High growth firms in Wales: effectiveness and importance of innovation to business growth and profitability

Objectives

The aim of this research is to provide case study evidence on the innovation performance of high-growth SMEs in an uncompetitive regional economy. Drawing on four in-depth case studies and using a comprehensive list of innovation typology we measured the effectiveness of thirteen different innovation typologies introduced by the high-growth SMEs. Further, we assessed the level of importance of each innovation that the high-growth firms as it relates to the business growth and profitability providing invaluable insights on the factors that determine SME growth.

Prior Work

This research builds upon the research findings (such as of BERR, 2008) which suggested that the main policy areas crucial for encouraging new high growth firms are : a) entrepreneurial skills to manage high growth firms; b) access to appropriate finance; c) building a culture that encourages serial entrepreneurship and d) increasing the levels of business innovation. Whilst in this paper we briefly address all the above, the primarily focus is on business innovation aspects. That is, in this paper we measure the effectiveness of business innovation within high growth firms as well as the level of importance of each innovation being introduced (thirteen innovation types) to the business growth and profitability. Business growth has received significant attention from the UK government. This is attributed to the fact that business growth is fundamental to improving economic performance and living standards. Evidence from the UK shows that high growth firms are found in a wide range of sectors and across all regions. However, in the UK they are heavily concentrated in London and South East (BERR, 2008), that is in the UK's most competitive regions as measured by the latest available UK Competitiveness Index (Huggins and Thompson, 2010). Given this central contribution of business growth, the study of high growth firms within uncompetitive and peripheral regional economies such is Wales is sound.

Approach

Case study interviews with managing directors of high growth SMEs based in the region of Wales. Sector covered: services and manufacturing.

Results

Based on the cases studies, we found that high growth firms rely heavily on building relationships with customers, suppliers and strategic partners. But the importance of this collaboration to business growth varied depending on the sectoral coverage. Relationships with customers were most effective and important for business growth. Leadership skills were found to be an important factor for implementing innovation. We found strong internal networks capabilities within all cases and skills and knowledge contributing a great deal for the generation of internal R&D. Another important finding was that international business drives growth. A high percentage of the business activity was predominantly done outside the region.

Implications

Increasing the levels of business innovation is a crucial UK policy area. Implications for policy makers when designing innovation policies, and taking into considerations what the real needs of high growth firms are. This paper shows that finance is important but other elements are crucial too. Design of policies not just at sectoral levels, but having good and solid understanding of those characteristics that make high-growth firms innovative and are most important for their future growth.

Value

Adds to the recent initiatives of ESRC and ERC agenda in relation to business growth and innovation. Provides useful insights for policymakers, business managers, and academics that seek to unravel the various interlinking factors which lead to sustained high growth. And develop a methodology than can further be used when designing large scale quantitative business innovation survey in the future.

Introduction

Over the past eighty years, Wales has made the transition from an economy heavily dependent on large, often externally owned, coal and steel industries, to a more diversified economy based on manufacturing and, more recently, services. This structural shift has been partly facilitated by governmental regional policy intervention and, as a result, Wales has accessed a number of public financial schemes such as Regional Development Grants and Regional Selective Assistance (Pickernell, 2011). Although Wales was one of the first places to receive these new resources, Welsh overall GVA per capita is and remains the lowest of the constituent parts of the UK (Riggs and Prothero, 2013). As a result, two-thirds of the country remains economically poor enough to qualify for EU Convergence funding (GDP per Capita less than 75% of EU average) which, over the last decade, has resulted in an additional £3.3billion of European funding being allocated to support new economic stimuli, including investment into research and innovation within small to medium sized enterprises (SMEs). Yet, despite hundreds of millions of pounds being spent on initiatives to support and develop greater innovation, studies have shown that there is no real evidence of a step change in innovation capacity and performance within Wales, mainly due to the failure to address the disconnectivity between public sector funding and private sector interests' (Jones-Evans and Bristow, 2010; Morgan, 2012). Part of this is due to the focus, by policymakers, on creating a knowledge base within universities without developing suitable incentives to encourage industry to invest in research and development. This view is supported by recent data on Business Expenditure on R&D (BERD), which showed Wales having the lowest level of R&D from the business sector of any UK region in 2011 (ONS, 2013).

