



AFRICAN JOURNAL OF BUSINESS AND MANAGEMENT
(AJBUMA)
ISSN 2079-410X



THE ANTECEDENTS OF INNOVATIVENESS IN MANUFACTURING SMALL AND MEDIUM ENTERPRISES: A QUALITATIVE APPROACH

Ben W. Mkalama¹, E. Bitange Ndemo², Jackson K. Maalu³,

¹School of Business, University of Nairobi. ben@mkalama.co.ke

²School of Business, University of Nairobi

³School of Business, University of Nairobi

Abstract

The paper sought to establish the factors that influence firm innovativeness within manufacturing Small and Medium Enterprises (SMEs) in Nairobi County, Kenya. A descriptive instrumental multi case study design was adopted. The cases were purposively identified from manufacturing SME firms within Nairobi County. The paper identified factors that influenced innovativeness in the case firms, which were then themed on the basis of previously identified constructs. This paper corroborated previous research that attributes entrepreneurial orientation as being a contributor to firm innovativeness in SMEs across many countries. Being an in-depth paper on the reviewed cases, the research added to the existing body of empirical literature thereby being knowledge extending. The paper recommended further qualitative studies for the construct of innovativeness within SMEs. It further recommended that active decision-making on the basis of internal and external circumstances as being very important for a firm to be innovative. The paper also discusses a raft of policy considerations that seek to address the diffusion of innovation across various SME segments.

Key Words: *Innovation, Small and Medium Enterprises, Manufacturing; Entrepreneurial Orientation; Open Innovation*

INTRODUCTION

There is common consensus that innovation is essential for firms to regenerate themselves and thereafter attain significant growth (Miller, 1983, 2011; Covin & Slevin, 1989; Kuratko, Ireland, & Hornsby, 2001). Innovativeness has been extensively studied by scholars (Oscarsson, 2003; du Preez & Louw, 2008) and has been conceptualised as the process through which an entity changes its operational processes or service, crafts new or amended products in the markets, with an intention of realising a more efficient and effective process that eventually leads to greater margins and growth (Damanpour & Wischenevsky, 2006; Perez-Luno, Wiklund, & Cabrera, 2010). Studies established that SMEs were recognizably significant contributors to economic growth but unfortunately, there was no convergence of knowledge on the triggers for innovativeness within them with views ranging from conscious effort to simple chance (Hausman, 2005; Gilbert, 2007; Bereciartua, 2012).

Distinct from innovation which is an output, in this paper, innovativeness was cognised as that constant latent process that created a new product, service or process that would be subsequently commercialised to allow an economic or social impact (Gilbert, 2007; Hult, Hurley, & Knight, 2004; Neely & Hii, 2012; Doroodian, Ab Rahman, Kamarulzaman, & Muhamad, 2014; Joshi, Das, & Mouri, 2015). Firm innovativeness largely depended on how the firm owners reacted to an external or internal set of stimuli (Lawson, 2001; Hult et al., 2004). Indeed, scholars like Hult (2004) argued that there was little convergence on the factors that caused and affected innovativeness.

Firm innovativeness was affected by internal sources that include entrepreneurial orientation, professional background of founder/entrepreneur, skills of workforce and internal efforts to improve (Romijn and Albaladejo, 2002; Voeten, 2015). Avlonitis & Salavou, (2007) showed that organisations displayed varied entrepreneurial orientation and as a result of which, differed in the outcome of innovativeness. Their findings suggested a distinction in innovativeness between active entrepreneurs who adopted a more aggressive orientation in product innovativeness and passive entrepreneurs. Whilst some studies suggested that SMEs were agile and rapidly adapted to technology for higher growth (Storey, 1994), O'Regan and Ghobadian, (2005) submitted that SMEs did not always transform research and development into successful innovation but instead preferred to focus on time tested products effectively being exploitative innovators. This implied that SMEs also relied on external factors for their innovativeness.

External factors that include government-led, Science, Technology and Innovation (STI) policies as well as Research and Development (R&D) and technology development centres, innovation and research funds, access to credit and financial markets, patent and trademark registration processes also played a significant role in the innovativeness of SMEs (Voeten, 2015). In as much as there had been concerted effort in the development and review of supportive government policies, the impact was not fully felt. The general feeling was that the government processes were bureaucratic and

restrictive in nature (Voeten, 2015; Ndemo & Mkalama, 2019).

As a result of the above, there are recurring themes that question the causes of innovativeness within SMEs and more so, the firm level and ex-firm level interactions that would affect innovativeness. In addition to this, it was also important to understand the impact of relationships and collaborative actions on innovative activities on SMEs. The expectation was that innovativeness would cause growth and subsequent economic spill over into the affected areas. Previous research showed that there was considerable difficulty in measuring innovativeness in a statistical and quantitative manner thereby leading to use of measurement by proxies (Romijn & Abaladejo, 2002). In addition to this, in some cases, assessments were made on the basis of self-assessments and the informants were not always sincere with all their data (Khan & Manopichetwattana, 1989), and due to the diversity on the indicators of innovativeness. It was common to find self-assessed data by entrepreneurs occasionally being misaligned from the official data, which were often derived on the basis of traditional innovation indicators. As an example, some of the proponents of the non-traditional measures of innovativeness argued that innovation indicators for SMEs were rarely recognized in the financial statements and would have liked them to be recognised as intangible assets (Massa & Testa, 2008). It was imperative therefore that an objective study had a broad based measurement tool of these indicators.

MANUFACTURING SMALL AND MEDIUM ENTERPRISES IN KENYA

Despite contributing significantly to the Kenyan economy, studies by the Kenya National Bureau of Statistics (KNBS) showed that manufacturing SMEs were associated with little automation that was estimated at 32% within the segment, low value addition and correspondingly low productivity (KNBS, 2016; Ndemo & Mkalama, 2019). A general area of concern was how to increase the level of innovation within the SMEs in Kenya and secondly how to automate further so as to increase efficiencies (KIPPRA, 2017). It was therefore important to try and understand why SMEs, do not develop their innovativeness to much higher levels than was evident. Whereas many SMEs introduced different processes, products and technology in their businesses, they hardly kept any systematic information on R&D expenditure, nor did they register patents (Voeten, 2015). Voeten (2015) also observed that many firm owners, developed their innovations by simply, having conscious and systematic trials and changes to their products and processes. Despite this, all firms studied by Voeten (2015) were able to exhibit features of newness, process change and value creation that were associated with innovativeness.

