

This is a pre-submission pre-print of the following chapter:

Benneworth, P., & Nieth, L. (*in press*). Universities and regional development in peripheral regions. In P. Benneworth (Ed.), *Universities and regional development in the periphery*. Abingdon, Oxon: Routledge.

# Chapter 1. Universities and regional development in peripheral regions

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## **1.1. Introduction: the challenge of universities contributing to peripheral regions**

Universities have been defined as important actors in today's knowledge economy since the 1990s, contributing to economic growth and development through knowledge production and collaboration with diverse stakeholders (Benneworth, Charles, & Madanipour, 2010; Etzkowitz & Leydesdorff, 2000). Nevertheless, universities' success is at least partly a function of their incredible organisational complexity (Lewis, Marginson, & Snyder, 2005) and there has been little consideration in conceptualising universities as regional organisations of how their complexity affects their regional engagement. In failing to consider this complexity, scholars and policy makers implicitly assume that it is enough for universities to adopt a strategic regional engagement position, whilst in reality universities face various difficulties when asked to co-ordinate action around their knowledge production and circulation. It is this organisational complexity, and its implications for universities' regional contributions, that this volume seeks to address.

Universities are knowledge-producing organisations with very decentralised organisational structures, Weick (1976) describing them as being "loosely coupled". In this volume, it is not just institutions that have the formal title of university, but all kinds of higher education institution (HEI) that blend teaching and research, thereby also encompassing universities of applied science, university colleges, specialist higher colleges (e.g. for teachers, musicians or artists)<sup>1</sup>. Accordingly, different academic disciplines and areas (Becher and Trowler (2001)'s "academic tribes") have very different

approaches to creating new knowledge (research), transmitting knowledge (teaching), and transferring knowledge (valorisation). Universities therefore have to find formal and informal ways to simultaneously accommodate these different practices within singular organisational structures. Attempts by universities to develop a singular knowledge transfer strategy risks failing to capture the diversity of engagement practices across these different academic communities. Indeed, it is particularly complicated for university managers to produce singular engagement strategies that will have the desired effect of encouraging and facilitating their staff to drive regional development and hence deliver engagement.

This complex situation is true for all kinds of external engagements, but can be particularly prevalent in regional engagement, where universities are co-operating with partners that are physically nearby, rather than those that are necessarily optimal for the knowledge creation at hand. In the last decade, there has been an emerging rhetoric that universities need to be world-class, excellent, and global citizens (Salmi, 2009) raising the risk that regional engagement is something for 'second rate' academics who cannot do this internationally- excellent research (Akker & Spaapen, 2017). This can result in strong pressures on universities not to engage with their regional partners, tensions so strong that they cannot be overruled by the vague sense of 'public duty' that universities have. These tensions come particularly to the fore in less innovative regions, because there are not natural pressures and demands that encourage and regularise regional engagement as a legitimate university activity. Likewise there are not naturally the world-leading innovative partners with whom universities can collaborate and claim it represents 'excellent research'.

To better understand these tensions, this volume presents a series of case studies drawn from regions where these problems have specifically come to the fore. To place these into a broader context, in this chapter we firstly contextualise the broader environment within which there have been these rising expectations that universities can contribute, as well as an overview of the case studies that are presented. In the next chapter, we then explore the precise nature of the problematic, which is that these models are heavily dependent on well-functioning regional coalitions to achieve those effects, whilst universities do not necessarily see immediate benefits in participating in these coalitions. Together, these two conceptual chapters set out in detail the conceptual framework, of regions shifting their regional economic development trajectories by purposive interventions from

regional innovation coalitions. This model in turn provides the basis for identifying where tensions might exist, and exploring them in the context of peripheral regions, where they might be the most extreme and hence amenable to study.

In the nine empirical chapters, these tensions are explored through a series of detailed case studies of how HEIs have contributed to these regions' development. Each of these empirical chapters follows a common format, although each of the chapters have been written to provide a free-standing contribution to our overall message. The chapters begin by setting out the regional development problem in that peripheral region, and conceptualising through a more precise specification of our overarching model. The chapters then each set out their method, also providing an overview of the region to characterise its precise form of peripherality. Each chapter then provides a distinct analytic step, setting out the history of how universities have tried to contribute to the region, which tensions these have raised in the particular context, and what kinds of solutions have been successful, and less successful in resolving these tensions. Each chapter then offers a more general reflection on how universities can contribute to solving particular kinds of peripherality problem whilst accounting for the engagement problems that peripherality can raise for universities. In the final chapter, we then draw these elements together to reflect on what this means for theories of universities and regional development, as well as the policy and practical recommendations that arise.

