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The nature of publicly funded innovation and implications for regional growth: Reflections from the Sheffield City Region

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The nature of publicly funded innovation and implications for regional growth: Reflections from the Sheffield City Region

Purpose

The aim of this paper is to unpack the nature of business innovation and understand the impact on regional innovation and competitiveness.

Design/methodology/approach

The article is based on a qualitative study of Advanced Manufacturing and Advanced Materials businesses in the Sheffield City Region (UK). Interviews were conducted with 23 firms in the exploring how innovation in the firm translates to innovation-led regional economic growth.

Findings

The paper demonstrates that there is a tendency of owner managers to focus on innovation in terms of the development of new products, processes and/or services. Many of the businesses interviewed were technologically innovative, yet there was little evidence of wider business model innovation. This, we conclude, stymies regional innovation and with it regional economic growth.

Research limitations/implications

This study is based on a case study of the Sheffield City Region (SCR henceforth) is not generalizable, but offers insights into the nature of business model innovation which are valuable in generating questions for further research.

Practical implications

The paper highlights the need to think of innovation in broader terms and the scope of business model innovation to not only improve the performance of firms but with it regional economic growth.

Originality/value

Business model innovation is a growing domain of the literature and this paper highlights how narrow interpretations of innovation may serve to limit growth business growth, and with it regional economic growth.

Keywords Business Model, Innovation, Regional Competitiveness, Regional Growth

Paper Research Paper

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Introduction

Innovation has been always a word synonymous with economic growth. It has been argued by Mazzucato (2013), among others that innovation needs to become a central tenet of growth policy and vice versa. Much academic debate has focused on the institutional arrangements of national and regional innovation systems and more recently local innovation systems (Freeman, 1994; Cooke, 2001; De la Mothe and Paquet, 2012). In the UK the rescaling of regions has been important, although there is a danger that emphasising systems of innovation underplays the importance of the firms that inhabit them. In keeping with this special issue, this paper seeks to understand innovation at the regional scale by understanding innovation at the firm level.

Whilst acknowledging that regional innovation and competitiveness are determined by a number of different institutional factors, they are also the outcome of firm behaviour, characteristics and performance (Ferreira et al., 2015a). It is the competitiveness of firms which determines the competitiveness of regions (Cetindamar and Kilitcioglu, 2013), a link that Ferreira et al. (2015b) identify to be shaped by entrepreneurial business practices. Morris et al. (2005) find the business model, as opposed to the business plan, to provide a promising unit of analysis in exploring entrepreneurial activity, and we extend this logic to the examination of innovation. For many years innovation in businesses has been equated with the development of new products, processes and/or services. While such innovation is important, it only represents one dimension of the business model. Through a study of the SCR, this paper unpacks the focus of business model innovation and what this means for growth.

This paper examines the innovation priorities of businesses in the SCR, in an attempt to understand their (lack of) impact on the region. The goal is to contribute to the literature on regional innovation by highlighting the importance of business model innovation as the missing link in innovation-led growth (i.e. innovation as a means of generating regional economic growth). The remainder of the paper is structured as follows. After this short introduction, Section 2 presents a literature review on regional innovation, business models and business model innovation. Section 3 frames the empirical study and the method. Section 4 presents the findings and discussion as the story of innovation in the SCR to explain why innovative firms are not driving its growth as an innovative region. The final section of the paper is the core discussion and conclusions.

Literature review

Innovation, entrepreneurs and regional growth

The role of innovation in fostering regional economic growth has become an important driver for competitiveness (Huggins and Pugh, 2015). In particular, innovation is driven by entrepreneurialism and the pursuit of value creation through new ideas and research. Entrepreneurial activities provide highly innovative firms whose new and disruptive ideas can create opportunities and encourage job creation and instigate new ways of working (Baptista et al., 2008; Mueller, Van Stel and Storey, 2008; Bjørnskov and Foss, 2013). Innovation led by entrepreneurs and owner-managers contributes to growth on a regional scale and develops diversity within an economy (Audretsch and Keilbach, 2004). As Wong et al. (2005, p.337) argue, entrepreneurship is manifested not only by the 'market entry of new firms, but also by innovative and imitative entries into new markets by established firms'. Regions that do not support or stimulate innovation amongst entrepreneurs and firms can become uncompetitive and lack the development and presence of dynamic entrepreneurial capabilities (North and Smallbone, 2000; Lagendijk and Lorentzen, 2007).

