in regional strategic priority areas, and Lincoln used ERDF funds to stimulate university–business interaction around innovation. Aalborg was relatively exceptional in that regard since staff members’ external connections generated suitable regional projects that allowed their PBL teaching approach to function successfully.

### **Academic Tribes**

There were different kinds of dominant academic identities between the various case study institutions. In Lincoln and Barcelona, there were relatively traditional academic values in which the emphasis lay on delivering teaching and research. In other cases, academic identities were more focused towards engagement (for example, Twente, Aalborg and Aveiro), where dense connections to particular regional part-



ners and users can be detected at the individual and departmental level. Finally, in Pori, there was much less emphasis on regional engagement at the institutional level, even where there were many academics who prioritized it as being important to their core business activities. They drew primarily on personal needs and interests rather than institutional strategies, although this undermined the university's capacity to steer those activities institutionally. This is not to downplay the capacity of individual academics to impact regional priorities and innovation capacity; UT had a number of partnership centres that had come to Twente to work with those individuals, and, likewise, there were examples of individuals leaving for better employment taking their whole research group (and in one case associated spin-off partner companies) with them. Some of the universities introduced structures to empower engaged academics; Barcelona created Hub B30 and the CORE as bodies to assist these bottom-up engaged academics, whilst Lincoln created innovation voucher schemes as part of its ERDF activities to provide a direct mechanism to reward academic-innovator engagement.

Not all academics sought to be engaged or were successful in engaging through their individual networks. In Aveiro, academics were undermined by a general lack of resources which made a deviation from formally mandated activities extremely difficult to arrange. In Lincoln, the general lack of alignment between engagement and core teaching and research activities also disincentivized engagement. Pori failed to develop a persuasive narrative of its innovation activities, particularly relating to the absence of institutional or national performance indicators for engagement, in turn reducing the institutional steering of academics to engage. In all cases, academics' motivation for regional engagement was heavily dependent on their own preferences and motivations, and at least partly reflected the extent to which regional engagement was supportive of other core knowledge activities.

### **Peripheral Support Structures**

A range of support structures was used to promote regional engagement, mostly focused around science parks and technology transfer activities. There was a split within the universities between those that tried to centralize these structures – such as Aalborg where AAU Innovation was supposed to be transformed into a single point of contact – and those that placed support activities within the academic units – as was the case for Aveiro. A key issue with these structures is that most of them did not have an explicitly regional mandate, but rather were responsible for generally promoting entrepreneurship and innovation. Although science parks represented specifically regional development assets, technology transfer and valorization offices were primarily concerned with technology commercialization. They did become involved in delivering specific projects related to regional engagement, often funded by European funds, and this had the result of further fragmenting and peripheralizing regional engagement within the already institutionally peripheral commercialization structures.



Five of the regions had science parks – namely Barcelona’s Research Park (PRUAB), NOVI science park in Aalborg, Lincolnshire Innovation and Science Park, Kennispark Twente and Aveiro’s Creative Science Park – providing both physical spaces but also support structures to promote regional innovation and entrepreneurship. Those parks were typically located at or near the universities, and often included shared space, such as incubators or laboratories, for shared use. Finally, no formal support structures to deliver engagement activities were identified in Pori, where key financial tools (and, critically, access to the European Structural funds) were the sole ‘structure’ enabling external engagement and depended heavily on individual researchers’ motivations and interests. Similarly, Lincoln established many engagement mechanisms, which were primarily opportunistic responses to funding opportunities and were not managed to build and facilitate systematic interaction between regional stakeholders and academics.

### **Coupling/Coordinating Institutions**

In most cases there were no, or extremely limited, formal structures in place to link engagement to core university teaching and research activities. Individual academics were often in charge of this coupling, in turn making them responsible for identifying and applying for appropriate funding from different sources. Aveiro attempted to create an academic career evaluation system that included regional engagement, but its inefficiency ultimately discouraged and demotivated academics to report their engagement efforts. Barcelona recently formally announced the intention to factor engagement activities into academic career evaluation, but these have not yet achieved any kind of purchase within local academic communities. Although Twente made a high-level institutional claim towards supporting regional engagement, institutional incentives and internal financial mechanisms primarily reward large numbers of students and research council funding, with regional engagement only seen as legitimate when aligning with those activities.

