Innovation and Its Drivers in SMEs

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Abstract: The paper reviews the different approaches around innovation and seeks to examine the prevalent practices and drivers for change in businesses with less than 250 employees, which are more commonly known as Small and Medium- Sized Enterprises (SMEs). It is evident from previous discourse that innovation is important for business survival yet current discourse is also fragmented and wide-ranging with little consensus on which approach delivers success. While innovation is important the catalyst for change and for innovative measures to be applied seems to emanate from the entrepreneur.

Thus this paper posits there is a vital role and importance that the individual entrepreneur plays as a driver of innovation in SMEs.

Keywords: SME, Innovation, Entrepreneur, Entrepreneurship

The drive for innovation

The evolutionary process of the business cycle highlights the need to innovate and change in order to continue to attract customers (Freel, 2000; McAdam, Reid and Shevlin, 2013). Businesses undergo a process of internal and external change as a product of both its internal capacities and its business environment. The need to innovate allows business to retain its market position and share, extending its life cycle and ensuring business success. As such innovation is an important element of business enterprise. Industry innovation as discussed by Low and Abrahamson (1997) portray a picture of a constantly changing and fluctuating business environment. Emergent industries, fragmentation, transitional and those that are in decline indicate the complexity of the external business environment. The innovation process provides a means for business to change, alter and adapt to market trends, customer desires, and technological advances with the ultimate goal to remedy the negative impact of these forces. SMEs are inevitably, much as large businesses, equally affected by changes in both the internal and external environment.

Given the complexity and variations in identifying and measuring innovation, it is particularly useful to begin with a clear definition. In the broadest definition innovation includes the ability of firms to change as well as to adapt to a changing external environment to not only succeed but also to be able to maintain a competitive advantage despite ever fluctuating external forces. North and Smallbone (2000) describe innovation to be a firm's ability and desire to assimilate, change and welcome product or service development. Goffin and Mitchell (2010) view innovation as understanding what is required in the marketplace and being able to adapt to customer trends and desires. Bridge *et al.* (2003: p 303-304) describe innovation as the "successful development of competitive advantage" – an important element to corporate entrepreneurship.

The field of research in innovation is quite diverse with different theoretical approaches and utilising different ways of defining and measuring innovation (Gray *et al.*, 2012). The current body of literature has difficulties pinpointing and discerning the positive or negative effects of innovative approaches fully. This is not merely due to the difficulties inherent in the field of SME research or business success, but it lies in the multiple degrees and methods of defining and measuring innovation. Gray *et al.* (2012) discuss the variability in current research on what equates to innovation and what needs to be measured or assessed to causally highlight which has benefited the business. Moreover the measurement of success can be linked to performance – both elements, which in themselves, are as ambiguous as innovation. Macpherson and Holt (2007: p186) contend that within emergent research into

entrepreneurship there seems to be “competing themes and directions” on which approach would be best.

Schumpeter’s (1934) very early, yet seminal, definition of innovation included the introduction of new product(s), new methods of production, entering of new markets, new sources of supply and new forms of competition. This definition has been further extended by related work from Porter (1990) who highlights that innovation entails improvements in technology and better/new ways of doing things alongside process and product changes, new forms of marketing and logistics and ultimately concepts of scope. Cosh *et al.* (1999) define innovation to emanate from either changes in the product or processes. Deakins and Freel (2009) argue that Schumpeter’s streams of innovation are not mutually exclusive and can be utilised simultaneously within business innovation. Thus, new product innovation can be undertaken while innovations in marketing continue. This modern ideology which embeds both tangible and intangible innovation draws influence from Schumpeter’s own taxonomy. The OECD (2013) segments innovation into 4 major areas -

1. Product - A good or service that is new or significantly improved. This includes significant improvements in technical specifications, components and materials, software in the product, user friendliness or other functional characteristics.
2. Process - A new or significantly improved production or delivery method. This includes significant changes in techniques, equipment and/or software.
3. Marketing - A new marketing method involving significant changes in product design or packaging, product placement, product promotion or pricing
4. Organisational - A new organisational method in business practices, workplace organisation or external relations.

Deakins and Freel (2009, 134) provide an apt definition of innovation in how it “incorporates both creation or discovery aspects and diffusion or utilisation aspects. The difficulty, however, is that is novelty is ultimately a relative concept.”

Technology and Knowledge networks as catalyst to innovation

The growth of the Internet, mobile technology and the expanding trend of online shopping and social networking have required firms to apply new innovative approaches to their business. Higón (2011) discuss the ability for ICT to contribute in some way to firm productivity with Koellinger (2008) emphasising how e-business technologies are important enablers of innovation. Hempell and Zwick (2008) contend that ICT can improve and enable firms to have more flexible organisational structures, ratifying Russo and Perrini (2010) and Haleblian *et al.* (2012) call for organisational adaptability.