## **1.2. Contemporary conceptual approaches to regional economic development**

### **1.2.1 Policy concepts for universities' regional contributions**

Our starting point for understanding the challenge of universities engaging in peripheral regions has been a family of concepts that have emerged in the last decade to better explain, predict and steer regional change. This was the latest step in a much longer incorporation of notions of knowledge capital in theories of economic development in the context of neo-endogenous development theories, which seek to understand the roles that can be played by local actors in an increasingly globalised world. The answer to this came through an understanding of the increasing importance of knowledge capital to explaining economic growth (formally through the relationship of total factor productivity to productivity growth, see Romer 1994; Solow 1994; Temple *et al.*, 1998). Knowledge capital emerged through interactive learning processes and these interactive processes were facilitated by the presence of different kinds of proximity (Benneworth et

at, 2014). This regional characteristic of geographical coherence provided the starting point for the emergence of what Moulaert & Sekia (2003) were to call ‘Territorial Innovation Models’. These provided explanations of how region’s specific characteristics could facilitate these interactive learning processes and thereby affected growth.

Where these models fell short was that they did not provide satisfactory models for making policy prescriptions, simply describing, sometimes in quite some conceptual details, the characteristics of regions that *had been successful in the past*. As policy-makers – particularly in the European Union and the Organisation for Economic Co-operation and development – sought to operationalise these into policies, there was a realisation that their one-size-fits-all approach was problematic (Boschma, 2013). As every regional authority hastened to create a biotech cluster, policy-makers sought to identify how regions could exert agency and thereby improve their own prospects by building on their existing strengths and future opportunities rather than mimicking historically successful regions. Rooted in emerging concepts of evolutionary economic geography, these concepts sought to better elucidate the link between regional activity today and improved prospects tomorrow. Chapter 2 provides more detail on these concepts, as in this chapter, we restrict ourselves to a consideration of the explanations of how regions could improve their own situations.

We here focus on two distinct policy concepts that emerged in the course of the 2000s. One of these is likely to be familiar to many readers, that of smart specialisation, because of European Union’s requirement that territories in receipt of structural funding should had a valid smart specialisation strategy. By presenting two of them, we illustrate the more general point that policy-makers have been interested in how regions can ‘create their own futures’. This interest is central to understanding evolving policy expectations on universities, which we address in this chapter, before turning in the next chapter to how this creates tensions for universities in terms of living up to those expectations. The two concepts to which we now turn are Constructed Regional Advantage (CRA) and (the aforementioned) Smart Specialisation.

### 1.2.2 Constructing Regional Advantage

The first policy concept that we consider, constructed regional advantage, was launched by the Directorate-General for Research and Innovation in 2006 (European Commission, 2006). The CRA model sees proactive public– private partnerships applying existing

knowledge in new ways to create regional economic advantages (Asheim, Coenen, Moodysson, & Vang, 2007). In this perspective, *regional advantage* and new regional pathways do not always arise spontaneously (particularly in peripheral regions!). These new regional pathways therefore have to be deliberately and pro-actively *constructed* in ways specific to regional economic and governance contexts. These models of constructed regional advantage typically comprise three key elements, namely 'related variety', 'differentiated knowledge bases' and 'platform policies' affect regional learning and knowledge creation processes.

The 'related variety' concept derives from economic geography where a certain degree of cognitive proximity can support effective learning and communication between different industries. This means that knowledge transfer and learning are more likely to happen between sectors that are sufficiently technologically related but simultaneously not too cognitively proximate (where there are few opportunities for cross-industry learning). Emilia Romagna in northern Italy emblemized how related variety can significantly affect economic renewal and growth; its diffused engineering knowledge base provided the foundation for many high technology sectors to emerge in the post-war period, including robotics, car manufacturing and agricultural machinery. Asheim, Boschma, and Cooke (2011, p. 6) attribute this knowledge accumulation as occurring because "these new sectors not only built and expanded on [the] extensive regional knowledge base, they also renewed and extended it".