At a policy level, stimulating innovation has typically been the preserve of technology boards and government funded bodies. Within the UK this is the responsibility of Innovate UK (formerly the Technology Strategy Board) to encourage the development of new technologies and support entrepreneurial activity through consultancy, competitions and funding. Considering the national construction of UK innovation policy, there are multiple stakeholders who are implicated in the policy process, which also varies across spatial scales (Flanagan et al., 2011; Mackinnon, 2015). Alongside Innovate UK these include the UK government Department for Business, Innovation and Skills, local authorities, Local Enterprise Partnerships (LEPs), small and medium sized businesses, and universities (Morgan, 2007; Morgan, 2016; Kerry and Danson, 2016). Innovation has typically been understood to emanate from these institutions, which produce incremental or radical improvements in science and technology. However this has created a narrow definition of the role of entrepreneurship and innovation in promoting regional competitiveness.

Fast and high growth firms account for a large proportion of total entrepreneurial activity (Wong et al., 2005) and the interaction between firms and their spatial domain has become a heuristic for understanding innovation and regional competitiveness (Porter, 2000; Vorley, 2008; Kohlbacher et al., 2013; Fernandes et al., 2015; Ferreira et al., 2015c). The corollary of this is that economic competitiveness within regions can be influenced through multiple avenues shaped by context, perceptions of opportunities, access to resources and capital, and the willingness to innovate all aspects of a business model as well as the product or service. Entrepreneurial activity and innovation potential are both enabled and constrained by these forces (Welter, 2010). Innovation by definition provides new or improved ways of framing, designing and approaching ideas with transferability into a range of economic and social situations. The importance of innovation and regional performance cannot be understated. While the role of innovation within research and development has retained a prominent focus in the literature exploring the geography of economic performance (Guimón, 2015), innovation can be conceived in heterogeneous ways and not simply as R&D outputs or the commercialisation of research.

Whilst innovation can, and should, be studied at a policy level, the role that firms and

entrepreneurs take is important to broadening our understanding of innovation as a route to competitiveness. A failure to recognize alternative ways in which innovation can be integrated into business performance can lead to misaligned policy making and stymied regional growth (Desrochers and Sautet, 2008). For example, the role of entrepreneurial business planning has become particularly central to understanding how innovation can occur at different scales and spaces. Although entrepreneurship research has emphasised innovation in management practices, product and service offerings and new technological innovations, there has been little written on the ways in which competitiveness is shaped by new modes of business planning and how this translates into the broader understanding of enterprises and ventures in the context of regional growth and performance. This paper examines innovation more broadly and takes into account how innovation within the performance of firms can lead to great competitiveness beyond policy making. In the following section we outline the role in which business planning and business models can be highly innovative (Philipson, 2016) and create new opportunities to encourage growth and shape regional geographies.

Business planning

The impact of business planning on driving entrepreneurial growth has been subject to much academic debate hitherto. Brinckmann et al. (2010) contend that business planning has a positive impact on the performance of both new and established small firms, but the business planning-performance relationship is mediated by context.