While Chilelushi and Costello (2009) has highlighted that these changing trends can be a hindrance to SMEs, they alongside Alshamaila *et al.* (2013) are keen to posit that with the advent of such technological advancements, these have instead 'enabled' a large number of firms. SMEs are now not only able to target their traditional customer base in their locality, but technological innovations have facilitated widening of business opportunities.

Vis-a-vis technological innovations, firms need to review and reflect on their business models. For example, Taylor and Murphy (2004) and Pavic *et al.* (2007) discuss the growing application of online models of business and business marketing to exploit current trends of Internet shopping. New mediums of supply chain and delivery logistics as well as increasing focus on networking through social networking, professional and business ventures, cloud computing (Alshamaila *et al.*, 2013; Pavic *et al.*, 2007; De Brentani (2001). This has facilitated a change and adaption of the traditional shop-floor towards understanding the merits of the virtual world. To a certain degree, not only are firms required to embed some form of Internet presence but they have also had to rethink their traditional supply chain and logistics to better adapt to modern demands. Indeed Khazanchi *et al.* (2007) highlight improving production methods, services and administration as noteworthy examples of innovating the business model. Trott and Hartmann (2009) argue the benefits of strategic alliances and collaboration, which enable a firm to attain access to different technologies, marketing and technical expertise, and effectively spurring innovation - A form of sharing of information and critical mass within a locality. Huggins and Johnston (2009) likewise discuss the value of 'knowledge networks' to the generation of innovation in SMEs. Westhead *et al.* (2004) and Madhok (1997) argue that collecting any information and engaging in any networking activities will inevitably reduce uncertainty and increase awareness of the marketplace, thereby improving the ability to weather external threats.

Other dimensions of innovation

The literature also highlights how the business type and customer base innovation can also be useful in ensuring SME success. The constant variations and changes in the marketplace require that firms update and review their approaches to better reflect customer demand as well as current trends. Fluctuations of demand and type of demand are dependent upon environmental forces, which require appropriate innovation for firms to continue to cater to the market. Trott (2011) discusses innovation in management initiatives and how these aid the overall competitiveness of a firm. Firms need to change the way they do things and the way they manage themselves in order to be better cater to the marketplace. This mirrors Kanter's (1986) and Haleblian *et al.* (2012) research, which contends that small firms are well placed to innovate to changing patterns of demand.

Another approach, similar to knowledge networks (Huggins and Johnston, 2009) and strategic alliances (Trott and Hartmann, 2009) is through business-to-business ventures (De Brentani, 2001). Strong business-to-business (B2B) ventures enabled small firms to not only be able to change and adapt their products quickly, but ensure that their supply chain is well setup to weather fluctuations in the marketplace.

Powell and Eddleston (2012) discuss the potential for 'work-family enrichment' to further benefit SMEs and perhaps the innovative process. They contend that the "resources generated in one domain, work or family, are applied in the other in a way that benefits the other domain" (Powell and Eddleston, 2012, 263). The authors are not alone in identifying these benefits with Wayne *et al.* (2007) highlighting how families can facilitate and/or enhance (Ruderman *et al.*, 2002) business success. Experience and knowledge of personal networks and familial contacts have always played a role and valuable influence on entrepreneurial decisions. Indeed Powell and Eddleston (2012) and Ruderman *et al.* (2002) are keen to emphasise how the family-to-business model can have an equally effective business model to the more common business-to-business ventures.

Traditionally research and development (R&D) expenditure and product developments are often linked to high levels of productivity and growth of the business. Previous literature (Moore, 1995; Love and Roper, 2013 and Hughes, 2001) indicates a strong value of business growth as a benefit of product innovation. Luo (2000) identified that product development can provide a strong offensive strategy in innovating to develop exporting potential. De Brentani (2001) contends that innovations to products involve simple line extensions to minor adaptions/adjustments or on the opposite spectrum radical and discontinuous changes. She (2001) adds that innovation is based on 'degrees of newness' rather than solely innovation and how the measurement of 'newness' is based on the perceptions of the firm itself, the other world or both of these.

Bloodgood *et al.* (1996) is keen to state that a more diverse product range and product differentiation increases the likelihood of success. Cooper and Kleinschmidt (1986) indicate that innovative and new products would inevitably lead to superior performance. Nonetheless Freel (2000) warns that the high costs involved and the investment in R&D inevitably negatively affects retained profits. Indeed Trott and Hartmann (2009) highlight the various issues and contentions that occur with retaining and patenting Intellectual Property (IP). Thus, while there are numerous benefits in innovating, firms and especially small firms need to operate within their limits. The potential for expensive and extensive funding of R&D may lead to little fruition, with many small firms often being unable to bear such costs.

Instead current discourse suggests being aware and considerate of potential options to be best to ensure firm success.

