Manufacturing Strategy of Firms in Emerging Economy:

The Study of Nigerian Manufacturing SMEs

Julius Ubaka Eziashi

Doctor of Business Administration

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A thesis submitted in partial fulfilment of the requirement of the University of Northumbria at Newcastle for the degree of Doctor of Business Administration

Research undertaken in Newcastle Business School

March 2017

Abstract

This doctoral thesis addresses the topic: Manufacturing Strategy of Firms in Emerging Economy: The Study of Nigerian Manufacturing SMEs. The research attempts to fill the knowledge gap by examining the manufacturing strategy process, manufacturing priorities and challenges relating to Nigerian manufacturing SMEs. Extensive reviews of the relevant literature were carried out, providing an insight into the research question and set out research objectives. The extant literature on manufacturing strategy, manufacturing priorities and manufacturing challenges has provided the theoretical perspective of the study.

The study adopted a qualitative research method to gain an in-depth insight and understanding of the manufacturing strategy process and practice of Nigerian manufacturing SMEs. The participating manufacturing SMEs were located in six geopolitical zones within Nigeria. Purposive sampling was used in selecting the 17 manufacturing SMEs from the target population. The face to face semi-structured interviews were used as data collection instrument. The data collected from the 17 manufacturing SMEs senior managers were analysed using the template analysis, a form of thematic analysis developed by Professor Nigel King. This analysis identified Nigerian SMEs' manufacturing challenges, priorities and key decision issue considered important for the manufacturing strategy process and practice.

The research findings point to an approach in developing manufacturing strategy in an emerging economy. An approach that is directed towards improving the manufacturing process, product quality, competitiveness, manufacturing capacity and other business needs, which has enabled these manufacturing SMEs to respond to their manufacturing priorities and manufacturing challenges. These findings have possible implications for the government, SMEs, policy makers and managers. This study has made a contribution to knowledge by increasing the understanding of manufacturing strategy of SMEs in context of an emerging economy. The study identified Nigerian manufacturing SMEs priorities, challenges and developed strategy that will aid professional practitioners, policymakers and the government to make manufacturing decisions, thereby contributing to practice

Keywords: Nigeria; SMEs; Manufacturing; Strategy; Priorities; Decision; Challenges.

Declaration

I hereby declare that this thesis has not been accepted previously in substance for any degree and is not being concurrently submitted for any other degree. I further declare that this DBA thesis is the end result of my own personal work and inquiry. I also state that I have acknowledged all the sources used and support received in preparing this thesis.

Copyright Declaration

Name: Julius Ubaka Eziashi

Signature:

Date: 31st March 2017

Acknowledgement

I thank the Almighty God for his tender mercies, guidance, and protection, and for giving me the ability to start and complete this research. I sincerely thank all the employees and managers of the manufacturing SMEs in Nigeria who gave me the access to their companies, which enabled me to conduct the interviews with respective senior managers. I also want to use this opportunity to appreciate and thank my highly esteemed supervisors in the Newcastle Business School, Dr Eustathios Sainidis and Dr Andrew Robson for their invaluable supports and contributions in the thesis review and guidance.

I give special appreciation to my wife Clementina Eziashi for taking care of my two wonderful children Shekhinah and David, while I commence the work on my research write-ups. I thank my sister Mrs Uzoamaka Abamu for her financial support in paying the school fees. I thank my other siblings Mrs Nwakaego, Odeigah Mr Clement Eziashi, Mr Azubuike Eziashi, Mrs Nwamaka Okujagu and Mr Oliseh Eziashi for all their financial supports and prayers. I thank Dr and Mrs Olusanya for all their supports.

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ABBREVIATIONS

AFDB	African Development Bank
BBC	British Broadcasting Corporation
BERR	Department for Business Enterprise and Regulatory Reform
BPE	Bureau of Public Enterprise
BRICS	Brazil Russia India China and South Africa
CBN	Central Bank of Nigeria
DBA	Doctor of Business Administration
EC	European Commission
ECOWAS	Economic Community of West African States
EU	European Union
GDP	Gross domestic product
IMF	International Monetary Fund
JIT	Just-in-Time
LGA	Local Government Area
MAN	Manufacturing Association of Nigeria
MSME	Manufacturing Small and Medium Enterprises
NBS	National Bureau of Statistics
NIRP	Nigeria Industrial Revolution Plan

OECD	Organisation for Economic Co-operation and Development
OPEC	Organization of the Petroleum Exporting Countries
R&D	Research and Development
SMEDAN	Small Medium Enterprise Development Agency of Nigeria
SME	Small Medium Enterprises
SON	The standard organisation of Nigeria
SSA	Sub-Saharan Africa
UAE	The United Arab Emirates
US	United States
USD	United States Dollar
UNCTAD	United Nations Conference on Trade and Development
UNECA	United Nations Economic Commission for Africa
UNIDO	United Nations Industrial Development Organization

Chapter 1: Introduction

1.1Background of the study

In the last decade, globalisation and internationalisation of the world economy have brought about unprecedented competition and radical changes among Nigerian manufacturing small and medium enterprises (MSMEs) (UNECA, 2010). These global change and challenges mean that Nigerian MSMEs have to compete with manufactured products from other emerging economies such as China, India, Brazil, Malaysia, Indonesia, Singapore, and South Africa (UNIDO, 2013). These global competitive manufacturing market environments have made Nigerian MSMEs to adopt a manufacturing strategy to enable them to deal with their manufacturing challenges and operate their businesses accordingly to reduce production cost, increase output, improve quality and raise their competitiveness through innovation. The Nigerian MSMEs challenges are similar to that of most Sub-Saharan Africa countries and emerging economies (UNIDO, 2013).Therefore, the research findings and contribution made on manufacturing strategy of Nigerian MSMEs is considered useful to other Sub-Saharan Africa countries and emerging economies. This chapter starts with the introduction, the background of the study, Nigerian geographical background, manufacturing in Nigeria, the definition of SMEs, SMEs limitation, SMEs contribution to the economy, research scope and motivation, significance of the study, research aim, and objectives, research questions, research contribution, the thesis outline and summary.

1.2 Nigeria geographical background

The name Nigeria is a word derived from the joining of ‘Niger’ and ‘Area’ (Omoruyi, 2002; Helly and Callaway, 2004). Nigeria is officially called the Federal Republic of Nigeria and is a country situated in the Gulf of Guinea in West Africa, with an approximated population of over 182.2 million (World Bank, 2015). Nigeria is not only the most populated nation in the Sub-Saharan Africa region but the whole Continent of African. The Nigerian population represents 47% of the entire West African region population and stands in the 8th position among the most populated nations in the world (World Bank, 2015). At present Nigeria is regarded as the Africa’s largest economy (BBC, 2014). The Federal Republic of Nigeria is made up of 36 States in addition with Abuja the seat of government and the Federal Capital

Territory (Alkali, 2008; Akhuemonkhan *et al*., 2012). Nigeria is partitioned into six geopolitical regions with a combined total of 774 Local Government Areas (LGA) made up of 274 different ethnicities (Gbenga-Ilori and Ibiyemi, 2010; Apulu *et al.,* 2011). Nigeria is a major regional player in the African economy, with an enormous prospective market and abundant natural resources such as oil and gas (McLoughlin and Bouchat, 2013). See figure 1.3. Nigeria has the market potential to continue to lead the African continent economically.

Figure 1.1 Map of federal republic of Nigeria

Source: Adopted from Afrisonet (2011)

Table 1.1 Nigeria economy data

Economic indicators	2011	2012	2013	2014	2015
Population (milion)	165	167	169	174	182.5
GDP per capita (USD)	2,606	2,708	2,944	3,182	,677
GDP (USD Billion)	418	446	498	553	479
Economic Growth (GDP, annual variation in %	4.9	4.3	5.4	6.3	2.7
Exports (USD billion	91.6	97.2	94.3	95.1	82.6

Imports (USD billion	62.2	53.4	51.4	61.6	59.6

Source: Adopted from Focus-economics (2017)

Table 1.2 OPEC members' values of exports (m $)

OPEC members values of export(m$)	2011	2012	2013	2014	2015
Algeria	77,668	77,123	69,659	62,886	37,787
Angola	67,310	71,093	68,247	59,170	32,637
Libya	19,060	61,026	46,018	13,806	10,861
Nigeria	99,878	96,905	97,818	82,586	45,365
Saudi A	364,698	388,401	375,873	342,342	205.447
Kuwait	102,052	118,917	118,917	103,891	54,959
UAE	302,03	359,728	371,028	367,597	333,370
Qatar	112,912	132,985	136,767	126,702	77,294
Iran	144,874	107,409	91,793	85,235	77,974
Iraq	83,226	94,392	89,742	83,981	54,667
Indonesia	203,490	190,032	182,552	175,981	150,383
Ecuador	22.322	23,765	24,848	25,732	18,366
Venezuela	93,747	97,877	88,753	74,714	38,010
OPEC	1,693,281	1,819,651	1,758,194	1,604,606	1,137,020

Source: Adopted from OPEC (2016)

1.3 Manufacturing in Nigeria

Manufacturing has been noted to play an essential role in the global economy (UNIDO, 2013). The demand for manufactured goods continues to grow as persons around the world enter the global consumer class (NIRP, 2014). Research has shown that the manufacturing sector currently contributes, to about 17 percent of the world's US$ 70 trillion economies and accounts for over 70 percent of global trade (McKinsey, 2013). Research shows that as economies mature, the role of manufacturing evolves and its impact on the economy changes (KPMG, 2016; McKinsey, 2013). Over the years, the manufacturing sector of the Nigerian economy has failed to undergo the vital structural changes needed for it to play a leading role in economic growth and development (Malik *et al*., 2002). The sector is structurally weak and basic industries that drive manufacturing such as iron and steel are not fully in place and functional (NIRP, 2014). The technological foundation for Nigeria manufacturing is lacking in many sectors, the skilled

manpower necessary to guarantee competitiveness in today's dynamic and globalized world is insufficient (McKinsey, 2013). Generally, the systemic problem of infrastructure, mainly due to power failures and poor transport network, has led to rising costs and non-competitive operations of Nigerian manufacturing firms (NIRP, 2014). Subsequently, the Nigeria manufacturing sector has not been able to draw the required investment for economic growth and remains a small player in the Nigerian economy (Onuorah, 2009). The Nigerian manufacturing sector share of GDP in the economy has not exceeded 4 percent, contribution to the foreign exchange earnings (KPMG, 2016), jobs and generated revenue for the government has been at its lowest.

However, the Nigeria willingness to join the group of developed nations globally means the government has to take advantage of its abundant natural resources by developing the manufacturing sector of the economy (NIRP, 2014). Manufacturing is the central part that drives industrialisation, plays an exceptional role due to its link with other areas of the economy, and is the primary base for the economic health and security of the country. The Nigerian economy has grown at an average rate of 8.8 percent annually since the year 2000 to 2014 which can be compared to that of other emerging economies (NIRP, 2014). This could have been better considering the enormous challenges the Nigerian manufacturing firms face before they are able to produce their products.

1.4 The definitions of SMEs

The significance of SMEs cannot be totally ignored, especially in the socio-economic development of many nations. MSMEs in Nigeria has continued to play a leading role in the economic development of the country. The definition of SMEs is becoming complicated as every country and their government has set out measures that define businesses operationally classified and portrayed as SMEs. Studies have shown that there is no collective agreed definition for SMEs, as most of the definitions presented were mainly dependent on the extent of economic development of these countries (Aruwa and Gugong,2007; Mutula and Brakel,2007). SMEs definition varies from one country to another, and this has been frequently based on the number of people employed, the value of the assets of the business or both joined together (Jutla *et al*., 2002). Rahman (2001) establishes

that SMEs are distinct by quite a number of features, such as the business size, its location, configuration, volume of sales, the value of assets and the number of persons employed**.** Storey (1994) further explained that the number of people employed in a company is considered to be a suitable assessment of SMEs since their differences in business configuration usually occur with size. Aruwa and Gugong (2007), said that every country definition of SMEs varies based on the role that they usually play in the economy. The difference in definitions of SMEs from different countries could be as a result of varying degree of economic developmental levels. For instance BERR (2009) started with micro firm is less than 10 employees; Small firm is not more than 50 employees; then Medium firm is more than 50 employees but less than 250 employees, and large firm is over 250 employees. Similar the European Commission (2003) also describes SMEs, using the same number of employees as used by BERR, but includes the yearly business earnings. The Micro-enterprises are those having less than 10 employees and having yearly business earnings of not more than €2 million or a yearly account balance total not greater than €2 million. Small ventures provide work for less than 50 employees and have also yearly earnings not more than €10 million or a yearly account balance total not greater than €10 million. Medium Sized enterprises are those with less than 250 employees and have either yearly earnings not more than €43 million. In summary, a business must satisfy two conditions before being identified as an SME; employees headcount must be less than 250 and yearly earnings has to be less or equal to € 50 million (European Commission, 2013).

According to Onugu (2005), MSMEs are the Small and Medium Enterprises that are involved in the conversion of raw material (input) into the finished product (output). According to the Small and Medium Enterprises Development Agency of Nigeria (SMEDAN) Abuja (2005) cited by Apulu *et al.,* (2011) SMEs are defined in terms of a number of employees and net assets value, excluding the cost of land and building. In table 3 below the compositions of Nigerian SMEs shows that Small enterprise employs less than 50 people, with an asset value less than 32000 USD. Medium enterprise employees' between 50-199 people with an asset value less than 3.2 million USD ((SMEDAN) Abuja, 2005; Apulu *et al.,* 2011). In this thesis, the researcher has adopted the SME definition given by SMEDAN since it is the apex body of registered SMEs in Nigeria as presented in table 1.3

Table1.3: Definition of SMEs in Nigeria

Size	Employment	Asset (₦-Naira in Million) excluding land and building	Asset Value ($-US Dollar) excluding land and building
Micro	Less than 10	Less than 5 Million	Less than 32000
Small	10-49	5 Less than 50 Million	32000 Less than 320000
Medium	50-199	50 Less than 500 Million	320000 Less than 3.2Million

Source: Adopted from SMEDAN (2005) and Apulu *et al* (2011)

1.5 SMEs limitations in Nigeria

It has been noted within the Nigerian manufacturing business environment that majority of SMEs become bankrupt within the first five years of being established and a smaller proportion of these SMEs cease to exist completely between sixth and tenth year of establishment, accounting for just a survival rate of 5-10% to full establishment (Onuorah, 2009; Apulu *et al.,* 2011).The challenges facing Nigerian MSMEs are enormous, ranging from inadequate infrastructural facilities to high operational cost, when compared to that of other SMEs in developed countries (Olorunshola, 2003). Nigerian MSMEs have been identified to have inadequate capital base as they find it difficult to procure loans as the banks are not willing to give out loans for fear that the SMEs will soon be out of business as they lack good accounting system which often leads to mismanagement and has affected the developing stride of Nigerian MSMEs (Olorunshola, 2003; Ojo, 2009; Onuorah, 2009; Ayanda and Laraba, 2011). In addition Onugu (2005), Nwosa and Oseni (2013), identified areas that are constraints to the development of Nigerian MSMEs as, lack of focus, insufficient market research for products, the lack of product differentiation, located within the same area creating over-concentration on one or two markets for finished products, lack of proper bookkeeping, failure to separate business and family or personal finances, lack of business strategy, inability to differentiate between revenue and profit, inability to obtain the right plant and machinery, inability to develop or access the right technology, inability to engage or employ the right calibre of staff, amongst others, are limitations encountered by

Nigerian MSMEs. There is also the issue of weak demand for products emanating from low and declining consumer purchasing power and the lack of support for locally manufactured products by those in government (Olorunshola, 2003).Onuorah (2009) highlighted in his work the challenges which Nigerian MSMEs face which include inadequate educational and technical background, non-adoption of advanced manufacturing technology for improved manufacturing processes, issues on sourcing the right raw materials, high cost of transportation of manufactured products as result of bad roads, high cost of energy and competition with cheap imported products. Similarly, the apex body that oversees SMEs operation in Nigeria (SMEDAN) the Small and Medium Enterprises Development Agency of Nigeria has identified the problems facing Nigerian SMEs, as low market access to credit, poor information flow, inadequate technologies, unfavourable legislation, inadequate access to land, weak linkages among the sectors, weak operating capabilities in terms of managerial skills, lack of knowledge and attitudes, lack of infrastructural facilities (SMEDAN, 2005).

1.6 Contribution of MSMEs to Nigeria development

The SME sub-sector of the Nigerian manufacturing industry remained an essential and inclusive part for socially sustainable development and growth of the Nigerian economy (Ogboru, 2005; Fida, 2008; Eniola, 2014). The Nigerian MSMEs are the driving forces of the manufacturing sector of the economy in terms of GDP growth and make a contribution to a more even distribution of wealth (Aremu and Adeyemi, 2011).The Nigerian MSMEs play a vital role in the reduction of poverty through the creation of jobs, the transformation of indigenous technology, and subsequently increase the living standards of people which remain the main concerns of developing countries such as Nigeria (Kongolo, 2010). From an economic growth perspective, SMEs do not only provide employment they also create better jobs (Edmiston, 2007).

1.6.1Economic contribution of SMEs

SMEs are regarded as the engine that drives the Nigeria economy (Lukacs 2005; Abor and Quartey, 2010).There is no doubt that SMEs offer a lot of economic gains around the globe (Levine 2005; Newberry 2006). Over the years SMEs have been established as the platform in which the manufacturing economic growth objectives can be accomplished (Advani 1997; Abor and Quartey, 2010). There is evidence to show that SMEs to have made contributions towards the Nigeria economic development (Aremu and Adeyemi, 2011). However, some of the true gains of SMEs are not well defined, due to their difficult operational environments. Most of these SMEs are found to be unregistered and are therefore functioning in a way that they cannot become aware of their true contributions to the economy (Caner 2010; Aremu and Adeyemi, 2011).

1.6.2 SMEs job creation

Noticeably SMEs have made a huge contribution to the development of the economy, especially Nigeria due to their capability to create jobs for employment (Onuorah, 2009; Abor and Quartey 2010; Aremu and Adeyemi, 2011). There is an argument made by Caner (2010), Aremu and Adeyemi, 2011) that both registered and unregistered SMEs have become important channels for providing the required employment. Consequently, SMEs are increasingly perceived as inventors of new jobs (Swierczek and Ha, 2003; Lukacs, 2005). SMEs have become the engines that generate jobs globally; they provide employment in the European Union (EU) to 65 million people (Lukacs, 2005). In both Nigeria and Ghana SMEs have provided about 80 to 85 percent of manufacturing employment (Abor and Quartey 2010; Aremu and Adeyemi, 2011). In Malaysia, SMEs employs about 38.9 percent of the total employees (Salah and Ndubuisi, 2006). In Thailand, it is estimated that SMEs employs about 38.9 percent of the entire workforce (Chittithaworn *et al*., 2011).

1.6.3 SMEs ability

SMEs have a relaxed organisational structure which makes it possible to respond to customer needs, and its economic contribution is in their ability to easily adapt to the ever-changing business environment and economic situation than larger firms (Beaver and Prince 2004; Newberry 2006). SMEs is understood to have an advantage over larger firms, as larger firms have more complex organisational

structure, which often times create bureaucracy and limit their capacity to act speedily(Beaver and Prince 2004). In SMEs quick decisions are made directly by owners and managers, which facilitates swift decision-making in terms of altering the production processes which are unlikely to happen with larger firms (Raynard and Forstater, 2002; Erixon, 2009). Often times it is argued that innovation and new product are more likely to materialise from SMEs than in larger firms and SMEs makes less investment in infrastructure making it less costly to general economic condition (Erixon, 2009). SMEs decision process is emergent rather than programmed and controlled (Beaver and Prince 2004).

SMEs are more likely to take risks compared to larger firms and are often referred to as the driving forces of economic transformation (Raynard and Forstater 2002). Nevertheless, Beck et al (2004) asserted that the microeconomic indication of the innovative character of SMEs is debatable. These heated debates that innovations are predominantly linked with larger firm's size are because larger firms are well equipped and have the required resources to invest in Research and Development (R&D), this suggestion is likely to cast doubt on the innovative abilities of SMEs (Pagano and Schivardi 2001).

1.6.4 SMEs in poverty alleviation

SMEs are regarded as lifeline to poverty alleviation and this has been the most important economic contributing aspect in several countries of the world, especially in emerging and developing nations(Indarti and noted to establish and operate easily as it might involve the owners only in the case of Indarti and Langenberg 2004; Pansiri and Temtime 2008; Chittithaworn *et al.*, 2011). SMEs has been very small business enterprise where the investment cost can be very small and does not involve any expert knowledge (Chittithaworn *et al.*, 2011).SMEs are basically employment prospect for millions of poor people all over the world (Lukacs, 2005). The correlation between SMEs and poverty alleviation is well acknowledged in Nigeria (Central Bank of Nigeria, 2010; Edom *et al.,* 2015). Table 1.4 below shows the correlation between poverty rate, SMEs financing, inflation rate and exchange rate. SMEs have helped to reduce the rate of poverty in Nigeria by creating job opportunities for the unemployed (Edom *et al.,* 2015).

Table 1.4 Relationship between poverty rate and SMEs financing

Year	Poverty rate	SMEs ₦ Millions	Inflation rate	Exchange rate $
2005	60.0	50672.6	17.5	130.4
2006	65.0	25713.7	8.2	128.27
2007	58.0	41100.4	5.4	117.97
2008	55.5	13383.9	6.7	135.0
2009	50.0	15478.4	7.8	155.4
2010	45.0	17368.6	6.0	154.5

Source: Adopted from Central Bank of Nigeria (2010) and Edom et al (2015)

1.7 Nigerian manufacturing environment and economy

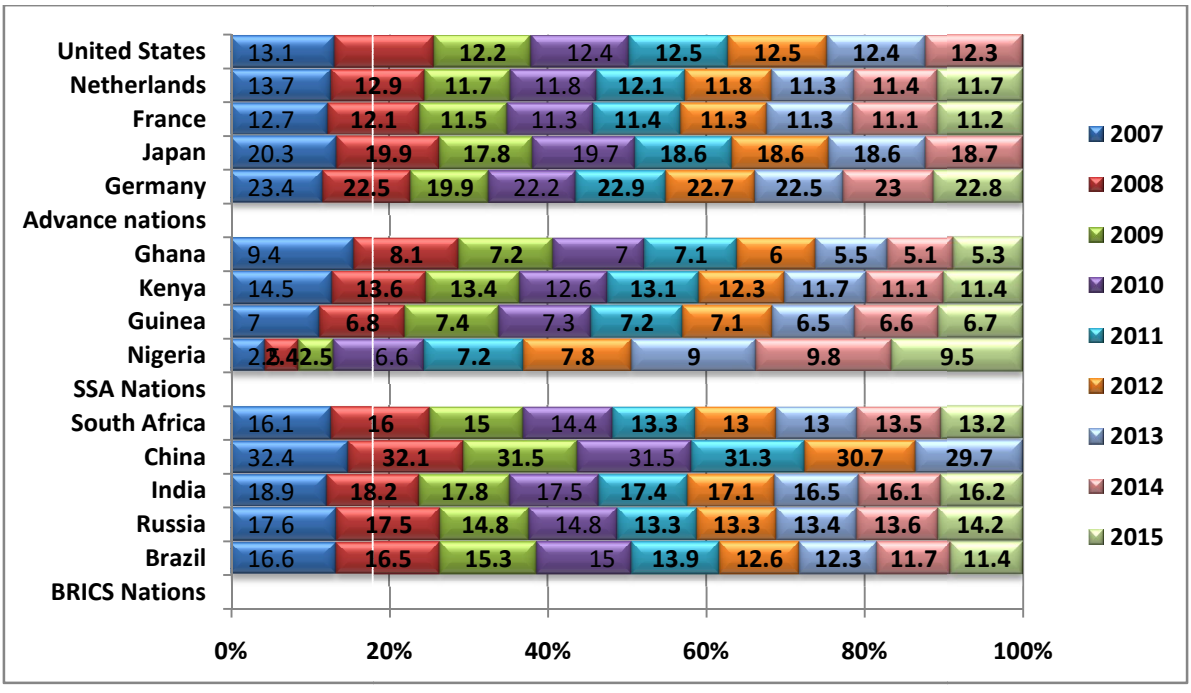
Nigeria as a country is located in the sub-Saharan African continent and currently the Africa largest economy in terms of GDP (BBC, 2014, IMF, 2016). Since the Nigeria independence in the year 1960, the manufacturing sector has witnessed so many downturns due to economic decline, unstable military government, and mismanagement (NIPR, 2014). However, the last 15 years of a stable democratically elected civilian government, have marked a dramatic change in the scope of Nigeria manufacturing firms (NIPR, 2014). Manufacturing in Nigeria remains one of the driving forces for economic growth (Ariyo, 1999, BPE, 2006). According to the United Nations, Economic Commission for Africa UNECA (2010) manufacturing in Nigeria has helped transform the economic structure from being sluggish, to becoming a more vibrant economy.