Indeed, research on SME growth has shown that the influence of business planning on performance varies between SMEs of different sizes and with different levels of growth ambition. For examples, few micro-businesses (i.e. businesses with less than 10 employees) engage in business planning at start-up and post start-up (Greenbank, 2000). While some micro-businesses perceive business planning as a useful process for objective setting and providing strategic direction, others view it merely as a "cosmetic document used to obtain finance" (O'Dwyer and Ryan, 2000, p.350). It is often the case that small firms' approach to business planning is "informal, iterative, incremental, unstructured, and irregular", whereas to achieve a positive impact there is a need for formal and more sophisticated approaches (Brinckmann et al., 2010, p.25). In growth-driven micro-businesses and in larger SMEs, business planning is found to positively influence growth orientation and ambition and to be an important tool that supports the achievement of growth (Greenbank, 2000; LeBrasseur et al., 2003; Morrison et al., 2003; Richbell et al., 2006). Therefore, business planning can be a key growth-driving activity and source of competitiveness. Nevertheless, as noted by Brinckmann et al. (2010), a better understanding of its impact requires a contextual understanding, less being known about the influence of context specific factors such as local culture, the market environment and firm types. A corollary of this is the need to examine the different ways in which business planning can have a positive impact on performance and increase competitiveness in different contexts.

Business models

A major focus of business planning is the business model employed by companies to create, capture and deliver value, which is itself an area that opens up to innovation opportunities (Mitchell and Coles, 2003; Teece, 2010, Zott and Amit, 2007). It is important to first understand what a business model is, what is does and why it can be an important source of innovation and competitiveness. Despite receiving significant attention from both academics and practitioners in recent years, the understanding of the business model as a concept remains fuzzy (Al-Debei and Avison, 2010; George and Bock, 2010; Headman and Kalling, 2003; Morrison et al., 2005; Shafer et al., 2005; Osterwalder et al., 2005; Schneider and Spieth, 2013; Spieth et al., 2014; Zott et al., 2011). In essence, a business model is "the blueprint of how a company does business" (Osterwalder et al., 2005, p.4). It is the "organizational and financial 'architecture' of the business", a hypothesis about how an enterprise can best meet customers' needs to generate revenues and make a profit (Teece, 2010, p.173). It unifies customers, competitors, the offering, activities and organisation, resources, supply of factor and production inputs, and the scope of management into a unique configuration capable of creating value and generating competitive advantage (Headman and Kalling, 2003). Thus, articulating a firm's strategy, a business model crystallises how a company creates, delivers and captures value (Demil and Lecocq, 2010; Magretta, 2002; Richardson, 2008; Teece, 2010; Zott et al., 2011).

In spite of pursuing market opportunities through revolutionary ideas and being able to access the required resources, many enterprises may fail due to ineffective underlying business models (Morris et al., 2005). Therefore, designing viable business models is a key task for both new and established entrepreneurs, being critical to success (Magretta, 2002; Teece, 2010; Zott and Amit, 2009). Effective business models lead to superior value creation (Morris et al, 2005) and can therefore constitute a key source of competitive advantage (Magretta, 2002; Markides and Charidou, 2004; Teece, 2010). Being closely aligned with strategy, the business model represents a valuable strategic tool (Doz and Kossonen; 2010; McGrath, 2010; Richardson, 2008; Shafer et al., 2005).

Moreover, the business model is essential in capturing innovation and delivering value to customers (Baden-Fuller and Haefliger, 2012; Chesbrough and Rosenbloom, 2002), but it also represents a source of value creation and innovation in itself (Zott et al., 2011). While the product, process and the organisation have hitherto been the main focus of innovation efforts (Zott and Amit, 2007), little attention has been given to innovating the business model (Zott et al., 2011). Hamel (2000, p.73) argues that a focus on product innovation represents a "highly truncated view of innovation", as the offering represents just one of the many components of the business model. Business model innovation is different from technological and product innovation, requiring a different approach and generating different competitive effects (Markides, 2006). Highlighting interdependencies between suppliers, partners and customers (Zott and Amit, 2009), business models create opportunities for innovation in all business areas, not just the offering (Kindstrom, 2010). Therefore, to generate sustainable competitive advantage, product and technological innovations need to be matched by business model innovation (Teece, 2010).