Research Problem

Seemingly there is a need to innovate and change with the times but no clear consensus on what needs to be done when and which approaches are more successful than others. It is evident from previous discourse that innovation is important for business survival yet current discourse is also fragmented and wide-ranging with little consensus on which approach delivers success.

Research philosophy

There exist numerous philosophical underpinnings that can be applied or utilised in undertaking research. Bryman and Bell (2007) much like Saunders *et al*. (2007) indicate two major streams of philosophical approach – positivist and interpretivist.

A positivist philosophical underpin views the world as concrete and certain, where the real world phenomenon can be understood and examined in structured and quantitative way. The positivist philosophical is based strongly in the traditional sciences (Saunders *et al*., 2007) and seeks to confirm or verify theories or elements of causality. It seeks to examine the real world based on numerical and mathematical relationship exploration and is variables and testing driven.

In contrast to this interpretivism is keen on interpreting or understanding real world phenomenon (Bryman and Bell, 2007). The interpretivist researcher is driven by the desire to understand the intangible and loosely structured issues that are prevalent within the area of study (Ghauri and Gronhaugh, 2002). Its focus is in understanding and reviewing the complexities of the real world away from solely strong mathematical analysis.

Saunders *et al*. (2007) is keen to highlight a third approach that bridges the gap between pure positivist and interpretivist philosophical underpinnings. They discuss the importance of a pragmatic philosophical underpin, which posits that the aims and purposes of the study could dictate the philosophical position of the researcher. Indeed they advocate that, given the numerous data collection methods available, modern research should utilise the best available methods to undertake research rather than be embroiled in philosophical contrasts.

For the purposes of this study, a pragmatist philosophical underpinning was applied. Given the scope, objectives and geographical restrictions that affect and direct this study, a pragmatic philosophical approach enables the research to utilise the best available data

collection approaches to the benefit of the study. Without being restricted to either quantitative or qualitative approaches, a pragmatic philosophy ensures that the research not only collects a robust range of data but that utilising the most appropriate data collection methods, the study benefits from enhanced reliability, validity and generalizability.

In order to delve further into the area of innovation, a questionnaire was distributed to SMEs in the North West of England. The structured survey was designed based upon current discourse around the area of innovation with thematic areas of Business Operations, Financial Focus, Business Size and Business Success, segmenting the questionnaire.

A total of 309 surveys were distributed online with a useable response rate of 208 surveys. Respondents were selected utilising a random sampling methodology. A sampling frame was drawn utilising Bureau van Dijk (FAME) database. Online survey methods were utilised to improve distribution and speed of delivery of the data collection instrument. Moreover there were a number of other benefits that were gained through the use of online surveys. Indeed non-responses can be specifically targeted. This ensure that respondents that were unwilling to participate or unable to provide informed consent were very quickly excluded from the study. This ensured robust ethical approaches as well as collection of reliable data from individuals who really wanted to be involved.

Respondents were, of course, provided with the option for hardcopy questionnaires to be sent to their address for completion. To further ensure parity, both hardcopy and pilot questionnaires were piloted.

