

Innovation in SMEs: A review of its role to organisational performance and SMEs operations sustainability

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Abstract

When the SME competitive advantage is based on the knowledge as is the case in the knowledge economy, innovation and creativity becomes a decisive factor in the economic activity because knowledge tends to be developed in the actual contexts. Technical progress leads to innovation waves and creativity stands in the door way of these phenomena, although it is not usually explicitly associated with it. With this in mind therefore the study is designed to assess the role played by innovation in Small and Medium Enterprises (SMEs) operations sustainability in the manufacturing sector of Chinhoyi. To achieve this, objectives of the study were outlined as follows: to examine types of innovation being conducted in manufacturing SMEs; to identify the factors that influenced innovation in manufacturing SMEs operations sustainability; determine the link between innovation and SMEs operations sustainability; establishing whether SMEs in the manufacturing sector have the capabilities required to execute innovation processes and suggesting innovation processes and activities that SMEs should put into practice. A descriptive survey was used as the research design. SMEs in manufacturing were grouped into sectorial strata and a sample of 30 SMEs across all sectors was selected. Questionnaires and interviews were used to solicit for relevant data. Collected data was presented and analysed using tables, bar charts and pie charts as extracted from Statistical Packages for Social Sciences (SPSS). The hypothesis test was conducted using the SPSS package. On the findings, innovation was found as one of the major attributes which aid SMEs to remain competitive. Findings also points to a strong link between innovation and SMEs operations sustainability. Other research findings reveal managerial characteristics as the most factor which affect SMEs operations positively. However, environmental factors such as government support were considered to be inadequate for the operations of SMEs. These factors if attended to are considered to further boost the operation performance of SMEs. In light of the findings it is recommended that structures, capabilities, culture and entrepreneurial spirit should be developed and cultivated amongst SMEs so as to effectively harness the benefits that come with innovation (operations sustainability and competitive advantage).

Key words: SMEs, innovation, manufacturing, operations sustainability

1. Introduction

Worldwide, small and medium enterprises (SMEs) are seen by policymakers as the ideal way to increase sustainable development (Naude 1998). SMEs are pivotal to the growth and development of the South African economy (Butcher 1999), and inextricably linked to economic

empowerment, job creation, and employment within disadvantaged communities (Daves 2001). SMEs have a valid claim to heightened relevance, and strategies have been developed world wide to expand and integrate this sector into the mainstream of economic activities (Luiz, 2002). In Zimbabwe, although SMEs are currently at the forefront of local economic development and are purported to resolve socio-economic problems. Although entrepreneurs/SMMs may act as catalysts of activity for an entire economy (Chichoni, 2011), many of them fail. In Zimbabwe up to 75 per cent of new businesses eventually fail (Chichoni, 2011)), although it remains difficult to assess the true nature of SME failure due to lack of accurate data on this phenomena. One of the reasons for such a high mortality rate is the entrepreneur's lack of managerial skills and innovation, which eventually impairs the new business. There is large percentage of SMEs in Zimbabwe but a very few of them move on to become big companies or big organisations. In Zimbabwe 80% of economic activities are in hands of SMEs and big enterprises only contributes the remaining 20% (SEDCO Report, 2010). This shows that the SMEs have been dominating the country and one would expect that by now the big entrepreneurs should have increased in number but surprisingly one can only count very few companies that emerged from SMEs Securico Pvt Ltd being one of them. Long term survival and sustainability of SMEs remains a dream in Lowly Developed Economies (LDEs) like Zimbabwe. According to Allocca and Kessler (2006), the ability to develop and launch innovative new products by using the latest technology quickly before global competitors, or soon thereafter, is a key factor in gaining first-mover advantage, achieving product success, capturing market share, increasing return on investment, and long-term viability. In this vein it is imperative to assess the role played by innovation on SMEs operations sustainability in the manufacturing sector in Zimbabwe, Chinhoyi in particular.

1.1 Background

There has been a general downscaling of major industries in the country, with an attendant high level of retrenchments. In particular the chemical and steel industrial sectors in this region have been seriously impacted by restructuring and globalization threats (Chichoni, 2011)). To counteract such global and local tendencies, SMEs have been invoked as a solution to create new firms and jobs. In Zimbabwe SMEs generate 35 per cent of the GDP, contribute 43 per cent of the total value of salaries and wages, and employ 54 per cent of all formal private sector employees (informal employment). According to Terziowski (2010) Small and Medium enterprises (SMEs) in the manufacturing sector make a significant contribution to economic growth, while most of the research on innovation management in the manufacturing sector has focused on large organizations, little has been done on SMEs. In addition, Ngoro (2011) stated that what Africa needs more, are the type of SMEs that develop and improve on existing innovations in the market. This, he said, can either be done by collaborating with large cooperation in need of a type of 'surrogacy' to nurture the new product to be developed for the market or alternatively; SMEs gain access to financing explore products and services developments that are both market-driven and offer a value-addition component to the supply chain. It was upon these studies that raised the need to assess the role played by innovation in SMEs operations sustainability in the manufacturing sector.