Business model innovation

Business model innovation spans the boundaries of the firm and of their innovation focus, being a form of innovation in itself (Zott and Amit, 2007) with significant disruptive potential (Markides, 2006). It harnesses the value creation potential of the different components of the business model grouped by Günzel and Holm (2013) into the front-end (i.e. key resources, activities, partners, and cost structure) and back-end (i.e. value proposition, customer segments, channels, customer relationship, and revenue structure) business model. There are various definitions of business model innovation but essentially the process involves "the search for new logics of the firm" (Casadesus-Masanell and Zhu, 2013, p.464) or "the discovery of a fundamentally different business model in an existing business" (Markides, 2006, p.20), redefining how value is created, captured, and delivered to customers. Taran et al. (2015) argue that innovation in any of the business model building blocks can be considered business model innovation, which varies with the degree of radicality (i.e. low, medium, high), reach (i.e. company, market, industry, world), and complexity (i.e. the number of building blocks changed).

Many scholars have already suggested ways in which business model innovation can be achieved, from coopetition (Ritala and Sainio, 2014), co-development partnerships (Chesbrough and Schwartz, 2007), network-based (Lindgren et al., 2010) and cross-industry business model innovation (Enkel and Mezger, 2013), to customer-driven innovation (Pynnönen et al., 2012), experimentation (McGrath, 2010) and trial-and-error learning (Sosna et al., 2010). However, as "only few companies follow an end-to-end process to business model innovation" (Bucherer et al., 2012, p.195), there is a need to acknowledge and better understand the iterative and cyclical nature of business model development, especially in the context of commercialising innovations (Dmitriev et al., 2014).

Business model innovation has a positive impact on firm performance. Zott and Amit (2007) found that, by harnessing multiple components of the business model, boundary-spanning novelty-centred business models have a positive impact on the performance of entrepreneurial firms. Research by IBM shows that business models innovators experience operating margin growth in excess of five percent compared to product/service/market and operations innovators, enjoying benefits such as cost reduction, strategic flexibility and increased revenue generation opportunities (Pohle and Chapman, 2006). Moreover, Aspara et al. (2010) find that the impact business model innovation on financial performance is contingent on firm size, namely while large firms are better off by combining business model innovation with replication strategies, small firms which focus mainly on business model innovation with low emphasis on replication experience higher average profitable growth. Business model innovation is also critical for new firms, the degree of business model innovation being positively correlated with their survival time (Velu, 2015).

Thus often, business model innovation is more important than the product or technological innovation delivered through the business model (Chesbrough, 2007; Chesbrough, 2010). Consequently, not only can a better understanding of business models lead to more informed decision-making, hence increasing entrepreneurs' chances of success (Trimi and Berbegal-Mirabent, 2012), but business model innovation is in itself a source of

competitive advantage (Eurich et al., 2014) and can play a key role in stimulating regional competitiveness and growth. As acknowledged by Eurich et al. (2014) the very nature of business model innovation is iterative, and thus it is important for entrepreneurs to design flexible business models (Trimi and Berbegal-Mirabent, 2012).

Considering the multifaceted nature of innovation and the potential of business model innovation to emanate from entrepreneurship and stimulate regional growth and competitiveness, this paper examines the focus of innovation in innovative firms in a regional context and the implications for innovation-led regional growth. It seeks to understand what innovation means for entrepreneurs, whether they consider business model innovation as distinct from business planning, and whether they view business model innovation as a source of competitive advantage and growth.

Empirical Context & Methods

This section outlines the empirical focus of the paper and our approach to understanding the regional innovation and entrepreneurial business practices. The paper takes the SCR as a case study, a region which was defined and designated as a Local Enterprise Partnership (LEP) following the abolition of the Regional Development Agencies in 2010 in an attempt by the Government to approach economic development through functional geographies. Today the SCR is a region comprising the urban centres of Sheffield and the towns of Doncaster, Rotherham, Chesterfield and Barnsley.

The SCR has been continually defined by its role as an internationally renowned centre for coal, steel and manufacturing. However, the processes of deindustrialisation has undermined the region's competitive position as a core industrial centre in the UK and globally. This has led to a clear stagnation in the economy and an accompanying sense of urban decay (Jones and Etherington, 2009). However the region has experienced growth since the 2000s albeit public sector-led (Williams and Vorley 2014) and has begun to consider alternative strategies to support cross-sector specialisms (Williams et al, 2016) and to address the chronically underperforming economic situation of the SCR compared to other LEPs in the UK, especially in terms of economic output, i.e. Gross Value Added (GVA).