The SMEs contribute significantly to the number of businesses and the people employed in Africa (Muriithi, 2017; Ndemo & Mkalama, 2019). In Kenya in 2015 for instance, SMEs accounted for over 33% of GDP and well over 80% of employment (KNBS, 2016). With over 7.4 million micro, small and medium enterprises, as at 2015, the

SME Sector employed 14.9 million people, which was well over 50% of the number of people employed by the formal economy (KNBS, 2016). Previous studies showed that the higher the proportion of value of SME output, the more developed an economy was, because SMEs stimulated wealth creation by causing additional goods, investments flows, job creation, as well as consumption (O'Regan & Ghobadian, 2005; Gilbert, 2007; Muriithi, 2017).

Despite the manufacturing sector being consistently ranked among the top three sectors in Kenya, the overall sectoral contribution to Kenya's Gross Domestic Product (GDP) was declining and was less than 8% as at 2018 (KNBS, 2016, 2019). Indeed in 2017, the sectoral GDP growth rate was only 0.2% (World Bank Group, 2018). Furthermore, a study by African Development Bank (AfDB), averred that the manufacturing's sectoral contribution to GDP and employment across East Africa was minor when compared to other territories (AfDB, 2018). In addition to this, the manufacturing sector's diversification was limited as well as associated with low technological development (Voeten, 2015; AfDB, 2018). At the national level, the gross production of the manufacturing SMEs still lagged at less than 20% of the total value even though they employed more people (more than 80%) than the larger firms (Chege et al, 2014, KIPPRA, 2017). Unfortunately, with the increased globalization of the economy, the impact of the manufacturing sector in Kenya and Africa in general was at a risk from the more competitive manufacturing industries of China, India and other fast industrializing nations (KIPPRA, 2017). The

need for diversification, enhanced productivity and efficiency in the manufacturing sector firmly stood out. Only increases in firm productivity could make Kenyan firms to be globally competitive (Cusolito & Cirera, 2016) and change the tide in its favour.

RESEARCH PROBLEM

Being cognizant that formulating an entrepreneurial research problem was often a function of many parameters (Sarasvathy, 2004), the study averred that there was adequate knowledge on the conceptualization of the relationship between innovation and firm performance. Conversely, the antecedents of innovation had not been adequately conceptualized (Hult et al., 2004; Avlonitis & Salavou, 2007; Perez-Luno, Wiklund, & Cabrera, 2010). This research that sought to extend this body of knowledge.

A myriad of reasons have previously been identified as being challenges for the growth of SMEs (KIPPRA, 2017). This notwithstanding and after implementation of various policy changes, the mortality rate for SMEs in Kenya remained high, as almost 46% of firms did not survive beyond one year of their operation (KNBS, 2016). One of the identified reasons for inhibition of growth of SMEs in Kenya was the lack of innovation (KNBS, 2016). The available challenges called for a "creative destruction" in the Schumpeterian fashion for the contemporary SME businesses. The need for additional research to identify the reason and details of these internal and external factors therefore stood out and created a need for additional research in this area. According to the Kenya Industrial Property Institute (KIPI) and the

World Industrial Property Organisation (WIPO) data, in spite of phenomenal growth around the world, innovative activity that was mostly product innovation in Kenya, had plateaued over the past ten years (WIPO, 2016; KIPI, 2019). Previous studies also showed that the productivity of manufacturing SMEs in Kenya was generally low and declining (Cusolito & Cirera, 2016). The low productivity was attributed to various factors that included infrastructure and limited automation (KIPPRA, 2017).

Most of the studies conducted were found to be methodologically weak on the basis of either inadequate or biased samples (Neely & Hii, 2012; Ruiz-Ortega et al., 2013). Other studies had limited timeframes, being cross sectional in nature and therefore not being able to adequately capture all required phenomenon and explore the causalities (Renko, Carsud, & Brannback, 2009). In addition to this, other studies on SMEs indicated respondent biases (Ruiz-Ortega et al., 2013) or lacked universal geographical validity (Radas & Bozic, 2009).

Owing to the scope of extensiveness of information requirements (Khayyat & Lee, 2015), there was therefore a limited consensus on the causes of firm innovativeness on SMEs at a global level (Ayyagan et al., 2007; Ardic et al., 2011). To fully conceptualise entrepreneurial orientation and firm innovativeness within SMEs there was a need to study them distinctly as opposed to studying them from the context of large organizations (McAdam, Keogh, Reid, & Mitchell, 2007). In addition to this, there was a need to understand the internal and external factors that affect the relationship between entrepreneurial

orientation and innovativeness in Manufacturing SMEs in Kenya.

OBJECTIVE OF THE RESEARCH

This paper sought to establish the factors influencing innovativeness within manufacturing SMEs in Nairobi County and therefore, develop new insights into the antecedents for innovativeness in manufacturing SMEs. Its approach was knowledge building rather than knowledge validation and generalisation. The focus of the approach was two-fold. In the first approach, the paper looked at the internal circumstances that affect a typical SME manufacturing firm and motivate it to be innovative. Secondly, the paper also analysed the external environmental dynamism that spur SME firms into innovativeness.

LITERATURE REVIEW

The paper was anchored on the Open Innovation Model (OIM) and the Resource-based View (RBV). The OIM used both internal and external concepts and networks at all stages of the process to support innovation (Chesbrough, 2003; du Preez & Louw, 2008) unlike in prior models which had specific entry points for feedback and ideas (du Preez & Louw, 2008). Ideas were generated and developed internally. External ideas, coupled with the use of internal and other external networks that included the experience of other institutional actors were subsequently accepted (Chesbrough, 2003; du Preez & Louw, 2008). RBV argued that a firm had restricted resources and attained a sustainable competitive advantage on the basis of the available resources and its interpretation of the available opportunity (Wernerfelt, 1984; Barney, 1991; Wernerfelt,

1995; Patel & Pavitt, 2000; Tidd, Bessant, & Pavitt, 2001). Firms consequently distinguished themselves on the basis of resources that were valuable, unique, inimitable and limited (Wernerfelt, 1995). The resources included financial, physical, human, technological, reputational or organizational resources.