The 2011 Zimbabwe Manufacturing Survey compiled by the Confederation of Zimbabwe Industries (CZI) showed that the industry capacity utilization rate increased to 57.2% during the first half of 2011 from 43.7% for the same period a year earlier. The largest improvement in capacity utilization was recorded in the timber and beverages industries. Despite the positive

trend, many stumbling blocks remain especially in the SME sector where since the adoption of multiple currencies at least 8% of SMEs scaled down their operations or shut down (SEDCO Report, 2011). The report showed that most SME manufacturers still have to reach 40% of their capacity. It was against this background that the researcher carried out an assessment of the role played by innovation on SMEs operations sustainability in the manufacturing sector.

2.0 Literature Review

2.1 Small to Medium Enterprises (SMEs)

Evidence from literature reveals that there is no universally agreed definition of an SME across all academic disciplines. According to Beck, Demirguç-Kunt, and Levine (2005), they stated that most definitions on SMEs are based on size and they use fundamental bases such as number of employees, financial position or annual turnover. However in Zimbabwe, according to Small and Medium Enterprises Institute, SMEs are defined as a registered enterprise with employment levels ranging from 30 to 70 depending on the types of industry. It went on to state that enterprises that are not formalized through a legal structure such as registration in terms of the Companies Act or a Partnership Agreement was referred as micro-enterprises." In a study by Machipisa (1998) he defined an SME as a registered company with a maximum of 100 employees and an annual turnover in sales of a maximum of 830, 000 U.S. dollars.

2.2 SMEs' sustainable Development

Sustainable Development for SMEs refers to a mode of SME development in which resource use aims to meet organisational needs while preserving the environment so that these needs can be met not only in the present, but also for generations to come. The term 'sustainable development' was used by the Brundtland Commission which coined what has become the most often-quoted definition of sustainable development: "development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

- The concept of needs, in particular the essential needs of the world's poor, to which overriding priority should be given; and
- The idea of limitations imposed by the state of technology and social organization on the environment's ability to meet present and future needs."

In this case long time life of the organisation and its stakeholders is vital.

Previous research indicates that the operations function in SMEs generally has a poor relationship with other functions in the business. Furthermore, the individuals involved in executing operations management are poorly trained, lack specific skills and are by large technologically illiterate (Sohal et al , 2000). Indeed the survival and growth of SMEs are threatened by obstacles that may exist in the operations functional area. One of these barriers suggests that entrepreneurs with technical backgrounds would probably be weak in managing functional areas such as general management and operations, while successful entrepreneurs have developed the requisite operations and management skills. Other researchers have found that although entrepreneurs are expected to have expertise or skills in the operations function, their lack of training in the field of operations limits the entire business (Shepard et al, 2000). A study of successful SMEs indicates that a minimum of five years is required to develop the necessary operations and management skills to be considered sustainable (Barreira, 2004).

Business failure is often attributed to the lack of entrepreneurial knowledge and business management skills (Zimmer, 1990). Low levels of education and training, as well as poor business skills are contributing factors to the lack of capacity and poor business efficiencies among SMEs. Most entrepreneurs often start a new enterprise while ignorant of many key dimensions of running their own enterprises and must obtain the necessary skills if they are to survive (Shepard, 2000). It is imperative that the entrepreneur be knowledgeable about all the functional areas in business. The importance of entrepreneurial skills, such as innovation and risk taking should not be overlooked as essential ingredients to SME success.

Skills development and education in general form part of human capital and according to human capital theorists these assets can improve SME productivity significantly (Honig, 2001). Entrepreneurs who have built high-growth companies have solid entrepreneurial and management skills. Competency in a variety of skills will contribute to the profitability and sustainability of a business (Chrisman and McMullan, 2000), and a focus on skills development in the operations function is key to competitiveness and growth for SMEs.

In developing countries such as Zimbabwe which are characterized by uncertain market conditions and high failure rates of SMEs, mere survival may be equated with sustainability and success. SMEs may be termed successful if they have endured the first two critical years of existence and the owner has met the majority of his goals and objectives (Kesper, 2001). Others consider a successful business as having been in existence for longer than two years, having a staff component of more than five and less than 30, making a profit and expanding in terms of infrastructure and growth (Nieman et al, 2003).

2.4 Innovation

According to Bessant and Tidd (2007) Freeman defined innovation in the manufacturing sector as the technical, design, manufacturing, management and commercial activities involved in the marketing of a new (or improved) product or the first commercial use of a new (or improved) process or equipment. However, Kogut and Zander (1992), in their definition innovation was generally not only the conceptualization of a new product or service (or a greatly improved product or service), but also the successful bringing of the new product or service to the market.