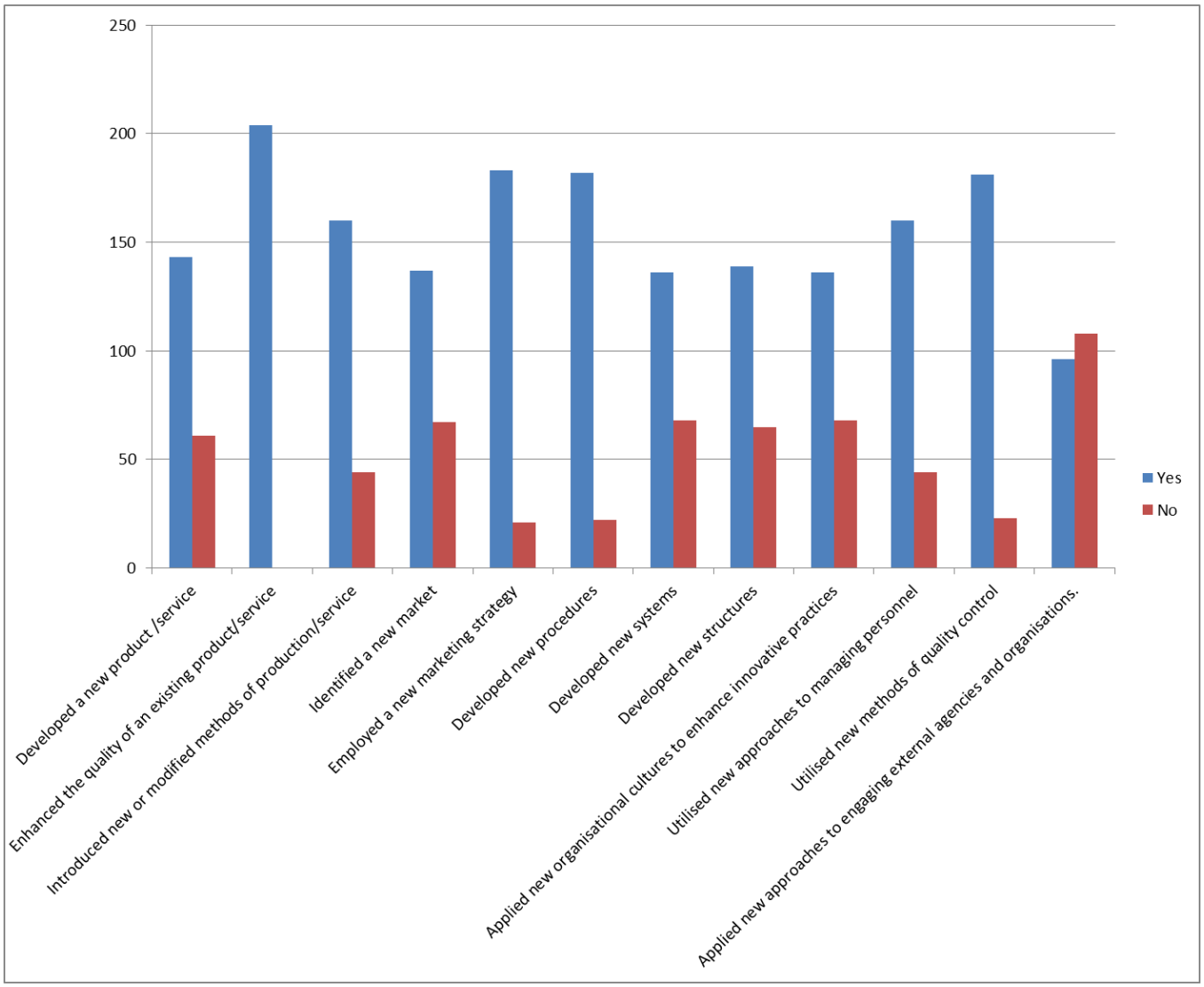
The approach was undertaken to ensure that respondents were selected based on a set of criteria that best represented the scope of the study. As the study was focuses on the North West of England, this was the first criteria. Within the range of companies identified, size was further utilised as an inclusion criteria. To ensure that firms selected were SMEs, businesses with 250 employees and above were discounted. Thus, the selection criteria applied was companies with less than 250 employees. Moreover, based upon definitions as set by the EU Commission, SMEs had to have an annual turnover of < 50 million Euros or an annual balance sheet of < 43 million Euros.

Non-probability sampling methods are often utilised when an accurate sampling frames are difficult to ascertain. Unfortunately such approaches do not allow a fair mathematical opportunity for respondents to be selected and can be open to bias. As FAME was able to provide a valid sampling frame, the study was able to utilise a random sampling approach, thus bolstering the robustness of the data collected.

Preliminary Findings

Saunders *et al*. (2012) view internal validity to be more concerned with the internal construct of a research design or data collection method. For example, for research reviewing causality, there is a need to consider if the data collection instrument and analysis method is not artificially skewed through bad design. To assess the validity of the data collection instrument, a test of internal reliability (Cronbach Alpha) was undertaken. Sweet and Grace-Martin (2008) posit that a score of above 0.7 on an index of four or more indicators highlight good reliability. A Cronbach Alpha value of .764 was returned on the scale questions within the questionnaire, indicating a strong reliable construct.