Khan & Manopichetwattana, (1989) sought to establish whether the characteristics of innovative and non-innovative firms were different. The study concluded that innovation was affected by environmental dynamism and that a firm needed to be innovative so as to survive. The study further showed that the age of the firm was found to be negatively correlated with product differentiation suggesting that differentiation lessens as industry and markets mature. Contrary to other research findings and beliefs (Chang et al., 2011; Yi-Yang et al., 2011), the study by Khan & Manopichetwattana (1989) also showed that centralization of decision-making in small firms had an inverse relationship with innovation.

In an exploratory study in Croatia, Radas & Bozic, 2009 sought to identify factors that drove innovation activities in SMEs in an emerging economy and thereafter to compare with the findings from developed economies. The study developed a conceptual model that had two sets of determinants of innovation. These were categorised as external and internal factors as independent variables. It further went to specify obstacles to innovation that could have an influence on the relationship between the determinants and the innovation outcomes, but the results on this were inconclusive. Comparatively,

the study found that most of the factors that are said to be important in the developed economies were equally important in the study. However, the innovation incentives were found to be dissimilar, leading to the impression that the policy designs may not have been consistent. Radas & Bozic, 2009 whilst acknowledging a lack of studies on SME innovation in developing economies, argued that often policy guidelines in such countries were based on findings from developed countries. The study however had a number of limitations that included a low response rate even though it was administered by a mail survey. There remained a need to validate similar research across different regions and economies.

Perez-Luno & Blasco, (2015) analysed the characteristics of Spanish firms and related them to their innovative performance, generation and/or adoption. The study concluded that innovation radicalness, knowledge complexity, company's size and internal R&D expenditure affected innovative performance. The same study however was inconclusive when innovation generation and/or adoption was introduced as a moderator variable. The study concluded that there was no influence of age of firms on innovativeness. In addition, the results also indicated that both the internal and the external R&D expenditures were essential to innovativeness. The study also showed that the tendency to generate or adopt innovations and obtain a better innovative performance varied with the firm characteristics. The study's limitations included having a narrow scope of industrial sectors. A future study would need to consider additional sectors and geographical regions. The study further

limited itself to a limited number of characteristics, whereas there are other that could be studied and obtain additional research insights.

Joshi et al., (2015) disaggregated the three dimensions within entrepreneurial orientation and sought to investigate the interrelationships within them. They studied the relationship between proactiveness and risk taking and their effect innovativeness in technology-based industries in US. In both instances, there was a curvilinear relationship that was determined to be of statistical significance. Joshi et al., 2015 thus argued that improving innovativeness may be achieved from the viewpoint of enhanced proactiveness and risk-taking propensity in organizations. The study nevertheless concluded that whilst proactiveness was important for enhancing innovativeness, excessive proactiveness was detrimental for innovativeness. Aside from making this conclusion, the study did not seek to identify the reason for this adverse relationship. Conversely, the study acknowledged that these unexpected variations in the measurement of aggregated entrepreneurial orientation had previously led to inconsistent results when examining entrepreneurial orientation's relationship with organizational outcomes in previous research. The study was limited by a need for geographical and industrywide validation. Being solely dependent on a sole respondent in each firm, there was also a common method bias. The study also focussed on large service firms, whereas there has been an identified need for study within SMEs, which may also include other sectors and economies.

In another empirical study, Martinez-Roman & Romero (2017) posited that SME innovativeness was affected by the owner's disposition which was in turn affected by their organizational internal circumstances as well as external effects. Martinez-Roman & Romero, 2017 further theorized that the observed range of innovation outcomes was as a result of some underlying inclinations that affect the firm's attitude towards innovation. These inclinations were consequently affected by owner's disposition, internal capabilities and external influences. The study focussed on innovativeness in SMEs from a set of innovation indicators at the firm level, defining different forms of innovation. Using principal component analysis, the study identified two separate dimensions in the innovativeness of the firms, namely capabilities for internal innovation and the capabilities for the adoption of technology as a result of external influence. Whereas the postulation on the owners' impact on innovativeness was confirmed in the study, the effect of both the internal and external influence was inconclusive. The role of risk taking stood out as significant factors in all dimensions. Being an exploratory study that was conducted in Spain, further wider geographical validation that would allow a construction of the findings would be required.

Innovation has been shown to be at its maximum in harsh operating environments which were characterized by dynamic technological shifts, severe competition and short product life cycles (O'Regan & Ghobadian, 2005; Yi-Ying, 2011). Moreover, previous research indicated that the

discussions on the antecedents of innovativeness were far from over. The external influence on the antecedents of innovativeness was similarly under-conceptualised. In addition to these developments, there are still divergent opinions on the causal relationship within the key dimensions of entrepreneurial orientation (Wiklund & Shepherd, 2005; Perez-Luno et al., 2010; Joshi et al., 2015, Ejdys, 2016). This is notwithstanding the fact that there is a need for further studies to validate these arguments across various geographies and industries.

Contextually, most of the research was carried out in the developed world and on specific industries and thus was not universally applicable. In terms of methodology, the studies reviewed had design methodologies that were mostly suited to their environment and as a result of this, there were weaknesses that were observed ranging from sample designs, operationalisation of constructs, measurement scales, treatment of various biases as well as validity and reliability tools.

RESEARCH METHODOLOGY

This paper was part of a larger study that focused on how entrepreneurial orientation and other variables influenced innovativeness in manufacturing SMEs. The paper adopted the realism philosophy (Sekaran & Bougie, 2013; Blumberg et al., 2014). This included the use of surveys and hypothesis testing from the positivist school whereas case study and qualitative approach was adopted from the constructionist school (Harrison, Birks, Franklin, & Mills, 2017). In line with the general paper objective, the case research

focused on the variables that influenced innovativeness within manufacturing SMEs in Nairobi County. This particular approach is relevant as innovativeness has been theorized as being affected by external factors as well as those that are internal, individual and subjective in nature (Radas & Bozic, 2009; Perez-Luno & Blasco, 2015; Martinez-Roman & Romero, 2017).

Due to the complexity of information requirements on SME innovation, such information cannot be reduced into basic indicators (Martinez-Roman & Romero, 2017). On this basis, there was a need for a deep interpretation of some of the observed variables (Saunders et al., 2009; Sekaran & Bougie, 2013). This required a research design that went beyond the objective description of phenomena. Harrison et al., (2017) argued that the realism philosophical inclination was to use science to understand the nature of reality whereas appreciating that all dimensions were imperfect, a position that this paper concurred with. As a result of the research philosophy, a multi-method research design that observed the variables in an *ex-post facto* design (Blumberg et al., 2014) was used. This paper focusses on the qualitative method aspect of the research.