This is a worrying development, given that R&D not only generates innovation but in addition also 'develops the firm's ability to identify, assimilate, and exploit knowledge from the environment' (Cohen and Levinthal, 1989:569). As previous research has shown, such 'absorptive capacity' is critical not only in exploiting internally generated innovation but in facilitating the firm to make connections to external knowledge and sources (Zahra and George, 2007). Therefore, not only do firms with superior internal research knowledge benefit more from connections to external scientists but research activities associated with building absorptive capacity and network connections result in a faster pace of innovation (Fabrizio, 2009). Indeed, a firm's internal research and external collaborations (i.e. with universities and other institutions) should be regarded as complementary activities which will allow firms to 'identify and absorb external knowledge more quickly'. Therefore, for weaker regions such as Wales, improving the absorptive capacity of businesses is of major importance for regional economic development and therefore better understanding the role of businesses in boosting innovation within weaker regions is crucial. Further, there is rather a shortage of in depth case study analysis of innovation processes in smaller firms, in general, and in particular of high growth firms that play a vital role in job and wealth creation in Wales.

Therefore, by adopting a in-depth case study approach, this paper presents case study evidence on the innovation performance of high-growth SMEs in an uncompetitive regional economy. Drawing on four in-depth case studies and using a comprehensive list of innovation typology we measured the effectiveness of thirteen different innovation typologies introduced by the high-growth SMEs. Further, we assessed the level of importance of each innovation that the high-growth firms as it relates to the business growth and profitability providing invaluable insights on the factors that determine SME growth. This analysis can provide the first starting point for creating a base for creating comparative e studies of high growth firms in the future and placing them within the wider UK regional context.

Research findings (such as of BERR, 2008) have suggested that the main policy areas crucial for encouraging new high growth firms are : a) entrepreneurial skills to manage high growth firms; b) access to appropriate finance; c) building a culture that encourages serial entrepreneurship and d) increasing the levels of business innovation. Whilst in this paper we briefly address all the above, the primarily focus is on business innovation aspects. That is, in this paper we measure the effectiveness of business innovation within high growth firms as well as the level of importance of each innovation being introduced (thirteen innovation types) to the business growth and profitability. Business growth has received significant attention from the UK government. This is attributed to the fact that business growth is fundamental to improving economic performance and living standards.

Evidence from the UK shows that high growth firms are found in a wide range of sectors and across all regions. However, in the UK they are heavily concentrated in London and South East (BERR,

2008), that is in the UK's most competitive regions as measured by the latest available UK Competitiveness Index (Huggins and Thompson, 2010). Given this central contribution of business growth, the study of high growth firms within uncompetitive and peripheral regional economies such is Wales is sound.

Methodology and data

This is based on a cohort of four high growth SMEs part of a wider PhD study that investigate innovation performance of SMEs within less competitive and peripheral region of Wales. The definition of small and medium size enterprises was drawn from the European Commission (2005) definition of SME with two main factors determining if a company is an SME or not: a) number of employees and b) turnover. The sectoral composition of the overview of the four anonymised cases consists of two high growth manufacturing firms, one high growth knowledge-intensive business service, and one high growth firm non knowledge-based service. This sectoral classification allowed us to conduct a cross-case analysis as well as within-case analysis. By doing so, this allowed for valid inferences to be drawn from these case studies maximising the likelihood that valid conclusions can be drawn (Kazdin, 1982) and internal validity is established (Eisenhardt, 1989; Yin, 2003).

The firms selected were all high innovation active firms. An introductory letter describing the project and inviting participation was sent to the managing directors of the firms. The study employed a structured interview of approximately one hour to obtain information on, and key examples of, business relationships that support innovation in the firms. During the process of identification of business relationships that support innovation, two other objectives were accomplished. First, the innovation activities within each case were reviewed and secondly, the level of effectiveness and importance of each of those innovations to the business growth and development was determined.