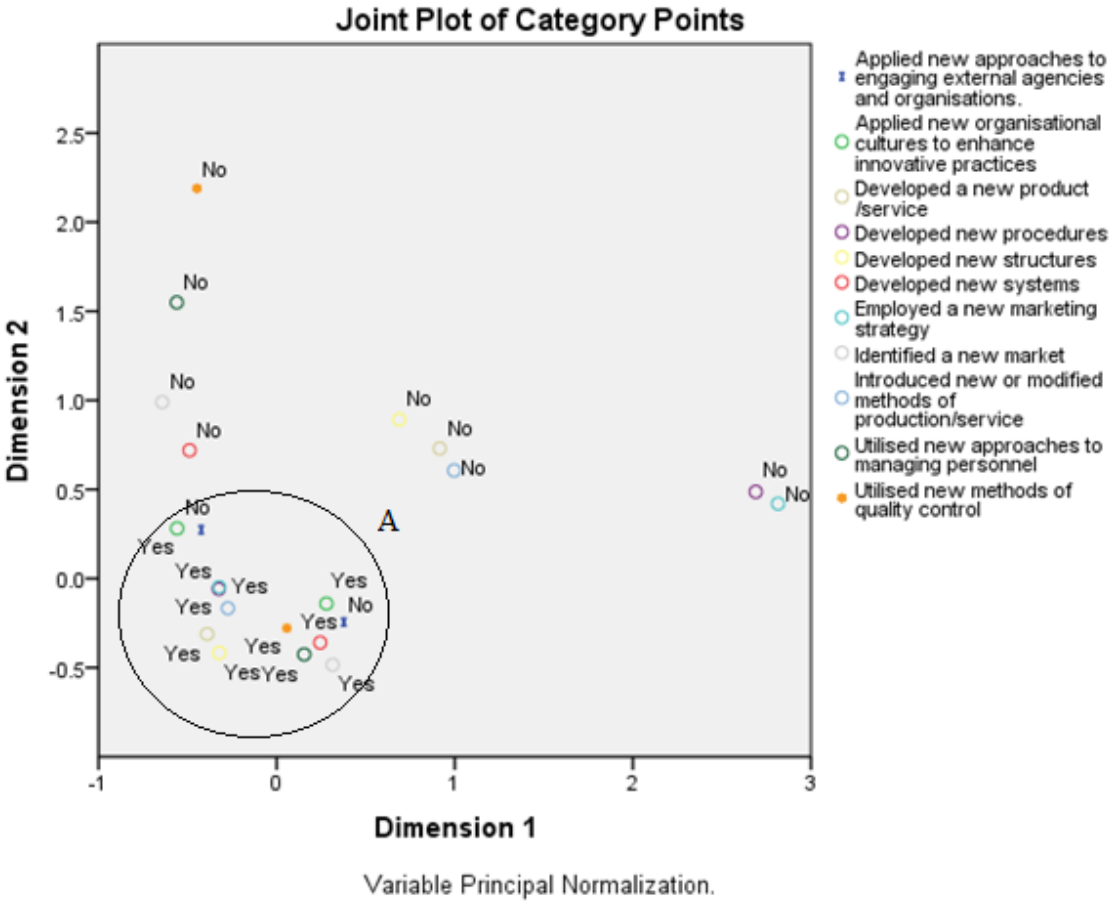
Figure 1 – Responses to usage of innovative approaches.



Respondents were asked to select if a range of innovative approaches had been undertaken at their businesses recently. The overriding majority highlighted a strong propensity as well as undertaking of innovation at their firms. Figure 1 below displays that on all except one measure did entrepreneurs indicate innovation. Interestingly, entrepreneurs did not or were not as keen to innovate through engagement with external agencies and organisation. As suggested by Rosenbusch *et al.* (2011), the usage of external agencies may in fact overburden SMEs instead of providing benefits.

Nonetheless, what is clear from the findings is the importance placed on enhancing the quality of an existing service or product, with a unanimous positive response.