Researcher interference (Blumberg et al., 2014) was limited to the extent of the research strategy, and an inductive approach was adopted for the case studies. This allowed the study to develop theory by use of a set qualitative data that allowed the isolation of some variables obtained through the case studies (Sekaran & Bougie, 2013; Blumberg et al., 2014). The qualitative approach helped in explaining in deeper details, the ultimate outcomes due to the fact

that the analysis technique consisted of matching empirically observed events to theoretically predicted outcomes (Hausman, 2005; Yin, 2014). The main attraction for case studies was that they went beyond the quantitative statistical results and were generally accepted as being able to provide a synergistic and holistic explanation of the social and behavioural phenomena (Leite & Marks, 2005; Zainal, 2007; Yin, 2009; Harrison et al., 2017). Due to the broadness of the information sought and obtained, case studies offered a valuable approach in the development of theory (Blumberg et al., 2014).

Unlike surveys, case studies focussed on a limited number of individuals or geography as the subject of study (Zainal, 2007). Case studies similarly incorporated the three basic principles of describing, understanding and explaining phenomena (Tellis, 1997; Harrison et al., 2017). The purpose of the case interviews therefore was to obtain detailed information on the cases, describing innovativeness and the causes of innovativeness in the firms. Subsequently on the basis of the case respondents' understanding and without having to control the external behavioural aspects and yet relate them to the contemporary situation (Yin, 2009) explain the observed phenomenon.

Some of the advantages of case studies include examination of the data within the context of its use and therefore. In these cases, the phenomenon were observed within their natural environment (Zainal, 2007). Case studies are also flexible and allowed for both qualitative and quantitative evaluation of the data with no specific limitation on

minimum or maximum number of cases (Tellis, 1997; Zainal, 2007). Furthermore, information obtained from case studies, helped to explain the data in actual environments as well as the complexities of the real life situations that may not be captured through other forms of research designs (Zainal, 2007; Yin, 2009).

Case studies have been criticized as lacking research rigour (Zainal, 2007; Yin, 2009). The study addressed this concern by appropriate instrumentation and by *a-priori* research that was identified in the literature review. Case studies have also been criticised as not being able to provide a basis for scientific generalization because they are based on very limited cases (Tellis, 1997; Zainal, 2007; Yin, 2009). This position has however been countered by the argument that generalisations on cases are made on theory rather than populations (Yin, 2009). Moreover, a key objective of the study was to enhance the existing body of knowledge on innovativeness. Finally, case studies have been criticized as being too onerous and having needlessly large amounts of documentation (Zainal, 2007; Yin, 2009). In spite all this, case studies allowed a micro-level examination of the data by the scholar and allows the incorporation of the views of the respondents (Tellis, 1997; Yin, 2009). Cases studies allow an intense investigation of phenomena over a limited number of cases (Yin, 2009; Blumberg et al., 2014). A quintessence of case studies is that they combine specificity of approach, intensity of investigations and an assortment of sources of evidence (Leite & Marks, 2005). In the social sciences Gilbert (2007), Neely & Hii, (2012), and Prihadyanti (2013) amongst

others explored the reasons for innovativeness within SMEs across various countries using case studies.

Case Design

To address the critiques of lack of research rigour and other agnostic views on case studies, the paper adopted the recommendations of Yin (2009), where consideration was made on the study's questions that were then linked to the propositions. The four basic principles recommended by Yin (2009) included incorporating evidence into the analysis; all rival interpretations of the analysis were considered; the most significant aspects of the case study were highlighted and finally the researcher's prior knowledge to further the analysis was made use of. The individual case firms were adopted as the unit of analysis. Yin (2009) also recommended that prior to the research, a determination be made on the logic linking the results as well the criteria for the interpretation of the results.

To address the construct validity, all key informants were allowed to study and review the raw case study report for accuracy and content validation. To ensure internal validity, the narrative analysis was challenged and all the narratives were interrogated against rival explanations. These narratives were challenged to a point of saturation. Conversely to address external validity a multi-case study as compared to a single case study was adopted effectively addressing the rival logic. Case study protocols were defined and used so as to ensure the consistency and reliability of the instrument (Teegavarapu & Summers, 2008).

A cross sectional descriptive instrumental

multiple case design was used in the paper to obtain information across multiple cases at a specific point in time and in a real world setting (Sekaran & Bougie, 2013; Blumberg et al., 2014). Multiple case studies require more than one case and provide a more interactive and broad based view of the issue being examined (Harrison et al., 2017) rather than an idiosyncratic view of one case. A descriptive case design allows the paper to describe the behaviour of the variables in the context that they are examined and on the basis of the *a-priori* knowledge that was established during the literature review of the study (Yin, 2009). An instrumental design in contrast to the intrinsic design, allowed the study to explain the behaviour of the variables across all multiple and beyond the individual cases (Leite & Marks, 2005). The sources of evidence was a combination of in-depth interviews and observations that were carried out during the study and any other material documentation that was offered by the respondent at the firm premises.

For the selection of the cases to be examined, a replication rather than a sampling logic was preferred in a multiple case study (Blumberg et al., 2014). In the study, the selection of the cases was on the basis of similar broad profiles yet intrinsically different in their processes and operations. One entrepreneur from each manufacturing sub sectors was consequently purposively selected (Gilbert, 2007; Yin 2009) leading to a total of four cases. The sub sectors were manufacturers of textile and wearing apparel; fabricated metal products; food products; furniture, wood and products of wood and cork. Cumulatively, these sub-sectors accounted for more than

70% of the total number of registered manufacturers in Nairobi County.

To overcome the common weakness of context in narration (Blumberg et al., 2014), all respondents were interviewed in their respective places of work and at a time that was convenient to them. Using interview guides (See Appendix I), semi structured interviews were conducted with the firm owner at the firm's premises and their responses recorded. Interviews allowed the interviewer to gather data from the respondent as well as provided an opportunity for follow-up questions (Teegavarapu & Summers, 2008). During the interviews, the interviewer was able to observe the level of activity in the firm and depth of discussions that the respondent had with their clients who happened to come to the premises.