That said, using location quotient analysis the SCR has 23 highpoints (i.e. subsectors with a presence above the national average) of which seven are more than 25% higher. This indicates the basis of a critical mass within particular sectors. The Advanced Manufacturing sector accounts for more than 11,400 jobs across the SCR (1.7% of all jobs) (Graves et al., 2015) and is a key driver of the regional economy. The Advanced Manufacturing sector is notably strong in those industries dealing with Materials (such as metals, composites and plastics) where the location quotients for Firms (1.72), Employment (2.36) and GVA (3.22) are also comparatively strong (Graves et al., 2015).

Between 2010 and 2015 Innovate UK awarded 282 projects to 153 different organisations based in the (now) SCR. As shown in Tables 1, of the 153 organisations in the SCR who were the lead partner on Innovate UK funded projects the majority were micro

businesses (60.8%) and small businesses (22.2%). However, of the 282 projects funded, while the majority (42.9%) go to micro businesses most of these are in the form of innovation vouchers worth up to £5000 intended to help businesses gain the knowledge they need to innovate and grow. The two universities also led 44 projects between them over the 5 year period, the majority of which (70%) were Knowledge Transfer Partnerships to promote issue led university-business engagement.

[Insert Table 1 here]

Despite being the 7th largest recipient of Innovate UK grants per Full-Time Equivalent (FTE), ranking 10th in terms of large grant income and 3rd in terms of responsive grant recipients, the SCR ranks only 27th out of the 39 LEPs in the UK for the innovativeness of businesses (ERC, 2014). The majority of Innovate UK funding is absorbed by the High Value Manufacturing (25%), Advanced Materials (21%) (BIS, 2015), which is consistent the findings of Graves et al (2015) that these sectors are drivers of regional growth. While the strategy of the LEP has sought to align itself with the '8 Great Technologies and Governments Key Industrial Sectors', the SCR has the second lowest innovation related investment across all 39 LEPs with only 13% of EU development funding allocated to innovation (BIS, 2015). Secondary data referred to in this paper is derived from the 'Mapping local comparative advantages in innovation: framework and indicators' report published by BIS (2015).

Moreover, when looking at taxation data on Research and Development Tax Credits this reveals a different hierarchy of which the SCR is in the bottom quartile (BIS, 2015). This poses a serious question of the SCR, as it does of other similar economies, to better leverage innovation and reduce if not close what is a potentially dangerous productivity gap. It is this question that this paper seeks to address, namely how can research-led innovation and technological innovation be leveraged to deliver innovation-led growth of the businesses and with it of the region.

To this end the empirical focus of this study involved qualitative research with a cross-section of 23 owner-managers or senior management in Advanced Manufacturing and Advanced Materials businesses in the SCR. The decision to focus on these business is premised on them being the main recipients of Innovate UK funding and acknowledge drivers of economic growth in the region. Moreover, to reflect the award of businesses receiving Innovate UK funding, the sample of firms interviewed were: 3 Large, 3 Medium; 7 Small and 10 Micro. The interviews were conducted between December 2015 and March 2016 with the aim to gain an appreciation of innovation in the businesses. Figure 1 sets out the primary questions asked, emerging themes and some example responses that

The use of in-depth interviews is particularly appropriate to understanding the focus of innovation in the business. As Williams et al. (2016) note, a notable limitation of our method is the risk of misrepresentation, with respondents offering stylised and selective accounts, although the conversational nature of the interviews allowed interviewers to probe responses to mitigate this bias. The interviews were analysed and coded using the emerging themes from the interview to develop what Steyaert and Bouwen (1997) refer to as the 'story of entrepreneurship' – which in this case is important in understanding our story of

innovation. The remainder of this paper presents and discusses the findings to highlight the nature of innovation and the importance of business model innovation.