The World Bank Data (2017) manufacturing GDP contributions in percentage values and the NIRP (2014) survey report of the Nigerian economic impact of manufacturing as presented in figure1.2 and table1.2 shows that the Nigerian

manufacturing sector remains a major player in the economic growth and development. The Nigeria manufacturing sector contribution to the economy has grown to 9.5% of the Nigerian GDP in 2015 compared to 2.5% GDP contribution in 2009, which represents a 7% increase in GDP since 2009 (World Bank Data, 2017).

The Nigerian manufacturing firms GDP total contribution to the economy as presented in Figure1.2 can be compared to the manufacturing GDP contribution of other Sub-Saharan African and emerging economies such as Ghana and Guinea. Despite the challenges faced by the Nigerian manufacturing firms, they make huge contributions to GDP and the economy in terms of jobs and employment (World Bank Data, 2017; Onuorah, 2009). Figure1.2 represents the global manufacturing GDP contribution in percentage values. The figures were adopted from the World Bank Data (2017), which represent the yearly manufacturing GDP contributions between 2007 and 2015. The information obtained from figure 1.2 thus show that the global manufacturing sector is playing significant role in the economies of emerging economies such as the BRICS nations Brazil, Russia, India, China, South Africa and the Sub-Saharan African(SSA) nations Nigeria, Ghana, Guinea, Kenya and developed nations, US, Japan, Germany France, and Netherlands.

Figure 1.2 Global manufacturing GDP contribution in percentage (%) values



Source: World Bank Data (2017)

The Nigerian MSMEs continue to be a major player in the creation of jobs and economic growth of the economy. Table 1.5 has shown that Nigerian MSMEs continue to be listed high in the creation of jobs and provision of employment. Despite these positive outlooks for the manufacturing sector of the Nigerian economy, The Nigerian MSMEs are faced with several manufacturing challenges which have made it difficult for them to compete favourably with other MSMEs in the Sub-Saharan African and other emerging economies of the world. The Nigerian MSMEs challenges are peculiar to that of other manufacturing firms in the Sub-Saharan Africa and developing countries of the world (Adeyemi and Aremu, 2011). The manufacturing SME sector of the Nigerian economy has been overlooked for a very long time despite its economic contributions in terms of percentage GDP. The manufacturing SME sector can even play a bigger role in the economic affairs of Nigeria when the right policies are implemented by the government (Onugu, 2005).

Table1.5 Investments and economic impact of manufacturing in Nigeria

	Types	**Nature**	**of**	**Sector**	Economic	potential	Strategy
S/N		Small Medium scale	Large scale	Ultra Large	Job creation	GDP US$	Business
1	Food processing	X	X		High	2bn-5bn	-20x
2	Sugar			X	High	0.5bn-1bn	-10x
3	Palm oil processing		X		High	1bn-2bn	-10x
4	Leather and leather products	X			High	0.2bn-0.5bn	-10x

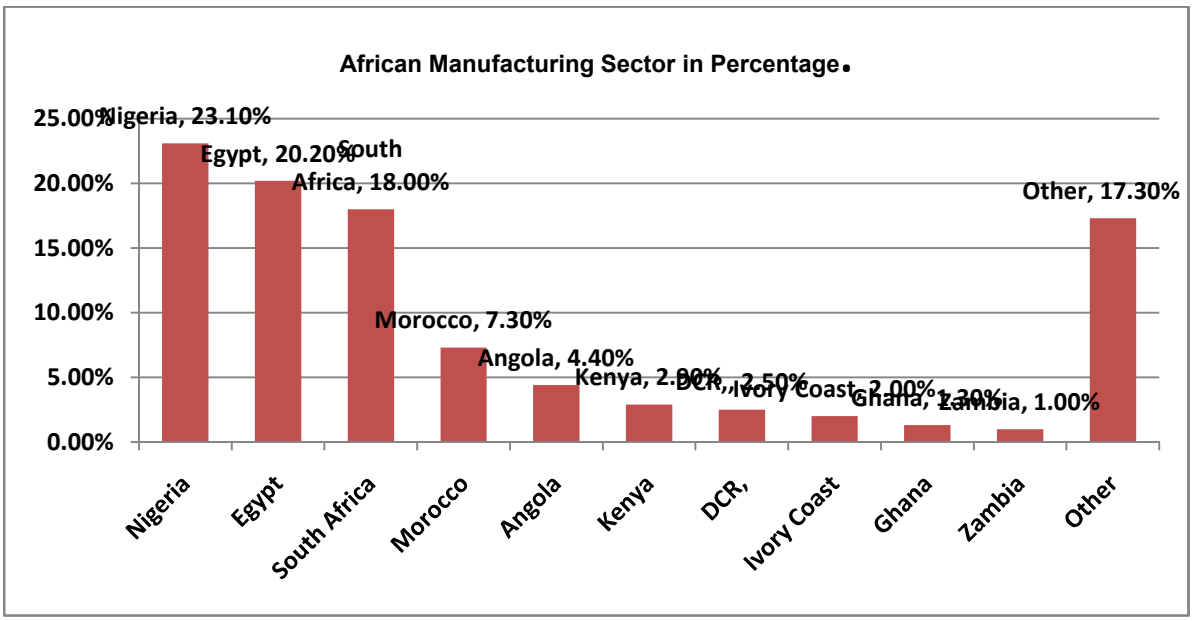
5	Rubber products		X		High	US$2bn to US$5bn	-5x
6	Cocoa Processing	X			High	0.5bn-1bn	-10x
7	Cement			X	High	1bn-2bn	-3x
8	Auto Assembly			X	High	1bn-2bn	-2x
9	Basic Metals Steel	X		X	Medium	1bn-2bn	-5x
10	Aluminium		X		Medium	0.5bn-1bn	-5x
11	Chemical		X		Medium	0.5bn-1bn	-10x
12	Petrochemical			X	Medium	1.5bn-2bn	-4x
13	Fertilizers			X	Medium	1.5bn-2bn	-4x
14	Methanol			X	Medium	1bn-2bn	-2x
15	Refineries			X	Medium	5bn-10bn	-2x
16	Plastic	X			High	0.2bn-0.5bn	-10x
1	Housing		X		High	2bn-5bn	-20x

7							
18	Light manufacturing	X			High	0.5bn-1bn	-20x
19	Services	X			High	0.2bn-0.5bn	-20x

Source: NIRP (2014)

The Nigerian manufacturing industry is the largest in Africa (World Bank Data, 2017). In the Figure1.3 the Nigeria manufacturing industry represents almost a quarter of the entire Africa manufacturing sector. The Nigerian manufacturing sector continues to show its dominance in Africa with a total of 23.10% share of the entire African manufacturing sector. The Nigerian manufacturing sector is still faced with the global competitive forces from the BRICS nations such as Brazil, Russia, India, China, South Africa and other Sub-Saharan Africa countries such as Ghana and Guinea presented in figure1.2. The Nigerian manufacturing sector has been projected to grow even faster due to the huge market potential in terms of its population growth of 182.2million people (World Bank Data, 2017).

Figure 1.3 African manufacturing sectors in percentage



Source: World Bank Data (2017)

1.8 Research scope and motivation

The research scope and motivations for undertaking this study are summarised in the following sections.

1.8.1Research scope

The scope of this study is focused on the Nigerian MSMEs. The research seeks to develop an understanding of the manufacturing strategy formulation process and practice in Nigerian MSMEs. In order to better understand the manufacturing strategy process and practice in MSMEs, the study examined how strategic manufacturing decisions were made and identified the priorities and challenges of Nigerian MSMEs. The research was focused on MSMEs, given their participation in the creation of jobs vital for the Nigerian economy and notably made contribution to the socio-economic development of the country. Most research on manufacturing strategy in SMEs have been conducted in developed nations, in the UK (Barnes, 2002a; Sainidis and Robson, 2016), in France (Barad and Gien, 2001) and in Sweden (Sa¨fsten and Winroth, 2002; Löfving *et al*., 2014). The manufacturing strategy of SMEs in emerging economy is still developing and has never been empirically researched in Nigeria before. This called for the conduct of an empirical research of manufacturing strategy in Nigerian MSMEs to help fill the extant gap in the literature.

1.8.2 Research motivation

This research was developed as a result of the researcher's working experience and knowledge in the Nigerian manufacturing industry. Many of these MSMEs are still using the traditionally-based manufacturing techniques instead of engaging in manufacturing practices that would have enabled them to remain competitive. Quite a number of these failings were acknowledged in this research. The global competitive challenges faced by Nigerian MSMEs have called for the development of a manufacturing strategy to enable them to deal with these challenges. In order to make progress with the study, we have to set out the aim and objectives

1.9 Research aim and objectives

Persuaded by the extant critical review of the literature, this thesis aims to explore and develop an understanding of the manufacturing strategy of firms in emerging economy, in the perspective of Nigerian MSMEs. In detailed terms, the research objectives are:

1. To develop an understanding of manufacturing strategy process and practice in Nigerian MSMEs.
2. To examine the manufacturing decisions that are made by Nigerian MSMEs.
3. To Identify and review the manufacturing priorities of Nigerian MSMEs.
4. To identify the manufacturing challenges of Nigerian MSMEs.

1.9.1 Research question

The development of a research question is the procedure of looking at the problem and creates a question about it. Sweet and Grace-Martin (2003) assert that the research question highlights the need for developing an understanding of a subject to recognise the gap that the researcher wants to fill. In developing the research further, the research question was created from the research objectives as follows:

How do Nigerian MSMEs formulate their manufacturing strategy, make strategic manufacturing decisions and what are their priorities and challenges?

1.10 Research methodology

This part of the thesis presents a synopsis of the research methodology used in this study. This research is exploratory in nature and adopted a qualitative research technique. The study adopted an interpretive epistemological position which is well-suited with the theoretical development of the selected qualitative research approach (Easterby-Smith *et al*., 2012)**.** In view of Creswell (2009); Denzin and Lincoln (2011) and Bryman (2012), which point that, the interpretive epistemological position highlights the need of the researcher to understand the social world through the examining and the interpretation of that world through its participants. Therefore the researcher empirically seeks to understand the manufacturing strategy process and practice of Nigerian MSMEs, identify manufacturing

challenges, through the experiences presented by the participating senior managers of the Nigerian MSMEs in the research interviews.

The researcher used the semi-structured interview process as the research instrument for the primary data collection. The interview process involved 17 senior managers representing 17 Nigerian MSMEs businesses, who were interviewed to gain their understanding of manufacturing strategy process, practice and identify Nigerian MSMEs challenges. The research also adopted the interpretive philosophy which is suitable for investigating this current research as it allows the research to be part of the research event (Bryman, 2012). Denzin and Lincoln (2011) maintained that the qualitative researchers should examine objects in their normal environments, in an effort to make meaning out of the events in expressing the importance people bring to them. Considering their views, a broad review of the literature appropriate to the subject studied was carried out. As the author seeks to understand the manufacturing strategy process and practice of Nigerian MSMEs, Nigeria was selected as the country for conducting this research considering the role of its SMEs in economic development and the African largest economy in terms of GDP and economic contribution (BBC, 2014; AfDB, 2016; IMF, 2016).

The data analysis for the research was started using the template analysis to build textual data from the transcribed interview data which were then coded as themes to describe the experiences of owners and managers of Nigerian MSMEs to enable the researcher to understand the manufacturing strategy process and practice in SMEs. The research sorted out the coded themes that emerged from the interview transcript for analysis. The themes were then arranged as they emerge from each interview questions. The template analysis and Nvivo were used to analyse these data. The template analysis is a form of thematic analysis initiated by Nigel King. The template analysis proffers flexibility in a qualitative data analysis (King, 2009). Template analysis just like the thematic analysis is broadly used in the qualitative study which presents valuable descriptions of the research participants' experiences that are repeatedly overlooked in the positivist approach (Holland, 2007).

1.11 Significance of the research

This study is crucial in understanding the manufacturing strategy of Nigerian MSMEs as they have gradually become a more dominant factor in helping every aspect of the Nigerian economy in creating jobs, economic growth and development (Onuorah, 2009; Ehie and Muogboh, 2016). Globally manufacturing has become the bedrock of every developed and emerging economy (Accenture, 2014; UNIDO, 2013). In recent times the MSMEs in developed nations, are effectively deploying their manufacturing strategy to successfully win the global market share of the MSMEs sector of the world economy (Löfving *et al*., 2014). Although manufacturing strategy in the developed and western economy is well understood and researched (Halgren *et al*., 2011; Sainidis and Robson, 2016). The case has been made for a more empirical study to be carried out on the manufacturing strategy of MSMEs (Barnes, 2002: Hilmola *et al*., 2015). Despite some study of manufacturing strategy in SMEs (Löfving *et al*., 2014), there is still need for a more empirical study on the manufacturing strategy of SMEs in the emerging economy. Research has shown that adopting a manufacturing strategy has made many manufacturing firms to improve their manufacturing process and performance (Da Silveira and Sousa, 2010; Amoako-Gyampah and Acquaah, 2008). The manufacturing strategy of Nigerian MSMEs has not been empirically researched before (Ehie and Muogboh, 2016). Thus this study is of paramount significance; empirically it will help build on a meaningful understanding of the manufacturing strategy process and practice in Nigerian MSMEs.

The study also makes a contribution to knowledge and professional practices by adding on the literature of manufacturing strategy of SMEs in emerging economy and assisting manufacturing managers and policy makers in understanding the manufacturing strategy process and practice in SMEs. Manufacturing strategy adoption has increasingly become one of the dominant factors affecting every aspect of manufacturing improvement and development globally. In recent times, many MSMEs in developed nations have adopted and effectively used their manufacturing strategy for developmental and competitive purposes, unlike in Nigeria where the use of manufacturing strategy in SMEs is not well acknowledged. At present, the subject area of manufacturing strategy process in Nigerian SMEs is still under-researched. Hence, this study has become of paramount significance, in

building an empirical understanding of the manufacturing strategy process and practice to help manufacturing practitioners who are engaged in various manufacturing improvements interventions in Nigeria.

The contribution of this study is in three-fold which include: contributions to the general body of knowledge, professional practice and methodological contributions. In terms of contributions to the general body of knowledge, this research has major implications for manufacturing strategy research which seeks to understand and identify issues surrounding Nigerian MSMEs in terms of their adoption and application of manufacturing strategy. While this study sets out to explore the adoption and use of manufacturing strategy within organisational contexts, its findings are aimed at providing a deeper understanding of issues associated with the adoption and utilisation of manufacturing strategy in an emerging economy such as Nigeria. In order words, the research makes a contribution to knowledge by developing an evidence-based account that explains manufacturing strategy process and practice in Nigerian MSMEs. In the aspect of this study contribute to professional practice, because this subject area is still under-researched in the emerging economy, the findings of this study will have a significant implication for manufacturing practitioners, predominantly in the area of manufacturing strategy in emerging economies, with particular consideration to Nigeria

The study will contribute to the literature of manufacturing strategy process and practice in Nigeria whilst the qualitative study will add to the body of literature, mainly in emerging economies. Also, the research makes a practical contribution by suggesting ways through which Nigeria MSMEs can successfully adopt and make use of manufacturing strategy in their individual businesses and additionally contribute towards Nigeria's manufacturing improvement and performance. Moreover, this study makes a methodological contribution by employing qualitative research methods, in addressing issues relating to the understanding of manufacturing strategy process and practice in Nigerian MSMEs.

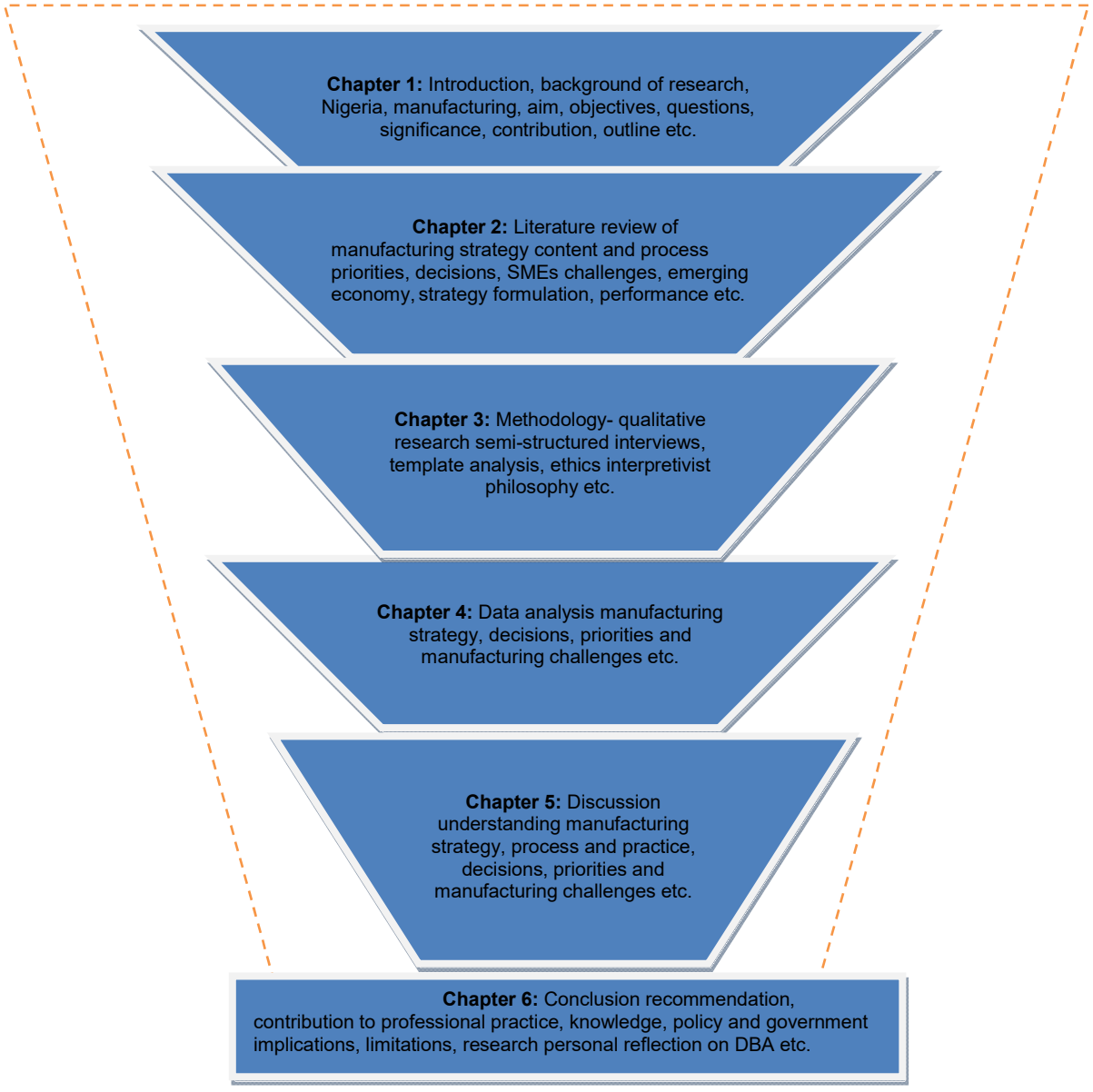
The findings from this study will be of an immense benefit to senior managers, manufacturing executives, policymakers, business managers, government, amongst others, as the research will help manufacturing managers to better recognize the advantages associated with the adoption and deployment of

manufacturing strategy, by helping to provide some strategic options. The results of the study will also support manufacturing stakeholders, researchers and practitioners in their endeavour to put into practice and manage manufacturing strategy initiatives within SMEs in Nigeria.

1.12 The Research outline

Figure 1.4 represents a brief outline of the steps taken to complete this DBA research project titled, the manufacturing strategy of firms in emerging economy: the study of Nigerian MSMEs. The research outline gives a brief synopsis of how the research was conducted starting with the introduction chapter 1 and to the conclusion chapter 6.

Figure 1.4The Research outline



Chapter 1: Introduction. The researcher embarked on this study in order to build, an understanding of manufacturing strategy process and practice in emerging economy, within the context of Nigerian MSMEs. This chapter presented the background of the study, the significance of the study, the geographical context of the country of study Nigeria, the research aims and objectives which are linked to the research subject matter. The chapter also presented the scope and motivation of study, the summary of the research methodology, the research contribution to knowledge and professional practices. The steps taken to conduct the research were also described in this chapter.

Chapter 2: Literature review. The researcher presents the critical review of the various relevant literature on the research topic as reported by various authorities and scholars alike in the field of production operations and management. It extensively reviews the literature on manufacturing strategy content and process, manufacturing priorities, manufacturing decisions, manufacturing best practices, SMEs in emerging economy, manufacturing strategy manufacturing competitiveness, strategy formulation in SMEs, manufacturing strategy and performance of SMEs and manufacturing challenges of Nigerian SMEs.

Chapter 3: Methodology. The chapter presents the research methodology adopted in this present doctoral research within the chosen philosophical concept of the interpretivist and epistemological research paradigms of the constructionist as recognized in the social science and business and management study. The qualitative methods were used in order to gather primary qualitative research data for the basis of dealing with the research questions. The qualitative research methods consist of semi-structured interviews research instrument, which was based on a purposive sample of Nigerian MSMEs. The chapter continues with discussing the data collection process, addressing ethical issues and the justification of the chosen data analysis method. The research plan is then corroborated in accordance with the principles set out in the qualitative research methods literature. The data requirement table was created to show the interview questions, the justification for each chosen question and the expected results.

Chapter 4: Data analysis and findings. This chapter presents the data analysis and findings of the study. The chapter started by presenting the profile of the Nigerian

MSMEs that participated in the study. The audio recorded interviews were transcribed into textual data. The transcribed textual data were then coded into a pattern of themes as they emerge from the interview transcribed textual data, which depicts the subject of study. The emerged themes from the coded data of the research were visually presented using the Nvivo software. The textual data were analysed using the template analysis. The template and Nvivo are useful for analysing huge qualitative interview data set. This chapter makes use of broad sub-headings of coded templates which were visually presented with the Nvivo10 software, to simplify the presentation of the data analysis components of the study. The parent and child relationship in the Nvivo visual presentation was entirely determined by the collected primary research data, which further facilitate largely the investigation of the research findings in the research discussion chapter. The chapter presented the interview quotations from the SMEs managers in telling their own story of manufacturing strategy process and practice in Nigerian.