In terms of geographic coverage, the high growth selected SMEs that were located in the regions of South East Wales, North East Wales, North West Wales, and South West Wales. The SMEs identified for the cases were selected based on their innovation performance i.e. all were 'innovation active', and had introduced at least one type of innovation during the period under study. This initial information was obtained through a two-stage approach: first they either had won an innovation related award and second they showed a strong propensity to innovate. As the analysis shows, all the SMEs interviewed had introduced at least one or more innovation or started innovating, during the period of study. The innovation performance spanned from a minimum of 42.7 per cent (SME-Case14) to 58.4 per cent (SME-Case6). Table1 summarises the business activity and innovation performance.

Table 1: Business activity and innovation performance

SME-Case	14	7	6	5
Sector	**Non K-B-S**	**K-B-S**	**Manufacturing**	**Manufacturing**
Innovation Score	**42.70%**	**55.80%**	**58.40%**	**53.80%**
Size (number of employees)	120	82	150	34
Turnover	39m	12m	9.2m	4.1m
Turnover (last 2 years)	increased	increased	increased 30%	increased 40%
Geography	South East	North East	South West	North West
Business activity	R; N; I.	W=5%; E= 95%	W=2%, E= 95%; I=3%	E=20%; I= 80%

R= regional; N= National, W= Wales, E= England; I=International

Analysis and discussion

Theme I: Evidence from the manufacturing sector

Amongst other things, this section shows that service innovation is becoming critical for manufacturing sectors (Miles, 2008). One strong example of this is from SME-Case6 where no traditional style of innovations was found (i.e. 'new or improved products') during the period of analysis, although the importance and effectiveness of service innovations, both radical and incremental, were clearly articulated in the case.

A cross-case analysis allows us to group the two case into two sub-sectors as follows: Advanced manufacturing (SME-Case5) and Other manufacturing (SME-Case6). This distinction between advanced manufacturing (high-technology) and other manufacturing (low technology) is based on two very common indicators: research and development (R&D) intensity and number of R&D workers (scientists, engineers, and technicians) (Malecki, 1997). From the findings, we saw that firms innovate for a number of reasons but ultimately, the business goal is related to growth and development (Huggins, 2011; Love et al., 2011) and the need to be profitable (Teece, 1986; Dosi, 1988; Geroski et al., 1993; Chesbrough, 2003). Thus, the questions were clustered under the *business growth, development and profitability*. The question asked during the interview process was as follows: How important is collaborative innovation with (e.g. customers) to the future growth, development and profitability of your business? The results are as follows.

In terms of business relationships that support innovation (i.e. collaboration for innovation), high growth SMEs in the manufacturing sector collaborate with a number of actors (including the traditional 'triple helix actor') although the dynamics are rather different. On aggregate, collaborative innovation with customers seems to remain the priority as well addressed in the literature. However, when we see each case in isolation, some important findings emerge, in particular relating to the strength of these relationships as well as their effectiveness and importance to the growth and development of the business as a whole.

In terms of business relationships that support innovation (i.e. collaboration for innovation), SMEs in the manufacturing sector collaborate with a number of actors (including the traditional 'triple helix actor') although the dynamics are rather different. On aggregate, collaborative innovation with customers seems to remain the priority as well addressed in the literature. However, when we see each case in isolation, some important findings emerge, in particular relating to the strength of these relationships as well as their effectiveness and importance to the growth and development of the business as a whole.

In terms of collaboration and networks, that is business relationships that support innovation, high growth SMEs collaborate with a number of actors (including the traditional 'triple helix actor' of University – Industry - Government) although the dynamics are rather different. On aggregate, collaborative innovation with customers seems to remain the priority as well addressed in the innovation literature. However, when we see each case in isolation, some important findings emerge, in particular relating to the strength of these relationships as well as their effectiveness and importance to the growth and development of the business as a whole.