The one region that did have formal structures was Aalborg, where even the PBL mechanism was under pressure to become internationally excellent. There was a sense that, whilst in the past regional engagement had been important to the university’s academic identity, more recent changes undermined the realization of the existential importance of that regional engagement. The region was seen as a provider of projects for the PBL approach, rather than as a partner and beneficiary of those activities. In some cases, there were examples of management to create new kinds of internal regulatory structures that rewarded engagement, primarily the industrial PhDs offered at UAB and UT.

## **DISCUSSION**

We are concerned in this chapter with the ways in which elements of a university’s structure affect the formal capacity of its ‘leadership’ (as understood in Clark’s

(1998) terms) to constructively contribute to regional processes. When there was an effective alignment between the regional capacities within the university structures, and the managerial leadership's intentions, then this provided legitimacy for those managers in regional leadership coalitions. Conversely, when there was a dissonance between these capacities and intentions, this undermined the capacities for managers to exert leadership in these coalitions. Constructing that legitimacy depended on there being good faith in terms of the claims made by university managers and that related to their core knowledge processes being regionally embedded. When engagement was approached more instrumentally or opportunistically by university managers, then those managers' legitimacies in the coalitions was undermined by the evident mismatch between manager claims and university regional knowledge spillovers.

In terms of the supportive factors, administrative machinery supported regional engagement and leadership by institutionalizing senior manager intentions in various ways throughout the university – namely in specific offices to support researchers, students and leadership in their engagement activities, as well as to try to make regional engagement viable as part of a successful academic career. This became important in terms of the presence of architectural elements that support management legitimacy in regional innovation coalitions, when existing regional activities aligned with managers' strategic intentions. Academics' networks with regional partners were important in legitimizing university managers in regional innovation coalitions, and this support was strongest when the benefits that these networks were bringing to the region were congruent with the visions managers projected to their regional partners. Related to that, support structures played a role in helping to generalize regional engagement and upscale individuals' bilateral linkages to create regional networks, which formed the basis for managers' legitimacy claims. When this did not occur, there were the risks that key individuals' departures also saw those networks removed from the regional mix. Finally, academic activities including regional engagement in teaching and research activities also contributed to the potential to exert managerial legitimacy.

The six cases also highlighted ways in which university institutional architecture can constrain the exercise of regional university leadership, most notably when there was a mismatch rather than an alignment between the activities of these regional knowledge communities and strategic intentions. Some institutions had university managers who were keen to exert a strong regional leadership role, but who, without strong regional knowledge communities, experienced difficulties in meaningfully shaping internal and external change. There was a lack of engaged academics in several universities, and managerial intentions alone were not enough to compensate for a lack of value to the academics in putting effort into regional engagement activities. The issue was not one of academic resistance or recalcitrance to managers, but rather a simple calculus that effective knowledge activities (teaching and research) could be created without the unnecessary effort of involving regional partners. Conversely, despite the presence of strong regional networks in some institutions, there were university managers who sought to remove themselves from regional innovation coalitions because they deemed other priorities more important. One

factor that sometimes surprisingly undermined alignment and legitimacy was the presence of regional funding, because it stimulated its pursuit rather than the development of sustainable knowledge activities well-aligned with the academic core.