2.5 Innovation and SMEs Operations Sustainability

According to Casals (2011), globalization of the markets and increasing international competition force SMEs to search for new, innovative, flexible and imaginative ways to survive. Therefore, the above statement provides a relationship between innovation and SME survival. In the World Bank report (2009) innovation has been viewed as vital in ensuring competitive advantage by organisation and long term loyalty. The importance of innovation as a key factor of economic growth and development was also highlighted by Joseph Schumpeter in his Theory of economic development (1912) who considered the entrepreneur's task and capacity to realise new combinations of the production factors i.e innovation, as the basis of his theory. The first empirical studies on innovation as quoted by Oncioiu et al (2003) have taken as a point of departure the investment in R&D by industry or at the country level as a percentage of GDP and as output of the number of patents. These studies hypothesize the relationship between innovation and organisational growth. This was supported by Oncioiu et al (2003) who discovered innovation as an important ingredient in this knowledge based society in SMEs

sustainability; however there is little evidence in LDEs and Zimbabwe in particular on whether this is true

An important issue facing SMEs worldwide is continuous improvement. In today's markets the inputs of customers and their fast changing needs makes it imperative that enterprises continuously improve the way business is conducted. SMEs need to consider continuously improving production costs, delivery schedules, manufacturing skills, supplier relationship and productivity in all practices (De Wit et al, 2007). According to Gaither and Frazier (1999), SMEs constantly experience shortages in capital to employee skills to improve production capacity, which makes it necessary to continuously improve their production strategies with customized products and process-focused operations. Moreover SME operations function should embrace competitive priorities of low production costs, fast on-time deliveries, high quality products and customer services. SMEs that have adapted their production systems to be flexible and their costs and prices competitive will be able to compete and capture increased market share. This signifies the importance of innovation in enhancing loyalty and long term customer value.

In the same vein, Kemp et.al (2003) in their research, found that the innovation output was determined by the innovative input, i.e., the transformation of input into output. Finally, the innovative output was related to the firm performance. They stated that innovative output, via firm performance, would affect the innovation expenditures. The overall economic performance of a firm would affect all three stages of the innovation process of a firm. The growth of total sales would be higher for innovating firms than for non-innovating firms, etc. They said as a result of this interrelatedness of the relationships, the innovation process should be tested simultaneously. In the same vein Oncioiu et al (2003) in their study in Romania noted that innovation boosted competitiveness of SMEs in Romania thus signifying

2.6 Types of Innovation Conducted in SMEs

According to Henderson and Clark (1990), they stated that they are four types of innovation that is, incremental, radical, modular and architectural innovation. Henderson and Clark (1990) defined incremental innovation as an innovation that refines and improves an existing design, through improvements in the components. They stated that gradual improvements in knowledge and materials would lead to most products and services being enhanced over time. However these enhancements typically took the form of refinements in components rather than changes in the system. Incremental innovation were said to be the most common ones. On the same note Henderson and Clark (1990) postulated that radical innovation involved both new components and a new design with a new architecture that links the components together in a different way. Radical innovations were viewed as comparatively rare. Modular innovation employed new components with different design concepts as according to Henderson and Clark (1990). They stated modular innovation does involve new or at least significantly different components. They said the use of new or different components was the key feature of modular innovation, especially if the new components embraced a new technology. New technology would transform the way in which one or more components within the overall system operate, but the system and its configuration/architecture remained unchanged. According to Henderson and Clark (1990), they stated that with architectural innovation, the components and associated design concepts remain unchanged but the configuration of the system changes as new linkages are instituted. They asserted that manufacturers may well take the opportunity to refine and improve some

components, but essentially the changes will be minor leaving the components to function as they have in the past but within a new re-designed and re-configured system.

2.6.1 Other Authorities View on Types of Innovation

However according to Baker (2002) he identified the types of innovation as being the process, product/service, and strategy. Radical and incremental innovations were seen as the degree of newness. *Process Innovation*, Cumming (1998) stated that process innovation embraces reengineering the business process and therefore implied the improvement of the internal operations and capacities. He went on to say that the importance of process innovation was quite well understood, especially in companies under threat since it may help to improve the company productivity. On the same note, *Product/Service Innovation* has been identified as another source of innovation. Baker (2002) stated that incremental product/service innovation was oriented toward improving the features and functionality of existing products and services. Radical product/service innovation was oriented toward creating wholly new products and/or services. Hamel (1996) contended that radical business concept innovation was paramount. He stated that in business concept innovation what was required was to ensure organizational success by continually revolutionizing the basic organizational strategy, which progressively typically required:

- Radically re-conceiving products and services, not just developing new products and services
- Redefining market space
- Redrawing industry boundaries.