Findings and Discussion

As is evident from the snapshot of Innovate UK funding awarded to organisation in the SCR, there are very few large businesses receiving support from Innovate UK (3.9%), while medium businesses only account for 11% of businesses supported in the SCR (BIS, 2015). The SCR is not devoid of innovation, but there is a missing link in leveraging innovation for economic growth. There are lots of micro firms supported, particularly with the Innovation Vouchers, but these firms are not significantly contributing to regional growth. It is this growth that is critical to the competitiveness of regions. Drawing on the interviews with Advanced Manufacturing and Advanced Materials firms this section unpacks the nature of innovative businesses and what that means for the creation and growth of innovative regions. This section tells the story of innovation in the SCR to explain why innovative firms are not driving its growth as an innovative region. Figure 1 shows the main questions, indicative responses and emerging key findings that are discussed below.

[Insert Figure 1 here]

Despite two-thirds of the businesses interviewed engaged in a process of business planning, for the majority it was ad hoc and only five had formal written plans - these were also the larger businesses interviewed. As identified by (Brinckmann et al., 2010) it is important for smaller businesses to consider the improvements to performance that can accompany more sophisticated planning. As innovative businesses, the comparatively high proportion engaged in formal business planning supports existing research that finds that business planning positively influences growth orientation as would be expected of innovative firms (LeBrasseur et al., 2003; Morrison et al., 2003; Richbell et al., 2006). However, when asked about business models a number of firms conflated it with the business plan. It is a well-rehearsed in the literature that a business plan describes what a company does, while the business model describes how, where and why a company operates, although this was not well understood among the interviewees.

The implications of confusing and/or conflating business plans and business models have important implications for innovation. Business model innovation has as much if not more of an impact on firm performance than innovation related to a product, process or service, especially where it relates to multiple components of the business model (Zott and Amit, 2007). While the findings did not find evidence in the interviews of business model innovation per se, as shown in Table 2 there were several examples where firms had engaged in ad hoc practices which were tantamount to innovating the business model.

[Insert Table 2 here]

While not intended to be exhaustive, the examples in Table 2 serve to highlight how different activities undertaken by the businesses interviewed map onto dimensions of business model innovation highlighted in the literature. While not to suggest that all businesses can or should implement such practices, there is merit in encouraging businesses to think about business models and business model innovation in a more systematic way. As Coles and Mitchell (2003) argue innovation across the business model can provide a strategic competitive advantage that can generate higher sales figures, profitability and cash flow. Such practices are not idiosyncratic to the businesses interviewed, but without considering whether there is scope to innovate in relation to the business model, different ways to create and capture innovation may be occluded through compartmentalised approaches to innovation by these businesses. Although the SCR has made the transition to being a post-industrial region, many communities are still influenced by legacies of the past and therefore, one way in which innovation can be stimulated in the SCR is through community-based entrepreneurship which, while adhering to the values of the community opens up new opportunities for creating social value and with it facilitating innovation and regional growth (Ratten and Welpe, 2011).

For the businesses interviewed, the re-configurability of their business model was not recognised, which detracted from potentially positive gains in business competitiveness. This thinking along *a priori* grooves of business planning can potentially stymie strands for innovative application and practice. Understandably the motives and pressures of everyday entrepreneurship can mean innovation is not captured in early decisions or when a firm attempts to stabilise its existence in its first few years. However, as these interviews and the literature have shown, connecting existing innovative modes with all aspects of the front-end and the back-end of business models (Günzel and Holm, 2013) has strategic benefits for both the firm and the region (Cetindamar and Kilitcioglu, 2013).

Another striking finding was articulating and understanding of the nature of innovation. For many of the interviewees there was not a clear sense that they were engaging in innovation, with larger businesses more able to identify and explain their innovative activities. During the interviews it emerged that innovation centred on the offering (i.e. product innovation). As Kindstrom (2010) has argued, business planning and the creation of a business model are integral to all aspects of a business. The interviewees were from established firms, although in contrast to Wong et al. (2005) their focus was not on the innovative and imitative entries into new markets but rather the development of their offering. This finding resonates with the perspective of Hamel (2000) who deems such interpretations of innovation as truncated, and highlights a substantial opportunity for growth in the sample of businesses interviewed given the narrow focus on innovation and innovative activities.