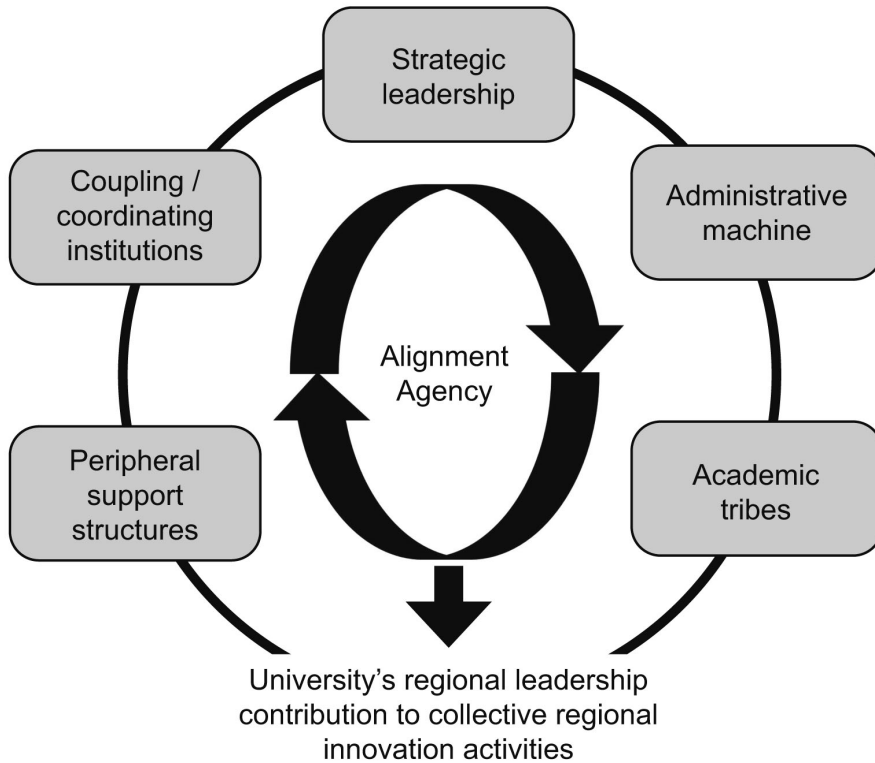
Our analysis suggests that universities' ability to exert regional leadership requires more than the generation of spillover effects by the mere presence of the university. It requires a purposeful exercise of transformative initiatives and construction of enriching regional knowledge activities; whilst historical pathways and regional contexts do influence what can be achieved, universities can themselves influence the situation through their activities. What our analysis highlights is the importance of bottom-up leadership, constructing situations where there are meaningful knowledge spillovers through the involvement of regional partners in university knowledge communities around teaching and research. In turn, this allows university managers to mobilize a legitimacy for their activities within regional innovation coalitions and participate in collective processes that seek to improve the overall regional innovation environment. The key variable here is the alignment of the top-down management with the bottom-up engagement. Good alignment builds legitimacy that allows the exercise of leadership, whilst a lack of alignment undermines that exercise. A 'strategic mismatch' was evident in several of the cases, with managerial intention decoupled from the academic community's practice; where knowledge communities were not regionally engaged, strategic leadership repertoires were not enough to stimulate these bottom-up engagement activities.

## CONCLUSION

In this chapter we have sought to address the overall research question of: *To what extent does the university's institutional architecture affect their regional leadership roles?* The model sketched out above provides some insights that allow us to answer this question, and in turn reflect on the consequences for research and practice. We here highlight two elements that appear most important in determining managers' capacity to exert leadership, namely *alignment* and *agency* (Figure 13.1). Alignment involves university managers engaging with regional innovation coalitions in ways in which their legitimacy is reinforced by their existing internal activities. But this alignment depends on those activities which are constructed by academic agents at the grassroots' level, involving regional partners in their knowledge activities and thereby creating knowledge spillovers and crossovers that deliver regional benefits.

The exercise of that academic agency is clearly influenced in profound ways by university institutional architecture, whether through the existence of formal support structures, or policies and incentives rewarding or mandating (as in the Aalborg case) regional engagement. But those architectural elements play a supporting role that enables academic agency, and that mechanism seems to be out of step regarding the institutional architecture as a means for institutional managers to impose their will upon those academic agents. Instead, alignment supports engagement through

academic agents, and channels it to allow university managers to best play a wider (informal) regional leadership role.