For the sake of the study the first reviewed types were considered as the types of innovation and the other were considered as the dimensions of innovation.

2.7 Factors Influencing Innovation in SMEs

The literature reviewed the following factors; firm characteristics, manager's characteristics, size and age of the organisation, technological factors, organisational factors, and environmental factors.

2.7.1 Firm Characteristics

Some studies confirmed the influence of firm characteristics on innovativeness. Polder et al. (2010) in their study found that doing more R &D had a positive effect on product innovation in manufacturing while it was unimportant for organizational innovation. In the study of Tomlinson (2010) he supported the above view and stated that significant relationships between innovative performance and firm size, R&D and firm age were confirmed.

The study of World Bank (2009) also showed that firm size had a strong positive effect while competition had a strong negative effect, on organizational innovations. Moreover, diversification was associated with more innovation. Also they confirmed the general view that heavy competition is negatively associated with innovation, and showed that this was more in the case for process and organizational innovations than for product and marketing innovations.

2.7.2 Manager's Characteristics

Perry et al. (1993) research, found the role of managers central in deciding to adopt an innovation. He said that the success of the project depended on management's correctly

positioning the R&D to fulfil a need or fill a niche. Jordan (2004) in support of the above said managers need to be technically competent and able to orchestrate new ideas through the organization. He went on to say managers should take advantage of different methods for staff encouragement to innovate.

2.7.3 Size and Age of the Organisation

Size, age and flatter hierarchies were found to have effects on company innovativeness. Whiteet al. (1988) for instance, suggested that the smallest firms (20 employees) had the benefit of individualism, the larger firms (50 employees) had the benefit of more resources and systems, while the intermediate group (20-49 employees) lacked the best of either world. Ettlie and Rubenstein (1987) in support stated that for radical innovations they required additional funds for technical work, capital investment for plant and equipment, marketing and promotions. They went on to clarify that larger size have a key enabling condition because of access to key resources and addressing these key issues.

In support of the above, Tödtling & Kaufmann (2001), postulated that SMEs had fewer resources, such as R&D expenditure, and generally face more uncertainties and barriers to innovation than large companies. Tidd, Bessant, and Pavitt (2002) also asserted that although heavily dependent on innovation, SMEs were less capable of making use only of external inputs than larger companies. In support, O'Farrell & Hitchens (1988) said SMEs were often unable or unwilling to operationalize new concepts and practices due to the preference of their owner-managers or the lack of relevant resources. They went on to say size seems to matter, as large companies have financial support for strategic incentives which nurtures creativity and flexibility and in SMEs, resource constraints may diminish such acts unless facilitated naturally.

In general, SMEs in terms of resources they lagged behind large firms which then hindered them from being innovative.

Harrison and Watson (1998) stated that among firms of different sizes, SMEs were generally more flexible, adapt themselves better, and were better placed to develop and implement new ideas. Chaminade and Vang (2006) in their view postulated that, the flexibility of SMEs, their simple organizational structure, their low risk and receptivity were the essential features facilitating them to be innovative therefore, SMEs across industries had the unrealized innovation potential. However, the ability and innovative capacity of SMEs varies significantly, depending on their sector, size, focus, resources, and the business environment in which they operate according to Burrone and Jaiya (2005). Leseure (2000) in support observed that, works in one organisation does not necessarily apply to another and managerial practices vary from one socio-economic culture to another. In terms of flexibility, SMEs were found to be better in providing an environment for innovation.

Whereas Rothwell and Zegveld (1986) contrasted firm size and innovation across several industries and concluded that the issue of innovation by firm size was not to do with the question of "big" or "small" firms, but with other factors such as different phases in the industry cycle that would vary with technology, markets and government policy.

Reid and Garnsey (1996) in their study on small hi-tech companies asserted that companies spent the first ten years to contract out and began a programme of product innovation later. This suggested that age had an impact on company innovativeness.

However some research studies Rothwell (1984), attested that the rate of innovation by SMEs has grown consistently and seems to be slightly higher than that of very large corporations. Oakley, Rothwell and Cooper, (1988), stated that there was paucity of research and consequently a lack of understanding of SME needs and requirements, with respect to how SMEs contemplate their innovation initiatives.

As reviewed by the literature, size and age of the organization was a factor which influenced the rate at which innovation would be adopted.

2.7.4 Technological Factors

Several technological characteristics of an innovation would affect its adoption, including complexity, compatibility, relative advantage, ease of use, perceived usefulness, information intensity and uncertainty according to Tornatzky and Klein(1982). Lin and Ho (2011)based technological factors mainly on complexity, compatibility and relative advantage because these three characteristics were consistently been found to be more important in influencing adoption behaviour than the other characteristics.