A majority of the interviewees highlighted the importance of their customers as a part of the innovation process. As noted by Connor (1999) there is likely to be a balance of market-led and customer-led innovation in any businesses, with small businesses weighed towards the latter. Grabher et al (2008) extend this, talking about the importance of user-led innovation, to explain how co-production has become an important dynamic in the innovation process. This was reflected in the interviews, with many of the small and micro businesses in particular referring to developing or refining products to meet customer needs. As Baker and Sinkula (2007) note, however, customer-led innovation tends to be more associated with incremental innovation which has a lower impact of organisational and regional growth. Although there was evidence of more future looking market orientated innovation, it was not generally well integrated to the business plan in terms of leveraging the value.

Moreover, much of the innovative activity of the firms interviewed was not core to the revenue generating activities of the current business. Indeed many of the projects were exploratory in nature, focusing on research-led innovation (i.e. producing new knowledge and insights) or technology-led innovation (i.e. the novel application technologies). Such innovative activity is by nature inherently risky because of the distance from the market (Chesbrough, 2007), and as a result the pathways to market are often not established. A number of micro business owners described their innovative activities in relation to establishing and growing their businesses. However, while this highlights growth ambition and intent of many of the businesses interviewed, there was little reference by the interviews about how the innovation would be translated into business growth.

Several interviewees, when discussing the innovative activities of their companies, talked in terms of innovative projects as almost discreet and separate to the business. The danger here is that innovation is not linked to, and does not produce, results for the business. This resonates with Teece (2010) who identifies the need for businesses to capture the value of innovation, however, given the focus on innovating the offering the ways in which the value can be captured are limited. The views of one small business owner was telling as he referred to the 'project plan' associated with a new composite material although when asked could not immediately identify how the business would capture the value of this technology-led innovation. This perspective was evident in a number of interviews where the commercialisation plan for the innovations was fuzzy at best, and often only loosely linked with the business plan of the company.

Conclusion & Reflections

As the empirical context and discussion has shown to understand regional innovation there is a need to better understand innovation at the firm level. In the case of the business base in the SCR the evidence highlights that the businesses have been successful in leveraging public sector funding for innovation from Innovate UK, although has not been as successful in encouraging the same businesses to leverage private investment or in delivering innovation-led growth. This paper contributes to the literature by highlighting how innovative businesses need to be understood in relation to regional innovation and the competitiveness of locations.

Moreover business model innovation has been argued to be the missing link in leveraging the value of research-led and technology-led innovation.

As the discussion has sought to draw out, there are four dimensions to the paradox that sees innovative firms in the SCR not resulting in more innovative regional growth. First, businesses, and especially smaller businesses, typically do not engage in formal business planning and where it did occur it was generally ad hoc. Second, very few of the interviewees articulated their business model clearly or as distinct to the business plan, and any attempts to detail the business model were typically overly descriptive. Third, it is larger businesses that tended to identify activities as innovative more than smaller businesses, and all businesses primarily thought about innovation in terms of products. There was little evidence of innovation being leveraged in terms of the wider business model. Fourth, and finally, externally funded innovation projects were typically regarded as early stage and often did not have a clear commercialisation model. Otherwise innovation was driven by customers and framed in terms of product development, and not discussed in terms of growth.