For SME-Case5, relationships with customers play minor role when it comes to innovation. The business had started collaborating with customers in order to innovate however, this not translated into an innovation output, eithera product, process or service. Whilst this is surprising, considering that almost all the literature in innovation studies points out to the importance of customers for innovation (see for example, review from Pittaway et al., 2004), it can be explained by a number of other factors. For example, the firm prefers not to use random customer interactions (i.e. scoring very low in this case) but instead uses strategic engagement with a number of partners that lead directly to new products and processes (Kaufmann and Tödtling, 2001; Love et al., 2011). That is, whist customers does not play strong role, the firm had developed a range of innovations by collaborating with suppliers and indicated a need to collaborate further when the right opportunity was present. The level of effectiveness of this collaboration is ranked as 6 out of 10 with similar ranking for its importance to the future growth, development and profitability of the business (scoring 45%).

Theme II: Evidence from knowledge-based service sector

SME-Case7, it is a T-KIBS, had developed very strong links with customers and had a good track record of innovating by collaborating with customers in contrast to SME-Case6, the

most innovative for the manufacturing sector, where customer relationships played little role. It is worth stating that SME-Case7 uses exploratory links (Love et al., 2011) with customers as well. This was not the case for SME-Case6 and SME-Case5.

Business relationships that support innovation

For SME-Case7, an Information and Communication Technology (ICT) firm, relationships with customers play a very important role when it comes to innovation. Whilst relationships with suppliers and strategic partners play no role in supporting innovation activities, the situation is totally different for customers and suppliers. Specifically, the company had developed many innovations by collaborating with customers and was continuously working with them to develop the business further. In this case, the end customers were schools and students. Both students and teachers were providing an invaluable input to the design and testing of the final product. As the MD stated '*more than 50 teachers are working with us and came to visit us here and work in individual components of the product*.' Here we have very close relationships with customers/clients meaning that the customer can be found at the heart of product development.

Exploring relationships with suppliers
Collaboration with suppliers and other companies in the industry was not important. This, in this case, was a result of intellectual property related issues.

> *I mean we are close to (IT company name1) and we are close to (IT company name2) but we haven't done that. So big companies, what is in for them? They think the world revolves around them. You mentioned something like that (product name) they would want to own it. They don't see themselves as possible contributors, they see themselves how am I going to have this in my military suite, how am I going to have that medal they want more acknowledgment and they don't understand that they have been invited to contribute not being invited to take-over, that's why we don't invite them.* (SME-Case7)

> *The problem is, the Universities are, if you look at it at the undergraduate level to start with... are concerned to teach the young students the basics, the foundations to get them to become engineers. So that section of it, of that University, of those teachers, or of that area of University really [..] can't help us. The engineers that graduate from these universities we have to spend a lot of time to bring them not equal to our engineers, it will take us couple of years to get them back, you know, to the same bar with people that have been having plenty of experience. Some of them do it faster. The good thing about graduates is that they are still in teaching and learning mode. (*SME-Case7)

In terms of collaboration with strategic partners, the MD recognised that many companies do establish relationships with them, but for SME-Case7 this was not the case.

> *No we don't do it. One thing many companies do. For us it is a hassle to set up and make that relationship. Everybody tells me how good it is and how much it saves the company's money (i.e. when collaborating with strategic partners). We haven't done it. We haven't sought it out and we haven't been faced with a choice like that.* (SME-Case7)

Innovation activities: effectiveness and importance
SME-Case7 had a portfolio of completely new products as well as a track record of developing them. A key success factor was the fact that the firm was continuously working on new ones. The distinction between incremental and radical product innovation is very strong and whilst the company applies both strategies, radical product innovations are those that were more effective and of most importance to the future development of the business, '*it is always the fresh idea.*'

Unsurprisingly, SME-Case7, given its engineering nature, has very strong levels of absorptive capacity (AC) and internal R&D. For some cases, formal qualifications were not measurable as attending relevant courses and obtaining work experience was key. Undoubtedly, this forms part of the AC within the organisation.