Source: Authors' own elaboration

Figure 13.1 *Alignment and agency as emerging elements*

Many agents, institutions as well as networks/coalitions of stakeholders, have the potential to take on regional leadership roles (Ayres 2014; Sotarauta 2010; Stimson et al. 2009). Nevertheless, universities have only recently shifted into focus in place-based leadership studies (Benneworth et al. 2017; Raagmaa and Keerberg 2017). This study thus contributes to both literature strands, linking the debates within the regional development, place-based leadership and higher education management literature by considering how universities' exertion of strategic leadership is influenced by internal dynamics and assets, thus shaping each university's regional contribution. Understanding how this particular institution – the university – can contribute to regional development in different contexts and due to different internal

preconditions and settings thus becomes vital not only for academia but also for policy. While each university we studied showed a distinctive approach and setting for place leadership, we were able to draw some wider conclusions, considering our subjects' similarities and differences.

It is widely acknowledged that universities are complex organizations, and we see our model as reflecting that complexity, with agency and alignment allowing university managers to play these informal leadership roles. There are many factors that undermine dealing with that complexity, particularly from external regulation of higher education that demands simplistic, 'one-size-fits-all' approaches to inherently complex situations. This implies that one key area for university leaders in that regard might be protecting their academic agents from the worst of those pressures to ensure they are able to exert that regional agency, encouraging the use of national languages in education and research, recognizing applied research, allowing local guest lectures and so on. It is in this area that university managers have the opportunity to exert direct leadership, to use elements of institutional architecture to protect their academic agents and allow them to engage in their knowledge activities. In turn, that will support the exercise of this bottom-up agency by academics, generating legitimacy for university managers, and thereby enhancing the strategic regional leadership role they can play and optimizing their university's contributions to innovation-led regional development.

## ACKNOWLEDGEMENTS

The research reported in this chapter was supported by funding from the European Commission's Horizon 2020 Research and Innovation Programme [Marie Skłodowska-Curie action grant agreement number 722295, the RUNIN Project (The Role of Universities in Innovation and Regional Development)]. The authors would like to thank the editors of this volume and two anonymous referees for their constructive comments. The usual disclaimers apply.

## NOTE

1. Tampere University of Technology and University of Tampere merged on 1 January 2019. This new Tampere University and Tampere University of Applied Sciences constitute the Tampere higher education community.

## REFERENCES

- Arbo, P. and P. Benneworth (2007), 'Understanding the regional contribution of higher education institutions: A literature review', *OECD Education Working Paper*, 9.