Figure 2 – Multiple Correspondence Analysis Plots

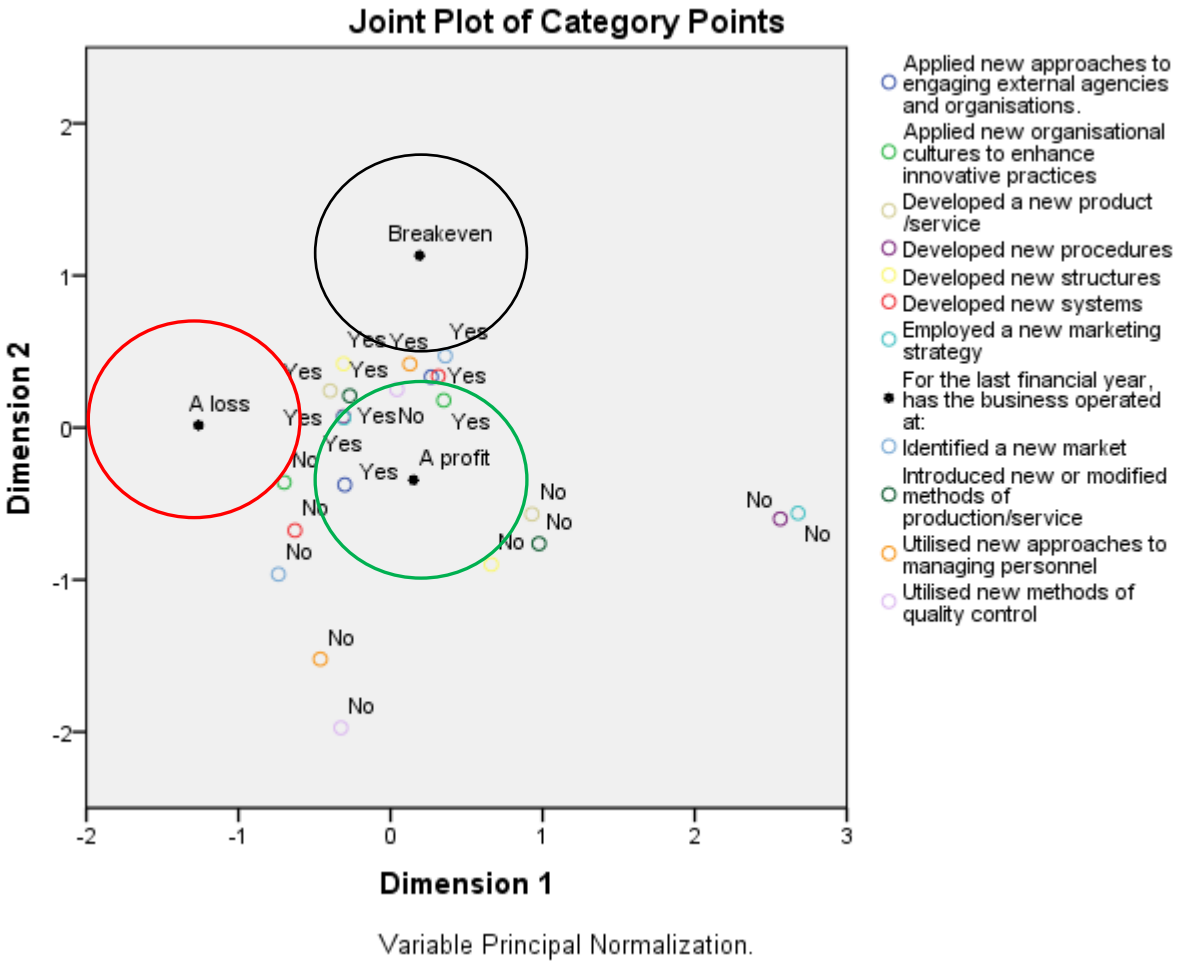


Multiple Correspondence Analysis (MCA) was then applied to examine if different innovative approaches had similarities or clustering. MCA examines the association of a range of variables and identifies clustering and closeness of related variables (IBM, 2013). Interestingly, only one key cluster emerged from the findings. The results here indicate that

innovative approaches such as new procedures, structures, systems, product and marketing are strongly clustered to each other (*see* Cluster A in Figure 2 below). This posits that usage of a particular approach is related to usage of another, where firms may find it difficult to separate one approach from another. The findings suggest that innovation is undertaken in many forms and often a range of approaches are applied simultaneously.

Of interest is 'Engaging external agencies and organisations' where this approach to innovation is less consistently applied, with both 'Yes' and 'No' responses clustered within the group.