The 'differentiated knowledge base' concept argues that companies with similar kinds of knowledge base organise their innovation processes (and their relationships with third parties) in similar kinds of ways. This literature differentiates three types of knowledge: analytical (science based), synthetic (engineering based), and symbolic (artistic based) and for each of these there are different kinds of interactions with knowledge suppliers. Analytic knowledge transfer involves acquiring scientific and technology knowledge, through patents, licenses and contract research. Synthetic knowledge is acquired by shared learning involving knowledge suppliers and users 'doing and understanding' together. Symbolic knowledge is embedded through acts of creativity in which new products are created by interweaving the ideas and creativity into these products. These knowledge bases are analytic categories and most real innovation activities involve different kinds of knowledge base but the argument is that innovation support and

policies need be mindful of these different kinds of innovation (Asheim *et al.*, 2011; European Commission, 2006).

The notion of platform policies emerged as a specific reaction to the aforementioned problem of thin policy-borrowing within earlier TIM-inspired policies that saw innovation policy become a sectoral support approach for existing industries (Pugh, 2014). Platform policies attempt to integrate different forms of support (for instance talent formation and environmental enhancement) applicable to many industries, and facilitate natural spill-overs between sectors and also the spontaneous emergence of new sectors. Platform policies seek to promote related variety, being “structured on the basis of shared and complementary knowledge bases and competences, the promotion of spin-off companies and the encouragement of labour mobility” (Uyarra, 2010b: 14). A good example for a platform policy is the ‘Preseli Platform’ in West Wales, which sought to advance the very heterogeneous sectors of food production and consumption, tourism, textiles, and maritime activities by activities such as connecting knowledge institutions to firms or training and attracting talented people (Cooke, 2006).

### 1.2.3 Smart Specialisation

In parallel with the development of the Constructed Regional Advantage approach, the EU advisory group “Knowledge for Growth” (K4G) introduced the Smart Specialisation approach, proposing national and regional policy intervention and investments in areas that “create future domestic capability and interregional comparative advantage” (Foray, David, & Hall, 2009). The focus of smart specialisation is on ‘entrepreneurial discovery processes’ that identify the economic sectors with current and future potential to drive regional development (Foray *et al.*, 2009; McCann & Ortega-Argiles, 2013). In an entrepreneurial discovery process, stakeholders identify potential R&D and innovation domains in their region, scanning technological and market opportunities, recognising bottlenecks, and articulating obstacles to development (Boschma, 2013, p. 6). These entrepreneurial stakeholders can be any private or public actors (inventors, companies, HEIs, etc.) with suitable accurate knowledge to identify future potential.

Those at the European level that introduced smart specialisation sought to force policy makers to make hard prioritise that drove scientific and technological diversification and to thus choose policy interventions tailored to specific regional settings and opportunities rather than following the latest fads. Regional actors are critical within the

'entrepreneurial discovery processes' by collectively defining specialisation areas and serving as 'entrepreneurial path finders', leaving policy makers with the more modest roles of "allow and help economic agents to find their own ways in a decentralized and bottom-up process and then carefully observe what is happening" (Foray, David, & Hall, 2011, p. 10). From this perspective, policy makers do have responsibilities for incentivising entrepreneurial discovery processes, selecting suitable public investments to complement emerging specialisations, and evaluating subsidy effectiveness (Foray *et al.*, 2009). In the 2014-20 programming period for the European Structural Funds having a smart specialisation strategy in place was an eligibility criterion to receive funding, and the approach is widely implemented and understood across Europe.

It is this "clear policy-prioritization logic which is well suited to promoting innovation in a wide variety of regional settings" (McCann & Ortega-Argilés, 2013, p. 1292) that has made smart specialisation an appealing approach to European policy makers seeking to stimulate innovation in all regions (Foray, 2017; Foray *et al.*, 2009, p. 3). Nevertheless, there remains some dispute over its applicability to all kinds of region, notably less-favoured regions with unfavourable economic structures that have a low potential to diversify (Boschma, 2014). There is also evidence that regional policy-makers have in many cases been resistant to this nudge towards discontinuing older sectoral support strategies sometimes merely badging their older clusters as entrepreneurial discovery led network (Pugh, 2014). More generally, policy-makers have often pre-identified economic activities with regional potential, restricting entrepreneurial discovery process to these pre-defined areas, rather than it being fully open-ended as intended (Crespo, Balland, Boschma, & Rigby, 2017).

### **1.3. The roles of universities in regional partnerships**

The role of universities in these processes is immediately clear, participating as regional actors that shape the particular future creating activities. As knowledge creators and circulators (Yigitcanlar, 2010), universities are expected to be part of these partnerships and contribute to the region by having a significant impact on its innovation capacity and economic development (OECD, 2007). The European University Association (2014, p. 9) indeed goes further, claiming that there is an urgent need to recognise "the role of universities as a key partner in taking forward successful Smart Specialisation Strategies in partnership with other stakeholders in the region". The factors identified for the success of smart specialisation strategies, "dialogue, trust and alignment of university

portfolio and regional strategies” (European University Association, 2014, p. 17), exemplify the complexity of reaching successful partnerships.