Chapter 5: Discussion of Findings.

The chapter started with the research framework and the discussion of the findings, and how they have achieved the research objectives and answer the research questions. The discussion of findings is grouped into four major themes that represent the research questions and objectives. The first part is focused on understanding manufacturing strategy process and practice. The second part dealt with manufacturing decisions. The third dealt with the manufacturing priorities and the last helped in identifying manufacturing challenges of Nigerian MSMEs. At the end of this chapter, the researcher discovered the contributions made by the research, which is then presented in next chapter.

Chapter 6: Conclusion and recommendation. This is the final chapter of the DBA thesis, which recognizes the research's contribution to professional practice academic knowledge government policy. The recommendations were made to guide future researchers, who want to conduct a comparative study to extend the research in large manufacturing firms and other Sub-Saharan African countries in the emerging economy such as Ghana, Kenya and compare their findings. The researcher's personal experience and reflection from the DBA research are presented.

1.13 Summary

The research was embarked on in order to build, an understanding of manufacturing strategy process and practice in emerging economy, and within the context of Nigerian MSMEs. The chapter presented the background of the study, the research aim, and objectives which are linked to the research subject matter. Research questions were also presented, which originated from the literature reviewed, which provided the background for the study. The materials considered in the literature review chapter has shown a growing need for the research in manufacturing strategy of SMEs and its usefulness in practice in the perspective of manufacturing firms in the emerging economies of the world.

The geographical contexts of the country of study Nigeria were presented in this chapter. Furthermore, this chapter has presented a brief synopsis of the research methodology adopted, and the research instrument for the collection of primary data in this project. Additionally, the significance of the study was considered, which emphasized the intended contributions of the research to knowledge and professional practice. This also showed that the research findings will be useful to MSMEs managers and owners, policymakers and the Nigerian government. Lastly, the thesis outline was presented to show the summary of the whole research process and a narrative of the themes discussed in other subsequent chapters. It is believed that the research findings will aid in advancing the manufacturing strategy practices in MSMEs, particularly with the Nigerian MSMEs.

Chapter 2: Literature review

2.1 Introduction

This chapter consists of the review of literature in academic, professional and government sources on the subject of manufacturing strategy of SMEs in an emerging economy, with particular reference to Nigerian MSMEs. The literature review chapter is designed to reflect the four theoretical boundaries and limits of the research subject matter.

The extant literature review starts with the understanding of manufacturing strategy, manufacturing strategy content, manufacturing strategy process, manufacturing decision, manufacturing priorities to include cost, quality, flexibility, delivery and innovation, manufacturing strategy formulation in SMEs, manufacturing strategy implementation, manufacturing strategy and environmental concerns and manufacturing strategy alignment, such as manufacturing competitive advantage, process improvement, manufacturing capacity and manufacturing challenges. The scope of the literature review of manufacturing quality is focused only on the characteristics of quality as a manufacturing priority and not total quality management (TQM) as the scope of the study will not allow the researcher to discuss TQM in details.

2.2 Understanding manufacturing strategy

Manufacturing strategy was first acknowledged in the US in the 1960s in the Harvard business review (Skinner, 1969) and since then has generated the most academic and professional interest and discussion in the study of operations and production management (Frohlich and Dixon, 2001; Ketokivi and Schroeder, 2004; Zhao et al., 2006; Skinner, 2007). Although the concept of manufacturing strategy has been researched broadly, from different perspectives since its conception in the late 1960s (Skinner, 1969), nevertheless, previous manufacturing strategy research has been focused on the manufacturing businesses in developed countries (Jagoda and Kiridena, 2015). In spite of the important development towards the combination of certain manufacturing businesses in emerging economies, and the growing recognition of manufacturing strategy practices among manufacturing firms in developed economic regions, manufacturing strategy in the perspective of

developing countries/emerging economies has not been well researched (Jagoda and Kiridena, 2015). Moreover, there is no dependable fact to support whether the theoretical understanding of manufacturing strategy processes developed since its conception, through research undertaken in developed countries, has in fact extended into the manufacturing business operating across developing countries(Amoaka-Gyampah and Acquaah, 2008; Krishna and Dangayach, 2012; Jagoda and Kiridena, 2015;Ehi and Muogboh,2016).

Also given that the traditional manufacturing sectors in well-established economies of the world are broadly alleged to have become unappealing, expanding the current understanding of manufacturing strategy perception to capture developing country context is not only timely but would be considered as a reasonable step taken in advancing the manufacturing strategy research (Jagoda and Kiridena, 2015). Manufacturing strategy has been referred to as operations strategy in some academic and professional publications (Hayes *et al.,* 2005; Krishna and Dangayach, 2012). Operations strategy enables organisations to allocate their own resources to make and deliver also a product or a service (Slack *et al.,* 2007). However the scope of the research will be focused on manufacturing alone and not services, therefore manufacturing strategy is the researcher preference. The study and application of manufacturing strategy have received extensive academic and professional attention, and since then has developed into a well-acknowledged research area (Skinner, 1969; Hayes and Wheelwright, 1984; Hayes et al*,* 2005; Größler and Grübner, 2006). The main purpose of this research is to understand the manufacturing strategy formulation process of Nigerian MSMEs and the responsiveness to their manufacturing priorities and challenges.

According to Ketokivi and Schroeder (2004), one of the main purposes of embarking on a manufacturing strategy research is to identify the drivers of high-performance manufacturing firms and how they have sustained their competitive advantage. Manufacturing strategy can be evident at two separate levels, corporate levels (sets of linked or split business activities) and as a functional strategy at the business level (Platts *et al.,* 1995; Rose *et al*., 2008). Manufacturing strategy can be considered in terms of its formation (formulation and implementation) or in terms of its strategic content which consist of competitive element or priorities (Hayes and

Wheelwright, 1984; Rose *et al*., 2008). Manufacturing businesses invest in an extensive range of functions and capabilities to enable them to make and sell their products to maximise profit (Hill, 2000). Manufacturing around the world has continually faced globally competitive challenges (Skinner, 1969; Ketokivi and Schroeder, 2004; Lin *et al.,* 2012).

This research will enable us to understand the manufacturing strategy and identify the manufacturing priorities and challenges of Nigerian MSMEs. Hill (2009) has claimed that four-level strategy exists within the overall context of an organisation business environment and that the level of which they will have an impact on its competitiveness will differ depending on the industrial sector and area of competition. The four strategic functional levels are industrial level strategy, corporate level strategy, business level strategy and functional level strategy (Hill, 2009).

- **Industrial level strategy: -** This is the strategy that deals with the challenges which affect the industrial sector or mirror the types of government interventions such as trade embargo, investment incentive, national security, the cost of resources and government policies (Hill, 2009; Hill and Hill, 2009).

- **Corporate level strategy: -** This is the strategy that deals with the market sector in which a firm or business choose to compete in and give priority to each sector of the firm in terms of allocation of available resources and investment (Lewis and Slack, 2007; Hill, 2009; Hill and Hill, 2009). Input into corporate strategies needs to be connected to the main objectives of the business (Hill, 2009).

- **Business level strategy: -** The business level strategy is normally made up of many businesses and help identify the markets in which all the businesses can compete and the level of their competitions (Hill, 2009; De wit and Meyer, 2010).

- **Functional level strategy:** This strategy are developed independently of one another, involves investing in and developing the essential business capabilities, firms have to compete in the different market environment and this will help develop the strategy suitable for those markets(Hill, 2000).

Many studies in production operations and management have linked manufacturing strategy to manufacturing firms' business performance (Swamidass and Newell, 1987; Zhao *et al.,* 2006; Hallgren, 2007). However, there are exceptions to this claim that most research carried out in manufacturing strategy had its framework centred on western and developed economies where manufacturing strategy formation (formulation and implementation) is well practiced and understood (Amoako-Gyampah and Boye, 2001; Dangayach and Deshmukh, 2001; Amoaka-Gyampah and Acquaah, 2008) In this DBA thesis the researcher want us to understand manufacturing strategy content and process, identify manufacturing priorities and manufacturing challenges of Nigerian MSMEs . It has been stated that most Nigerian firms are now practicing western like management which involves the free market standard where the government is no longer involved in the setting and controlling of exchange rates and market prices (Aremu and Adeyemi, 2011).

According to Amoaka-Gyampah and Acquaah (2008), manufacturing firms' competitive strategy and priorities steer its manufacturing strategy to making operational decisions that produce the required performance. There is an assertion that for competitive goals to be achieved the manufacturing strategy should be aligned with the firm's competitive strategy (Skinner, 1969; Hays and Wheelwright, 1994). Consequently, the main purpose of this research is to understand the manufacturing strategy, manufacturing priorities and challenges of Nigeria MSMEs. There have been arguments that though firm's competitive strategy places explicit demands on the manufacturing task, simultaneously firms' manufacturing strategy should be explicitly planned to achieve the set-out goals of the manufacturing firm's competitive strategy (Skinner, 1969; Hallgren, 2007; Amoaka-Gyampah and Acquaah, 2008).

The study will make a contribution to existing literature, knowledge and practice on manufacturing strategy, as the study explores the link between manufacturing strategy and competitive priorities bringing to understanding how manufacturing priorities should be aligned to accomplish firm set out objectives(Skinner,1969; Ward and Duray, 2000). Manufacturing strategy has been referred to as the capabilities that companies build around their operations function (Skinner, 1969;

Anderson et al., 1989; Amoaka-Gyampah and Acquaah, 2008). Since the seminal work of Harvard business school professor Skinner in 1969 who recognised at the time that the role manufacturing is playing has made it a liability, rather manufacturing should be an important tool of corporate strategy and play the appropriate role in corporate strategy development.

The work of Skinner (1969) has led to substantial numbers of research papers on manufacturing strategy. There is a clamour for the earlier studies to develop more and identify the extra competitive edge that manufacturing strategy makes available (Hayes and Wheelwright, 1984; Prahalad and Hamel, 1990; Hayes *et al*., 2005). Several scholars through their empirical studies have stated that actually that a manufacturing strategy can add to a firm's competitive might (William *et al*., 1995; Gupta and Somers, 1996; Ward and Duray, 2000; Rose *et al*., 2010).

2.3 Manufacturing strategy definitions and theoretical consideration

In this section of the literature, we will define manufacturing strategy and build a theoretical framework for our understanding of manufacturing strategy. The building of a theoretical framework in a research is necessary where the study adopts a qualitative approach (Miles and Humberman, 1994). According to Miles and Humberman (1994), the building of theoretical framework provides the direction and scope that underpinned the undertaken study to make sure that only significant data are collected. There are several theories that have been put forward from the wider field of operations management and corporate strategy that appears fundamental to press forward our understanding of manufacturing strategy that is defined by various authorities and scholars in the field of operations management.

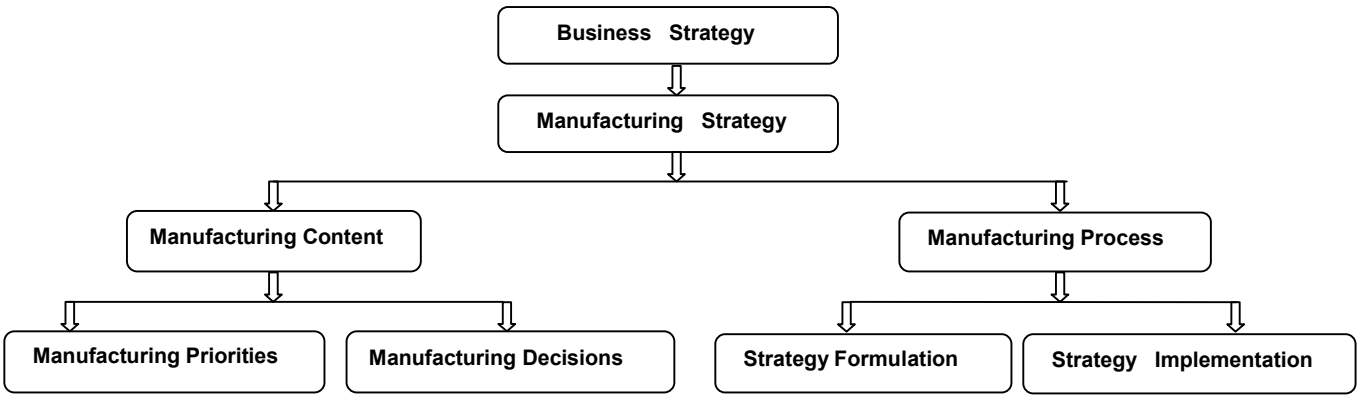
Theoretically, manufacturing strategy is considered and defined in so many ways. Firstly, defined as combined actions that help manufacturing firms generate and apply their manufacturing resources to sustain in general the strategic course of their business and give them a competitive edge (Cox and Blackstone 1998). Secondly defined as ‘’a pattern of decisions, both structural and infrastructural, which determine the capability of a manufacturing system and specify how it will operate, in order to meet a set of manufacturing objectives which are consistent with the overall business objectives’’(Platts *et al.,* 1998:517). Thirdly, defined as a

set of goals, policies, and self-imposed restrictions that are put together to describe how the organisation proposes to direct and develop all the resources invested in operations so as to best accomplish (and possibly redefine) its mission'(Hayes *et al.,*2005:33). Lastly, it is defined as the capabilities that a firm build up around its operation function and effectively utilized as a competitive tool to achieve business and corporate goals (Anderson *et al.,* 1989; Amoako-Gyampah, and Acquaah, 2008). In regard to the various definitions of manufacturing strategy, the researcher further reviewed the literature to understand manufacturing strategy content and process.

2.4 Manufacturing strategy content and process

In the literature of manufacturing strategy, the study was categorised into two distinct parts, the manufacturing content and the manufacturing process (Skinner, 1969; Hill, 2009). In figure 2.1 we can see an explicit description of the manufacturing strategy categorisation and framework. The manufacturing content is made of its competitive priorities, dimension and decision area (Dangayach and Deshmukh, 2012; Hill, 2009). The manufacturing strategy processes are made up of manufacturing strategy formulations and manufacturing strategy implementation (Miltenburg, 2009; Hill, 2009). The content of the strategy is laid down in the manufacturing strategy formulation and the top management capability to align strategic decisions with different dimensions of manufacturing (Slack and Lewis, 2011. Miltenburg, 2009; Thun, 2008).

Figure 2.1 Manufacturing strategy framework



Source: Leong *et al* (1990) cited by Hallgren *et al* (2011).

2.4.1Manufacturing strategy content

The manufacturing strategy content has been based on manufacturing firms' competitive priorities, capabilities, dimensions and decision category (Dangayach and Deshmukh, 2001). Manufacturing priorities definition differs among sources of literature, but frequently include cost, quality, flexibility and delivery (Dangayach and Deshmukh, 2001; Hill, 2009). The manufacturing priority of cost comprises of the procurement costs, production costs and the overhead costs (Kathuria *et al.,* 1999; Acur *et al.,* 2003; Hill, 2009). Quality includes the quality specification of perceived quality, durability, reliability, consistent manufacturing, conformance, aesthetics, Serviceability and performance (Garvin, 1987; Acur *et al.,* 2003; Slack and Lewis, 2011). The manufacturing flexibility consists of the changes in the product design, product mix, product range, sequence, volume flexibility, capacity adjustment and changes in customer demands (Boyer and McDermott, 1999; Kathuria *et al.,* 1999; Dangayach and Deshmukh, 2001; Acur *et al.,* 2003; Oke, 2013). The manufacturing delivery strategically follows the delivery speed, delivery dependability, reduction of procurement lead time, production lead time, in every area of the plant operations and the capacity to meet delivery promises (Boyer and McDermott, 1999; Kathuria *et al.,* 1999; Suri, 2001; Dangayach and Deshmukh, 2001; Acur *et al.,* 2003; Slack and Lewis, 2011; Hallgren *et al.,* 2011).

The manufacturing strategy decision categories are made up of the structural and infrastructural decisions, which are part of the production systems (Miltenburg, 2009; Hallgren, 2007; Hayes *et al.,* 2005; Hayes and Wheelwright, 1984). The structural decision category is those decisions which influence the design activities within manufacturing, and the infrastructural are those classed as mainly influencing the organisation manufacturing workforce, the planning and control and other improvement activities (Slack *et al*., 2010; Thun, 2008; Hallgren, 2007). The structural decision categories are made up of capacity, which encompasses the production planning process, control, type and timing (Slack *et al*., 2010; Hayes *et al.,* 2005; Skinner, 1969). The process technology is the extent of automation, process technology, the interconnection of plant and equipment (Slack *et al*., 2010; Miltenburg, 2009; Hayes *et al.,* 2005). Manufacturing facility includes the plant location, size, and specialisation (Slack *et al*., 2010; Miltenburg, 2009; Hayes *et al.,* 2005).The manufacturing decision on Sourcing and vertical integration include the

direction and the degree of balance and the network of supply (Slack *et al*., 2010; Hayes *et al.,* 2005; Hayes and Wheelwright, 1984).

The manufacturing decision made on infrastructure is the resource allocation which includes the budgeting systems (Hayes *et al.,* 2005; Hayes and Wheelwright, 1984).The human resource system which includes the staffing, skills selection, employee compensation and recruitment (Slack *et al*., 2010; Hayes *et al.,* 2005; Miltenburg, 2005; Wheelwright, 1984; Skinner, 1969). The product and process development systems refer to the organisation project teams, leaders, and followers (Hayes *et al.,* 2005).The quality systems refer to all the quality approach taken to ensure defect prevention, monitoring, intervention, and elimination (Hayes *et al.,* 2005; Garvin, 1987; Hayes and Wheelright, 1984). The planning and control involve the purchasing, scheduling, waiting-time, backlog, material control and aggregate planning and production planning process (Hayes *et al.,* 2005; Hayes and Wheel, 1984).The organisation includes the structure, staff group, decisions made to assign a role, organisational development, measurement and reward systems (Slack and Lewis, 2011; Hayes *et al.,* 2005; Miltenburg, 2005; Hayes and Wheelright, 1984; Skinner, 1969).

2.4.2 Manufacturing strategy priorities

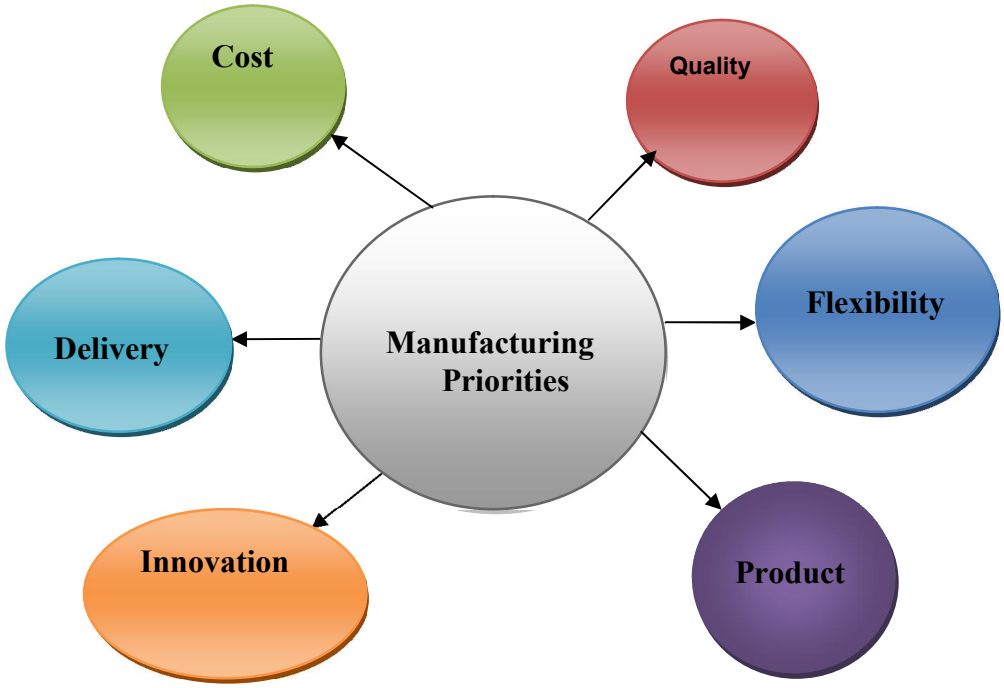
The study of manufacturing strategy within the scope of production and operations management has been split into content and process of manufacturing strategy formation (Hill, 2000; Amoaka-Gyampah and Acquaah, 2008). Manufacturing strategy content consists of distinctive capabilities of the manufacturing function which produces competitive advantage (Swamidass and Newell, 1987; Hill, 2000; Amoaka-Gyampah and Acquaah, 2008). The term manufacturing priorities has been named and used differently in various production operations management literature, competitive priorities (Hayes and Wheelwright,1984), Manufacturing dimensions (Swamidass and Newell, 1987; Hill, 2000, Größler and Grübner, 2006; Schroeder *et al.*, 2006) ‘order winners’ and ‘order qualifiers’(Hill, 2009) capabilities and competitive priorities (Gonzalez-Benito and Suarez-Gonzalez, 2010). This study preferably adopt the term manufacturing priorities, as this is a more predominately used phenomena in the research of production and operations management (Ahmad and Schroeder, 2002; Joshi *et al.*, 2003; Tarigan, 2005;

Rusjan, 2006; Sarmiento *et al.*, 2008; Amoaka-Gyampah and Acquaah, 2008). Manufacturing priorities are very much linked to the concept of manufacturing capabilities (Hallgren *et al.,* 2011; Lin *et al.,* 2012).

Manufacturing priorities are set out goals and objectives manufacturing firm's wants to accomplish in the future (Hallgren *et al.,* 2011; Lin *et al.,* 2012). Manufacturing capabilities are accomplished priorities which in reality are presently available to the manufacturing firms, and are closely related to their operational performance (Gro¨bler and Gru¨bner, 2006; Lin *et al.,* 2012). It has been noted to some degree that manufacturing capabilities are created because they have been previously established as strategic priorities (Lin *et al.,* 2012). This DBA research will investigate the manufacturing priorities of Nigeria MSMEs. The studies of related literature in manufacturing strategy have shown four major characteristics of manufacturing priorities: cost quality, delivery, and flexibility (Hallgren *et al.,* 2011; Lin *et al.,* 2012). Manufacturing cost has been referred to the expenses of supplying the product and service to customers in the most cost-efficient way to a business which results in low price (Lin *et al.,* 2012).

Quality priority signifies the delivery of product at the highest standard that will add value to customers in terms of durability, features, reliability conformance, serviceability, aesthetics, performance and perceived quality consistently (Garvin, 1987; Sarmiento *et al.,* 2007; Lin *et al.,* 2012). Delivery is the reduction of lead time in manufacturing and has been defined as reliability, speed and the capacity to promptly carry out a customer order (Sarmiento *et al.,* 2007; Hallgren *et al.,* 2011; Lin *et al.,* 2012).Flexibility is the ability to respond to unstable and continually changing manufacturing environment in terms of product range, design and volume (Hallgren *et al.,* 2011; Lin *et al.,* 2012; Oke, 2013).