Figure 3 - Multiple Correspondence Analysis Plots

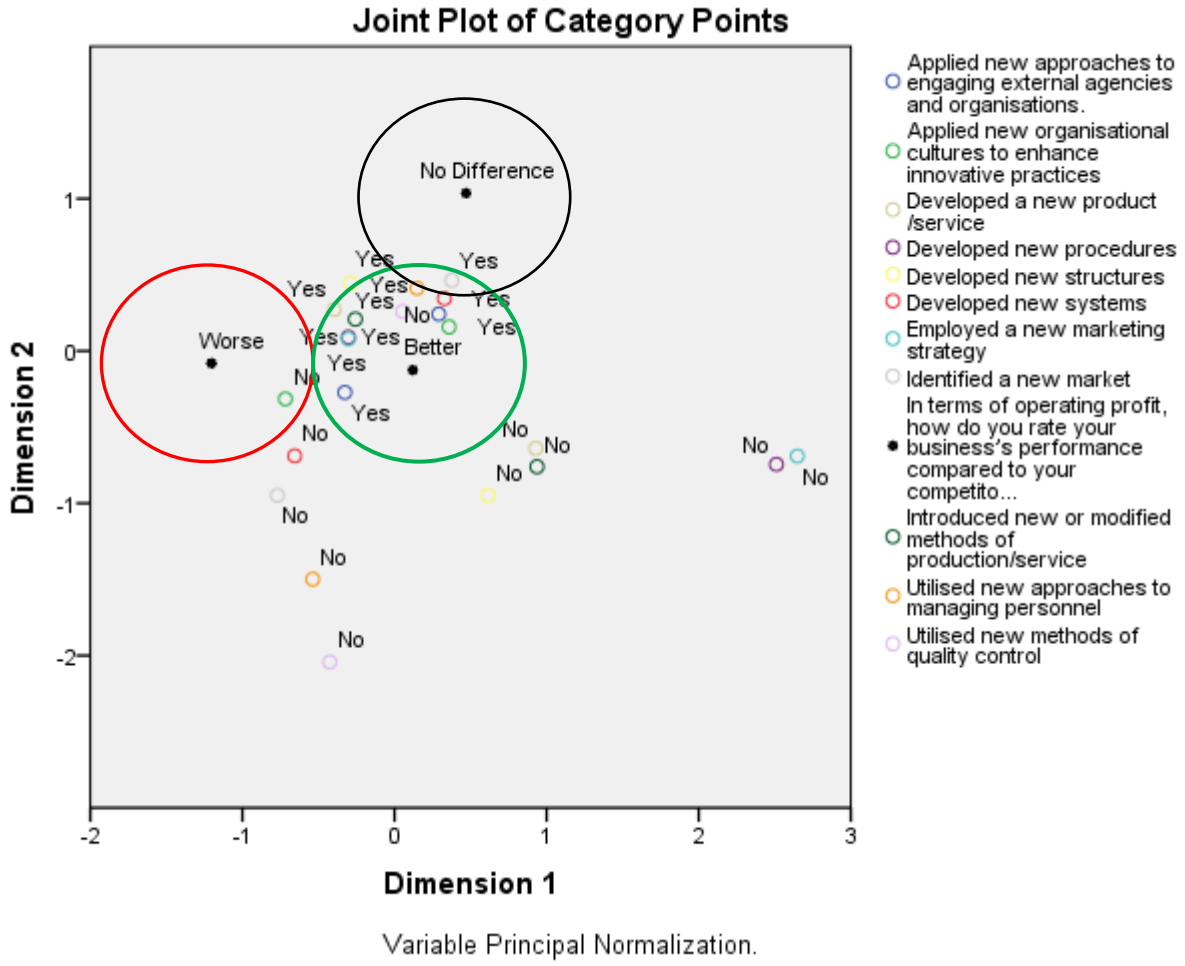


Variable Principal Normalization.

Incorporating an additional variable of performance in the last financial year provided some interesting findings. The additional values of loss, breakeven and profit reveal different performances as a potential product of innovation. HOMALs plots reveal that innovative approaches does cluster around profitability (green circle) and breakeven (black circle)

which indicates that appropriate innovation practices are useful. What is also revealed from the results is that innovative practices are not far from potential losses and indicated by the closeness of the red circle to the clusters.

Figure 4 - Multiple Correspondence Analysis Plots



Similarly when incorporating the question, how is the firms performance in relation to its competitors, the variables of worse, no difference and better display novel clusters. From the green circle in Figure 4 better performance was registered and clustered around innovative practices. There is also some overlap with no difference in performance compared to competitors (black circle). As in Figure 3, a worse performance is in reasonably close proximity to the innovative practices cluster.

These findings do suggest that innovation is important for firm success should be considered and applied. It also does suggest that innovation has to be applied carefully and appropriately with negative effects being in close proximity should they be applied incorrectly.

Overall, the findings seem to align with assumptions made by Gray *et al*. (2012) and Deakins and Freel (2009) in that innovation is highly diverse and can be undertaken simultaneously. Similarly, it could be argued that the inherent difficulty in assessing which innovative approach delivers success (Macpherson and Holt, 2007), advocates usage of a range of innovation. Indeed research by Rosenbusch *et al.* (2011, 445) posits that "SME performance is influenced more strongly by the amount of innovation outcomes than by the amount of innovation inputs."

Should SMEs innovate?

Another clear stream of investigation in the literature focuses on whether it is worthwhile innovating or not to. Freel (2000) provides a 'pragmatic' categorisation of innovation success as – 'tried and succeeded', 'tried and failed' and 'not tried'.

Does innovation equate to success? Freel (2000) is keen to highlight an association or linkage between the two, but is equally careful to indicate that a clear causal link is unclear. His own research on small manufacturing firms indicates that small innovative firms retained higher rates of growth and profit figures per head/employee but is less definitive with other measures of success such as profit margins and absolute profits. As such in matching Geroski and Machin's (1992) measures of firm performance, the effect of innovation on small firms is somewhat inconclusive. The size of the firm seemingly affects the overall effect of innovation on firm success. Roper (1997), Roper (1999), Wynarczyk and Thwaites (1997) and Moore (1995) indicate a strong positive association with innovation and turnover growth for small firms.

Pasanen (2006) argues that innovation is an inherent requirement for SMEs. The characteristics of SMEs and their limited resources mean that firms need to be creative and utilise their capacities wisely. Freeman and Soete (1997, 266) add, in rather dramatic fashion, that "not to innovate is to die." The high levels of uncertainty for SMEs posit that innovative practices provide a highly useful method to ensure success.

This does reflect the preliminary findings within this paper where more structured and tangible forms of innovation seem to cluster and dominate in the SMEs researched. There is, seemingly, less desire and certainty in changing and engaging organisational culture and external agencies. Instead, the results suggest that products, systems, marketing and methods of production are prevalent innovative approaches. Approaches similarly espoused by current and previous discourse.