We are not a local company. I don't mean in a physical term. We are physically here, but I am talking about the business we do. The business we do, we do more than 90 per cent in England. So we are based in Wales because we love it; we studied here, we live here, our children go to school here and things like that; and the company grew here in but our business is not in Wales. (SME-Case7)

*In the Research and Development areas of the universities, they are not usually working on a product; they are usually working purely on research and development. We are talking about technology that is ready for the market, and it is quite more advanced from just a research project. (*SME-Case7)

The bit you are asking about Universities; can they help us with our innovations? Yes, possibly, but again they have their set of ways of doing things, which is a much longer process. PhDs are three years, some people do it a bit earlier, but three years is kind of minimum. Companies cannot wait three years. We cannot wait three years to develop something; we need a much faster pace. (SME-Case7)

Establishing business relationships is important and one reason for this is the fact that, according to SME-Case7, SMEs, and especially T-KIBS, do not have *'every expertise required under the roof, because every day there is a new technology coming out'*.

Theme III: Evidence from Non Knowledge-Based Services

SME-Case14 is the weakest one in terms of innovation performance when compared to the other cases. One reason for this can be the nature of this high growth firm, that is a recruiting company. This reflect the relative low performance within of thirteen innovation metrics proposed herein. It is worth noting the importance and effectiveness of collaborating with customers and suppliers in order to innovate (Table 2). Further, whilst the company is rather effective in introducing a number of innovation activities, starting from the traditional product innovation, to more intangible ones, such as services, organisational innovation (Tables, 3, 4, 5) the strength of these innovation is rather low, resulting in overall low percentages.

[About financial support from Welsh Government] *Not for us. I mean the issue that we get which is a bit of bloody nightmare really is Welsh Assembly has got six areas where you can spend money against. I have gone through two or three things from a technology innovation perspective, and that's two, technology and innovation expenses that they've got but we cannot get anything from them because we are a recruitment company. It is frustrating that there is Welsh Assembly money available but we cannot pull down because we don't fit in to the right criteria even though are giving jobs to 120 people over the last five years.* (SME-Case14)

We are one of the few companies in South Wales in being successful and haven't had any government funding. We never had any grant to support us in taking on new permanent employees or buying any computer system. We never benefited from that. Everything we've done has been without any support from government. (SME-Case14)

Conclusions

This chapter has sought to provide an identification and qualitative analysis of the different sources of innovation drivers for high growth SMEs in Wales in the form of the varying types of business relationships present. Traditionally, innovation surveys have been criticised for recording only the 'hard elements' of innovation, such as R&D (Arundel, 2007) although more recent studies have attempted to more comprehensively cover wider firm innovative behaviour. By conducting four in depth case studies of high growth firms in Wales, this study has shown that high growth firms innovate in a number of ways and collaborate in a unique fashion. Further, a broad range of drivers were identified including the importance of customers and the market, engagement with universities and, arguably to a lesser extent, the role of the Welsh Government in facilitating innovation. All three encompass the principal components of the Triple Helix in action in Wales, albeit with businesses and customers occupying the role of facilitators of innovation for SMEs rather than the government as identified in Etzkowitz's original model (Etzkowitz, 2008). Similarly the lack of sustained engagement with universities across the different sectors indicates that SMEs in Wales do not consider universities as a driver of innovation, preferring instead to focus on the market and its needs to direct their strategic intentions.

Although the case studies are by no means comprehensive, they do go some way to providing a clearer picture of the flows and intensity of the different engagements across the three sectors of high growth manufacturing, knowledge based services and non-knowledge based services. They also offer a number of clear insights into some of the main drivers and disconnects present within the Welsh innovation system. The unevenness of the different levels of engagement between the three actors present within the Triple Helix in Wales is symptomatic of the complexity of the system and its interactions and requires a deeper understanding of the nature of the engagement (or disengagements) between the main drivers of innovation in Wales that singular methodological approaches cannot capture. What this paper has revealed is a system that is punctured by disconnects between high growth SMEs and other vital parts resulting in a poorer relative innovation performance than might otherwise be the case with improved relations. From this information, it may be possible develop specific interventions to support and strengthen innovation at a regional level with a specific focus to high growth firms.