Figure 2.2 Manufacturing priorities structure



Source: Designed by the researcher

2.4.2.1 Manufacturing cost

In this section of the DBA research, we will explore literature to understand the manufacturing priorities of cost. Many scholarly researchers in production and operations management have considered the cost, to be the most significant measure of manufacturing operational performance (Schroeder and Flynn, 2001; Slack and Lewis, 2002; Hallgren, 2007; Hallgren *et al.,* 2011). Although the economic presumptions envisage that well-doing firms will operate at a level in which their businesses and technologies generate the lowest average cost (Rose *et al*., 2008; Eswaramoorthi *et al.,* 2011). Traditionally manufacturers tend to realise balanced savings in cost, by the increase gained in production output, and benefit from lower procurement, delivery and transaction cost (Tidd, 1995; Rose *et al*., 2008).

The manufacturing strategy of cost priority is the endeavour made by manufacturing firms to achieve low cost on production and delivery of products

(Dangayach and Deshmukh, 2001). Human resources are perceived to be the most expensive uncontainable asset affecting the manufacturing process, and progress has been made in technology to eliminate the reliance on people by reducing human capital in the manufacturing process (Youndt *et al*., 1996; Rose *et al*., 2008). Most manufacturing firms have implemented measures such as just-in-time practice to enable them to reduce inventories, which will eventually reduce cost and improve the process (Noble, 1995; Rose *et al.,* 2008; Mackelprang and Nair, 2010; Eswaramoorthi *et al.,* 2011).

However; Bolwijn and Kumpe (1990) are of the opinion that efficient manufacturing firms pursuing cost strategy are involved in mass production of goods where quality is not an issue. The cost-based manufacturing priority is used to enable manufacturing firms put in place strategy that will help reduce inventory, production cost, labour cost and cost of raw material. It has been noted that manufacturing cost remains a top priority for many manufacturing firms. However, how manufacturing cost is incurred differs in firms, their countries, and manufacturing environment Mackelprang and Nair, 2010; Eswaramoorthi *et al.,* 2011). In advance, economies and developed world for instance where skills abound there is the high cost of labour, whereas in the emerging economies and developing countries the cost of labour is low as well as the skill set (Rose *et al.,* 2008).

2.4.2.2 Manufacturing quality

The manufacturing priority of quality is very comprehensive, in terms that it can be analysed from eight different standpoint; perceived quality, durability features conformance, serviceability, aesthetics reliability and performance (Garvin,1987) It has to be noted within the literature of manufacturing operations that conformance is the most significant among another quality dimension since it signifies the processing capacity to manufacture product to their preconceived design and specification (Slack and Lewis, 2007; Hallgren, 2007; Hallgren *et al.,* 2011).The quality conformance dimension must be achieved before improving on any other performance dimensions (Nakane, 1986; Ferdows and De Meyer,1990; Hallgren, 2007; Hallgren *et al.,*2011). This research explores the manufacturing quality priorities of Nigerian MSMEs. Manufacturing quality priorities are operational

objectives of manufacturing firms to produce high quality and high-performance products (Dengayach and Deshmukh 2001; Hill and Hill, 2009).

Quality as a manufacturing priority is often mistreated as part of the quality system which is associated with the total quality management. The application of Total Quality Management (TQM) in assessing the quality of products is well acknowledged and goes beyond the manufacturing and production operations (Oakland, 2004). TQM is now becoming recognised as a generic management tool, just as applicable in service and public sector organisations. The TQM is a management philosophy that seeks to integrate all organisational functions (marketing, finance, design, engineering, and production, customer service, etc.) all focused on meeting the customer needs and organisational objectives(Oakland, 2004;). However, the scope of this DBA thesis will not allow the researcher to discuss TQM in details, as this study is focused only on quality as a priority in MSMEs manufacturing strategy.

The TQM views an organisation as a collection of processes. It maintains that organisations must strive to continuously improve these processes by incorporating the knowledge and experiences of workers. The basic goal of TQM is “Do the right things, right the first time, every time.” TQM is infinitely variable and adaptable. Although originally applied to manufacturing operations, and for a number of years only used in that area, TQM is now becoming recognised as a generic management tool, just as applicable in service and public sector organisations.

The commitment of owners, directors, and top managers working across various Nigeria MSMEs will be examined as a requirement to implement the quality based priorities as proposed in other manufacturing settings (Bolwijn and Kumpe, 1990). This study will consider the eight dimension quality perspectives put forward by (Garvin, 1987) to address Nigeria MSMEs quality priorities. According to Slack and Lewis (2002); Hallgren (2007); Rose *et al.,* (2008) conformance of quality dimension is generally used where the manufacturing process is reliable and consistent in producing products to their already set out specifications.

2.4.2.3 Manufacturing flexibility

Flexibility manufacturing priority has been a major competitive measure for many manufacturing firms (Oke, 2013). The significance of flexibility in supporting other manufacturing priorities such as cost, quality, delivery, and innovation has been acknowledged (Bolwijn and Kumpe, 1990; Oke, 2013). Researchers and business practitioners alike have also debated the manufacturing priority of flexibility and its association with organisational performance (Hallgren, 2007; Amoaka-Gyampah and Acquaah, 2008).

As manufacturing firms face unstable and continually changing business environment, with increasing difficulty in product design and high levels of customisation, there is a need for flexibility in the manufacturing environment to help reduce the challenges faced by manufacturing firms (Fernandes *et al*., 2012; Oke, 2013). The manufacturing priority of flexibility is the capacity to manage environmental uncertainty (Swamidass and Newell, 1987; Fernandes *et al*., 2012). This can also control the capability to begin changes in product, design, product mix and materials (Dangayach and Deshmukh, 2001; Rose *et al*., 2008).

2.4.2.4 Manufacturing delivery

This is the manufacturing priority that strategically follows the reduction of lead time in every area of the plant operations (Suri, 2001; Hallgren *et al.,* 2011). The manufacturing priorities of delivery are classified into two major dimensions; delivery reliability and delivery speed (Ward *et al.,* 1996; Hallgren, 2007).

The delivery reliability is at times called dependability or on-time delivery which in turn is the capacity to deliver according to scheduled plans (Hallgren, 2007; Slack and Lewis, 2011). The delivery speed is all about the length of the delivery cycle (Hallgren, 2007). The need for quick time response manufacturing has been advocated as a delivery capability for manufacturing firms (Suri, 2001). Manufacturing firms are constantly facing the demands to improve in terms of response time, lead time, and being on time (Rose *et al*., 2010).The fundamental truth about the time-based approach in manufacturing is the use of speed to gain a competitive advantage by delivering products in the quickest time than major competitors(Rose *et al*., 2010).

2.4.2.5 Manufacturing innovation

The case of innovation in the manufacturing priority literature has been well acknowledged (O'Sullivan *et al.,* 2011).Innovation in manufacturing has been described as making a modification to an established product by introducing some new features (Fagerberg *et al.,* 2005). Innovation in its own right occurs to products, processes, and services (O'Sullivan, 2002; O'Sullivan *et al.,* 2011). Innovation is perceived to be often incremental during programmes such as lean manufacturing, sigma six, quality conformance, and can also be a radical or transformational process (Tidd *et al*., 2005; O'Sullivan *et al.,* 2011).Innovation in the manufacturing process is vital in converting raw materials and customer orders into goods and services, by also improving the manufacturing competitive edge (O'Sullivan 2002; O'Sullivan *et al.,* 2011).

Innovation in the manufacturing process is linked to process technology and the manufacturing concept of lean manufacturing, agile manufacturing and just in time (JIT) which enable manufacturing firms to get rid of waste(Schroeder *et al.*, 2011). The concept of lean manufacturing requires the implementation of just in time manufacturing systems and total quality management to reduce cost and improve quality (Hill, 2009; Hill and Hill, 2011; Inman *et al.,* 2011). Agile manufacturing is among operational strategies which manufacturing firms adopt due to uncertainties and changes in their manufacturing environment, that seem to emanate from the shortening of the product lifecycle and outdated technologies (Dubey and Gunasekaran,2015). Manufacturing firms can increase their profitability through the adoption of advanced technologies, which also have the potential to improve their operational performance (Chatha and Butt, 2015).

2.5 Manufacturing strategy decision categories

It is important for us to know how the decision is classed and made in manufacturing related activities. Hayes and Wheelwright (1984) first presented the concept of several research scholars and practitioners who have made several contributions to the advancement and establishment of manufacturing strategy decision categories and its affiliated policy area. Manufacturing strategy decision categories fit into the idea of manufacturing priorities and other management challenges that manufacturing managers have to assess and make decisions on

and improve their businesses (Hallgren *et al.,* 2011; Sainidis, 2013). Operational needs are included in the manufacturing decision categories to accomplish the manufacturing priorities (Schroeder *et al.*, 2011).

Rudberg and Olhager (2003) presented an outline of the decision categories frameworks that divide the decision categories into two groups namely structural and infrastructural as recommended by (Hayes and Wheelwright, 1984; Skinner, 1986; Hayes *et al.,* 1988). The structural and infrastructural manufacturing strategy decision categories are presented as detailed in the work of Leong *et al* (1990); Hallgren (2007) as follows:-

❖ **Decision category**	**Policy area**
(Structural)	
▪ Process choice	Process choice, technology integration
▪ Facilities	Size, location, focus)
▪ Capacity	Amount, timing, increment
▪ Vertical integration	Direction, extent, balance
(Infrastructural)	
▪ Manufacturing planning and control	System design, decision support,
▪ Performance measurement	Measurements, methods of measures
▪ Organisational	Human resources, design)
▪ Quality	Definition, role, tools

The classifications of the manufacturing strategy decision categories and its policy area as presented above is similar to the earlier works of Hayes and Wheelwright (1984); Skinner (1986); Hayes *et al* (1988); Anderson *et al.* (1989) and Boyer and Lewis (2002) which are presented as follows:-

- ❖ Human resources
- ❖ Outsourcing decisions(make or buy decision)
- ❖ Plants location, size, and number

- ❖ Manufacturing equipment and process choice
- ❖ Production and inventory control
- ❖ Manufacturing capacity
- ❖ Facilities (plant location and vertical integration).
- ❖ Technology (in process and product)
- ❖ Quality.
- ❖ Organisation.
- ❖ Manufacturing cost
- ❖ Quality control systems
- ❖ Delivery system
- ❖ Information management systems

The manufacturing strategy decision categories and its policy area appear to be on the increase as supply chain management has been added to the manufacturing strategy decision categories list (Rudberg and Olhager, 2003). To enable managers to achieve their manufacturing objectives, decisions have to be taken within the manufacturing function, for managers to establish which resources that are available to them to be used (Tan *et al*., 2006; Hallgren *et a*l., 2011). In order to move this study further, we will look at structural and infrastructural decisions and how they can address manufacturing decision challenges.

2.5.1Structural and infrastructural decisions area

There are frequently drawn a difference between strategic decisions which establish manufacturing structure and those which decide its infrastructure (Díaz Garrido *et al*., 2007; Slack *et al*., 2010). The manufacturing strategy structural decisions are those decisions which influence the design activities within manufacturing and the infrastructural are those classed as mainly influencing the organisation manufacturing workforce, the planning and control and other improvement activities (Hallgren, 2007; Díaz Garrido *et al*.,2007; Slack *et al*., 2010). It is important we

understand the typical questions which the structural and infrastructural decision strategy should be addressing.

Table 2.1 Structural and infrastructural strategic decision area

Structural strategic decision	Questions the strategy should help to answer
Process technology	▪ What types of process technology should manufacturing be using? ▪ Should it be at the leading edge of technology or wait until the technology is established?
Product design	▪ How should manufacturing decide which product to develop? ▪ How do should they manage the development process?
Supply network design	▪ What activities and capacity should be allocated to each plant? ▪ How should it develop the capabilities of its customers and suppliers? ▪ What number of geographically separate locations should the manufacturing have? ▪ Where should the plant be located? ▪ Should the manufacturing expand by acquiring its suppliers or its customers? ▪ What customers and suppliers should it acquire?

Infrastructural strategic decisions	Questions the strategy should help to answer
Job design and organisation	▪ What should skill set be developed in the employees of the organisation?

	▪ What role should employers play in management? ▪ How should responsibility for the activities of the manufacturing function be allocated among different employees?
Planning and control	▪ How should the plant managers decide the resources be allocated to various activities? ▪ What system should the plant managers use to plan and control these activities? ▪ How should plant managers forecast and monitor the demands for their product? ▪ How should the plant managers adjust their activity levels in response to demand fluctuations?
Inventory	▪ How should the plant managers control the size and composition of their inventories? ▪ How should the plant managers decide how much inventory to have and where they are to be located?
Supplier development	▪ How should manufacturing managers choose their suppliers? ▪ How should manufacturing managers develop relationships with their suppliers? ▪ How should manufacturing managers monitor their suppliers' performance?
Improvement	▪ How should the manufacturing performance be measured? ▪ How should the manufacturing managers decide whether their manufacturing performances are satisfactory? ▪ How should manufacturing managers ensure that

	their manufacturing performances are reflected in their improvement priorities? ▪ Who should be involved in the improvement process? ▪ How fast do manufacturing managers anticipate their improvement in performance to be? ▪ How should the improvement process be managed?
Failure prevention, risk, and recovery	▪ How should the manufacturing managers maintain their resources so as to prevent failure? ▪ How should manufacturing managers plan to cope with a possible failure in their plants?

Source: Adopted from Díaz Garrido et al (2007) and Slack *et al* (2010)

2.6 Other manufacturing strategy consideration

Manufacturing strategy has been noted to have made a significant contribution not only to manufacturing performance but also to human resources and business strategy in terms of business unit performance on market share growth and profits (Swamidass and Newell, 1987; Meredith and Vineyard, 1993; Brown and Blackmon, 2005). In manufacturing strategy literature, its process, content, and implementation established how the manufacturing capabilities and resources are deployed to harmonise the other functional level strategies, and if well developed could contribute to competitive advantage (Skinner, 1969; Hayes and Wheelwright, 1984; Swamidass and Newell, 1987; Brown and Blackmon, 2005).

Manufacturing strategy has been noted to influence the strategic plans together with new process technologies (Beach *et al*., 2000; Spring and Dalrymple, 2000; Brown and Blackmon, 2005). In order to properly align the manufacturing strategy and develop and deploy manufacturing capabilities that can support other functional level strategies, manufacturing strategy requires an understanding and cooperation between top managers and manufacturing managers in the company to set out functional level strategy, and manufacturing objectives in support of the strategic direction of their companies (Ward and Duray, 2000; Brown and Blackmon, 2005;

Skinner, 2007). The role that manufacturing strategy play within the corporate strategy has generated discussion in the literature on how to relate and incorporate manufacturing strategy within other functional level strategies (Papke-Shields et al., 2006; Hill,2009; Sainidis, 2013).

Production and operations management scholars and researchers have advocated for the forging of a closer link, involving functional level strategy of manufacturing with marketing, which allows and sustain the manufacturing firm's corporate objectives (Voss, 1995; Skinner, 2007; Hill, 2009; Da Silveira and Souza, 2010; Sainidis, 2013). However, Hill (2009) asserts that in general, functional level strategies are in essence added collectively to form the corporate strategy, thereby creating a bottom-up approach. It has been noted in manufacturing strategy literature that corporate strategy must integrate marketing and manufacturing strategies for the firms to be able to realise their full market expectations (Weir *et al.,* 2000; Da Silviera and Souza, 2010). Research has it that if functional level strategies are allowed to be a standalone process without the management from the corporate level, that it will lead to conflicting decisions being made (Papke-Shields *et al.,*2006). The other manufacturing strategy considerations are manufacturing process improvements, manufacturing capacity, manufacturing performance, customer satisfaction

2.6.1 Manufacturing process improvement

In today's competitive and fast changing global manufacturing environment, suggests that there is no provision for manufacturing errors or non-performance and inefficiencies (Juran, 2016). As manufacturing firms are continually faced with increased demand for quality products and faster product delivery in this present era of manufacturing technological advancement and product innovation, no manufacturing firm wants to be confronted with poor quality products, financial losses, and product delivery interruptions due to unreliable production processes (Srivastava and Jena, 2011). This calls for the need of manufacturing businesses to adopt an appropriate manufacturing strategy to deliver continuous production process improvements, needed to ensure product quality, faster product delivery, competitive advantage, and manufacturing performance (Jevgeni *et al.,* 2015). It is fundamental to understand the full impact of manufacturing problems, as result of

the failed manufacturing process, which is the major causes of poor manufacturing performances (Srivastava and Jena, 2011). Process improvement is utilized for manufacturing performance, as researchers have shown that the use of obsolete manufacturing equipment and technologies, has led to manufacturing inefficiencies and non-realization of customers and market expectations (Srivastava and Jena, 2011; Jevgeni *et al.,* 2015).

2.6.2 Manufacturing capacity

In recent times, studies have shown the importance of production capacity in the plant investments. The successful use and increase of production capacity have considerable cost implications, and possibly constrain the profitability of the operation. The management of production capacity in the manufacturing industry usually involves long-term planned preparations and immediate operational progress made. Manufacturing firms respond primarily to the market and customer demands by increasing their production capacity to lower cost, improve profits and productivity (Cachon and Lariviere, 1999). The increases in manufacturing capacity are usually considered to be a required sign to market allocation increases. However, when other manufacturing firms view their marketplace rivals increase their manufacturing capacity, they perceive this as a major threat and warning to their own market share (Hitt *et al.,* 2003).

However Bloodgood and Katz (2004:2), have argued that *''capacity increases are usually required to satisfy any major increases in market share, yet market share does not always equate with profitability and competitiveness''.* The increases in capacity of firms have been noted to spread out the geographical range of several manufacturing firms' products (Brown, 1999).Most manufacturing firms have repeatedly employed the manufacturing capacity strategy, as it has enabled them to increase their production during the period of high demands and whenever they enter new markets (Murray, 2016).

2.6.3 Manufacturing strategy and firms' competitive advantage

In the business strategy of manufacturing firms, that is where competitive advantage is formulated and later transferred to the functional manufacturing strategy (Frohlich and Dixon, 2001; Hayes *et al.,* 2005; Hilletofth, 2011).

Manufacturing firms can beat their competitors when they create and sustain their competitive advantage (Hilmola *et al*., 2015). Manufacturing firms' competitive advantage can be attained by giving customers better value, both in offering the same or more benefits than their competitors at a lower cost (Porter, 1996). According to Christopher (1998), the source of competitive advantage is the ability of the firms to differentiate from competitors with consideration to products and customer service and their ability to `operate at a lower cost with limited resources.

This feat can be realised by managing the firms around, how customers values are efficiently created, delivered and how the processes can be managed (Hilletofth, 2011). Based on the type of competitive advantage followed, manufacturing firms may focus also on the value creation processes, the value delivery processes or both (Porter, 1996; Hilmola *et al*., 2015). There are different business models that exist and this can be differentiated among manufacturing firms (Hilletofth and Lättilä, 2012; Hilmola *et al*., 2015).

Some manufacturing firms use a value-oriented model by focusing on the management of the value creation processes, which enable them to develop and sell desirable products to increase their revenues (Juttner *et al*., 2007; Hilletofth, 2011; Hilmola *et al*., 2015). Manufacturing firms also have competitive advantage when they create high-value product, using the cost-oriented model by paying attention to the management of these value and the mode of delivery to enable them reduced lead-times, cost in the manufacturing supply chain and improve their asset proceeds (Juttner *et al*., 2007; Hilletofth, 2011; Hilmola *et al*., 2015).

In order for manufacturing firms to formulate a competitive advantage, they must also decide what the manufacturing function must have to achieve (Hayes and wheelwright, 1984; Platts et al., 1998; Hilmola *et al*., 2015). Manufacturing firms' sources of competitive advantage are sometimes rarely found only within its direct environment; rather they are usually established within the limits of a network of facilities and companies (Miltenburg, 2009). Nevertheless, Gulati et al. (2000:204) find that...

‘’neglecting the strategic networks in which firms are embedded can lead to an incomplete understanding of firm behaviour and performance... A heightened awareness of the strategic networks in which firms are situated becomes a central,

rather than a peripheral, exercise toward understanding firm strategy and performance''.

2.6.4 Manufacturing strategy and performance

The study of manufacturing performance is beginning to gain wider attention among academic and business professional El Mola and Parsaei, 2010). Determining the manufacturing performance of firms is a fairly complex one (Ahmad and Schroeder, 2003). Research on manufacturing performance of manufacturing firms in the past has shown that it was based mainly on financial performance measures, which in turn have made managers to overlook other strategic manufacturing priorities (Bititci *et al.*,2001). While this research seeks to ascertain the performance of Nigerian MSMEs the researcher, will depend on in-depth analysis of qualitative data from participating Nigerian MSMEs.

According to Wheelwright (1984) manufacturing performance should be linked to manufacturing strategy and manufacturing priorities. However, Leong *et al* (1990) have claimed that the accepted norm is for manufacturing task and manufacturing performance to be defined in terms of delivery speed, delivery reliability, cost, quality, and flexibility. The impact of the manufacturing strategy on manufacturing performance can be influenced by managers making the correct decisions on those vital parts of manufacturing strategy that translate to the realisation of competitive capabilities and successive performance (Ahmad and Schroeder, 2003; Acquaah *et al.*, 2011). To ascertain the level of performance of the Nigerian MSMEs, this study will seek to find out the impact of manufacturing strategy, priorities on manufacturing performance rather than the wider scope and perspective of performance management concerns (Neely, 2005; Carlos *et al.,* 2011).

2.6.5Customer satisfaction

The importance of customer satisfaction in the improvement of performance of manufacturing firms is well acknowledged (Ayuba, 2014). In the manufacturing and production operation perspectives, customer satisfaction evaluates how manufactured products meet or exceed consumers expectation (Chauhan and Limbad, 2013; Ayuba, 2014).Manufacturing firms are expected to lose their market share, whenever their products cannot effectively meet their customer needs (Anderson *et al.*, 2004). In the manufacturing setting, customer satisfaction has

been associated with the value customers get from their product as a result of its performance and quality (Kotler, 2009). In this present day globalised economy, manufacturing firms should focus their resources on product quality improvement measures to satisfy customers' needs (Gustafsson *et al*., 2011). Manufacturing firms should know that offering the best quality products can motivate their customers to continually buy the products (Gupta *et al*., 2000).

2.6.6 Environmental concerns and manufacturing strategy

Globalisation and competition among manufacturing firms now mean that manufacturing firms are now held accountable for the environmental impact of their products, and have to deploy technologies that will help them reduce waste and care for their manufacturing environment during the production process (Qiu, 2009; Chatha and Butt, 2015). Researchers have highlighted the need for environmental management in manufacturing strategy, as a possible starting point for competitiveness and improved financial performance (Klassen and McLaughlin, 1996; Zhu *et al.,* 2005; Johansson and Winroth, 2010). Waste reduction implementation as part of a manufacturing strategy and the recycling effort might provide the needed competitive advantage (Mohanty and Deshmukh, 1999; Johansson and Winroth, 2010).

The need for a clean and environmentally friendly product has risen and formed part of the programme of many manufacturing firms as they are faced with increasing demand to develop products that are less harmful to the environment (Pun,2006; Bayraktar *et al.,*2007; Johansson and Winroth, 2010). Government laws (legislation and regulation), have motivated several manufacturing firms to embark on measures that will help them reduce the impact of their products on the environment (Johansson, 2001; Dahlmann *et al.,* 2008; Johansson and Winroth, 2010).