After the data collection, categorization of the information obtained was done and thereafter a narrative analysis carried out. The information derived was then synthesized into a cross firm analysis. Emerging issues from the cases reviewed were isolated, interpreted and themed on the basis of their narratives. This created a deeper understanding that allowed a consolidation into *a priori* broad-based categories using logical similarities. This formed the basis for further discussions and interrogation against theory. A similar approach was used by other studies (Kimeme & Mbwambo, 2009).

Narrative Approach

Narrative Approach was used to categorise the information obtained from the case studies. This approach has recently gained currency in business studies (Rhodes &

Brown, 2005; Gertsen & Soderberg, 2011). The approach holistically reviewed the answers and this involved sharing of experience by the respondent over a period of time (Rhodes & Brown, 2005). This allowed an in-depth interpretation of the responses (Blumberg et al., 2014). The Narrative Inquiry was a two step process.

As the first step, the inquiry focused on the experiences of the respondent. It therefore constructed the respondents' experience based on evidence provided. The narratives then traced a chronology of an individual's experiences (Gay, Mills, & Airasian, 2012). It has been argued that the same narratives may vary depending on the context in which they are given (Blumberg et al., 2014). To mitigate this concern, the respondents were actively involved in making decisions about the interpretations of the circumstantial events that were recalled. Re-storying as a tool was then used to reconstruct the narrative account incorporated the context and place of the events. Finally, as a reflection of the collaborative approach the respondent read and confirmed the contents of the final narrative account (Gay et al., 2012).

The paper then used Thematic Analysis as the second step of the inquiry that focused on the content rather than the expression of the narrative. From these case studies, the narratives that were deemed to affect innovativeness in their respective firms were noted and broadly categorized. On the basis of an analysis of the recurring themes, some key issues emerged that were deemed to affect innovativeness of the study firms. The thematic narratives were based on the overall paper objectives that were developed as a result of prior theorisation.

RESULTS AND DISCUSSION

Profiles of Case Firms

All the four cases were formally registered and had been in existence for more than 5 years at the time of the study. This allowed the respondents to share their individual experiences over several annual cycles. They also competitively sourced for their customers on the basis of their products. The individual owners cumulatively had more than 20 years of individual work experience. In spite of their age differences, the cases revealed that they started their own businesses after having spent some time either as employees on the same line of business or in other pursuits. Two of the entrepreneurs had started off as employees in the same line of business but subsequently quit employment and started their own business in the same industry. The third entrepreneur started off as an apprentice in

the same line of business before becoming an entrepreneur albeit in a junior partnership role, being a third-generation entrepreneur of the family businesses. The fourth entrepreneur started off in a completely different line of business as an employee and subsequently started off the new business as a development of a hobby that he had.

The general profiles of the entrepreneurs are summarized in Table 1. For the sake of confidentiality of the firms, the case studies are reported in a general manner thereby disguising their true identity and their general business locations. Confidentiality also gave the owners the confidence to describe the true position rather than have exaggerated or understated answers thereby creating undesirable biases (Podsakoff et al., 2003). This approach was similar to that of Joshi et al, (2015).

Table 1: Case Firms' Entrepreneurs Profiles

Case Pseudo Name	Age of Firm Owner	Gender of Firm Owner	Sector of Industry	Number of Years Firm has been in Business	Highest Education Level of Owner	Technical / Industrial Training of Owner	Previous Work Experience of Owner
Kappa	51 years	Male	Wearing Apparel	17 years	Primary	Technical Institute Certification	6 years employment history
Omega	57 years	Male	Fabricated Metal Products	20 years	Tertiary Education (Diploma)	Trade Test Certification	Over 10 years employment history
Delta	51 years	Male	Food Products	6 years	Tertiary Education (Diploma)	Qualifications in Different field	Over 24 years but in a different line of business
Gamma	44 years	Male	Furniture, Wood and products of Wood & Cork	40 years	Secondary	No Training	Started off as apprentice. Acquired over 23 years within the same firm

Source: Field Data, 2019

Thematic Analysis of the Case Narratives

In line with the recommendations of Yin (2009), *a priori* knowledge categorised the information sought on the basis of entrepreneurial orientation, internal factors

and external factors. The narratives so obtained was therefore themed along these categories. A summary of the cross-firm narratives, analysed and amalgamated into the broad themes is provided in Table 2. The

narratives were similarly interpreted on the basis of existing knowledge.

Table 2: Analysis of Cross Firm Narratives on Reasons for Firm Innovativeness

	Firm Narrative			
	Kappa	Omega	Delta	Gamma
Entrepreneurial Orientation	Need to be Own Boss Financial Prudence Cautious about losses from new ideas Senior Management guidance	Need to be Own Boss Financial Prudence Passion Senior Management Guidance Newness of ideas is key to success	Need to Achieve Need to be Own Boss Financial Prudence Passion Senior Management Guidance	Need for Affiliation Financial Prudence All individuals in firm decide on available options Newness of ideas is key to success
Internal Factors	Experienced and knowledgeable employees Adapting new ideas Identify new and efficient ways of doing things Financial Limitation	Experienced and knowledgeable employees Adapting new ideas Identify new and efficient ways of doing things In-house research Financial Limitation	Experienced and knowledgeable employees Adapting new ideas In-house research Financial Limitation	Experienced and knowledgeable employees Adapting new ideas Identify new efficient ways of doing things In-house research Financial Limitation
External Environment	Competition Diversity in employees Customer Needs & Feedback Market Expansion	Competition Diversity in employees Customer Needs & Feedback Market Expansion	Competition Diversity in employees Customer Needs & Feedback Product Demand	Competition Customer Needs & Feedback Market Expansion Regulator Concerns

Product Demand	Product Demand	Good Partnership
Good Partnership	Good Partnership	and wider
and wider	and wider	network
network	network	Regulator
		Concerns

Source: Field Data, 2019

Effect of Entrepreneurial Orientation on Innovativeness

The findings from the case narratives suggested that the variables that influence innovativeness reflected some of the dimensions of entrepreneurial orientation (Lumpkin & Dess, 1996; George & Marino, 2011). These dimensions included autonomy, proactiveness, risk taking and competitor aggression. In three out of the four cases the entrepreneurs started the businesses because they felt that they needed to be unique and “be their own bosses”. In addition to being an own boss, one entrepreneur joined the business so as to be economically independent and was inducted by members of his own community. This behaviour suggested that the dimension of autonomy existed within the cases.