Finally, the paper beholds a number of lessons for businesses and policymakers in supporting innovation-led growth. For firms there is a need to think about innovation beyond the offering, that is to say the innovation of the product, process or service, and think about innovation in terms of the business or business model. It is only by understanding (and articulating) the business model can businesses meaningfully begin to think about how they can engage in business model innovation as a means of capture value and deliver growth. For policymakers and public sector funding bodies there is a need to encourage businesses to think about how the business models as well as research-led and technology-led innovations. This requires adopting a holistic view and understand the value of innovation emanating from entrepreneurship and its significant potential to support regional growth and competitiveness. Thus there is a role for policy and innovation agencies to stimulate and support business model innovation by rethinking funding criteria to include an emphasis on business model innovation, by facilitating education on business models and their potential, and by providing funding for experimentation to encourage the development of new business models, with a view of ensuring that innovation permeates regional economies and harnesses the innovation potential of both SMEs and mature companies. For organisations such as Innovate UK this should represent a win-win and increase the return on investment associated with public spending. For (regional) organisations involved in business support, the findings suggest that supporting firms develop their business model and subsequently engaging in business model innovation as a means to unlock the growth potential of regional companies and with it promote regional economic growth.

One of the limitations of this paper is the generalizability of a case study of a single regional economy, although as an 'ordinary region' the experiences of the SCR is one encountered elsewhere in the UK and around the world. That said, the conceptual focus of the paper poses questions, to examine the role and impact of business models and business model innovation in different settings. These are issues that we are seeking to address through further research looking at the geographies of innovation UK wide. Currently we are extending the scope of the research in the UK and internationally to generate data for

comparisons and benchmarking of business model innovation and its impact on regional economies. Finally, to stimulate entrepreneurial-led innovation in both new and established companies and assist businesses in the commercialisation of innovations, there is a need to develop an iterative business planning tool that facilitates business model innovation thinking and extends the role of entrepreneurship and innovation in promoting regional competitiveness – this is an impact challenge that we are working to develop.

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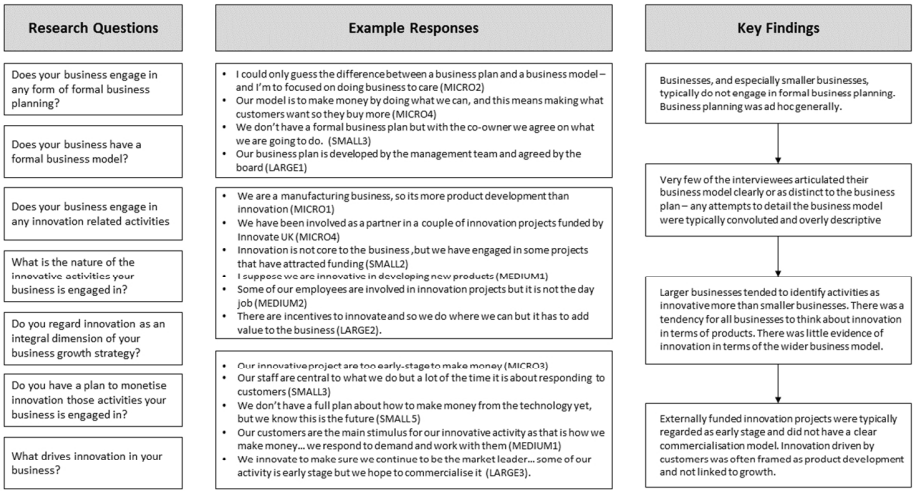

Summary of the main questions, indicative responses and emerging key findings from the interviews

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Table 1: Lead recipients of Innovate UK funding by organisation type in the SCR (2010-2015)

Organisation Type	Number of Organisations	Percentage of Organisations	Number of Projects	Percentage of Projects	Average Project per Organisation
Micro firms	93	60.8%	121	42.9%	1.30
Small firms	34	22.2%	61	21.6%	1.79
Medium firms	17	11.1%	42	14.9%	2.47
Large firms	6	3.9%	13	4.6%	2.17
Academic	2	1.3%	44	15.6%	22
Public Service Organizations (PSO)	1	0.7%	1	0.4%	1
Total	153	100%	282	100%	-

Source: Innovate UK (2016)

Table 2: Examples of activities which can serve as a focus for business model innovation

Example of practice	Domain of Business Model Innovation
Develop customised product solutions	Offering
Engaging with the customer differently	Channel
Different ways of selling the product	Transactive
Developing a new customer base	Interaction
Reducing costs of production	Revenue Model