The manufacturing environment is now an area that has being given a very broad attention, as various thought are focused on the concern for environmental problems in production operations which have led to the emergence in literature, terms such as green manufacturing, industrial ecology, cleaner production and environmentally conscious manufacturing (Nagel, 2003; Ehrenfeld, 2004; Rusinko,

2007; Shi *et al*., 2008; Johansson and Winroth, 2010). The thought of the environmental problems in the manufacturing strategy might necessitate the introduction of a new process technology as the way forward (Johansson and Winroth, 2010). For instance, the European Union parliament which is the apex body that makes a law that governs the European Union member states has made a request for manufacturing firms to reduce their number of hazardous substances(European Parliament and the Council Directive, 2003).

According to Sarkis (2001) and Johansson and Winroth (2010), there is a need for the reduction of the environmental effect through internal recycling processes, remanufacturing and investment in new technologies. Reduction in the environmental impact of manufacturing might require that the process of recycling and remanufacturing be aligned with the standard manufacturing process, and the manufacturing design might require some changes to accommodate this burden emanating from recycling and remanufacturing (Johansson Magnusson, 2006; Johansson and Winroth, 2010). Nigerian MSMEs still have a long way to go in terms of this entire environmental requirement to enable their products to compete globally. The Nigerian government has not been able to encourage the use of environmentally friendly raw materials needed for production since most of the raw materials are not regulated by the government. For Nigeria MSMEs products to compete, for instance, the products from European Economic Area (EEA) they have to meet certain manufacturing criteria and standards as set out by the European Commission (EC).

2.6.7 Manufacturing competitive capabilities of emerging economy

The competitive capabilities of manufacturing firms have been defined as the actual performance of plants in respect to their competitors with regards to manufacturing cost, quality, delivery and flexibility (Gray et al., 2009; Schoenherr et al., 2012).The early production and operations management literature were centred on a broad range of best practices and techniques (Hayes and Wheelwright, 1984; Hill, 2009). While competitive capabilities symbolise the resources that manufacturing firms can make the most of to have a competitive advantage (Ferdows and De Meyer, 1990; Rosenzweig and Roth, 2004).

Most production operations and management literature view manufacturing competitive capabilities as the ability of a manufacturing plant to accomplish superior quality, delivery, flexibility and cost relative to that of its competitors, which is fundamental to the manufacturing strategy formulation process and manufacturing decision making (Hayes et al., 2005; Kristal et al., 2010; Rose et al., 2010; Schoenherr et al., 2012). Although the study of manufacturing competitive capabilities has long been established in the production and operations management literature as the foundation for manufacturing strategy (Skinner, 1969). This study reviewed the literature to understand the competitive capabilities of manufacturing firms in developing and emerging economy. There still remain many unanswered questions about competitive capabilities of manufacturing firms in emerging economy/developing countries (Flynn and Flynn, 2004).

For instance, there is much debate that surrounds the issue of whether competitive capabilities can be followed in a collective way, the issue of whether several competitive capabilities can be effectively followed simultaneously (Rosenzweig and Roth, 2004; Amoako-Gyampah and Meredith, 2007), or trade-offs needs to be made among several competitive capabilities and whether adopting one competitive capability can have a negative effect on another (Skinner, 1969; Wheelwright and Hayes, 1984). Literature that merges these two opinions also exists; signifying that manufacturing firms can improve their competitive capabilities at the same time, which is dependable with the cumulative capability model, improvement of the capabilities cannot be done at the same rate which aligns with the trade-off model (Hayes and Pisano, 1996; Schmenner and Swink, 1998).

This study takes into consideration that there can be positive impact of manufacturing capabilities on each other in which the gain in one area of priority will have a knock-on effects on the other manufacturing priorities, nevertheless the rate of improvement may vary depending on the level of industrialisation of the country and the economic area (Ferdows and De Meyer, 1990; Rosenzweig and Roth, 2004). The significance of the manufacturing competitive capabilities effect of economic advancement is demonstrated by the numerous categorisations of countries into developing, emerging and industrialised countries (Amoako-Gyampah and Meredith, 2007; World Bank, 2010).

Despite the research in competitive capabilities is flourishing some issues are still not addressed (Flynn and Flynn, 2004). Many production and operations management commentators exploring the competitive capabilities of manufacturing firms have centred their studies and investigation of competitive capabilities within the perspective of plants in industrialised nations paying less attention to plants of developing and emerging economy (Enderwick, 2009). The knowledge about the position of competitive capabilities in emerging nations is vital for making manufacturing decision in determining largely the overall supply chain strategy, as management of plants competitive capabilities and overseas supplier support differs across countries and regional boundaries (Amoako-Gyampah and Meredith, 2007; Schoenherr et al., 2012).

Manufacturing capabilities are produced by the manufacturing system objectives and decisions and are central components of manufacturing strategy (Größler and Grübner, 2006). Manufacturing capabilities are perceived to be the linkage between manufacturing strategy content and manufacturing performance (Hallgren et al., 2011). Manufacturing capabilities being a component of manufacturing strategy was adopted from the strategic management literature of the resource-based review of firms put forward by Wernerfelt (1984) and Barney (1991). The main reason for initiating the RVB is because resources are not evenly distributed across firms and consequently provide the prospect of being the foundation to competitive advantage (Wernerfelt, 1984; Barney, 1991; Hallgren et al., 2011). Theoretically, manufacturing capabilities are perceived as intended business units, accomplished competitive performance or operational strengths in the manufacturing strategy literature (Boyer and Lewis, 2002; Schroeder et al., 2002; Flynn and Flynn, 2004; Größler and Grübner, 2006; Hallgren et al., 2011).

2.7 Manufacturing strategy of SMEs

The contribution SMEs make toward the economy cannot be overlooked as they serve as a catalyst for economic growth (European Commission, 2007; Aremu and Adeyemi, 2011; Löfving *et al*., 2014). In this era of globalisation and internationalisation of businesses around the world, MSMEs must deal with fast technological changes to enable them to survive the global competition in the marketplace (Laforet and Tann, 2006; Hitt *et al*., 2007; Löfving *et al*., 2014). Making

the right decisions to support the order winners can make manufacturing be a source of competitive advantage (Hill, 2000; Cagliano and Spinna, 2002; Gro¨ßler, 2007; Hill and Hill, 2009). In order to enable us to understand the manufacturing strategy of SMEs, it is important to know the difference in its content, i.e. what it consists of and process, i.e. strategy formation: formulation and implementation (Papke-Shields et al., 2006; Dewit and Meyer, 2010; Löfving *et al*., 2014).

Within the last twenty years, research work done on manufacturing strategy has been centred around the content of manufacturing strategy and not much attempt has made to really understand the process of manufacturing strategy (Dangayach and Deshmukh,2001; Rytter et al.,2007). Despite the enormous prospect in manufacturing strategy, there are still limited research studies in manufacturing strategy of SMEs (Löfving *et al*., 2014). Some research is based on a strategy in MSMEs (O'Regan and Ghobadian, 2006; Raymond and Croteau, 2006; Ates, 2008; Bellamy, 2009). A few other researchers have combined manufacturing strategy and business strategy with other functional strategies in their research (Bell *et al.,* 2004; Galbraith *et al.,* 2008). However a few study have focused on manufacturing strategy in SMEs (Barad and Gien, 2001; Barnes, 2002a, 2002b; Sa¨fsten and Winroth, 2002; Löfving *et al*., 2014). The study of strategy is a very complicated one and the aptitude in this part is sometimes inadequate concerning MSMEs (Barnes, 2002a; Gibbons and O'Connor, 2005; Löfving *et al*., 2014). According to Hudson *et* al (2001), there is a huge prospect for SMEs manufacturing strategy to make a contribution and sustain competition in the marketplace.

2.7.1 Manufacturing strategy formulation in SMEs

Most research on SMEs manufacturing strategy formulation, in general, has paid attention to a narrowed structure providing support when developing manufacturing strategy (Skinner, 1969; Hayes and wheelwright, 1984; Hill, 2000; Papke-Shields *et al*., 2006; Miltenburg, 2009; Löfving *et al*., 2014). According to Barnes (2000) supported by the work of Löfving *et al* (2014) manufacturing strategy formation (formulation and implementation) in MSMEs is still an area not much attention has been paid limiting the understanding of manufacturing strategy formation process in SMEs.

According to case study research carried out on six small manufacturing firms in the United Kingdom the findings conclude that manufacturing strategy in SMEs develop through a bottom-up emergent process(Barnes, 2002a:2002b) rather than top-down planning process as discovered in the research findings of Marsden and Forbes, 2003; Wiesner and Millett, 2012). However, Cagliano *et al*(2001) opined that strategies in SMEs are emergent during gradual learning processes and planned judgment is made when obtaining the vital resources needed in developing unique abilities that are treasured by customers, rather than formally undergoing an enduring planning process. SMEs strategy formulation process is distinctive in that it has slight similarity with the strategy process in bigger firms (Jennings and Beaver, 1997; Löfving *et al*., 2014). It is uncommon to have a formal strategy formulation considering the flexibility, lack of time, resources, skill, knowledge, and experience of SMEs owners, managers, directors and CEO casual assessment (Carter and Jones-Evans, 2006; Ates, 2008; Bellamy, 2009; Löfving *et al*., 2014). Studies have shown only a few application and acceptance of manufacturing strategy formulation framework in SMEs due to its complexity and time requirements (Robinson *et al*., 1984; Sa¨fsten and Winroth, 2002; Bellamy, 2009; Löfving *et al*., 2014).

Contemporary manufacturing strategy has developed from two extensive disciplines both starting from the business strategy area (Jennings and Beaver, 1997; Verreynne, 2006; Löfving *et al*., 2014). The main analysis of manufacturing strategy formulation was based on the narrow view of the work of (Skinner, 1969 and Wheelwright, 1978). From this extensive discipline, strategies are deliberately defined in a proper logical way to ascertain action plans (Löfving *et al*., 2014).The narrow framework of strategy formulation is made up of definite steps such as gap analysis SWOT analysis, customer and competitor's analysis and well-defined objectives (Platts, 1990; Ates, 2008).In order to help identify the appropriate manufacturing strategy framework for SMEs, it is important for us to re-assess existing frameworks(Löfving *et al*., 2014). However this DBA thesis will focus more on manufacturing strategy in Nigerian MSMEs and explore manufacturing priorities, decisions strategy formulation rather than strategy implementation. The reason being that most organisations hardly allow an outsider to have access to their main

business plan and strategic advantage for fear that it might be giving out to their competitors (Löfving *et al*., 2014).

2.7.2 Analysis of the manufacturing strategy formulation in SMEs

The analysis which provides a framework of measures that impact on manufacturing strategy formulation in SMEs needs to be acknowledged (Dangayach and Deshmukh, 2001).

Table 2.2 Analysis of manufacturing strategy formulation in SMEs

Strengths	Weaknesses
Flexibility: MSMEs can simply take in new technologies, new designs and new processes. The cost of such transformation is minimal Swift decision-making process: Due to less hierarchy in the management formation, decision-making process could be quick and faster More favourable capital-output ratio: MSMEs can maintain a low level of capital per output unit by appropriately making use of local reserves. Employees Cooperation: Due to fewer employees, managers can keep track and maintain personal contact with their employees to enable maximum cooperation from them.	**Inadequate technical skill:** MSMEs are more likely less involved in advancing their technical skills and technological capacity due to lack of funds **Inadequate infrastructural facilities:** In an emerging economy such as Nigeria, MSMEs are mostly situated in remote places to enable them to take advantage of the government subsidies to satisfy demands locally. They are also faced with infrastructural problems such as water, power (electricity) and transport (bad roads). **Lack of finance:** MSMEs are mostly dependant on banks for loans and finance. As they do not have good corporate/brand image it makes getting money from the equity market difficult.
Opportunities	**Threats**
MSMEs can operate as an exceptional subsidiary unit for large manufacturing firms. Globalisation means MSMEs can cooperate and have partnership with global manufacturing firms	Mergers and acquisition can impact on the businesses of MSMEs, as large manufacturing firms come together to do business. Government manufacturing policies and unrestricted competition might threaten the very existence of MSMEs.

Source: Dangayach and Deshmukh (2001)

2.8 Nigerian MSMEs challenges

Manufacturing in emerging economies as a whole has many challenges ranging from inadequate infrastructures; the cost of raw material and skill shortages. However, the challenges Nigerian MSMEs face is similar to that of most developing nations with special reference to African manufacturing countries (Mickensey, 2013).

2.8.1Electricity

According to NIRP (2014), report Nigeria manufacturing firms need extra 12000 - 15000 megawatts of electricity to meet up with manufacturing demands, and the Nigerian electricity production from the national grid is currently estimated to be between 2000-3000 megawatts of electricity leaving a shortage of about 12000 megawatts of electricity. Nigerian manufacturing firms are left with no other choice than to generate their own electricity in order to meet their production demands. Nevertheless, these have led them to an increased operational cost (Olugbenga *et al.,* 2013). The more cost that is being absorbed by Nigeria manufacturing firms means they can either pass it on to their consumers or reduce the ability of their business to grow and expand (Malik *et al*., 2006; NIRP,2014)).

There is a systemic gap between the demand for electricity and the existing capacity which has led to the persistent widespread of power shortage and inadequacy and, as a result, this has led to self-generation of power for both industrial and residential consumption which cost estimate is between 1.5-2.0 billion nairas($10 million) per week (Ayanruoh, 2013). The resultant effect of all this is that Nigerian electricity generation makes the cost of locally manufactured goods in Nigeria about a third more expensive than the stipulated benchmarks for most manufactured products globally (Malik *et al*., 2002; McKinsey, 2013; UNIDO,2013; NIRP,2014).

2.8.2 Transportation

This is an important part of the human activity, which in many ways forms the foundation of all socio-economic connections; hence a good transport system is necessary to help sustain economic development and growth (NBS, 2014). The role that transport play in the delivery and distribution of manufactured products across the world needs to be acknowledged, as it is a very important tool for the global manufacturing supply chain (Wieland and Wallenburg, 2013).The freight costs within Nigeria are very high due to the poor rail network in place and the inadequate road infrastructures across the length and breadth of the country (Adeyemi and Aremu, 2011; NIPR, 2014).The high cost of transporting manufactured products across Nigeria states and local governments as a result of bad roads have caused delays, increased manufacturing cost and affected the smooth distribution of products to their desired destination on time(Malik *et al*., 2002; Onuorah, 2009; NBS, 2014).

2.8.3 Lack of laboratories

There are inadequate commercialised laboratories in Nigeria for the MSMEs to test their products on an industrial scale. Laboratories are required for the testing, of both locally made and imported manufactured products. It is often perceived that locally manufactured products are low in quality than the imported ones. However, this has not yet been proven. This is not just a problem for Nigerian manufacturers alone, but also a major challenge to many genuine importers and exporters of manufactured products (Akanya, 2011). Most of Nigerian MSMEs are frustrated and worried about the entry of substandard manufactured products into the country due to lack of laboratories for testing. Dubious manufacturers continue to counterfeit high selling products, and importers have exploited this situation also to bring in substandard and fake manufactured products in the country which is dangerous to consumers and the Nigerian economy (Nwachukwu, 2016).

The lack of laboratories for testing manufactured products means there might not be adequate quality control in place for imported goods, be it raw materials or finished goods. The standard organisation of Nigeria (SON), the government body in charge of quality control of products, lacks the ability to check the quality of all consumed products within Nigeria (Okorie and Humphrey, 2016).

2.8.4 Sub-standard products

Several studies have hinted on the impact of substandard and counterfeit products, which represent 2.5% of the global trade in the year 2013, which amount to USD461 billion in earnings equivalent to the combination in GDP of the Czech Republic and Ireland put together or the GDP of Austria (Stryszowski and Kazimierczak, 2016). Substandard and counterfeit products are not peculiar to Nigeria alone as it a global concern, even many advanced and well-developed economies in the European Union have experienced higher impact and a huge economic losses to the tune of USD 116 billion (EUR 85 billion) in 2013, and represent 5% of the total imports (Stryszowski and Kazimierczak, 2016). Research has shown that several consumers of the counterfeit and fake product could not differentiate them from the genuine products, the nevertheless price was considered as the main factor in the consumers' decision and choice to purchase counterfeit and fake products (Qian, 2008; Mishra and Shukla, 2015). There are numerous problems created by counterfeit, fake and substandard products that cannot be completely ignored, as they damage the economy through the earnings that are lost to the criminal gangs that engage in manufacture and sale of counterfeit and substandard products (Treadwell, 2011; Penz *et al*., 2009).

The manufacturing of standard quality products is good for the economy (Nwachukwu, 2016). However, the manufacture of substandard products arises from substandard production process and planning, which can be addressed by educating manufacturing personnel and enforcing the quality standards of the manufacturing firms (Caudron et al. 2008).The importation and manufacturing of substandard products can be very dangerous to the competitiveness of Nigerian MSMEs. There is a need for the outright ban of substandard products by the Nigerian government, and enact laws that will prosecute importers and manufacturers of such products as they are dangerous to consumers and the Nigerian economy at large (Nwachukwu, 2016). Substandard products are bought for different economic reasons. However, several studies have noted that substandard products are purchased based on the low price advantage over other standard genuine equivalent products (Moores and Dhaliwal, 2004; Wang, 2005). The battle against the influx of all imported substandard manufactured products into Nigeria can only be successful by securing the open borders with many African

neighbours; this has been a problem as the police force, customs and immigration are all corrupt agencies of the Nigerian government (Akanya, 2011; Ekwo, 2013).

2.8.5 Funding

MSMEs are engines that drive economic development in Nigeria (CBN, 2013). *The financing and* funding *of* Nigerian MSMEs are good for the *developmental growth* and operational expansion of the businesses through capital investment*, as* they lack the funds to finance their business operations (Fatai, 2009). The financing and funding received by several of Nigerian MSMEs have contributed to their success (Ogujuiba et al., 2004). Nigerian MSMEs still lacks the financial power to expand their businesses, as the bank is not lending to them for the fears that the loan might not be repaid, as a result these SMEs are forced to shut down for lack of funds (SMEDAN, 2013). Nigerian MSMEs are witnessing serious financial discrimination from Nigerian commercial banks as they refuse to lend to them (Luper, 2012). The banks that are lending to Nigerian MSMEs are charging an interest of 30% above the average, lending MSMEs at a higher interest rate than the rate charged to other big manufacturing firms (Fatai, 2009).

The Nigerian banks by virtue of their position in the economy are sources of finance for businesses. However, a study completed by the World Bank in the year 2001 on Nigeria has shown that over two-thirds of Nigerian firms had a relationship with banks, but have no access to the bank's credit facilities (Terungwa, 2011). Even though banks are the main source of funds available to Nigerian MSMEs, the banks are not giving them access to acquire these loans, despite the contributions Nigerian MSMEs make to the economy (Onugu, 2005; Luper, 2012). Nigerian banks have been presented, as the most recognized sources of finance to MSMEs (Terungwa, 2011). It has been noted that the Nigerian financial system has the capability to provide liquidity, however, the banks have been very unwilling to lend to MSMEs, which they consider a very high-risk area among other businesses due to its operational challenges (Ohanga, 2005; Terungwa, 2011; SMEDAN, 2013). Nigerian MSMEs are denied access to loans by commercial banks, which are usually more favourable towards larger corporations (Aremu and Adeyemi, 2011), which present better business plans, have better credit ratings with more reliable financial data, improved chances of success and higher success for the banks than

SMEs (Ohanga, 2005). Banks that give a loan to SMEs tend to charge them at higher rates, considering their risk and also applying tougher vetting measures, which increase the costs of borrowing (UNCTAD, 2002; Aremu and Adeyemi, 2011). Despite the Nigerian MSMEs dominance in the creation of jobs, SMEs usually have found it difficult to obtain proper credit or equity. For instance, the loans given to SMEs are often restricted to a shorter period of time to enable them to pay off any considerable investment (UNCTAD, 2002).

2.8.6 Multiple- taxation

The multiplicity of taxes is not a well-recognised term in the taxation administration however; the term is broadly used among Nigerian MSMEs to depict where the tax fee collected is charged on the same individual or business in respect of the same tax by more than one government ministries, state and local government (Sanni, 2012). Nigerian MSMEs are faced with a very complex tax system, and the multiplicity of the taxes they are asked to pay by the Nigerian government. The payment of multiple taxes by Nigerian MSMEs has become a huge burden and challenge to their manufacturing business operations. The managers of these SMEs have expressed their concerns over the effect of these multiple levies and taxes have on their businesses, often times paying the same levies and taxes multiple times (Ocheni and Gemade, 2015). The multiplicity of taxes in Nigeria makes an investment in MSMEs businesses difficult, as it creates uncertainty for investors who do not know the extent their investment and business income would be levied or taxed ((Shahrodi, 2010; Ocheni and Gemade, 2015).

Several studies have shown that taxes make a valuable contribution to the well-being and economic development of nations, by making funds adequately available for the creation of public services and employment (Holban, 2007; Chu *et al.*, 2008). Nonetheless, taxes should be administered in a way that put into consideration the incomes of SMEs to guarantee their business and operational survival (Holban, 2007; Adebisi, and Gbegi, 2013). Harassment from various government agencies and thugs have forced many Nigerian MSMEs to shut down their businesses. This harassment from different government agencies and unsolicited thugs have made many businesses including Nigerian MSMEs to shut down within 5 years of manufacturing operation (SMEDAN, 2009). Multiple taxes hinder many

manufacturing business operations in Nigeria, particularly in the SME sector of the economy (Apulu, 2010). Ihua (2009) which considered multiple and increased taxes as a vital issue that made SMEs fail in Nigeria.

2.8.7 Foreign exchange

The exchange rate is the price at which one country's currency is traded for another one, it is an essential economic measure that when its depreciation or appreciation changes the performance dynamics of the manufacturing economy (Hashim and Zarma, 1996; Odili, 2014). Nigerian MSMEs are faced with the impact of the currency Naira decline in exchange value against the US dollar, which tends to add more cost to manufacturing budget plan for raw materials importation (Odili,2014). Manufacturing firms in emerging economies have witnessed the true exchange rate unpredictability and how this can slow down economic growth and decrease productivity (Yuchin, 1995). The increase in the exchange rate as a result of the depreciation of the Nigeria currency Naira has had some major impacts on MSMEs who rely on the importation of raw materials from other countries overseas (Adeniran *et al*.,2014). Though many scholars have argued that the depreciation of the currency can help export, the situation in Nigeria is different as most of the manufacturing businesses rely on imported raw materials, as such the export level is on the decrease since there are not enough products to export as a result of the shortage in imported raw materials used for local production (Adeniran *et al*., 2014).

Aliyu (2011) asserted that depreciation of exchange rate results in decreased imports and increased export, while appreciation would expand import and discourage export. There is a market shift from the purchase of a foreign manufactured product to the locally made ones whenever there is depreciation in the exchange rate. Therefore it diverts income from countries that imports manufactured product to countries that export manufactured product.