There was one instance whereby an entrepreneur was motivated by the desire to do something different and to be seen as successful at it. This entrepreneur occasionally tried out different innovative products and processes and monitored the performance of the product changes in the market before adopting it. In one of the cases, the entrepreneur worked in a community social enterprise and individually tried out new innovations within the community. Members within the group were encouraged

to try out innovation but within the group’s accepted norms of behaviour. This was an immigrant community who were sensitive to the local environment and preferred to be close-knit in their rendezvous. The motivation here could be deemed to be both proactiveness and the desire for affiliation.

All the cases demonstrated that there was an underlying motivation for the entrepreneur to start the business and generate innovation-backed products. In their study Martinez-Roman & Romero (2017) argued that an individual’s motivation played a critical role in a firm’s innovativeness. This motivation manifested itself through the dimension of proactiveness. One of the entrepreneurs ventured into the business because he deemed this as an opportunity to make money. The entrepreneur subsequently took action to design innovative products to capitalize on the opportunity. This suggested a desire for achievement in the McClelland fashion.

In addition to this, the cases revealed that they subconsciously engaged in market intelligence gathering, although they did not necessarily consider this as contributing towards innovation. The cases were nevertheless aware of the importance of information gathering on market trends. They were also aware that they needed to occasionally react to what the larger and

more financially endowed competitors did. The cases stated that they did their market intelligence through surfing the websites for the larger competitors and nondescript visits to competitor and potential customer premises. In a similar study, Prihadyanti (2013) established that innovation was generated by an established customer need and the desire to scale up on the scope of operations of the firms that were being studied. Prihadyanti (2013) further argued that some of the innovations were in response to a concern that had been identified by the customer and therefore the action tended to be reactionary rather than proactive in nature.

In all the cases, risk taking attenuated the level of innovativeness. All the case firms had limited sources of finances and were not keen on absorbing losses on the basis of experimental innovation. Prior to implementation, risk taking was always considered on the basis of a financial trade off. These findings implied an inverse relationship between risk taking and innovativeness. Previous studies by Perez Luno et al., (2010), Joshi et al., (2015), Edjys (2016) concluded that risk taking as a dimension of entrepreneurial orientation significantly affected firm innovativeness. They wanted to invest in innovations that had assured markets. One of the entrepreneurs obtained their initial funding from a relative and did not want to make losses. The other three cases started the businesses on the basis of their savings and were not keen on extensive experimentation with new products. The findings indicated that the cases preferred to deal with tried, tested innovation that had assured markets and therefore were favourable towards the

protection of their capital. To avoid regulatory sanctions, the cases occasionally considered changes that were dictated to by the licensing and regulatory agents. This further indicated that risk management affected the firm's disposition towards innovativeness.

All the cases indicated that they always considered competitor actions in the design of their products. One case felt that they were in a very competitive environment and felt that as an entity, they did not need to invest in research but rather wait for the larger competitors to set the trends, which they subsequently copied. Another case viewed innovation as a key differentiator and therefore spent considerable effort in establishing new designs and customer tastes. Their view was that lack of innovation was a sure way to reduced customers interest and subsequent market demand. All the firms nevertheless spent their resources predominantly on exploitative innovation. The findings indicated that incessant competitor awareness and reaction affected innovativeness. It was inferred by the study that these circumstances ultimately pointed to a choice that needed to be made by the firm owners. Previous studies like (Braga & Braga, (2013) and Prihadyanti (2013) argued that decision making by the entrepreneur were important contributors in making SME firms to be innovative.

Effect of Internal Factors on Innovativeness

The findings from the individual cases suggested that internal organizational phenomena affected innovativeness in firms. The level of autonomy extended to the staff varied with the complexity of the

organisations. Smaller organisations tend to be very restrictive with the level of autonomy granted to their employees. For example in one case, the staff role was limited to production with no scope for customer interaction. The main reason that the firms were reluctant to grant extensive autonomy to their staff ranged from inexperience or that they felt that their competitors could easily compromise the staff or even set up their own business units. An observation by Prihadyanti (2013) however was that SMEs tended to be non-rational in their decision making basing their judgment on intuitions and non-objective views. However, larger and complex organisations were more liberal in autonomy granted to the employees (Voeten, 2015). Nonetheless in all the organisations, employment of staff was on the basis of their individual productivity.

The impact of technological revolution is yet to be significantly felt in Manufacturing SMEs in Kenya (KIPPRA, 2017). In all cases, the core activities were predominantly manual and the predominant use of technology was mainly towards enablement of the support processes within the firms like accounting or sales activities such as identifying new competing products. There was very limited change to the technological approach in the rudimentary processing activities of the firms. In the instances, where technology had been adapted, it was to such a limited scale that there was hardly any impact of economies of scale.

In all instances, the entrepreneurs stated that they were receptive to new ideas on products, processes and other changes to their firm's operations. The cases stated that they consciously avoided risk and preferred

proposals that were certain. In all the four cases, the activities were mainly process based. When asked whether they could consider investing in automated machinery that could produce higher volumes of products and at a faster pace, all the cases stated that they had very limited financial capital and thus could only prioritise to other areas. When asked whether they had considered digitization of their sales process, all the entrepreneurs stated that they were satisfied with their immediate local markets and did not need to expand their markets further. These findings insinuated that the level of investment in technology was limited thereby constraining technology-based innovativeness.

The repertoire of skills and experience available in the firms contributed to innovativeness. In all the cases, staff were employed with skills and experience level ranging from no experience to well trained and educated staff. In one case where the entrepreneur's level of education was limited to primary, he preferred experienced employees (irrespective of their education levels) to better-educated employees. The highest individual's education level for entrepreneurs was primary level for one, secondary level for one other and tertiary level for the other two entrepreneurs. Formal advanced level education was therefore not deemed to be a pre-requisite for one to be a long-term entrepreneur. This finding corroborated the previous findings by Radas & Bozic (2009) that secondary education as being essential to process innovation.