References

Arundel, A. (2007) “Innovation survey indicators: What impact on innovation policy?” In :*Science, Technology and Innovation Indicators in a Changing World: Responding to Policy Needs*. Paris:OECD, pp. 49-64.

BIS (2010) *UK Innovation Survey 2009: Science and Innovation Analysis*. London: Department for Business Innovation and Skills, December, 2010.

Bristow, G., Pill, M., Davies, R. and Drinkwater, S. (2011) “Stay, leave or return? Patterns of Welsh graduate mobility”, *People, Place and Policy Online* Vol. 5, No. 3 pp. 135-148.

Cohen, W. and Levinthal, D. (1990) ‘Absorptive Capacity: A New Perspective on Learning and Innovation’, *Administrative Science Quarterly*, Vol. 35, No. 1, pp128-152

Fabrizio, K.R. (2009) “Absorptive capacity and the search for innovation.” *Research Policy*, Vol. 38, No. 2 pp. 255-67.

Huggins, R. (2010) “Regional Competitive Intelligence: Benchmarking and Policy-making.” *Regional Studies,* Vol.44, No.5, pp. 639 - 658.

Jones-Evans, D. and Bristow, G (2010) *Innovation And The Objective 1 Programme I Wales: Lessons For The Convergence Fund*, Paper presented to the Enterprise and Learning Committee, National Assembly for Wales, March 18th

Morgan, K. (2012) “Path dependence and the state : the politics of novelty in old industrial regions”, in Cooke, P. (ed) *Re-framing Regional Development - Evolution, Innovation and Transition*, London:Routledge.

NESTA (2009) The Vital Six Percent, London: NESTA.

ONS (2013) *UK Gross Domestic Expenditure on Research and Development*, 2011 Coverage, 13th March 2013.

Pickernell, D (2011) *The Many Face of Economic Development Policy: From Despair to Where?,* CEG Papers in Economic Geography, Cardiff University 03/2011

Riggs, A. and Prothero, R (2013) *Regional Economic Indicators – March 2013*, Office for National Statistics, London

SQW (2011) *Cambridge Cluster at 50 - The Cambridge economy retrospect and prospect*, SQW, April.

Statistics for Wales (2012) *Size Analysis of Welsh Business*, 2012 SDR 186/2012 25 October 2012.

Zahra, S. and George, G. (2007) ‘Absorptive Capacity: A Review, Reconceptualization, and Extension’, *Academy of Management Review*, Vol. 27, No 2, pp.185-203.

Appendix

Case study interview questions

A. Business relationships the support innovation

1. Has your business sought to innovate through collaboration with customers in the last two years?
1.1 How effective are the customer collaboration innovation activities of your business?
1.2 How important is collaborative innovation with customers to the future growth, development and profitability of your business?
1. Has your business sought to innovate through collaboration with suppliers in the last two years?
1.1 How effective are the supplier collaboration innovation activities of your business?
1.2 How important is collaborative innovation with suppliers to the future growth, development and profitability of your business?
3. Has your business sought to innovate through collaboration with strategic partners in the last two years?
3.1 How effective are the strategic partner collaboration innovation activities of your business?
3.2 How important is collaborative innovation with strategic partners to the future growth, development and profitability of your business?