2.8.8 Lack of skilled workforce

The skill gap that exists among Nigerian MSMEs, the manufacturing ineffectiveness of on-the-job training and the extensive lack of guidance and skills have resulted in the lack of a quality workforce which is peculiar to that of SMEs in an emerging economy (Abor and Quartey, 2010). The availability of a quality workforce in the

correct required numbers is essential for the Nigerian MSMEs to accomplish all their set out plans previously proposed to achieve their manufacturing objectives. Skill is essential to the daily manufacturing operational needs and requirement (Aremu and Adeyemi, 2011)

The lack of managers with management skills and trained workforce represents a major barrier to the continued existence of MSMEs in Nigeria (Agwu and Emeti, 2014). Manufacturers in Nigeria lack the basic training infrastructures, required for skill acquisition and for advancing the manufacturing practice of SMEs and its business operations (UNIDO, 2012). *Nigerian SMEs lack the necessary* competence and required knowledge of production operation, advertising, investment, and budgeting, which have led to misappropriation of funds, wrong costing and making poor manufacturing decisions.(Aremu, and Adeyemi, 2011; Fatai, 2011). There is a need for Nigerian MSMEs to train for the required manufacturing skills to enable them to compete favourably. Manufacturing skills are useful in every manufacturing operation, improving the manufacturing process, quality control and in making very important manufacturing decisions (Chatha and Butt, 2015).

2.8.9 Lack of manufacturing technology

This is possibly the utmost barrier limiting most of Nigerian MSMEs competence in the advancement of modern machinery and process improvements which are crucial to driving its core industrial base. New methods, measures, and mechanization have helped transformed and increased the manufacturing productivity in the developed countries of the world (Abor and Quartey, 2010). The poor financial situations of most Nigerian MSMEs have made it impossible for them to assess new technology and acquire the latest machines. Quite a number of the Nigerian MSMEs are still using outdated machines that have been used since the Nigeria independence in 1960 in their production operations. As a result of the use of these old machines and equipment, there are cases of repeated breakdown which have reduced their production capability (Onuorah, 2009).

2.8.10 Corruption

The issue of corruption is a major concern in Nigerian business environment. This has been a barrier to the growth of the Nigerian MSMEs sector of the economy. Many prospective investors are put away by the scourge of corruption for fear that they might be duped and their investment gone. With corruption prevalent among Nigerian, money meant for infrastructural development are illegally acquired by individuals in the government (Obayelu, 2007). In Nigeria corruption translate into various forms in which government officials misappropriate funds meant for developing a particular sector of the economy, by diverting it to their own place of interest where they could benefit from at expense of the public (Ayobolu, 2006). Corruption continues to undermine the economic prospect of Nigeria, as it has become a norm where bribes are given before things could be done by government officials (Dike, 2005).

Fraudulent activities are still taking place across the Nigerian borders; counterfeit products making their way into the country as the various agencies responsible for checking the products are bribed by the importers of such products (Ojukwu, 2006; Ochulor and Bassey, 2010). There is a need for the sanitization of various Nigeria government agencies, against corrupt practices to enable the country make some progress in infrastructural and economic development (Dike, 2005; Obayelu, 2007).

2.8.11 Lack of raw material

Nigeria is a country that has abundant natural and mineral resources, yet most of its manufacturing firms' source their raw materials abroad. The lack of this local supply base for raw materials has made most Nigerian MSMEs to depend on mainly on foreign importations of raw material (Onugu, 2005). The role of raw material in manufacturing cannot be overlooked. Raw materials form the major components of most manufacturing operations (Onugu, 2005)

2.9 Summary

This chapter has presented a critical review of the literature in relation to manufacturing strategy process and its components, thus defining the extent of this study. Manufacturing strategy is said to be a vital part of the improvement process of most manufacturing firms and is crucial to the function of core manufacturing

practices. The literature review discussed so far in this section of the DBA thesis presented the major subject matters that are central to the study, manufacturing in emerging economy, manufacturing strategy, manufacturing challenges and manufacturing strategy of SMEs. Although the subject manufacturing strategy is well researched and acknowledged in developed nations, there are still gaps in the literature of manufacturing strategy of SMEs and manufacturing firms in an emerging economy. This rationale has enabled the researcher to embark on this study to help fill the gap in the literature and make a contribution to professional practices and academic knowledge. Although there are quite a number of researches that have been conducted on the manufacturing strategy process and practice, this study will assist more on exploring and understanding manufacturing strategy within the context of MSMEs businesses. This chapter has also described the features of MSMEs, which distinguishes them from large manufacturing firms, and has considered the roles that SMEs play in the economic development of nations including that of Nigeria. The implementation of a manufacturing strategy is understood to be essential for SMEs' continued existence because it offers them with the opportunities to compete with large manufacturing firms and also enables them to operate on a global dimension. This chapter has also acknowledged some advantages of manufacturing strategy implementation in SMEs which substantiate that the successful application of manufacturing strategy can support SMEs to have some type of competitive advantages. The recognition of the appropriate literature on the manufacturing strategy of SMEs, manufacturing decision, manufacturing priorities and challenges are some of the themes that are considered which forms the foundation of the study. The review of literature review demonstrates that there are some notable differences in the approach of manufacturing strategy in developed and developing nations. This final point operates as the strength of this DBA research, contributing theoretical in the direction of the research objectives and questions presented in chapter 1 and the subsequent selection of the appropriate research methodology and methods discussed in chapter 3.

The Table 2.3 below has provided a summary of the systematic review of the literature on manufacturing strategy in general and SMEs. The main purpose was to highlight the application of manufacturing strategy from both professional and academic point of view in order to identify relevant research gaps. The literature

review highlights that in recent years the development of research papers on manufacturing strategy is growing and involves a diversity of approaches, methodologies, and models from different research areas. The vast majority of papers analysed focus on the manufacturing strategy of firms in the developed nations and large manufacturing firms while there are only a few papers analysing manufacturing strategy in SMEs and emerging economy. The content analysis of the papers highlights the areas of investigation from which were derived the research questions concerning four perspectives: manufacturing strategy formulation; strategic manufacturing decisions making, manufacturing priorities, and challenges.

Table 2.3 Literature review summary

Researchers and focus area	Research related area and rationale	Gaps identified	Region
Abor and Quartey (2010) Challenges in SMEs development	SMEs funding challenges in developing nations, accessing financial incentives, grant, and loans.	The difficulties in accessing financial incentives grant and loans for SMEs in developing nations.	Ghana and South Africa
Amoako Gyampah (2003)	Manufacturing priorities: Cost, quality, flexibility, and delivery performance	Cost of manufacturing, cost of achieving product quality, labour availability and competitive hostility from advanced nations, and its impact on manufacturing performance ,	Ghana
Amoako Gyampah, and Acquaah(2008). Manufacturing strategy, competitive strategy and firm performance	Manufacturing strategy: Competitive strategy and firm performance	Business cost, manufacturing capability, competitive advantage	Ghana
Aremu and Adeyemi(2011) SMEs survival strategy	Challenges, economic contribution of SMEs	Lack of managerial skills and training in SMEs	Nigeria
Badri et al. (2000)	Manufacturing priorities: Cost, quality, flexibility, and delivery performance	Business cost, labour availability and competitive hostility	The United Arab Emirates
Barnes(2002) Manufacturing strategy formation in SMEs	Manufacturing strategy formation in SMEs	Types of manufacturing strategy formulation(deliberate and emergent) and implementation	United Kingdom
Chatha and Butt(2014)	Economic objectives of firms, components and	Manufacturing strategy components and	United States Europe

Manufacturing strategy themes	paradigms, manufacturing capabilities strategic choices, best practices	paradigms, manufacturing capabilities, strategic choices and best practices	Asia Africa
Ehi and Muogbo(2016) Manufacturing strategy analysis.	Manufacturing strategy in developing country	Manufacturing strategy analysis.	Nigeria
Gavin(1987) Manufacturing quality	Competing on the eight dimensions of quality	Characteristics of quality in terms of durability, conformance, performance, reliability, serviceability, features, aesthetics and perceived quality.	United States
Hayes and Wheelwright (1984) Competing through manufacturing.	Manufacturing strategy decision area. The strategic role of manufacturing operations	manufacturing strategy decision area categorisation of structure -capacity, facilities, technology, vertical integration, and infrastructure - workforce, quality, production planning and organisation	United Kingdom
Löfving *et al*., 2014 Manufacturing strategy framework developed for SMEs.	Manufacturing strategy in developed country	Competitive priorities and manufacturing decision categories	Europe
Skinner(1969)	Manufacturing missing link in corporate strategy	Manufacturing strategy	United States
Onuorah (2009) SMEs in economic growth	SMEs in economic growth	Lack of manufacturing technology	Nigeria
Slack and Lewis (2011) Operation and manufacturing strategy	Operations, production and manufacturing strategy	Making operation, production and manufacturing decisions	United Kingdom

Chapter 3: Research Methodology and Methods

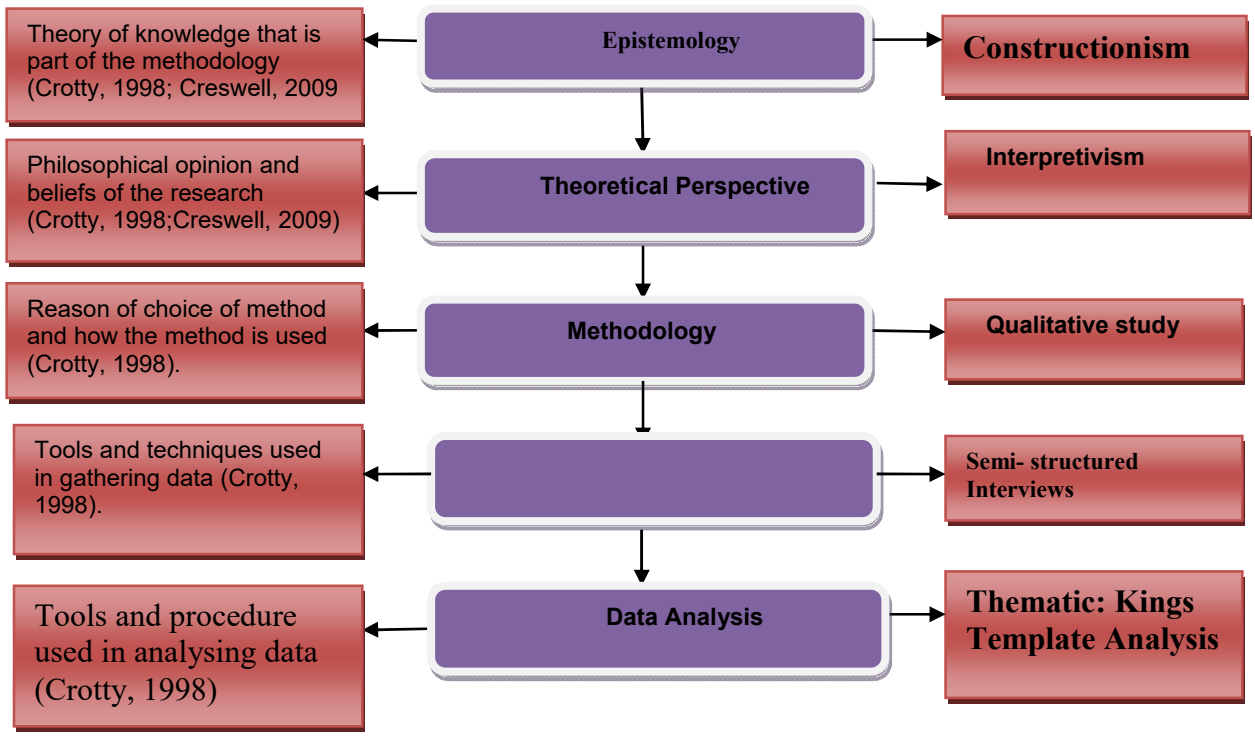
3.1Introduction

This section of the thesis chapter gives a general synopsis of the research methodology adopted in this study. The researcher discussed the thesis research approach, theoretical approach, epistemology, constructionism, theoretical perspective, interpretivism, phenomenology, research method, sampling, semi-structured interview, data analysis, validity and reliability, ethical consideration and summary. The researcher adopted the qualitative research method due to its unique characteristics that make it possible to address the *how* and *why* questions (Easterby-Smith *et al*., 2012) to understand the manufacturing strategy process and practice, manufacturing decision, manufacturing priorities and challenges of Nigerian MSMEs from a different point of view.

This chapter also explored the qualitative study of 17 selected Nigerian MSMEs and the research approach adopted for the collection of data in the MSMEs. The researcher adopted the qualitative research approach and applied semi-structured interview in the interviews of senior managers of Nigerian MSMEs, The researcher discussed the different procedure of analysing qualitative research data and then discussed the issues of reliability and validity in qualitative research approach.

A research methodology is a general approach used for gathering and analysing information (Zikmund, 2003). The research methodology encompasses the research methods and philosophies that aided data collection and analysis (Haralambos and Hollbon, 2008). It is the general approach, methods, and tools deployed to achieve a set of research objectives (Adam and Healy, 2000). A clear and well set out statement of the research objective is essential to facilitate the selection of a suitable research methodology and gathering procedure (Haralambos and Hollbon, 2008). Figure 3.1 represents the research approach adopted in this study.

Figure 3.1 Research methodology frameworks



Source: Adopted from Creswell (2009) and Crotty (1998)

3.2 Theoretical approach

The research philosophy we adopt form a very significant part of the research process (Creswell, 2007). Paradigm has been defined as a set of collectively shared assumptions, and ways of thinking about some characteristics and aspect of the world (Oates, 2006). The theoretical approach addressed the philosophical assumptions made in social sciences (Wahyuni, 2012).The philosophical paradigm adopted in this study is interpretivism which will enable the researcher to build an understanding of the manufacturing strategy process and practice of Nigerian MSMEs. Research philosophy is an essential element of the assumptions and beliefs as to how the world is observed and subsequently directs the actions of the researcher (Jonker and Pennink 2010; Wahyuni, 2012). The choice of an interpretivism philosophical approach enabled the researcher to understand the experiences of the interviewed managers of Nigerian MSMEs. Myers (2009) asserts that in a research the philosophical paradigm is the epistemology which directs the study.

3.2.1 Ontology

Ontology has been described as the starting point of all research in which the researcher's epistemological and methodological position reasonably follow (Grix, 2002). The ontology describes the researcher's viewpoint on how truth can be identified, its position and experience of it (Easterby-Smith *et al.*, 2012). Ontology is also defined as what is known or represents social reality (Crotty, 2003). Ontology is classified into two sections, Objectivism (being referred to as positivism, empiricism, dualism and critical view) and Constructivism (being referred to as Interpretivism, subjectivism, relativism, absolutism constructionism and post-positivism (Huglin, 2003). Objectivism is where knowledge is discovered and is mainly used by scientists in order words scientific observation and experimentation is used to produce new knowledge (Huglin, 2003; Collis and Hussey, 2003).

Positivism is centred on using natural science techniques for gaining knowledge and the positivist approach consider the study of human behaviour should be treated the same way studies are done in the natural sciences (Collis and Hussey, 2003).Objectivism is often times referred to as the natural science representation of social research and constructivism is the belief that knowledge is socially constructed as a result of interaction with our environment (Myers, 2009). According to Crotty (1998), constructivism is generally used by social scientist to study the human behaviour and has been referred to as social constructivism. The major differences between the two ontological positions are centred on how the research perceives that knowledge is being created (Crotty, 1998). According to Guba and Lincoln (1994), the ontological stand of interpretivism is relativism, which has a position that reality is subjective and varies from person to another person. In some reference made about reality, it is considered truth which is constructed individually (Frowe, 2001). On the same phenomenon, different people might construct meaning in various ways that are different to one another (Crotty, 1998). However, Pring (2000b) asserts that truth is an agreement formed by co-constructors. The social world can only be understood from the viewpoint of persons taking part in it (Cohen *et al.,* 2007).

3.2.2 Epistemology

The main philosophy behind the researcher inquiry is to understand manufacturing process and practice of Nigerian MSMEs and make a contribution to academic knowledge and professional practice Epistemology is one of the main areas of philosophy that is concerned with the theory of knowledge (Grix, 2002). The philosophical terminology epistemology is said to have originated from the Greek words *episteme* (Knowledge) and *logos* (reason), it is centred on knowledge-gathering process and is concerned with establishing new theories (Grix, 2002).

"Epistemology has traditionally been conceived as a branch of one the grand divisions of philosophy, methodology, or ways we as human beings come to know the world" (Von Krogh and Roos, 1995, p.7). The study of epistemology is usually concerned with the basis and validity of knowledge (Crotty, 2003). Epistemology to some degree is a theory of knowledge (Bryman and Bell, 2007). Epistemology is normally concerned with the source, nature, and limit/strength of knowledge (Crotty, 2003).

The researcher's understanding of the research subject matter has helped to define the boundary of inquiry in understanding manufacturing strategy process and practice of Nigeria MSMEs. Epistemology is the value of knowledge inside a subject, its function, capacity, boundaries, and potentials (Maynard, 1994; Hamlyn, 1995; Crotty, 1998). Epistemology is how the researcher perceives things around them and makes sense of it (Crotty, 1998). In some studies, epistemology has been referred to as post-positivism which has raised some cloud of confusion on how to distinguish it from ontology as they are both concerned with knowledge (Collis and Hussey, 2003). Nevertheless, it has been identified in recent times that other positions such as f*eminism*, critical inquiry have also emerged (Crotty, 2007). The epistemological assumption can be split into either the positivist or interpretivist paradigms (Collis and Hussey, 2003).

3.2.3 Constructionism

Schwandt (2001) posit that the constructionist perceives reality as socially constructed. The researcher's constructionist view is to inquire and understand manufacturing strategy process and practice of Nigerian MSMEs and identify their

manufacturing challenges. The aim of the constructionist is to inquire and understand, reconstruct examine and critique the views of participants to establish the meaningful conclusion that exists in the minds of those individuals (Guba and Lincoln, 1989). In other to establish meaningful conclusion of the researcher constructivist position 17 Nigerian MSMEs managers were interviewed and their views were analysed to make a contribution to knowledge and practice of manufacturing strategy in emerging economy. Constructionism is the epistemology that views knowledge as being subjective and does not accept the objectivist viewpoint of knowledge (Crotty, 1998). It implies that subject and the object are vigorously contributed to the creation of the meaning (Guba and Lincoln, 1989).

Researchers have the tendency to construct meaning in different ways even when they are studying the same phenomenon (Crotty, 1998). The constructionist paradigm is...“ a perspective that emphasises how different stakeholders in the social settings construct their beliefs” (Schutt, 2006:44). Constructionism has its underpinning emerged from the work of Berger and Luckman (1966). It is one of the various approaches that are suggested as an interpretive method (Easterby-Smith *et al.,* 2008). In order to discover the truth in the understanding of manufacturing strategy process and practice, the researcher interacted with the managers and owners of Nigerian MSMEs by interviewing them. Crotty (2003) asserts that different epistemological viewpoint can be described as constructionism and that constructionists usually rejects the objectivists view of the human knowledge, arguing that there is no intention to discover truth since truth exist only during interaction with the realities of the world. The researcher’s constructionist view is to gain understanding and make meaning out of the manufacturing strategy process and practice of Nigerian MSMEs, identify and review their manufacturing priorities and challenges and make a contribution to academic knowledge and professional practice.

3.3 Theoretical perspective

The researcher has chosen the interpretivism philosophy as the researcher is highly involved in the research process to establish the manufacturing strategy process and process of Nigerian SMEs by gaining the experiences of senior managers and owners of SMEs. There is another philosophy called positivism which believes that

the social world exists externally and can be measured through objective methods that can be rationalised and generalised (Easterby-Smith *et al.,* 2012). The research did not adopt positivism as it is usually linked with quantitative data that are analysed statistically to determine causal relationships between measurable variables (Collis and Hussey, 2003). The researcher did not choose the positivism philosophy as it assumes the stance of a natural scientist, an objective and independent analyst of the research, making the interpretation of data collected in a value-free manner (Remenyi et al, 1998). The researcher did not choose the positivism philosophical approach as it is used as a highly structured methodology to facilitate replication on the quantifiable observation that leads to statistical analysis (Gill and Johnson, 1997).

3.3.1 Interpretivism

Interpretivism is referred to as social constructionism in some studies and has an ontological position that explains social phenomena as being socially constructed (Bryman and Bell, 2007). The interpretivist enquires about the human behaviour and the social world while the positivist looks for ways to explain the situation (Bryman, 2008). Social constructionism is centred on how people make sense of the world around them by sharing their experiences with others (Easterby-Smith *et al.,* 2012). It has been argued that the primary aim of interpretivism should be to understand why people have diverse experiences during social interaction and explain the continuous changes (Bryman and Bell, 2007).

Taylor and Bogdan (1998) state that interpretivists think it is a requirement to capture the course of action of human understanding, where qualitative research is a better research process. Likewise, Collis and Hussey (2003) have indicated that Interpretivism involves a qualitative approach, which makes reference to the '*how',* '*why*' and `*what*' research questions.

Adopting an interpretivism philosophy, enabled the researcher to enter the social world of Nigerian MSMEs manager and owners to interview them and gain their knowledge of manufacturing strategy process and practice, manufacturing decisions and also identify their manufacturing priorities and challenges. The researcher interpreted the data collected from the interview of Nigerian MSMEs

managers to provide an answer to the research question and satisfy the overall objectives of the research which was embarked on to understand the manufacturing strategy process to identify the manufacturing priorities and challenges and make the appropriate recommendations. The table below is to point out the key characteristics and difference between the positivism and interpretivism philosophical approach as presented by Easterby-Smith *et al*., (2008).

Table 3.1 Difference between positivism and interpretivism

Characteristics	Positivism	Interpretivism
Researcher (the observer)	Must be independent	Part of the study and what is being observed
Explanations	Must demonstrate causality	Aim at increasing the general understanding of the situation
Research Process	Hypotheses and deductions	Gather rich data from which ideas are induced(the research moves from data to theory)
Concepts	It needs to be carried out in a way that its research variable can be measured	It should incorporate the stakeholder's perspectives
Units of Analysis	The analysis should be reduced to simplest terms	The analysis might include complex situations
Generalisation	Statistical probability	Theoretical abstraction
Sampling	Large numbers can be selected randomly	Small numbers of cases selected for detailed reasons

Source: Adopted from Easterby-Smith *et al*., (2008).

3.3.2 Justification of research philosophy

The researcher considered several philosophical underpinnings to enable the understanding of the phenomenon. The first to be considered was the positivist philosophy. This philosophy was rejected outright due to its stance that the person conducting a research will assume the stance of a natural scientist and an objective analyst (Remenyi *et al.,* 1998). In the positivism philosophical position, there is an emphasis on a highly structured methodology to facilitate replication and quantifiable observation that leads to statistical analysis (Gill and Johnson, 1997).

The positivist philosophy was rejected due to the fact that it involves the testing of hypotheses through the deductive approach in which the research moves away from theory to data (Bryman and Bell, 2007). The positivist philosophy does not support the how and why research questions (Creswell, 2009) that the researcher seeks to explore. Positivist philosophy was rejected as the researcher focus was on developing theory rather than testing theory to explore the correlation between variables. In the positivist research stance, the tradition requires that theory is tested and variables are measured to explore relationships between them (Easterby-Smith *et al.* 2012). The other research philosophy that was considered is the realism. This was also rejected due to, the fact that realism has similarity to positivism that assumes a systematic approach to the development of knowledge and can sometimes generate some misunderstandings (Crotty, 1998). The researcher adopted the interpretivist philosophy. The interpretivist philosophy allowed the researcher to play a significant role in the research process by making an in-depth inquiry into the understanding of manufacturing strategy process and practice of Nigerian MSMEs, identifying the priorities, challenges and to gather rich data that will help further develop the subject matter. The interpretivist philosophy was chosen by the researcher as it supports the what, how and why questions, where data are analysed to build theory and the research then moves away from data to theory (Creswell, 2009).