Closer interaction with the entrepreneurs however suggested that the entrepreneurs who had a higher level of education had a

wider grasp on the environmental issues that affected their lines of business. For instance, one entrepreneur who had only attained primary education did not consider the need to innovate beyond what the customer desired. He relied exclusively on the customers' preference and narrated an experience where he tried innovating on a product, only for the product to be rejected by the customer as unsuitable. He incurred losses as a result of this and was thus subsequently unenthusiastic on further exploratory innovation. On the other hand, an entrepreneur who had tertiary level of education was always exuberant about trying out new ideas, which he consistently searched for over the internet although he had previously made some losses in some of the ideas. This corroborated the opinion of Martinez-Roman & Romero (2017) who argued that a higher level of education tended to be linked with a higher level of cognitive complexity and the entrepreneur's aptitude for technological immersion. They further argued that this aptitude encouraged creativity and innovativeness.

All the four cases, did not consider intellectual protection for their innovation and as such none of their products had been protected. The reasons ranged from unfamiliarity with the process to not knowing if at all there were any benefits to be derived from intellectual protection. Two of the cases, had never heard of process of intellectual protection before. These reasons were consistent with the reasons that were determined as holding back intellectual protection by Kiveu (2012). Three of the four cases reviewed had previous basic industrial training in their line. The entrepreneurs

acknowledged that the training equipped them with the necessary skills for their line of business. Although the fourth entrepreneur had secondary level of education but no formal vocational industrial training, he had gone through an apprentice programme that allowed him to develop his technical skills in the industry. Comparatively, some scholars have argued that basic Vocational Industrial Training is essential for harnessing the entrepreneurial skills of individuals (Duval-Couetil, 2013; du Toit & Gaotlobogwe, 2018).

Interviews with the key informants indicated that they preferred to hire their staff on temporary basis rather than full time engagement. This was deemed to be a precautionary measure such that the firms could easily disengage their temporary staff when faced with adverse conditions. In particular, adverse economic conditions affected choices of investment that included talent recruitment in innovativeness. In all instances, well-experienced and skilled staff contributed significantly to innovativeness due to their previous exposure. In addition to this, the level of staff commitment and passion to their respective roles also affected innovativeness. These narratives are consistent with previous research findings which indicated that internal factors provided both a stimulus and challenge in innovativeness (Renko et al., 2009; Ngugi, Johnsen, & Erdelyi, 2010; Perez-Lubo & Blasco, 2015; Ndemo & Aiko, 2016)

Effect of External Environment on Firm Innovativeness

Innovativeness within SMEs was affected in varying intensities by a myriad of external

variables (Perez-Luno & Blasco, 2015). Interviews with the case firms indicated that market dynamics stood out as a key factor. Closely tied to this were the customer behaviour and patterns. Shifts in customer behaviour affected the market behaviour, thereby affecting a firm's possible reaction to such consequences. Occasionally, the product consumption patterns expanded or shrunk. Furthermore, changes in consumer tastes also affected how the firm postured itself to capitalize on the opportunities. All the firms interviewed stated that they spent a considerable amount of time, studying the patterns and behaviour of their customers. They subsequently spent considerable effort and resources adjusting their products and models to the expectations of their customers. In three out of the four cases, the firms were consistently concerned about imported products that often wiped out the local producers' margins.

One firm however occasionally tried untested innovation, but did not benefit from this innovation as competitors picked up the innovation and thereafter commercialized it. None of the firms had tried to register patents or trade marks. The firms said that they were unaware of the process and the benefits for intellectual property protection. The extent of the firm's collaboration with external partners was very limited. The relationship between the firms and public institutions were mostly limited to licensing and regulatory in nature. Only one firm had worked with Public Institutions on identification of new markets and areas of opportunities. The other three firms viewed other players as competitors and had limited collaborative interactions with them.

The findings suggested that collaboration and strategic alliances were limited to the extent that the firms had to discern immediate direct benefit, before they could collaborate with other firms. The cases findings suggested that there was an impact of environmental dynamism on firm innovativeness in so far as customer demands and tastes were concerned. The findings also suggested that in as much as the cases were conscious of changes in the environment, they had varied reactions to changes, and this depended on their interpretation of their likely impact. There were instances when firms had to scale down on their investments in new products or processes when their customers were not enthusiastic about them.

Synthesis of the Thematic Analysis of the Cases

A comparison of the findings obtained from this paper method corroborates that there is a significant behavioural disposition that affects an entrepreneur's inclination towards innovativeness. This position was further accentuated by the findings from the cases, which indicated that there was an inherent passion that made the entrepreneurs to be innovative. This was consistent with the findings of Martinez-Roman & Romero, (2017). The extent and use of technology varied with individual firms and environmental situation although changes in the environment did not always immediately trigger change in innovativeness. Sophistication of the customer demands and tastes contributed significantly to the environmental situation of the firms. The findings suggested that all SMEs were receptive to new innovation, and constantly strived to be aware of what was

contemporary. The findings however showed little interactions between the cases and other external strategic partners, public research institutions and other alliances in innovativeness. This is an area that could be further researched into for purposes of developing synergies within the industry.

Gilbert (2007) posited that that conversations on the causes of firm innovativeness needed to be multidimensional and that entrepreneurs continuously needed to work towards developing and nurturing internal and external environments for innovativeness to thrive. Similarly, Braga & Braga (2013) and Prihadyanti, (2013) concluded that in as much as the process of innovation required both internal and external parties, the role of the owner was very dominant in making the entire process work. This was evident in the case of two firms who did not consider export-oriented markets for their products purely on the basis of the firms' owner's level of interpretation of the markets dynamics.

In the prototype model, creativity and idea generation was triggered by the entrepreneurial orientation of the firm and entrepreneurs, as well as an identified market need. The firm then went through a series of internal reflection steps that were ultimately matched to the firm's technological capability. The firms next determined whether it had adequate resources to support the innovation. These resources were either tangible or intangible and could be internally or externally sourced. The production process next followed and a new prototype innovation was produced after which a determination was made on whether or not there was a market acceptance. Ultimately, the firm next had a choice of determining

whether it could commercialise the innovation or not. Without an enabling environment, an innovation could not diffuse as fast as it would ordinarily have diffused.