Universities can directly affect a region’s development by producing new knowledge and educating the regional workforce. The production and distribution of knowledge with economic value can happen through commercialisation of this knowledge (e.g. in form of patenting or spin-offs), through collaboration with companies (e.g. in joint projects or consulting), and through informal knowledge exchange (e.g. through networking activities). Nevertheless, cooperation between different partners is not a straight-forward process realised in a ‘happy family setting’ (Legendijk & Oinas, 2005), particularly where actors have different strategic goals, and make their own strategic decisions depending on variables defined by themselves. Policy makers often encounter the practical problem that universities are regularly reluctant or problematic partners within regional collaborative activities, undermining the potential impact of their engagement.

Our diagnosis in this volume is that these problems only make sense when understood in the context of a mushrooming number of policy goals to which universities are expected to contribute (de Boer *et al.*, 2017). The resultant ‘mission stretch’ (Scott, 2007) can accentuate the tensions between global competition, based on academic excellence defined by international standards, and regional demands, following policy agendas for societal impact and relevance, (Krücken, Kosmützky, & Torke, 2007). With these multiple missions for universities, the argument has been made that the regional mission runs the risk of being ‘crowded out’ by universities’ core missions of teaching and research and in particular pressures to be internationally excellent in these core activities (Benneworth, Young, & Normann, 2017; Pinheiro, Benneworth, & Jones, 2012). Across our case studies we are able to show how diverse policies demand attention from HEIs which in return do not have the capabilities to concentrate on university regional engagement policies.

To a certain degree, there is a common understanding that universities are loosely coupled organisations, compiling different units and individuals with particular goals and identities, and dependencies on history and resources. Nevertheless, diverse challenges have been identified with respect to the varied missions and intentions that pressure on universities. One challenge is that higher education institutions have been featured as manageable and strategic organizations, able to “respond in a well-articulated (i.e. strategic), efficient, and socially-accountable manner” to demands that are not only complex, but often contradictory (Pinheiro *et al.*, 2012; Uyarra, 2010a). Regional actors

expect that HEIs are able to 'help the region' and cooperate seamlessly to reach common goals. Diverse factors – for instance the degree of alignment between research topics and the needs of the region, the history of engagement, and the types of regional businesses – have an impact on the degree of engagement advance (Gunasekara, 2006). The high quantity of these potential impact factors highlights the diversity of missions a HEI can face in a region. Finally, from a policy perspective, there is an urgent need to understand effective combinations of policies that help HEI to engage within RICs.

#### **1.4. The contributions from the chapters to this volume**

To illustrate and analyse the pressures that higher education's regional contributions face, we present a set of empirical case studies reflecting the diversity of economic peripherality across European regions. Each of these regional chapters sets out the precise nature of the regional development problem and the involvement of regional HEIs in solving that problem. In identifying the pathways through which solutions emerge, the specific tensions that hinder solutions and the strategies adopted by actors to deliver successful outcomes, each chapter provides its own insights into this overall problematic. In chapter 2, we provide a more specific categorisation of which problems arise in which specific chapter, and here we provide an overview of the cases we present and the main issues they raise for our research.

Chapter 3 presents the case of Agder, an old industrial region in the south of Norway seeking to capitalise on the growth benefits offered by Norway's booming oil & gas sector. A once highly-regionally focused set of regional colleges were merged to create a new university. That university has faced the uncomfortable balancing act of establishing its academic bona fides in terms of globally excellent research whilst sustaining regional partners' political support. This chapter illustrates the limits to strategic approaches to university regional engagement and highlights the importance of allowing staff the flexibility to manage their own engagement activities.

Chapter 4 deals with the efforts in a region dominated by a set of low-technology processing and service industries, Algarve, to profile itself as a knowledge region by building on competencies in its university and polytechnic. The main challenge for the Algarve has been the total dominance of all innovation policy processes by HEIs in the absence of other kinds of innovative actors. The universities have therefore had to carefully negotiate between dominating innovation policies and investments for their

own benefits, and losing sight of their teaching and research activities. This chapter illustrates the multiple roles that universities are sometimes called upon to play as a consequence of their internal complexity.