- Asheim, B., R. Boschma and P. Cooke (2011), 'Constructing regional advantage: Platform policies based on related variety and differentiated knowledge bases', *Regional Studies*, 45 (7), 893–904.
- Ayres, S. (2014), 'Place-based leadership: Reflections on scale, agency and theory', *Regional Studies, Regional Science*, 1, 21–24.
- Barca, F., P. McCann and A. Rodríguez-Pose (2012), 'The case for regional development intervention: Place-based versus place-neutral approaches', *Journal of Regional Science*, 52 (1), 134–152.
- Bass, B. (1990), 'From Transactional to transformational leadership: Learning to share the vision', *Organizational Dynamics*, 18 (3), 19–31.
- Becher, T. and P. Trowler (2001), *Academic Tribes and Territories: Intellectual Enquiry and the Culture of Disciplines*, Buckingham: The Society for Research into Higher Education and Open University Press.
- Benneworth, P. (2007), *Leading innovation: building effective regional coalitions for innovation*, retrieved from London: [www.nesta.org.uk/sites/default/files/leading\\_innovation.pdf](http://www.nesta.org.uk/sites/default/files/leading_innovation.pdf) [Accessed 5 May 2020].
- Benneworth, P. and R. Pinheiro (2017), 'Involving universities in regional upgrading in the periphery: lessons from Northern Europe', in M. Fonseca and U. Fratesi (eds), *Regional Upgrading in Southern Europe: Spatial Disparities and Human Capital*, 299–321, Cham: Springer.
- Benneworth, P., R. Pinheiro and J. Karlsen (2014a), 'The role of the 'Rector' in place based leadership', paper presented at the CHEPS internal seminar, Enschede, the Netherlands, 16 April.
- Benneworth, P., R. Pinheiro and J. Karlsen (2014b), *Strategic Agency and Institutional Change: Investigating the Role of Universities in Regional Innovation Systems*, Louisville: RePEc, Federal Reserve Bank of St. Louis.
- Benneworth, P., R. Pinheiro and J. Karlsen (2017a), 'Strategic agency and institutional change: investigating the role of universities in regional innovation systems (RISs)', *Regional Studies*, 51 (2), 235–248.
- Benneworth, P., R. Pinheiro and M. Sánchez-Barrioluengo (2016), 'One size does not fit all! New perspectives on the university in the social knowledge economy', *Science and Public Policy*, 43 (6), 731–735.
- Benneworth, P. and A. Sanderson (2009), 'The regional engagement of universities: Building capacity in a sparse innovation environment', *Higher Education Management and Policy*, 21 (1), 172–188.
- Benneworth, P., M. Young and R. Normann (2017b), 'Between rigour and regional relevance? Conceptualising tensions in university engagement for socio-economic development', *Higher Education Policy*, 30 (4), 443–462.
- Bergek, A., S. Jacobsson, B. Carlsson, S. Lindmark and A. Rickne (2008), 'Analysing the functional dynamics of technological innovation systems: A scheme of analysis', *Research Policy*, 37 (3), 407–429.
- Breznitz, M. S. and M. P. Feldman (2012), 'The engaged university', *Journal of Technology Transfer*, 37 (2), 139–157.
- Chatterton, P. and J. Goddard (2000), 'The response of higher education institutions to regional needs', *European Journal of Education*, 35 (4), 475–496.
- Clark, B. (1998), *Creating Entrepreneurial Universities: Organizational Pathways of Transformation*, New York: Pergamon.
- Drucker, J. and H. Goldstein (2007), 'Assessing the regional economic development impacts of universities: A review of current approaches', *International Regional Science Review*, 30 (1), 20–46.
- Edquist, C. (1997), *Systems of Innovation: Technologies, Institutions, and Organizations*, London: Pinter.