CONCLUSIONS

Implications of Paper

The paper inferred that firm innovativeness was a function of entrepreneurial orientation, internal circumstances and external variables. The paper adopted the position by Gilbert (2007) that argued for a multi-dimensional approach to conceptualise firm innovativeness. The paper argued that instead of focusing on the outcomes of innovation, entrepreneurs would obtain higher value by focusing on processes that included the basic support infrastructure, and other social links that the firms were involved in. Furthermore, enhanced firm-level productivity could also be attained by automation, thereby increasing the scope and capacity of existing small firms.

This paper fortified and sought to extend the various arguments across the various theoretical foundations of the study. The paper provides an impetus to earlier research that examined that argued that firm innovativeness is a function of both internal and external factors. The case study concluded that the innovation is an iterative process that was spurred by creativity. This was consistent with open innovation model, wherein any step towards innovation was affected by internal and external factors. Moreover, the internal factors are within a firm's span of control and exploitation as supported by the resource-based view.

Secondly, the paper demonstrated the importance of case studies in social sciences. It is apparent that there are glaring gaps in the conceptualization of SME Innovation. It is also evident that due to complexity of information requirements in SMEs, a research that allowed insightful generation of information was necessary. To have adequate information for conceptualization and appropriate contextualization, a paper of this nature required detailed insights from individual firm entrepreneurs. Finally, the need for research on open innovation in SMEs is undoubtedly gaining currency. The paper has been able to demonstrate that firms do not operate in isolation from their peculiar environments. This calls for research in the less developed countries in much as it is presently happening in the developed countries.

On the other hand, contribution on practice is based on the basis of observation of the firms that were studied. A comparison on subsequent inferences is made from other previous but similar studies that were carried out on SME innovativeness.

The need for commercialization of innovation was emphasized. The paper observed that SMEs are not enthusiastic about intellectual protection of innovations and subsequently their commercialization. There is a need for additional research on the process around the commercialization of innovations so as to understand the factors affecting commercialization.

In spite all these relationships being academically proven, there was an evident disconnect between the practitioners and the academia. The paper demonstrated the

importance of engagement between the two. Understandably, SMEs will probably feel intimidated by having to individually work with large public research bodies or larger private firms, but the best available option is their formation into multi-firm associations and alliances.

The SME firms need to reconsider the prioritization of investment on automation practices in their firms. Based on a Tanzanian study, Kindiki (2009) concluded that much of the investment in technology was primarily focused towards the basic technology for lower-end apparel subcontracting. There were opportunity costs that were lost in other areas that could possibly be automated. Efficiencies were noted in areas where automation was attained across various operations of the firms (Cornel University, INSEAD and WIPO, 2016; Global Entrepreneurship Monitor, 2016).

It is advisable for policy makers to have unambiguous yet focused approaches as the one-size-fits-all approach hardly achieved the desired result (Martinez-Roman & Romero; 2017). An easier way of facilitation of cross firm engagements is through the involvement of multiple firms. Inter-company alliances, cooperative and strategic industry associations should be encouraged and be formed. A study by Bougrain and Haudeville, (2002) posited that firms first need to develop their own internal capabilities before seeking external collaboration. The Government should nevertheless facilitate this by aiding and encouraging the formation of the inter-firm alliances and strategic associations. This strategy was found to be effective in Croatia by Radas & Bozic (2017).

As was argued by Braga & Braga (2013) and Prihadyanti (2013), making the appropriate decisions is very important for SME innovativeness. Rather than allowing SMEs to be stuck in their *enclaves*, by way of policy SMEs should be encouraged to embrace and adopt objective changes. This could be by way of business education training. Indeed Croatia, Radas & Bozic, (2017) established that policies that were in place to encourage business reorganization and this were executed through offering training that allowed firms to be informed about possible organizational and corporate structures, trends and strategies.

Manufacturing SMEs should be encouraged to not only produce for local markets but also go beyond their traditional markets such as exporters (GOK, 2015; AfDB, 2018; KAM, 2019). Wider markets would spur innovativeness, as entrepreneurs would be compelled to generate additional products, simplify processes as well as invest in value addition systems and technology. For this to be successful, a series of well thought out institutional reforms that are subsequently well executed will be vital (GOK, 2015; Lafuente, Acs, & Szerb, 2018; KAM, 2019).

Limitations of Study and Future Research Directions

It was previously observed that information requirements on SMEs studies tended to be problematic (Ayyagan et.al., 2007). This paper faced similar challenges. Most SME entrepreneurs were fairly reclusive on releasing information that was specific to the firm. Significant effort was made in getting the entrepreneurs to feel confident to divulge such information. Consistent with the

recommendations of Kraus et al. 2012, the study had a mix of methods and measures to determine some of the indicators. It is therefore recommended that future studies should not be solely single approach but rather adopt mixed method approaches. Where possible, in case studies, more than one respondent per case and multiple sources of evidences should be obtained. The study design was also cross sectional in nature and as such could not explore causal relationships. A longitudinal study would be recommended as appropriate in such instances.

ACKNOWLEDGMENTS

This paper was presented in 2019 at the 10th AIBUMA Conference (Sub Theme No. 10 - Innovation and technology-beyond creativity) of the University of Nairobi. The Authors would like to thank Session Chair and participants for useful comments.

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APPENDIX I: INTERVIEW GUIDE

INTERVIEW GUIDE

- The purpose of this Interview Guide is to collect qualitative data on a study on entrepreneurial orientation, technological capability, environmental dynamism and innovativeness within manufacturing SMEs in Nairobi County. **This is for select cases only.**
- **The interviewee has to be the firm owner or entrepreneur.** Interviewer to elaborate and prod the interviewee where possible. Assure the interviewee that the information is purely for academic reasons and will be treated in strict confidence.

Prompts

- Name of Organisation
- Name and Age of Respondent
- Year of Establishment of Business
- Nature of your business? (Observe)
- Professional line of experience in this business?
- Establish if, respondent has any formal training in this type of business?
- Establish staffing levels in firm
- Establish own/staff level of engagement/involvement in the innovation in the business.
- Establish the motivation for starting the business
- Obtain confirmation on whether the firm has been innovative and reasons thereof.
- Establish the driving reasons for innovation in the business
- Establish the other external partners in business
- Identify the challenges to innovation
- Identify the competitors to the business
- Discuss the financial budgets, sources and resource outlay allocated to innovation.
- What is the set aside budget for creativity and innovation in the firm?
- Establish the firms' interaction and experience with the IPR bodies eg KIPi.
- Identify the owner's biggest regrets in business and what they would do differently if they had a second chance