- **Complexity**

Complexity is the degree to which a technical innovation is perceived to be relatively difficult to understand and use according to Rogers (2003). Tornatzky and Klein (1982) postulated that it would increase the difficulty in knowledge transfer and innovation diffusion and was usually hypothesized to be negatively related to innovation adoption. Etzion (2007) in support stated that an organization would be opted to advance technical innovation when knowledge was shared easily within the organization. He said efficient knowledge sharing would lead to better innovative capabilities in terms of higher order learning, and consequently can improve organizational performance including environmental management effectiveness.

In addition, Tornatzky and Fleischer (1990) stated that a technology with high complexity contained a lot of tacit knowledge that required laborious efforts to learn and diffuse. The difficulty in learning and sharing tacit technological knowledge would make the complex technology difficult to adopt. Tidd (2006) also supported and stated that in general, innovations that were simpler for potential users to understand would be adopted more rapidly than those which required the adopter to develop new skills and knowledge.

- **Compatibility**

Rogers (2003) defined compatibility as the degree to which an innovation is perceived as being consistent with the existing values, experiences and needs of the firms. In their study, Tornatzky and Fleischer (1990), found that how the new technology fitted with the knowledge that a company already possessed and accumulated was also an important factor that influenced technical innovation. In support Tornatzky and Klein (1982) stated that a company will be more likely to adopt the new technology that is more compatible with the company's current operational knowledge.

Tidd (2006) supported that compatibility was a factor which influenced innovation. He stated that the extent to which the innovation fitted the existing skills, equipment, procedures and performance criteria of the potential adopter was important, and relatively easy to assess. He went on to say that the so-called 'network externalities' would affect the adoption process. Giving an example he said, the cost of adoption and use, as distinct from the cost of purchase, would be influenced by the availability of information about the technology from other users, as well as the availability of trained skilled users, technical assistance and maintenance.

- **Relative Advantage**

Relative advantage is the perception that an innovation is more advantageous than its substitute idea according to Rogers (2003). He went on to say the perceived benefits may be

measured in economic and social terms like convenience and satisfaction. Rogers (2003) stated that companies were more likely to adopt a technology which was able to provide better performance and higher economic gains than the other technologies. Therefore in their study, relative advantage was positively related to the adoption of innovation. In addition Tidd (2006) observed that, in theory, the greater the perceived advantage, the faster the rate of adoption.

Organisational Factors

Several studies have discussed the influences of a variety of organizational characteristic variables such as quality of human resources, top management's leadership skills, organizational support, organizational culture and organizational size as according to Tornatzky and Fleischer (1990). Damanpour (1991) stated that in general, sufficient organizational resources and qualified organizational capabilities were two relevant organizational characteristics advancing technical innovation.

In support, Tornatzky and Fleischer (1990) postulated that qualified human resources were helpful to adopt innovations because of their competent learning and innovative capabilities. They said the quality of human resources was an essential factor influencing technical innovation.

Organizational ties helped SMEs to establish their network. Panizzolo (1998) identified two types of organisational ties that were, inter-organizational and intra-organizational ties for any organization.

- **Intra- Organizational Ties**

Intra-organizational ties were considered to be those factors within the operations of the organization. Ebrahim, Ahmed and Taha (2008) stated that it was necessary for organizations to put together different capabilities and services with the goal, through cooperation between suppliers and customers, service providers and scientific institutions to achieve innovations of high quality. The results of Nguyen and Mothe (2008) confirmed that cooperation with customers had a positive impact on performance.

Pavitt (1991) raised issues such as flexibility, short communication lines, close relations with customers, motivation of management and labour force, less bureaucracy, little filtering of proposals with strong interest in product development and technological change as part of the characteristics and strengths of an innovative culture. Lack of bureaucracy, efficiency, informal communication, flexibility were further emphasised by Birchall, Chanaron and Soderquist (1996).

Adaptability through nearness to markets and close working relationships with customers were again found to be associated with innovation. In addition, Chandler, Keller and Lyon (2000) found close analysis of competitors, supervisory and reward system support to be most relevant to successful innovation. Part of the theme of promoting an innovative culture, Heunks (1998) also found successful SMEs associated with committed leaders with vision, enthusiasm, future-oriented exploit external opportunities for inward investment and information gathering. In addition, Motwaniet al. (1999) prescribed that leaders must demonstrate active strategic commitment to research and technological change. All the above themes such as fostering a creative environment, the right leadership in addition, listen to new ideas, top management play multiple roles, and the right organisational systems were also found to be relevant as according to Blumentritt (2004).