3.4 Research process

The research process commenced with the initial reading of various literature, materials, which led to the identification of a gap in the literature of manufacturing strategy and manufacturing priorities of Nigerian MSMEs. Literature revealed that manufacturing strategy and manufacturing priorities in Nigerian MSMEs have not been researched. Therefore the research method has been developed to fill this gap in knowledge. The classification of a research will depend in terms of their purpose or rationale. Research is mostly classified as exploratory, descriptive or explanatory (Creswell, 2009). The exploratory research is useful when the research question is unclear, or when there is little theory to guide its predictions. Sometimes researchers might find it impossible to put together a basic claim of the research problem, in this situation the exploratory research is used to establish a more better understanding (Hair *et al*.,2003). The exploratory studies are vital means of revealing what is happening, the perception to enquire and to assess the phenomena in a new direction (Hair *et al*., 2003).

The exploratory studies are guided by three basic principles, a search of the literature, speaking to the subject experts and conducting interviews (Saunders *et al.,*2009). According to Hair *et al*., (2003) descriptive studies simply describe some situation and are usually structurally designed to determine the features described in research question through hypotheses developed from theory and provide a record of what needs to be measured. Explanatory studies are studies that might establish a causal relationship between variables and further test whether an event causes another (Hair *et al*., 2003).

This DBA research is exploratory in nature since the researcher wants to establish a better understanding of the manufacturing strategy and manufacturing priorities of Nigerian MSMEs based on developing new knowledge in the research area and making a contribution to professional practice. The research design is the research process that engages the whole aspect of the research to the method of data collection, design, and analysis (Creswell, 2009).The choice of a research design is dependent on the objectives of the research to enable the researcher to answer the research questions(Crotty,2003).The researcher seeks to understand the

manufacturing strategy process and practice of Nigerian MSMEs, by interviewing senior manufacturing managers and owners of MSMEs to gain their knowledge

3.4.1Quantitative research approach

The quantitative approach is where the researchers make use of the positivist claim and utilise strategies of analysis such as survey and experiment and collect data on predetermining research mechanism or instrument that produce statistical data (Creswell, 2009). In the quantitative research approach, the studies are mostly chosen at random to reduce error and to eliminate bias, it has a deductive characteristic which makes a contribution to knowledge by theory testing (Patton, 1990).

This study did not adopt the quantitative research approach, as the researcher wants to answer the what, why and how questions in understanding the manufacturing strategy and manufacturing priorities of Nigerian MSMEs and build up theory from the research rather than test theory with hypotheses. The quantitative research approach uses surveys, experiment, and questionnaires to collect data which are analysed statistically (Hittleman and Simon, 2006). Selecting the appropriate research approach is very important in the research process (Guba, 1981).This research aim is to develop an understanding of the manufacturing strategy process and practice of Nigerian MSMEs and identify their manufacturing priorities and manufacturing challenges.

3.4.2 The development of qualitative methods

Management pundits have asserted that the research techniques we presently describe as qualitative was propagated in the earlier years of the social sciences from the middle of the 19th century to the middle of the 20th century. The increase in survey research and progress made in statistical techniques, assisted by the advancement of computer and software technologies making it easier to analyse huge dataset, making the quantitative approach to dominate by the year 1970. The strength of such difference between quantitative and qualitative research has been subjected to some questions (Atkinson *et al.,* 1988; Delamont *et al.*, 2000).

However, the seminal work of (Glaser and Strauss 1967) published on Grounded theory and the work of (Denzin, 1970) termed The Research Act signified the

argument against what these scholars observe as the dominance of quantitative approach. These scholars have also been critical about what they perceive as flaws in the positivist quantitative approach and put in place structures in which qualitative data might be gathered and analysed to show forth its thoroughness and rigour. All these occurrences were at the time when other attacks on quantification and positivism were taking place in philosophy, cultural studies and social science and ended in the well-known paradigm war in which qualitative debates are set against quantitative debates(Gage, 1989; Hammersley, 1992).

The qualitative research approach is often engaged to address the *whys* and *how's* of the human views and knowledge which can be very difficult to achieve through the quantitative approach of data collection. It has been noted that researchers and practitioners in the various areas of studies such as marketing, sociology, psychology, nursing, education, and anthropology repeatedly used the qualitative research approach to address the question of human's relation and interaction with the wider world (Creswell, 2009). The main purpose of the qualitative research approach is to illustrate and identify with the phenomenon studied by taking into account the communication of participants' in their own words, through observation and interview (Yilmaz, 2013).

In using the qualitative research approach, a hypothesis is not required to commence the research process; it makes use of the inductive data analysis to provide a better understanding of the interaction of "equally shaping influences" and to explain the interacting realities and experiences of researcher and participant (Lincoln and Guba, 1985).The qualitative approach allows the design to develop, instead of having a design at the onset of the study since it allows for a design to evolve rather than having a complete design in the beginning of the study as it is hard to envisage the effect of interactions due to the different stance and values systems of the researcher and participants, and their control on the explanation of reality and the outcome of the study(Lincoln and Guba, 1985).

Nonetheless, all quantitative research approach needs a hypothesis to enable the commencement of research process. Qualitative research findings are highly context-dependent and as such researchers are expected to keep the research outcomes in context and report any personal and professional information that

might interfere or have an impact on the data collection process and its analysis and interpretation (Yilmaz, 2013). The qualitative research approach is intended to facilitate researchers to identify with individuals and the social and cultural perspective in which they live (Myers, 2008). The qualitative research approaches are concerned with the research context, interpretation, and understanding by way of inductive reasoning (Yilmaz, 2013). It has been noted that the qualitative research is based on multiple methodologies and does not belong to a single discipline (Denzin and Lincoln, 2005; Yilmaz, 2013).

Consequently, the researcher decided to use the qualitative method to achieve the overall aim of the study as most of the production and operations management literature has been centred on quantitative research which lacked the in-depth theoretical consideration (Stokes, 2000; Barratt et al., 2011). The qualitative research method has assisted the researcher to get an in-depth knowledge of the subject matters being examined. The qualitative research is an approach that has allowed the research question to be answered by providing a full representation of the real manufacturing environment encompassing the manufacturing strategy process and practice of the Nigerian MSMEs.

3.4.2.1 Inductive approach

The inductive research approach commences with the interpretations and theories are created towards the end of the research process and as a result of the interpretations (Goddard and Melville, 2004). The inductive research approach allows flexibility on the researcher to be able to change the direction of the research, even after the research process had begun (Bernard, 2011). In the inductive research approach, the researcher starts with a detailed interpretation of the world which moves towards more theoretical synopsis and idea(Neuman,2003).The Inductive approach, in essence, is the reverse of research process found in the deductive research where the research moves from data to theory (Lancaster, 2005).

Figure 3.2 Inductive approach Source: Lancaster (2005)

The inductive approach is being referred to as the bottom-up approach where the researcher uses the interpretations to put together a concept to explain the phenomenon that is researched (Lodico *et al.*, 2010).

Table 3.2 Comparison between quantitative and qualitative approach

Quantitative Research	Qualitative Research
Assumptions	**Assumptions**
❖ Reality is single and substantial. Social facts have an objective reality.	❖ Realities are multiple, holistic and constructed, and holistic. Reality is socially constructed
❖ The variables can be identified and their relationships measure.	❖ Knower and known are interactive, inseparable
❖ The researcher is independent.	❖ Primacy of subject matter
❖ Investigation is objective and value-free.	❖ Variables are complex, interwoven, and difficult to measure.
Purposes	❖ The inquiry is subjective, value-bound.
❖ Generalised statements	**Purposes**
❖ Prediction	❖ Contextualisation (Only time and context bound working hypotheses through idiographic statements)
❖ Casual explanations	❖ Interpretation
Approach	❖ Understanding actors' perspectives
❖ Begins with hypotheses and theories	**Approach**
❖ Manipulation and control	❖ Ends with hypotheses or grounded theory
❖ Uses formal, structured instruments	❖ Emergence and portrayal
❖ Experimentation and intervention	❖ Researcher as the instrument
❖ Deductive	❖ Naturalistic or non-intervention Inductive
❖ Component analysis	❖ Searches for patterns
❖ Seeks consensus, the norm	❖ Seeks pluralism, complexity
❖ Reduces data to numerical indices	❖ Makes minor use of numerical indices
❖ Abstract language in write-up	❖ Descriptive write-up
Researcher Roles	**Researcher Roles**
❖ Detachment and impartiality	❖ Personal involvement and partiality
❖ Objective portrayal	❖ Empathic understanding
❖ External point of view	❖ Internal point of view)

Source: Sage (2013)

3.4.2.2 Justification for qualitative research method

According to Crotty (2007), it is fundamental to illustrate the chosen research technique distinctively as necessary. Table 3.2 describes the different types of qualitative research, while table 3.3 compared the different features of quantitative and qualitative research approach. The researcher preference for taking a qualitative research approach for this study is in line with the aim and objectives of the research

to develop an understanding of the manufacturing strategy process and practice by taking into account the background of the study (Bryman, 2007; Yin, 2009).

The problems identified in the introduction chapter one of the thesis enabled the researcher to adopt a qualitative research approach in this study to examine the what, why and how questions. The nature of the qualitative research approach is subjective (Myers, 2009), which enabled the researcher to analyse the experiences of Nigerian MSMEs to build an understanding of the manufacturing strategy process and practice. The quantitative research approach is not suitable for this study since it cannot explore and explain the complexity of the research, it is relatively more suitable for verifying what has already be known about a particular phenomenon (Morse and Mitcham, 2002; Rolfe, 2006).

The quantitative research approach allows researchers to be independent to the concept being researched and often produces hypotheses that are tested (Golafshani, 2003). In this study, the qualitative research approach was adopted on the basis of the researcher's epistemological stance. The ability to recognise or identify the association between the epistemological foundation of a research and the techniques used in carrying out the study is essential in order for the study to be truly significant (Darlaston-Jones, 2007). The researcher has adopted an interpretivist epistemological stance, designed to build an understanding of the manufacturing strategy process and practice of Nigerian MSMEs and help identify their manufacturing priorities, the decisions made and manufacturing challenges. This is consistent with the qualitative research approach (Easterby-Smith, 2012). The interpretivist paradigm is appropriate for this study as it recognises the features of Nigerian MSMEs and their functions in the manufacturing strategy process (Crotty, 2007). While the generalisability of findings in the interpretivist approach is sometimes questioned (Miles and Huberman, 1994), the aim of this study is to develop theory from the rich qualitative research data as it will help us to understand an in-depth analysis of the manufacturing strategy process and practice of Nigerian MSMEs. Taking into consideration the significant role MSMEs play in the economic development of countries globally and emerging country as Nigeria(Onuorah,2009), MSMEs was considered for the research to explore and understand the manufacturing strategy process and identify manufacturing priorities and challenges of Nigerian MSMEs. The study has been designed to allow the use of a qualitative research approach that provides rich data and the research which could be

enhanced and allow the unique characteristics of each circumstance to be well recognized (Bryman, 2007).

Dangayach and Deshmukh (2001) in their study of manufacturing strategy identified some of the challenges that manufacturing manager's encounter while formulating manufacturing strategy for their organisations. Moreover, a qualitative study also allows researcher to employ several sources of data in investigating the research questions which supports the justification of data collection through conducting semi-structured interviews (Easterby-Smith *et al.*, 2012; Yin, 2009). Consequently, the researcher has decided to use the qualitative study to provide a detailed investigation and substantial understanding of the manufacturing strategy process and identify manufacturing priorities and challenges facing MSMEs in Nigeria.

There has been much argument that the human knowledge is best researched by using the qualitative research data (Guba, 1981; Denzin and Lincoln, 2003; Domegan and Fleming, 2007). Selecting the appropriate research approach is very important in the research process, this will enable the researcher to select the paradigm that has assumptions suitable to the phenomenon being investigated (Guba, 1981).This research aim is to develop an understanding of manufacturing strategy process and practice of Nigerian MSMEs and identify the manufacturing priorities and challenges. In general qualitative researchers are more concerned with the process that produced the result rather than the result and this is necessary to understand the participant's position in the research and their insights of the experience (Guba, 1981; Price, 2002).

The researcher's choices of qualitative research approach for this study is consistent with the aim of the research to determine a complex phenomenon by taking into consideration the background of study (Yin, 2009). It is worthwhile to note that the choice of qualitative research method was based on the complexity of the phenomenon which resulted in the researcher asking the *how* question (Myers, 2009). The research methods that have been used in manufacturing strategy and manufacturing operations include the quantitative and qualitative approach. However, there has been a bias towards the use of a quantitative based research in the study of production and operations management in which manufacturing strategy

falls within, according to a recently published review of research methods (Barratt *et al*., 2011). Barnes (2002) and Barratt *et al*., 2011 have argued for the use of more qualitative research methods aside quantitative research approach to broaden our understanding of the subject of manufacturing strategy within the field of production and operations management. The table below gives an overview of some of the researches that were conducted within the study of manufacturing strategy in the last 10 years and the research methods used

Table 3.3 Research methods within manufacturing strategy research

Year	Researchers	Researched Area	Methods
2016	Ehi and Muogboh	Manufacturing Strategy analysis	Quantitative
2015	Chatha and Butt	Manufacturing Strategy	Quantitative
2014	Löfving *et al*	Manufacturing Strategy Framework	Qualitative
2013	Sainidis	Manufacturing Strategy and Priorities	Mixed
2012	Ghazinoory *et al*	Manufacturing Strategy Formation	Qualitative
2012	Lin *et al*	Manufacturing Strategies for a time -based Competitive advantages	Qualitative
2011	Hallgren *et al*	Manufacturing Strategy Configurations	Quantitative
2009	Kiridena *et al*	Manufacturing Process	Qualitative
2009	Miltenburg	Setting Manufacturing Strategy	Quantitative
2009	Rosenzweig and Easton	Tradeoffs in Manufacturing Strategy	Quantitative
2008	Thun	Manufacturing Strategy Implementation	Quantitative
2008	Wang and Cao	Planning Manufacturing Strategy	Quantitative
2007	Zhang and Sharifi	Agile Manufacturing Strategy	Quantitative
2006	Zhao *et al*	Manufacturing Strategy	Quantitative
2006	Grössler and Grübner	Manufacturing Strategy Configurations	Quantitative

3.4.3 Data sampling

The sampling frame constitutes the registered MSMEs in Nigeria. Taking a random sample present the best chance to generalise the findings to the population nevertheless, it is not the most useful way of developing an understanding of complex problem relating to human actions (Marshall, 1996) Random sampling could lead to data being skewed towards a particular subgroup, consequently giving sampling error; therefore it is not recommended (Eisenhardt, 1989; Patton, 1990). Stake (1995) recommends that if possible, researchers to choose cases that are mutually unproblematic to get into and also useful to the research investigation. This kind of selection is referred to as “purposeful sampling”. Merriam (1998) described purposeful sampling as the most frequent sampling method used in selecting the cases. In purposeful or purposive sampling, the sample is specially selected for the research (Denscombe, 2007).

The term purposeful sampling is practical to those situations where the researcher already knows something about the particular people or events and knowingly selects a particular one because they are seen as illustrations that are likely to produce the most valuable data. They are mainly selected with a definite purpose and that purpose reflects the particular qualities of the people or events selected and their significance to the theme of the investigation (Denscombe, 2007). The researcher has chosen the purposive sampling technique in selecting the MSMEs. According to Merriam (1998:61) “purposive sampling includes determining selection criteria that are essential in choosing what is to be studied as the criteria reflect the purpose of the study and guide the researcher to the identification of information-rich cases”.

The researcher contacted the umbrella body of all the registered manufacturing firms in Nigeria (MAN) to request the list of MSMEs registered with them. Despite the fact that Nigeria has more than 2000 registered businesses as MSMEs, only 25 have full contact details; others have only their State location, which makes contacting them very difficult. This pattern of behaviour exhibited by these MSMEs is well noted for various reasons. Aremu and Adeyemi (2011) and Onugu (2005), noted that Nigeria MSMEs are continually being harassed by Government agents for a tax levy, often times money are extorted from them by persons impersonating as agents of Governments, which have made these MSMEs to hide their business locations. However, the researcher was able to contact MSMEs from the details provided by Manufacturing Association of Nigeria (MAN) to request their participation in the research. Out of the 25, MSMEs contacted 20 of them agreed to participate in this study.

Researchers commonly seek to collect data to explain a phenomenon of interest and then construct theories from the collected data. Theory construction takes place as the data are being collected. Saturation is the point in data collection when no new or relevant information emerges with respect to the newly constructed theory (Easterby-Smith *et al.*, 2012; Onwuegbuzie, *et al.*, 2012). Hence, a researcher looks at this as the point at which no more data needed to be collected. When the theory appears to be robust with no gaps or unexplained phenomena, saturation has been achieved and the resulting theory is more easily constructed (Onwuegbuzie *et al.*,

2012). If the researcher does not attain data saturation, any resulting theory may be unbalanced, incomplete, and essentially untrustworthy (Easterby-Smith *et al.*, 2012). Data saturation was reached when the researcher had enough information to replicate the study after conducting 17 interviews when further coding was no longer possible and the ability to obtain additional new information has been accomplished. Therefore 17 interviews were deemed enough to complete the study.

3.4.4 The Data Requirement Table

The data requirement table enables the researcher to develop the interview questionnaire from literature in such a way that it points out the variables and the justification for such question. The requirement table makes the data analysis straightforward as themes are easily identified which become very useful during the coding of data. The data requirement table enables the researcher to develop interview questions that will help achieve the research objectives and answer the research question

Table 3.4 Data requirement table

Research question/Objectives:			
Type of research			
Investigative questions	**Variable(s) required**	**Details in which data measured**	**Justification for choosing question**
Question 1-2 Identification of research participants	▪ Name of organisation ▪ Position of participant in management	▪ Trading name of organisation ▪ Participant position in management within organisation	Data collected to ensure trustworthiness and credibility, confirming that participant is members of the organisations, holding CEOs, owners, directors and senior managerial positions. Collecting the names of organisation and position will enable the accuracy of data for analysis.
Question 3-6 Demographic data of participating organisations.	▪ Number of employees in each of the organisation (nominal data) ▪ Annually recorded turnover in (₦) naira ▪ The age of the organisation ▪ Nature of industry	Less than 10, 10-50, 51-100, 101-200, 201-300, more than 300. The number of years in business. Type of product manufactured	The question reflects representation of the participating MSMEs as defined (SMEDAN,2007)
Question 7 How do you	▪ Business planning ▪ Pro-activeness	Business resources and manufacturing objectives	The question reflects on the business planning

formulate your company's manufacturing strategy	▪ Priorities ▪ Decisions ▪ Pattern of actions ▪ Portfolio of manufacturing capabilities ▪ Programme of improvement ▪ Performance measure		framework, competitive strength possessed by the manufacturing function and their relative importance and means by which manufacturing is evaluated by manufacturing managers (Leong and Ward, 1995; Dangayach and Deshmukh, 2001; Miltenburg,2005; *Löfving et al.*,2014)
Question 8 Can you comment on the overall manufacturing strategy formulation process in your company?	Time frame of planning process and reviews	How the plans are reviewed. The number of year before review	This highlight the strategy review mechanism and timeframe Miltenburg,2005; *Löfving et al.*, 2014)
Question 9 How do you make your manufacturing decisions?	▪ Infrastructure ▪ Equipment ▪ Machines ▪ Location ▪ Human resource system ▪ Technology ▪ Products ▪ Resources ▪ Facility ▪	Process choice Manufacturing planning and control	The question reflects manufacturing decision areas discussed in the manufacturing strategy content literature(Hayes and Wheelwright,1984; Hill, 2009; Slack *et al.,*2011)
Question 10 What are your manufacturing priorities?	▪ Cost ▪ Quality ▪ Delivery ▪ Flexibility ▪ Innovation	Competitive priorities, capability and Manufacturing performance	The question reveals the manufacturing priorities and other strategic concerns raised in the manufacturing strategy literature by academics and professionals which are useful to manufacturers, and the Nigeria- based SMEs of the manufacturing sector (Dangayach and Deshmukh, 2001; Rudberg and Olhager, 2003; Grössler and Grübner, 2006; Slack *et al.*, 2007; Hill, 2009; Schroeder *et al.*, 2011; Hallgren, 2011).
Question 11 Do you have a preference for any particular manufacturing priority? If no, why have you not? If yes, why have you?	▪ Cost ▪ Quality ▪ Delivery ▪ Flexibility	Trade-off	The question reflects on manufacturing trade-off, where a particular priority is given preference to another priority (Skinner,1969; Hayes *et al.,*2005; Rosenzweig and Easton, 2010)
Question 12 How would you describe the challenges you face as a manufacturer in Nigeria?	▪ Transportation ▪ Suppliers ▪ Raw material ▪ Exchange rate ▪ Electricity supply ▪ Tax duty ▪ Fuel costs	Manufacturing challenges and concerns	This reflects SMEs manufacturing challenges faced in developing nations like Nigeria(Olorunshola, 2003; Ojo, 2009; Onuorah, 2009; Ayanda and Laraba,

			2011).
Question 13 Cost is a major issue to Nigerian MSMEs, how do you deal with the cost of your manufacturing?	▪ Cost of imported material ▪ Cost of tax duty ▪ Machines ▪ Energy ▪ Delivery ▪ Quality	Cost of meeting the manufacturing challenges	This reflects the cost of manufacturing challenges facing Nigerian SMEs(Onuorah, 2009; Ayanda and Laraba, 2011)
Question 14 What is your policy on quality improvement?	▪ Product performance ▪ Conformance ▪ Durability	Develop an understanding of quality. Standardised procedures to maximise efficiency.	This will ensure that the product inspection is carried out routinely and build quality testing process.
Question 15 How do you ensure the quality of your products?	▪ Reduce defects ▪ Minimise product failure ▪ Maximise product consistency	Understand the way product is produced to eliminate defects, failures and maintain quality consistency.	Ensure process discipline and fix the root causes of defects rather than focus on the defects.
Question 16 What is your company's main competitive advantage?	▪ Quality ▪ Product range ▪ Design ▪ Flexibility ▪ Availability ▪ Cost ▪ Delivery /Speed	This feat can be realised by managing the firms around, how customers values are efficiently created, delivered and how the processes can be managed	This shows how manufacturing firms' competitive advantage can be attained by giving customers better value, both in offering the same or more benefits than their competitors at a lower cost (Porter, 1996; Hilmola *et al*., 2015)
Question 17 How do you support or sustain this competitive advantage?	▪ Product performance ▪ Cost ▪ Availability ▪ Product design ▪ Delivery	Maintain and sustain the product quality and value creation	To be able to maintain the quality of products, reduce cost of product, deliver product on time and the ability to meet demands of volume of productHayes and Wheelwright,1984; Hayes *et al.,*2005; Hill,2009)
Question 18 How are you able to compete with imported manufactured products?	▪ Quality ▪ Product range ▪ Design ▪ Flexibility ▪ Availability ▪ Cost ▪ Delivery /Speed	Competitive capability and advantage	This shows the competitive dimension and strength of MSMEs(Hayes and Wheelwright, 1984;(Dangayach and Deshmukh, 2001; Rose *et al.,*2010; Hallgren *et al.,*2011)
Question 19 How often do you develop new products?	▪ New product ▪ Product design ▪ Modification	Manufacturing flexibility and innovation	It concerns product innovation and flexibility(Rose *et al.,*2010)
Question 20 How do you determine the company's products?	Product range Market demands Product development	Evaluate the manufacturing capabilities of the company	This will reflect the type of products that are made to specification to appeal to the different market segment (Hayes *et al.,*2005).
Question 21 How is a decision made in terms of volumes of product?	▪ Product market analysis ▪ Product performance	Manufacturing flexibility of value chain and making a variety of products in the quantity that meets customer demands.	This is strategically important for enhancing competitive position and winning customer orders (Zhang *et al.,*2003)
Question 22 How do you source for your raw material?	▪ Locally supplied ▪ Imported	Raw material availability quality and cost	Material procurement, supply, and availability for production (Onuoha, 2009).
Question 23 As a manufacturer	▪ Manufacture quality product	Management and leadership structure	The managing of the manufacturing process(

what do you consider to be a key success in your company?	▪ Product delivery mechanism ▪ Product range		Achanga *et al.*,2006)
Question 24 What role can the Government play to aid the development of the Manufacturing Industry**?**	▪ Strengthen the power sector ▪ Address the infrastructural challenges ▪ Local content	The government has to address the power sector and tackle the infrastructural challenges faced by Nigerian MSMEs	The government policy on power generation needs to be reviewed to enable manufacturing firms to generate their own power(SMEDAN,2007)

Source: Adopted from Sainidis (2013)

3.4.5 Pilot study

The pilot study allowed the researcher to establish, recognise and be able to understand any issues that might arise from the interview questions. For instance, the misunderstanding of the questions from participants, replication of questions and the duration of answering questions (Cooper and Schindler, 2008). The essence of conducting a pilot study is to enable the researcher to solve any problem that may arise before the questions are used with the particular study (Crimp and Wright, 1995). Nevertheless, conducting the pilot study enabled the researcher to establish an initial understanding of the manufacturing strategy process and practice of Nigerian MSMEs. Embarking on the pilot study also enabled the researcher to avoid and prevent costly mistakes that might occur as a result of the lack of clarity in the interview questions, which helped to improve the accuracy of the interviews and research findings (Crimp and Wright, 1995). At first, the researcher wanted to conduct four pilot interviews too but could not get in touch with the fourth manager. The pilot study involved three senior managers of Nigerian MSMEs based in Lagos, Benin, and Ibadan. The 3 senior managers have more than 25 years of combined manufacturing experience and they understood the subject matter as evidenced in the pilot study. Each pilot interview lasted between 45- 60 minutes. However, the researcher encountered some difficulties while carrying out the pilot study which is as follows:

- The first and second manager I spoke to on phone was very knowledgeable and understands the subject matter, however, there was telephone network problem as the line keep cutting off. I was able to meet them face to face later when I traveled down to Nigeria for the primary data collection.