- FINHEEC (2013), *Korkeakoulut yhteiskunnan kehittäjinä. Korkeakoulujen yhteiskunnallisen ja alueellisen vaikuttavuuden arviointiryhmän loppuraportti (Evaluation of higher education institutions' social and regional impact)*, retrieved from [https://karvi.fi/app/uploads/2014/09/KKA\\_0513.pdf](https://karvi.fi/app/uploads/2014/09/KKA_0513.pdf) [Accessed 14 April 2019].
- Foray, D. (2016), 'On the policy space of smart specialization strategies', *European Planning Studies*, 24 (8), 1428–1437.
- Foss, L. and D. Gibson (eds) (2015), *The Entrepreneurial University. Context and Institutional Change*. Routledge Studies in Innovation, Organization and Technology. London: Routledge.
- Gibb, B. and P. Hannon (2006), 'Towards the entrepreneurial university?', *International Journal of Entrepreneurship Education*, 4, 73–110.
- Goddard, J. and P. Chatterton (1999), 'Regional Development Agencies and the knowledge economy: Harnessing the potential of universities', *Environment and Planning C: Government and Policy*, 17 (6), 685–699.
- Gunasekara, C. (2006), 'The generative and developmental roles of universities in regional innovation systems', *Science and Public Policy*, 33 (2), 137–150.
- Huggins, R. and A. Johnston (2009), 'The economic and innovation contribution of universities: A regional perspective', *Environment and Planning C: Government and Policy*, 27 (6), 1088–1106.
- Kitagawa, F., M. Sánchez-Barrioluengo and E. Uyarra (2016), 'Third mission as institutional strategies: Between isomorphic forces and heterogeneous pathways', *Science and Public Policy*, 43 (6), 736–750.
- Krammer, S. M. S. (2017), 'Science, technology, and innovation for economic competitiveness: The role of smart specialization in less-developed countries', *Technological Forecasting and Social Change*, 123, 95–107.
- Legendijk, A. and P. Oinas (2005), *Proximity, Distance, and Diversity: Issues on Economic Interaction and Local Development*, Aldershot: Ashgate.
- McCann, P. and R. Ortega-Argilés (2015), 'Smart specialization, regional growth and applications to European Union cohesion policy', *Regional Studies*, 49 (8), 1291–1302.
- Morgan, K. (1997), 'The learning region: Institutions, innovation and regional renewal', *Regional Studies*, 31 (5), 491–503.
- Morgan, K. and C. Nauwelaers (2003), 'A regional perspective on innovation: From theory to strategy', in K. Morgan and C. Nauwelaers (eds), *Regional Innovation Strategies: The Challenge for Less-Favoured Regions*, 1–17, London: Routledge.
- Nedeva, M. (2008), 'New tricks and old dogs? The "third mission" and the re-production of the university', in D. Epstein, R. Boden, R. Deem, F. Rizvi and S. Wright (eds), *The World Yearbook of Education 2008. Geographies of Knowledge, Geometries of Power: Framing the Future of Higher Education*, 85–105, New York: Routledge.
- North Denmark Region (2014), The North Denmark Region, retrieved from <https://rn.dk/service/english> [Accessed 15 January 2019].
- OECD (1996), *The knowledge-based economy*, retrieved from [www.oecd.org/sti/sci-tech/1913021.pdf](http://www.oecd.org/sti/sci-tech/1913021.pdf) [Accessed 15 January 2019].
- Official Statistics of Finland (OFS) (2017), Finland in Figures 2017, retrieved from [http://www.tilastokeskus.fi/ajk/julkistamiskalenteri/kuvailusivu\\_en.html?ID=17862](http://www.tilastokeskus.fi/ajk/julkistamiskalenteri/kuvailusivu_en.html?ID=17862) [Accessed 10 November 2020].
- Pinheiro, R., P. Benneworth and G. Jones (2012), 'Understanding regions and the institutionalization of universities', in R. Pinheiro, P. Benneworth and G. Jones (eds), *Universities and Regional Development: An Assessment of Tensions and Contradictions*, 11–32, London: Routledge.
- Raagmaa, G. and A. Keerbergh (2017), 'Regional higher education institutions in regional leadership and development', *Regional Studies*, 51 (2), 260–272.