According to Beaver and Prince (2002) they said that the extent to which small businesses innovate successfully would depend on their capacity to plan ahead, to have a clear strategy

and to manage strategically which was reflected in companies being market-oriented and willing to learn as well as to innovate and take risks. The finding on risk-taking was also confirmed by a study conducted among American SMEs Blumentritt(2004), showing that the most innovative firms were competitively aggressive and willing to take on greater degrees of risk.

According to Massa and Testa (2004), benchmarking enabled a company to compare its practices and performances with others as well as to acquire external explicit and tacit knowledge, which would lead to improvements and innovations. Mitra (2000) stated that SMEs were better able to innovate when they were part of clusters i.e. networking. Additionally, a study conducted among Australian manufacturing SMEs according to Terziovski (2003) suggested that small manufacturing companies were more likely to improve their chances of achieving business excellence through networking than without.

- **Inter-Organizational Ties**

Inter organisational ties were those factors outside the firm. Tomlinson (2010) studied the cooperation ties and innovation in United Kingdom manufacturing. The study confirmed the positive significant relationship between the inter-firm cooperation and innovative performance. Also the relationship between cooperation with suppliers, cooperation with buyers, and competitors was confirmed. Zeng, Xie, and Tam (2010) supported Tomlinson by their study of the relationship between cooperation networks and innovation performance of SMEs in China. Their findings showed that cooperation with government agencies do not have impact on innovative performance of firms. Their studies showed that there has been a significant positive correlation between inter-firm cooperation and innovation performance of SMEs. According to their study, close linkage and cooperation with customers and suppliers had a direct and significant positive impact on the innovation performance of SMEs.

2.8 Capabilities Required To Execute Innovation Processes In SMEs

Albaladejo (2004) defined Innovation capability as the ability to make major improvements and modifications to existing technologies, and to create new technologies. They stated that the notion of innovation capability applied to process and product technology as well as the way in which production was organised and managed. They went on to say its importance was derived from the fact that it was presumed to contribute to dynamic competitive advantage of companies since it enhanced their capacity to keep up with, respond to, and initiates technological change on an on-going basis. In their study, they stated that a variety of factors internal or external to the firm may contribute to innovation capability. Oluwajoba (2007) in support stated the internal and external sources to innovation capabilities. They stated that the internal sources were as follows:

- The initial educational background and prior working experience of the founder(s)/manager(s)
- The professional qualifications of the workforce.
- Various kinds of technological effort which induce further accumulation of technological capabilities, such as formal and informal Rand D, formal and informal (on-the-job) training, acquisition of technological licences, among others.

Those generated from external sources included:

- Frequency of networking with a variety of other private-sector agents and various institutions
- Any geographical proximity advantages associated with networking
- The nature and extent of institutional support received.

Baker (2002) in addition stated that a firm should have capacity at individual, project, organizational and environmental level. At individual level, the capacity included employee empowerment and engagement, trust, training, job rotation, and the extent and range of individual networks. At project level it included a diverse mix of project team members, conversation rules and management, and an initial openness to new ideas and withholding of criticism to a later point in the process. At organisational level it included effective, efficient, and speedy systems and processes. Lastly he looked at the environmental level and the capabilities included the level of competition and extent of customer options, geographical co-location, inter-organizational associations and communities of practice, partnerships and alliances, the regulatory context, and the extent of customer and stakeholder engagement.

However, Hamel (2000) suggested different capabilities and he stated that an innovation competency requires both an internal and external organizational perspective. He clarified that to develop an innovation competency, the organization must:

- Have a fluid notion of organizational boundaries and an open market for talent.
- Transform organizational strategy. He said typical strategic planning was often antithetical to promoting radically innovative business models and strategies.
- Create an open market for capital investment and rewards. He outlined that strategic thinking must not only be encouraged but also sponsored and rewarded.
- Manage the risk. He highlighted that strategy should be sufficiently varied to allow for organizational agility and flexibility.
- Create a culture and a structure that promotes innovation. He said organisations must open up innovation opportunities to all staff and engage customers, suppliers, competitors, and complementary organizations to develop new approaches to generating new wealth.

The above were capabilities required to execute innovation processes. There were various capabilities open to firms and according to the reviewed literature it depended on how the organization operates.

3.0 Methodology and Research Design

Research design is a conceptual structure within which research would be conducted. The research adopted a descriptive survey research design as it aimed to present current facts about the types of innovation, link between innovation and SMEs operations sustainability and capabilities needed to execute innovation processes for SMEs in the manufacturing sector of Chinhoyi. SMEs into manufacturing businesses in Chinhoyi were chosen. The study adopted both qualitative and quantitative approaches. In order to identify factors which influenced innovation, examine innovation types and to establish whether SMEs had the capabilities to

execute innovation processes it required understanding from participants' perspectives hence qualitative approach suited. The study also had a hypothesis which was subject to verifying the relationship between innovation and SMEs operations sustainability thereby quantitative approach was best suited for the study. SMEs were grouped into stratas and simple random sampling was adopted to select a sample of 30 SMEs drawn from metal fabrication, cosmetics, wood technology, curios as well as engineering. Data was mainly collected using structured interviews and questionnaires and analysed using Statistical Packages for Social Studies (SPSS).