Very early research by Kanter (1985) argues that smaller firms are traditionally more likely and able to make adjustments in comparison to larger firms. A notion further validated by Russo and Perrini (2010) with Haleblian *et al.* (2012, 1040) aptly stating "as firm size increases, exploration may decrease as firms become less adaptive, and as the routinized [sic] behaviour of larger firms increases their inertial pressures, which often contributes to the exploitation of existing capabilities instead of the exploration of new opportunities." Inevitably, smaller firms retain strong levels of flexibility. Moreover as decision-making predominantly lies with the entrepreneur, unlike large businesses, changes to the business practices and desires of the firm can be speedily undertaken. Similarly, small firms do not contain complex hierarchies and organisational structures, often favouring a flatter management style and structure. Changing and assimilating to the business environment is often less complex and less prone to strong difficulties. Haleblian *et al.* (2012: p1040) add that structural complexity will affect the level of innovative diversity in the firm and posit that more focused firms will be more likely to move earlier within 'acquisition waves' but contend that the level of diversification "may influence the firm's awareness of opportunities."

Oke *et al.* (2007) contend that not all businesses are able and willing to undertake radical step changes to their business model, instead advocating that incremental or some change would be beneficial than none at all. This is potential true as the preliminary findings of study suggest that innovation or innovation through different approaches is applied by firms.

Levy and Powell (1998) and Ates *et al.* (2013) discuss that firms that innovate can be classified into two profiles – the reactive or proactive. Thus, businesses can 'choose' to innovate based upon changing external conditions or be proactive and alter their practices based on forecasts and predictions. Gray *et al.* (2012) reinforce the importance of firm 'flexibility' instead, whereby businesses that are either reactive or proactive will be able to adapt quickly to the marketplace and competition.

Nonetheless Freeman's (1994) dictum is that firms choosing not to innovate are making an unwise choice, positing that firms that innovate are the fastest growing. Westhead *et al.* (2004) reiterate this and indicate that firms that are resistant to change are denying themselves the opportunity to develop and refine technologies, to innovate new products and/or services and ultimately limiting their awareness of new market opportunities.

Nonetheless Porter (1990, 45) is keen to emphasise that innovation provides firms with a valuable opportunity to "create competitive advantage by perceiving or discovering new and better ways of competing in an industry and bringing them to market."

The literature suggests complexity in measuring innovation or indeed which approaches work when and how, aligning with the preliminary findings of the research. Nonetheless there seems to be clarity within current discourse on the drivers for innovation – business needs and the entrepreneur's desire to do so. Even so, the drivers for change are dependent on the type of business and its locality. These environmental forces will inevitably affect the types, level and desire of SMEs to innovate. Indeed Kanter (1985) and Oke *et al.* (2007) discuss the radical step changes in innovation that small firms undertake. Similarly Deakins and Freel (2009) indicate that the more flexible small firm would not only be more akin to innovate but be more likely to be able to do so quickly.

Perhaps it is the entrepreneur?

Seemingly, current discourse provides a relatively clearer answer on the choice of whether to innovate or otherwise. It predominantly indicates a need to remain flexible as well as aware of changes in the marketplace, where innovation is a valuable tool to ensure this end-goal. Notwithstanding, the ability or want to innovate is strongly linked to the entrepreneur (Gray *et al.*, 2012). Likewise the inability to be dynamic is wholly dependent on the business owner - an issue that is less prevalent in larger firms as organisational direction is often decided via shareholders and board meetings. Highly innovative firms that alter the business model, develop new products, apply new supply chain and logistical approaches or apply new technologies to cater to changing customer demands are only so as a product of the entrepreneur's desire and ability to do so.

Barr *et al.* (1992) and Barr (1998) warn that innovation is often driven by the entrepreneurs desire to do so and be able to spot market opportunities. In this same vein, there is every likelihood that an entrepreneur's ability or inability to uncover opportunities or even set boundaries and limits to firm development would restrict business growth and success.

As such while the literature around the subject of innovation is complex and fragmented, the role of the entrepreneur as a key determinant for innovation has broad support in the literature (see Deakins and Freel, 2009). In reviewing the effects that 'the family' has on the entrepreneur, Powell and Kiddleston (2012, 265) is keen to indicate how the family could contribute to "heightened creativity that helps entrepreneurs' ability to engage…to develop an optimistic bias". Bridge *et al.* (2003) and Bridge and O'Neill (2012) place importance on the desire of the entrepreneur and their 'risk-taking propensity' and posit that medium risk entrepreneurs and those that take calculated risks tend to perform better and have a higher probability of success. Earlier work by Bedeian (1990) argues that organisations need not only react to their external environment but can also create or enact them.

Oke *et al.* (2007) amongst others (Caird, 1994; Lipparini and Sobrero, 1994; and Simon *et al.*, 2002) posit that the innovative process has as much to do with the entrepreneur as the business approach. They discuss, that it is the entrepreneur that provides the catalyst embedding and linking innovation with business operations, effectively driving or limiting innovative endeavours. Bridge *et al.* (2003, 68) summates how the entrepreneurial role is key - “enterprising person is often concerned with developing new products, processes or markets…have more originality than others and are able to produce solutions that fly in the face of established knowledge.” It is the hope that the entrepreneur as a key driver of change for SMEs continues to innovate.

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