B. Innovation activities within the firm

1. Has your business developed any products through radical innovation in the last two years?
1.1 How effective are the radical product innovation activities of your business?
1.2 How important is the radical product innovation to the future growth, development and profitability of your business?
2. Has your business developed any products through incremental innovation in the last two years?
1.1 How effective are the incremental product innovation activities of your business?
1.2 How important is the incremental product innovation to the future growth, development and profitability of your business?
3. Has your business developed any services through radical innovation in the last two years?
3.1 How effective are the radical service innovation activities of your business?
3.2 How important is the radical service innovation to the future growth, development and profitability of your business?
4. Has your business developed any services through incremental innovation in the last two years?
4.1 How effective are the incremental service innovation activities of your business?
4.2 How important is the incremental service innovation to the future growth, development and profitability of your business?
4. Has your business changed its processes in the last two years?
4.1 How effective are the process innovation activities of your business?
4.2 How important is the process innovation to the future growth, development and profitability of your business?
5. Has your company changed its business model in the last two years?
5.1 How effective are the business model innovation activities of your business?
5.2 How important is the business model innovation to the future growth, development and profitability of your business?
6. Has your business developed new marketing or sales methods in the last two years?
6.1 How effective are the marketing and sales innovation activities of your business?
6.2 How important is marketing and sales innovation to the future growth, development and profitability of your business?
7. Has your business entered new markets for its products and services in the last two years?
7.1 How effective are the new market innovation activities of your business?
7.2 How important is new market innovation to the future growth, development and profitability of your business?
8. Has your business applied environmentally-friendly practices and thinking when innovating in the last two years?
8.1 How effective are the green innovation activities of your business?
8.2 How important is green innovation to the future growth, development and profitability of your business?

Table 2: Collaboration and Networks

SME-Case	14	7	6	5
Sector	**Non K-B-S**	**K-B-S**	**Manufacturing**	**Manufacturing**
Innovation Score	**42.70%**	**55.80%**	**58.40%**	**53.80%**
Size (number of employees)	120	82	150	34
Collaboration and Networks				
Customers	60%	90%	37.50%	10%
Effectiveness	8	9	5	4
Growth and profitability	8	10	7	4
Suppliers	60%	0%	0%	45%
Effectiveness	8	n/a	n/a	6
Growth and profitability	10	n/a	n/a	6
Strategic Partners	12.50%	0%	37.50%	0
Effectiveness	5	n/a	5	n/a
Growth and profitability	7	n/a	5	n/a

Table 3: Product and Service innovation

SME-Case	14	7	6	5
Sector	**Non K-B-S**	**K-B-S**	**Manufacturing**	**Manufacturing**
Innovation Score	**42.70%**	**55.80%**	**58.40%**	**53.80%**
Size (number of employees)	120	82	150	34
Innovation Activity	Product and Service Innovation			
Radical Product Innovation	35%	100%	n/a	80%
Effectiveness	7	10	n/a	8
Growth and profitability	7	10	n/a	8
Radical Service Innovation	35%	40%	80%	n/a
Effectiveness	7	8	8	n/a
Growth and profitability	7	10	10	n/a
Incremental Product Innovation	12.50%	50%	n/a	52.50%
Effectiveness	5	5	n/a	7
Growth and profitability	9	5	n/a	8
Incremental Service Innovation	17.50%	35.00%	80%	n/a
Effectiveness	7	7	8	n/a
Growth and profitability	9	10	10	n/a

Table 4: Wider innovation

SME-Case	14	7	6	5
Sector	**Non K-B-S**	**K-B-S**	**Manufacturing**	**Manufacturing**
Innovation Score	**42.70%**	**55.80%**	**58.40%**	**53.80%**
Size (number of employees)	120	82	150	34
Innovation Activity	Wider Innovation			
Process Innovation	12.50%	52.50%	52.50%	70%
Effectiveness	5	7	7	7
Growth and profitability	9	8	7	8
Organisational Innovation	17.50%	0%	0	37.50%
Effectiveness	7	n/a	n/a	5
Growth and profitability	9	n/a	n/a	5
Marketing and Sales Innovation	25%	10%	35%	45%
Effectiveness	5	4	7	6
Growth and profitability	8	6	9	6

Table: 5 Broader innovation

SME-Case	14	7	6	5
Sector	**Non K-B-S**	**K-B-S**	**Manufacturing**	**Manufacturing**
Innovation Score	**42.70%**	**55.80%**	**58.40%**	**53.80%**
Size (number of employees)	120	82	150	34
Innovation Activity	Market Innovation			
New Market Innovation	20%	52.50%	37.50%	60%
Effectiveness	8	7	5	8
Growth and profitability	8	10	9	8
Business Model Innovation	17.50%	80%	100%	52.50%
Green Innovation	0%	40%	35.70%	60%
Effectiveness	n/a	8	5	8
Growth and profitability	n/a	8	2	8