- Regeneris Consulting (2017), 'The social, cultural and economic contribution of the University of Lincoln – a final report', Manchester: Regeneris Consulting.
- Regional Council of Satakunta (2018), 'Skilled and energetic coastal Satakunta region in Finland', retrieved from <http://www.satakuntaliitto.fi/english> [Accessed 15 April 2019].
- Rodrigues, C., A. Rosa Pires and E. Castro (2001), 'Innovative universities and regional institutional capacity building: The case of Aveiro, Portugal', *Industry and Higher Education*, 15 (4), 251–255.
- Rodrigues, C. and F. Teles (2017), 'The fourth helix in smart specialisation strategies: The gap between discourse and practice', in S. D. O. Monteiro and E. Carayannis (eds), *The Quadruple Innovation Helix Nexus: A Smart Growth Model, Quantitative Empirical Validation and Operationalization for OECD Countries*, 111–136, New York: Palgrave Macmillan.
- Roper, C. D. and M. A. Hirth (2005), 'A history of change in the third mission of higher education: The evolution of one-way service to interactive engagement', *Journal of Higher Education Outreach and Engagement*, 10 (3), 3–20.
- Salomaa, M. (2019), 'Third mission and regional context: assessing universities' entrepreneurial architecture in rural regions', *Regional Studies, Regional Science*, 6 (1), 233–249.
- Salomaa, M. and D. Charles (2019), 'The university third mission and the European Structural Funds in peripheral regions: Insights from Finland', *RUNIN Working Paper Series*, 07/2019.
- Santos, D. and N. Caseiro (2015), 'The challenges of smart specialization strategies and the role of entrepreneurial universities: A new competitive paradigm', in L. M. Carmo Farinha, J. J. M. Ferreira, H. L. Smith and S. Bagchi-Sen (eds), 537–551, *Handbook of Research on Global Competitive Advantage Through Innovation and Entrepreneurship*, Hershey, PA: IGI Global.
- Satamittari (2018), Economic growth [Taloukasvu], retrieved from [www.satamittari.fi/Taloukasvu](http://www.satamittari.fi/Taloukasvu) [Accessed 17 April 2019].
- Smith, K. H. (2002), 'What is the 'Knowledge Economy'? Knowledge intensity and distributed knowledge bases', *Discussion Paper Series of the Institute for New Technologies (United Nations University)*.
- Sotarauta, M. (2010), 'Regional development and regional networks', *European Urban and Regional Studies*, 17 (4), 387–400.
- Sotarauta, M. (2014), 'Reflections on "Mobilizing leadership in cities and regions"', *Regional Studies, Regional Science*, 1 (1), 28–31.
- Sotarauta, M., A. Beer and J. Gibney (2017), 'Making sense of leadership in urban and regional development', *Regional Studies*, 51 (2), 187–193.
- Stam, E., A. Romme, M. Roso, J. van den Toren and B. van der Starre (2016), *Knowledge Triangles in the Netherlands. An Entrepreneurial Ecosystem Approach*, Paris: OECD.
- Stimson, R., R. Stough and M. Salazar (2009), *Leadership and Institutions in Regional Endogenous Development*, Cheltenham, UK and Northampton, MA, USA: Edward Elgar Publishing.
- Stough, R., M. DeSantis, R. Stimson and B. Roberts (2001), 'Leadership in regional economic development strategic planning', in A. Edgington, C. Fernandez and C. Hoshino (eds), *New Regional Development Paradigms Vol. 2*, 175–192, London: Greenwood.
- University of Lincoln (2010), *Community Engagement. Impact of the University of Lincoln*, retrieved from <https://www.yumpu.com/en/document/read/30053939/community-engagement-2010-pdf-university-of-lincoln> [Accessed 3 May 2019].
- Uyerra, E. (2010), 'Conceptualizing the regional roles of universities, implications and contradictions', *European Planning Studies*, 18 (8), 1227–1246.
- Uyerra, E., K. Flanagan, E. Magro, J. Wilson and M. Sotarauta (2017), 'Understanding regional innovation policy dynamics: Actors, agency and learning', *Environment and Planning C: Politics and Space*, 35 (4), 559–568.



- Vorley, T. and J. Nelles (2009), 'Building entrepreneurial architectures: A conceptual interpretation of the Third Mission', *Policy Futures in Education*, 7 (3), 284–296.
- Vorley, T. and J. Nelles (2012), 'Scaling entrepreneurial architecture: the challenge of managing regional technology transfer in Hamburg', in R. Pinheiro, P. Benneworth and G. Jones (eds), *Universities and Regional Development: A Critical Assessment of Tensions and Contradictions*, 181–198, New York: Routledge.
- Weick, K. E. (1976), 'Educational organizations as loosely coupled systems', *Administrative Science Quarterly*, 21 (1), 1–19.
- Zomer, A. and P. Benneworth (2011), 'The rise of the university's Third Mission', in H. De Boer and D. F. Westerheijden (eds), *Reform of Higher Education in Europe*, 81–102, Rotterdam/Boston/Taipei: Sense Publishers.