Chapter 5 presents the case of an extremely remote and sparsely-populated Arctic region, Finnmark, in Norway's far north, which has suddenly been expected to become a knowledge-intensive region as part of Norway's wider geopolitical claims within the Barents region. Higher education colleges have long been a part of the national regional development strategy, but their merger into a single regional university college have revealed the limits to HEIs and regional development. The chapter illustrated their highly localised and place-specific nature, bringing benefits to the larger settlements but with almost no effect on the more remote inland and coastal locations most at threat from development trends.

Chapter 6 presents a case from the 'ordinary periphery', Telemark, lying just outside Norway's capital region, a region with an industrial history where there was a very low natural demand for higher-level and innovation skills. The creation of a new university college has as with Finnmark had very localised benefits, but has not been able to change the overall regional development trajectory by addressing problems of demographic ageing, unemployment and outmigration. The chapter illustrates that for some regions with smaller HEIs, the totalising nature of these problems can hinder taking the first steps towards regional engagement, highlighting that there is nothing wrong with very 'ordinary' modes of innovation in these ordinary regions.

In Chapter 7 we present the case of Vysočina in the Czech Republic, a region whose peripherality has also represented a real strength in terms of permitting a very high quality of life provided by a high level of environmental development and social capital. The regional development strategy therefore sought to leapfrog industrial development and find a way to transform the region into a post-industrial economy, thereby maintaining this high quality of life. The main issue this raises is that there is no strong regional pull for university knowledge activities, and this has left the region's HEI making many ad hoc contributions with no overall sense of how it could be 'regionally engaged'.

Although chapter 8 is also drawn from the Czech Republic, it is hard to imagine a sharper contrast between Vysočina and Usti, the subject of Chapter 8, a classic eastern Europe region long dominated by heavy engineering and extractive industries but now seeking to

upgrade those activities to provide a sustainable development path. Given that the University of Jan Evangelist Purkyně (UJEP) was only founded in 1991, it is perhaps unsurprising that it has been able to create a dominant position for itself in regional strategies, but it has established itself as a reliable, stable partner. The case highlights the need to create strategic institutional spaces where partners can meet, share ideas, and develop relationships that outlive policy and parliamentary cycles.

Chapter 9 looks at efforts by Estonia to diffuse the benefits of its more established universities to drive regional development in its periphery through creating a network of regional colleges with associated centres of excellence linked back to the three main universities in Tallin and Tartu. These were relatively small activities that created a bridge between urban university research groups and particular local industries that could use the university knowledge as part of their own upgrading and innovation efforts. The issue was in ensuring the degree of specificity and focus in the technology transfer activities with suitable teaching activities that had a salience beyond the immediate assisted firms.

Chapter 10 presents an example from a cross-border region, spanning the east of the Netherlands and western Germany, the Euregio, both regions once dominated by a textiles industry which disappeared from the late 1960s. The main potential benefits lie in developing cross-border activities with more cross-border fertilisation, but these are continually undermined by pressures from their respective national systems that inhibit co-operation. The chapter highlights the importance of 'fuzzy governance spaces' for reconciling these tensions and allowing the creativity and flexibility to encourage knowledge spill-over across national borders.

The final empirical chapter, Chapter 11 presents a case study from a region that was once the best practice example of industrial transition, Tampere, in Finland, once the home of Nokia and a thriving ICT sector closely linked to regional HEIs. However, overspecialisation and lock-in led to the collapse of Nokia and also hurt other actors who had arranged their activities to closely align with Nokia. A similar regional coalition that had driven the first transformation emerged to try to create new development pathways. Universities found themselves having to balance between the urgent need to replace lost courses and research programmes to investing in activities that could support the newly emerging software services and automation sector.

## Notes

1. There is some ambiguity about third cycle provision in non-third-cycle institutions, such as the delivery in the UK of foundation degrees within Further Education colleges. There is some evidence that non-higher vocational colleges are starting to consider their regional role more systematically. In the Netherlands, there have been efforts – through for example the Centers of Innovative Craftsmanship – to build knowledge bases within the further education (Middle Professional Education) sector. Paralleling what has been done in Higher Professional Education these seek to educate better professionals by incorporating knowledge creation in syllabi in the form of applied research and reflection activities (OECD, 2014).

## Acknowledgements

This chapter received funding from the Norwegian Financial Mechanism 2009-2014 and the Ministry of Education, Youth and Sports under Project Contract no. MSMT-5397/2015. This chapter also reports findings from the RUNIN project (The Role of Universities in Innovation and Regional Development) that received funding from the European Union's Horizon 2020 research and innovation programme under Marie Skłodowska-Curie grant agreement No. 722295.

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