4.0 Results and Discussion

4.1 Findings on period in business

Responses on period in business showed that the majority of the companies (67%) have 1-5 years in operation. 30% of the respondents had operated for 6-10 years. Very few have been operating from 11-20 years marking 3%. There were no results from the period 16-20 years. The results were summarised as below:

TABLE 4.1 Responses on the duration of the business of the responses

Period	Frequency	Percentage
1-5years	20	67%
6-10years	9	30%
11-15years	1	3%
16-20years	0	0%
Total	30	100%

The results indicated that most companies had operated for a period ranging between 1-5 years. Age matters in terms of innovation as in the research conducted by Reid and Garnsey (1996) in their study on small hi-tech companies asserted that companies spent the first ten years to contract out and began a programme of product innovation later. The period distribution may also reflect unsustainability of SMEs operations as only a few (3%) goes beyond 10 years after commencing operations (can be attributed to inability to innovate).

Responses on the type of innovation being pursued

Innovation Type	Frequency	Percentages
Radical	7	23%
Incremental	15	50%
Modular	5	17%
Architectural	3	10%
Total	30	100%

Incremental innovation was the most pursued by the respondents with a percentage of fifty percent (50%). The results illustrated that most of the manufacturers in the SMEs were pursuing incremental innovation which involved refining and improving the existing designs. The results were in line with the findings done by Henderson and Clark (1990) who stated that incremental innovation was the mostly practiced in firms.

Radical innovation became second with a percentage of twenty three percent (23%). The percentage in radical innovation was high comparing it with modular (17%) and architectural (10%). The results were however contradicting with the research done by Henderson and Clark (1990). They stated that radical innovations were viewed as comparatively rare.

Factors Influencing Innovation

Research findings on variables influencing innovation points to five factors which includes managers' characteristics, size and age of organisation, technological issues, organisational structures, benchmarking among others as tabulated below:

Table 4.3 Factors which influenced innovation

Factors	Strongly Agree	Agree	Disagree	Strongly Disagree	Not sure
a)Manager's characteristics	60%	40%	0	0	0
b)Size and age of the organization	30%	43%	3%	0	23%
c)Technological factors	33%	40%	17%	0	10%
d)Organisational factors	20%	50%	17%	3%	10%
e)Benchmarking	27%	40%	13%	0	20%
f)Environmental Factors	13%	23%	20%	20%	23%

Aggregating the respondents results in the agreeing range, managerial characteristics scored 100%. This showed that managerial characteristics such as the leadership style had an impact on how the company innovated. This complimented with the study conducted by Perry et al. (1993), they found the role of managers central in deciding to adopt an innovation. The respondents indicated that size and age of the organization as well as technological factors also mattered most among other factor with a percentage of seventy three (73%). However this was in contrast with the research done by Rothwell and Zegveld (1986). They contrasted firm size and innovation across several industries and concluded that the issue of innovation by firm size was not to do with the question of "big" or "small" firms, but with other factors such as different phases in the industry cycle that would vary with technology, markets and government policy. 70% of the respondents were in the agreeing range of organisational factors being crucial when considering innovation. This was in line with the findings done by Pavitt (1991) he raised issues such as flexibility, short communication lines, close relations with customers, motivation of management and labour force, less bureaucracy, little filtering of proposals with strong interest in product development and technological change as part of the characteristics and strengths of an innovative culture.

4.2 Findings on the Link between Innovation and SMEs Operations Sustainability.

In order to determine the link between innovation and SMEs operations sustainability respondents were asked about the contribution of innovation on sales revenue, market share, efficiency, and customers' loyalty. Hypothesis test results were also analysed and the following results were obtained.

For hypotheses testing, 5% level of significance was used in comparison with the P- Value. If

$P < 0.05$, accept H_0 or do not reject H_0

$P > 0.05$, reject H_0 and accept H_1

Table 4.4 Chi-squared tests results for type of innovation pursued Vs. Sales revenue performance measure

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2.001 ^a	6	.920
Likelihood Ratio	2.516	6	.867
Linear-by-Linear Association	.492	1	.483
N of Valid Cases	30		

Table 4.4 is a result of the SPSS analysis. The results are such that the P-Value = 0.920 is greater than the level of significance = 0.05. This implies that we reject H_0 (= there is no link between innovation and SMEs operations sustainability). In this case, therefore, there is a link between innovation and SMEs operations sustainability in terms of sales revenue performance measure.

Table 4.5 Chi-Squared tests results for type of innovation pursued Vs. Market share

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	4.015 ^a	6	.675
Likelihood Ratio	4.916	6	.555
Linear-by-Linear Association	.332	1	.564
N of Valid Cases	30		

Table 4.5 is a result of the SPSS analysis. The P-Value = 0.675 is greater than the level of significance = 0.05. This implies that we reject H_0 (= there is no link between innovation and SMEs operations sustainability) in terms of market share performance measure.

Table 4.6 Chi-Squared tests results for type of innovation pursued vs. Efficiency

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	4.473 ^a	6	.613
Likelihood Ratio	5.263	6	.511
Linear-by-Linear Association	1.453	1	.228
N of Valid Cases	30		

From table 4.6 above, P-Value = 0.613 is greater than the level of significance = 0.05. We reject H_0 (= there is no link between innovation and SMEs operations sustainability) and accept H_1 (=

there is a link between innovation and SMEs operations sustainability) in terms of efficiency performance measure.

Table 4.7 Chi-Squared tests results for the type of innovation pursued vs.Loyalty

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	4.161 ^a	6	.655
Likelihood Ratio	5.772	6	.449
Linear-by-Linear Association	1.573	1	.210
N of Valid Cases	30		

The table 4.7 is a result of SPSS analysis. The results are such that the P-Value=0.655 is greater than the level of significance= 0.05. This implies that we reject H0 (=there is no link between innovation and SMEs operations sustainability). In this case, therefore, there is a link between innovation and SMEs operations sustainability in terms of loyalty performance measure.

From the tests conducted above using various performance measures it shows that there is a link between innovation and SMEs operations sustainability therefore we reject H0 in favor of H1.

Capabilities Used to Execute Innovation

Respondents were asked about the methods they used to execute innovation and their responses were tabulated in Table 4.5 below in percentages.

Table 4.8 Responses on what respondents used to execute innovation

Capabilities	Strongly Agree	Agree	Disagree	Strongly Disagree	Not sure
a)Professional qualification of the workforce	47%	30%	20%	0	3%
b)Educational background of the founder	33%	30%	27%	10%	0
c)On the job training	40%	53%	7%	0	0
d)Benchmarking	30%	44%	13%	0	13%
e)A company's structure and culture	3%	53%	24%	0	20%
f)incentives for innovative workers	33%	40%	12%	10%	0

Results were aggregated in the agreeing and disagreeing range. From the respondents contribution, on the job training was the most (93%) capability required in order to execute innovation processes. This attribute was in line with the research findings conducted by Baker (2002) he stated that a firm should have capacity at individual, project, organizational and

environmental level. At individual level, the capacity included employee empowerment and engagement, trust, training, job rotation, and the extent and range of individual networks. Educational background of the founder was ranked 63% which showed the owner should also have the capabilities in order to execute innovation processes successfully. The results complimented with the study done by Jordan (2004) he said managers need to be technically competent and able to orchestrate new ideas through the organization.

Conclusions & Recommendations

Conclusions made were based on the research findings obtained in relation with the research objectives. Respondents are mainly conducting Incremental innovation. They are refining and improving on the existing design. Incremental innovations are comparatively well served as compared to other types of innovations.

Managerial characteristics such as the leadership skills and experience of the owner or the manager were the most factors which were highlighted by respondents. On the managers characteristics one can say that from the results, managers who are more experienced can change their structures and strategies periodically in order to suit the changing environment

From the hypotheses conducted, the results showed that there was link between innovation and SMEs operations sustainability. This shows that if one innovates obviously the business will be more profitable. Being innovative from the findings showed that it increases customer loyalty to the company since they will have been satisfied about the product being offered.

All the capabilities were found to be relevant in achieving innovation. Hence innovation in SMEs required more than just having the professional qualifications of the workforce. The results also suggest that on the job training is equally required for innovation to succeed in SMEs.

Results reflected that innovation processes were being followed. However the other half were following it haphazardly not knowing that they were following a procedure.

In light of these conclusions the following is recommended

- Government should identify and nurture talent in the excelling innovators in the manufacturing industries (SMEs). They can be given some incentives and this will go a long way in motivating the innovators to keep on injecting new ideas in their respective organizations.
- Requirement for constant re-engineering and re-tooling SMEs development agencies such as SEDCO, EMPRETEC in order for them to suit the national policy for entrepreneurial development.
- SMEs should network, through networking some services can be exchanged for free.
- SMEs should recruit skilled personnel. New ideas can be injected in the business rather than relying on the founder or owner's knowledge.
- Organisational structures should be adjusted encourage creativity and innovation amongst SMEs
- SMEs should be knowledgeable or seek information about the supporting institutions such as SEDCO.

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