- Their third manager was having some doubt, as he was not sure I was doing the research for myself or paid by the Nigerian government to find out about his business. I showed him my Northumbria University identity card and the university consent form he had signed previously before he could speak to me. He said most people come to speak to them after they have left, they will start receiving so many letters for different payments. The manager was quite knowledgeable.
- The fourth manager of the MSMEs could not be reached on phone. An email was sent, but there was no reply.

The fourth manager later participated in the primary data collection interviews.

3.4.5.1 Feedbacks from the pilot study

After the researcher had piloted the interview questionnaire, a request was made to the pilot study participants to give their feedback. One of the participants said the questions in the interview questionnaire were too long, and as such could not understand the questions in order to answer it properly. The senior managers of Nigerian MSMEs hinted that a simplified questionnaire would be completed easily and might create better understanding and support in answering the interview questions. Therefore, after reading through and examining the questionnaires from the pilot study, the research reframed some of the questions to make it clearer and easy to understand. Also, a number of questions were removed from the questionnaire to avoid misinterpretation. The interview questionnaire is in the appendix section of this thesis.

3.4.6 Interviews in qualitative research

The use of interviews in a qualitative research is well acknowledged and recognised (Yin, 2009). The interview is simply a verbal exchange that is well coordinated and managed by the researchers (Gillham, 2000; Ritchie and Lewis, 2003). The success of an interview is dependent on a number of factors, the skill and communication of the interviewer (Clough and Nutbrown, 2007). The total of seventeen interviews was conducted with managers of 17 MSMEs businesses located across Nigeria, to enable the researcher answer the research question and meet the research objectives. The 17 interviews were conducted face-to-face at the

business locations of the Nigerian MSMEs. The interviews took place in Nigeria over a three-week period, as scheduled by the research participants. The interview enabled the researcher to gain an insight into the experiences of the 17 managers of Nigerian MSMEs to understand their manufacturing strategy process and practice, the manufacturing decisions made and identify the manufacturing priorities and challenges. During the interviews, notes were taken and the interview conversations recorded with a digital audio device. After each recorded interviews, the audio recordings were played and listened to before the next interview. The interview process allowed the researcher to exchange information with the interviewees, which led to an effective communication as they are not under stress. The researcher sometimes pauses to allow the interviewees to completely express all their views. The whole interview was semi-structured to enable the researcher direct and guide the interviewees in focusing on the main issues of the subject and providing the platform for clarification and explanations of the answers.

3.4.6.1 Justification for the use of semi-structured interviews

The researcher's choice of the semi-structured interview was informed by the words of Noor (2008:1604) who argued that,

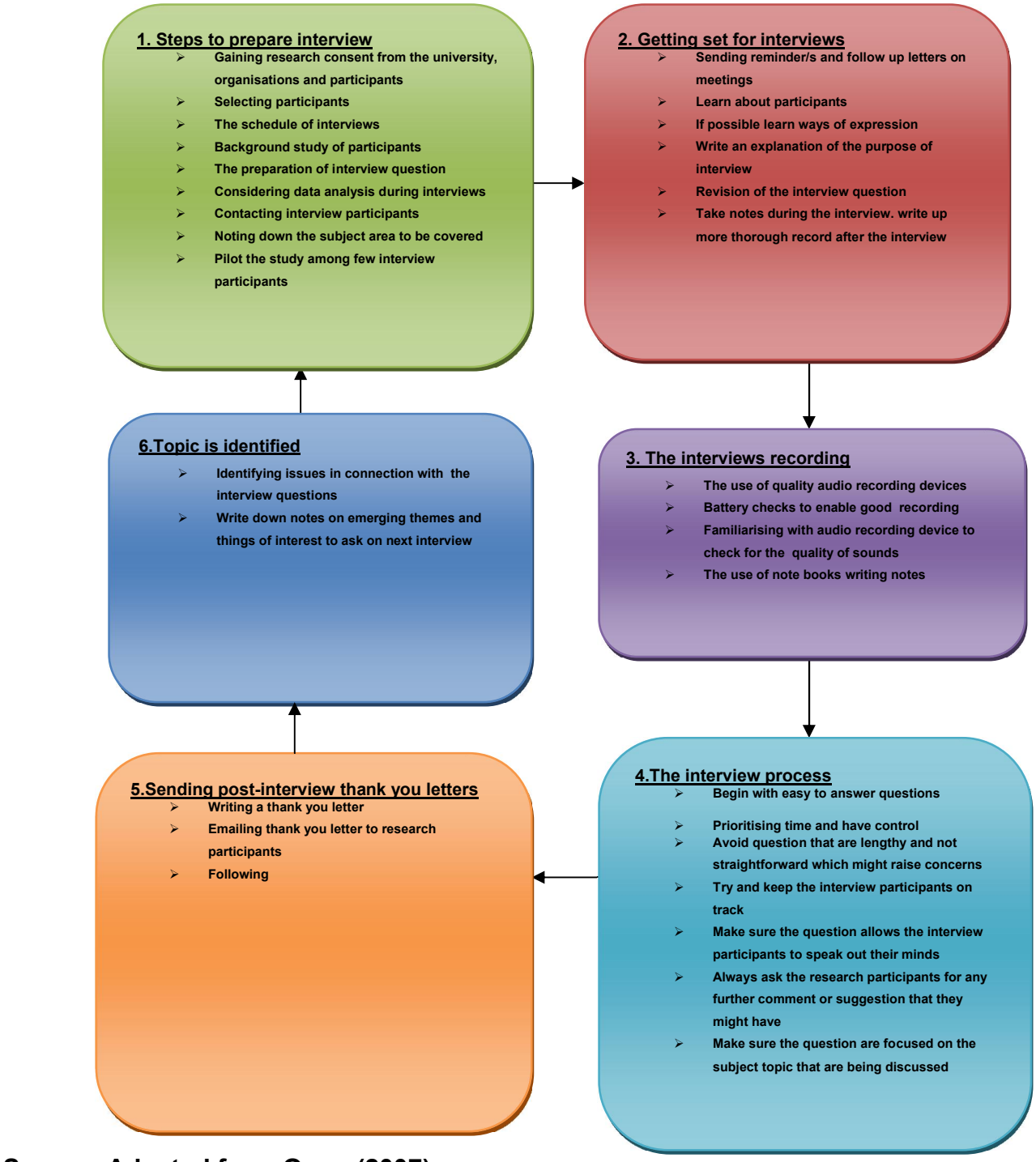
"Semi-structured interviews were employed because it offers sufficient flexibility to approach different respondents differently while still covering the same areas of data collection."

In further consideration of the different types of interviews Bryman (2007) and Robson (2002) established that the semi-structured interview is one of the primary data gathering techniques used in qualitative research and the most common type of interviews in qualitative research. Also, Horton et al (2004:340) expressed that,

"semi-structured interviews were chosen in order to allow the interviewees a degree of freedom to explain their thoughts and to highlight areas of particular interest and expertise that they felt they had, as well as to enable certain responses to be questioned in greater depth, and in particular to bring out and resolve apparent contradictions."

The semi-structured interview enabled the researcher to collect consistent and trustworthy data that are pertinent to the research question and objectives. The semi-structured interview allowed the researcher to interact with the interviewees freely.

Figure 3.3 The steps taken for interview



Source: Adapted from Quan (2007)

3.5 Qualitative data analysis

The data analysis is the course of action taken to direct, organise and bring understanding to the collected data (de Vos *et al.,* 2002).

3.5.1Thematic analysis

In the later stage of this research, the data that was collected was analysed by means of the principles of thematic analysis frequently referred to as the template analysis (Miles and Huberman, 1994; Crabtree and Miller, 1999; King, 2004; Waring and Wainwright, 2008). The thematic analysis presents the research framework that shows the richness of data and enabled the researcher to arrange the data obtained into structural units for straightforward analysis (Crabtree and Miller, 1999). The thematic analysis is a procedure that can be applied in a qualitative research to interpret qualitative information into quantitative data if required by the researcher (Braun and Clarke, 2006).

3.5.2 Template analysis

Template analysis is a type of thematic analysis which uses the hierarchical coding technique and has the flexibility to analyse textual data in other to adapt it to the requirements of that particular research (King *et al*., 2015). Template analysis enabled the researcher to develop themes more broadly until the richest data are established in relation to the research question. Studies have shown that the data used in the template analysis research are typically obtained from the interview transcripts and textual data that includes focus groups (Goldschmidt et al. 2006; Thompson *et al*., 2010; Lockett *et al*., 2012; Brooks 2014 King *et al*., 2015;).

Template analysis is the process of organising and subsequently analysing the collected textual data in relation to a set of themes or priori-codes that have usually been predefined. Organising the template involves coding an extensive amount of textual data so that segments relating to an identified topic can be amalgamated in order to fulfill the interpretive process (Crabtree and Miller, 1999). A priori codes are general categories extracted from the aims and objectives of the research and form a basic skeleton on which to begin the exploration of data (Gibson and Brown, 2009). These codes are intended to assist the researcher in the development of the structure for the data analysis process.

Template analysis has been chosen for the purpose of this study because it allows a great deal of freedom in the application and development of codes while engaging with textual data. According to Edwards and Wolfe (2007) template analysis is a highly flexible way of elucidating the notes from interviews in order to build a hierarchical structure of repeated themes, concepts or categories of meaning. Similarly, King (2004), states that template analysis provides a flexible technique which produces rich data allowing the researcher to compare perspectives from various groups about their experiences within a specific context. In the context of this research, the participants will be asked about their experiences on how having a manufacturing strategy has enabled them to respond to their manufacturing priorities and challenges

3.5.2.1 Advantages of template analysis

The researcher identified some advantages in the use of the template analysis in the data analysis, which is also acknowledged by Braun and Clarke (2006), Edwards and Wolfe (2007) and King et al (2015) and is as follows:

- Template analysis is very flexible to use,
- Template analysis is a relatively straightforward technique to learn
- It's convenient to researchers with little or no qualitative research experience
- Template analysis outcomes are commonly available to inform the general public
- Template analysis can be used to review key characteristics of an enormous volume of data and offers an "extensive explanation" of the dataset
- It can emphasize the relationships and variations across the data set.
- It can produce unexpected insight that allows for the collective interpretations of data.
- Can be valuable for producing qualitative analyses suitable for making policies.

Moreover, template analysis has enabled researchers to generate templates which characterise the themes identified in their written form as data (King, 2004; Cassell and Symon, 2004).

3.5.3 Thematic application

The researcher compiled the coded data into themes to enable the successful analysis of the collected data from the research interviews. Ryan and Bernard (2003) said that the identifying and classifying of the themes is an important step taken in the right direction prior to the analysis. Themes for the data analysis can also be derived from the literature reviewed by the researcher (Bulmer, 1979).The themes can also be derived from whatever the researcher makes out of the collected data and opinion throughout the course of the research(Holliday,2002).

In this study, themes were identified by scanning across the whole data collection and identifying the recurring pattern of interview responses from the research participants, as recommended by Braun and Clarke (2006). The derived themes include:

1) Manufacturing strategy process within SMEs – The main objective was to ascertain the present manufacturing process and practices, in meeting up with planned business targets
2) Manufacturing decision making – The objective was to get an understanding of decision-making process within the Nigerian MSMEs. What are decisions made for?
3) Manufacturing priorities – The objective was to identify and review the manufacturing priorities of Nigerian MSMEs. What are these priorities for?
4) Manufacturing challenges – The objective was to establish the difficulties encountered by the Nigerian MSMEs. What are these challenges?

The researcher analysed the interview data applying three key steps that were recommended by Miles and Huberman (1994), the data reduction process, the data display and reaching conclusion.

3.5.4 Data reduction process

The data reduction process is the first step in the data analysis process which involves the data abstraction and transcription of the raw data from the audio recording devices and written notes. Miles and Huberman (1994: 11) state that

‘’data reduction is not something separate from the analysis. It is part of the analysis. The researcher’s decisions on which data chunks to code and which to pull out, which evolving story to tell, are all analytic choices. Data reduction is a form of analysis that sharpens, sorts, focuses, discards, and organizes data in such a way that “final” conclusions can be drawn and verified’’.

Based on this assertion the researcher carefully listened to all the audio recordings, noted all that was said during the interview of the managers of Nigerian MSMEs. The researcher read the content of the transcripts, as part of the data reduction process to identify important issues which were coded and themes were then extracted from it. In order to provide a better perception of the problems that served as the source for tackling and providing answers to the research questions, the themes were extracted more (Desouza, 2003). The researcher included interpretation from written field notes in the data reduction process. The data coding process involves three coding types. Coding is like tags and labels assigned to a data to make meaning out of it during the research process (Miles and Huberman, 1994).

3.5.4.1The preliminary coding

In the preliminary coding stage, simple groupings were used in order not to change the importance of the data through rigorous coding (Eisenhardt, 1991).The researcher generated several codes by reading through responses of owners and senior managers of Nigerian MSMEs and recognising the data that are connected without bearing in mind the selection of these types of data. Some instance information was allocated several codes and important expression was acknowledged and given as codes as well (Miles and Hurbeman, 1994).

3.5.4.2The pattern coding

The application of pattern coding in the thematic qualitative analysis is well acknowledged and requires the categorisation of data into smaller groups and themes (Miles and Huberman, 1994). The first code that the researcher generated in the data analysis process was re-examined. The words mentioned repeatedly by the managers of Nigerian MSMEs that participated in the research interview were grouped into categories. Key themes that are frequent and found to be persistent and key expression were then noted and selected. This process helped the researcher to identify themes that were linked to every research question. It also

enabled the researcher to reduce the huge amount of data into smaller analytical units and identified networks that connected the various components of all the data coded.

3.5.4.3The structural coding

This coding works in data gathered through structured and semi-structured interviews (MacQueen *et al.,* 2001). It is a useful method for making huge qualitative data set more manageable, for both content and thematic analysis which are then developed and applied in a sequence of "structural" codes to the data (MacQueen and Zimmerman**,** 2006). The structural coding enabled the researcher to label and indexed the huge qualitative data for quick analysis. Structural codes are used to put related data together to develop the thematic codes and are also used to identify huge pieces of textual data for the in-depth qualitative analysis across the research (MacQueen and Zimmerman**,** 2006).

3.5.4.4 The data display

In this stage of the data analysis, the researcher put the previously coded data together and presented them to make a conclusion. The data display enabled the researcher to identify and come to a decision whether or not to continue to analyse the data more. Data displays are keys to a suitable qualitative analysis as it enables the researcher to display the structured and reduced data in order to reach conclusion and accomplish the data analysis (Miles and Huberman, 1994). In this research, the analysis is made up of graphic representation that is networked to one another and has the child and parent relationships (see figure 4.1 in the findings chapter). The templates are well organised and arranged coded words or phrases that were drawn from the responses of the interviewed MSMEs senior managers. The data display enabled the researcher to visualise the data, before reaching conclusions on the data set. In chapter 4 the derived codes are graphically presented. The conclusions were researched from the themes and the categorized data that were created at the preliminary coding stage.

3.5.4.5 Reaching conclusion

Reaching conclusion in the coding process is important in the qualitative data analysis process, as it is a final critical action for the qualitative researcher (Miles and Huberman, 1994). In this phase of the data analysis, the researcher examined the patterns to disclose the quality of want has been found and explain further what has previously been established. The researcher ensured that in this last phase of the data analysis, that the themes identified and examined in the course of the analysis task can be used to answer the research question and achieve the set-out objectives of this research.

3.5.5The use of Nvivo in qualitative research

The use of a computer-aided software in the qualitative data analysis of qualitative research is well recognized (Robson, 2002). There is much argument for and against the use of computer-aided software in the analysis of qualitative data in qualitative research(Bergin, 2011). The researcher used the Nvivo 10 computer-aided software to analyse the qualitative data in this research. The use of Nvivo 10 software package as a tool in qualitative data analysis is well acknowledged among qualitative research scholars (Miles and Huberman, 1994; Bergin, 2011) The Nvivo computer-aided software enabled the researcher to store large amount of data in a single location that was easily accessed, analysed within a short duration of time and helped in building theory. The researcher's use of Nvivo software in analysing qualitative data in this study is consistent with the approach taken by Weitzman (2000), which includes analysing a large amount of qualitative data within a short period of time and justifies is quality over other qualitative data analysis software packages.

3.5.5.1 Justification of the use of Nvivo in data analysis

The technological advances made in computer designs have led to the development of a broad range of software products that can assist researchers in analysing data in qualitative research (Johnston, 2006; Hutchison *et al*., 2010). Following the methodological debate within the manufacturing operation and production management research (Boyer and Swink, 2008; Barratt *et al*., 2011), the research projects utilising the computer-aided software such as Nvivo in analysing

qualitative data has significantly increased(Hutchison *et al*., 2010). The use of Nvivo 10 software in the qualitative data analysis of this study has helped the researcher to facilitate the research process, and ensure rigour and transparency in the adopted research approach. The use of Nvivo 10 software in the data analysis of this study was particularly significant to the researcher in the development of the codes and in viewing the textual documents to see what further codes that need to be added into the themes.

The use of Nvivo 10 software in the qualitative data analysis of this study has enabled the researcher to provide a visual presentation of the concepts that emerged from the textual data of the interview transcript and how they link to one another. The use of Nvivo 10 software in the data analysis was particularly useful in advancing theoretical development as the researcher put together the nodes that were generated in each, coded them into a wider concept based on meaningful connections. Weitzman (2000); Bringer *et al*., (2006a) and Hutchison *et al* (2010) asserts that the use of Nvivo 10 in the qualitative data analysis process, allowed the researcher to see the build-up of theory in each theme as the data are carefully coded and analysed. The use of Nvivo 10 software has enabled the researcher to manage the large amount of data generated in the interview transcript, which is then stored in a single location. The use of Nvivo 10 in this qualitative data analysis has enabled the researcher to navigate through the data easily without wasting much time, as it should have been with the use of hand coding. The use of Nvivo enabled the research to scan through the textual data easily, be able to retrieve useful information emerging as new themes. The use of the Nvivo enabled the researcher to identify themes across the data sets. The research considered the use of Nvivo software very useful, in terms of time and efficiency in analysing the qualitative data

3.5.6 Assessing the trustworthiness of a research

Trustworthiness has since been established as a requirement in qualitative research (Miles and Huberman, 1994). The researcher can demonstrate trustworthiness through the research reliability and validity (Lincoln and Guba, 2005).Trustworthiness was achieved in this research through the research reliability and validity.

3.5.6.1 Research reliability

Even though the word ‘reliability’ is an idea used for checking or evaluating quantitative research, the concept is often used in all types of research. It is also directed to the consistency of the data, the instrument of data collection and the circumstances in which it was used (Cooper and Schindler, 2001). Reliability is centred on whether or not the procedure of the study is dependable and practically steady over a period across researchers and their techniques (Miles and Huberman, 1994).

Hence, reliability is the degree to which a questionnaire and an interview produce similar results within a constant environment on all occasions (Bell, 1993). It is essential that the information give trustworthy and stable results in order to be reliable. Yin (2009) further states that reliability means to allow the study to be repeated in the same way and yielding the same results.

Nonetheless, Merriam (1998) advocates that reliability is challenging in social sciences simply because human behaviour is never static. The problem of reliability in qualitative research is that differences between replicated studies using different researchers are to be expected. Similarly, Myer (2009) states that it may not be surprising that many researchers generate different findings and reach different conclusions. Nevertheless, controlling for reliability may still be relevant.

To guarantee reliability in qualitative research, an assessment of trustworthiness is fundamental (Seale, 1999). There has been an argument given that if reliability matters have to do with measurement then it has no importance in qualitative research and as such cannot be used to evaluate the quality of a qualitative research (Stenbacka, 2001). Nevertheless, Lincoln and Guba (2005) proclaim that while there can be no validity without reliability, an exhibition of validity in the study is enough to ascertain the reliability in a qualitative research. Reliability is as a result of the validity in a research (Patton, 2001).

The vigour of reliability was exhibited in this study in a number of ways. The researcher designed an interview questionnaire that was tested in a pilot study before the main interviews for primary data collection (Silverman, 2001). The researcher carried out the pilot study by interviewing three senior managers of

Nigerian MSMEs based in Benin and Lagos Nigeria. The researcher recorded all the interviews in an audio device and was later transcribed into text to enable the process of qualitative data analysis. The importance of the recording audio quality and the interview transcript are useful when the researcher wants to ascertain the reliability of the research result (Peräkylä, 2004).

3.5.6.2 Research validity

The use of verbatim quotation directly from research participants to report and analyse qualitative data demonstrate the validity of researcher's argument, and has now become an acceptable practice in social science and management research (Rose, 1982). The use of verbatim quotation in qualitative research has also become an essential way of providing credible theoretical analysis (Lofland, 1971). The researcher has used verbatim quotation directly from the interviews of managers of Nigerian MSMEs to present and analyse the qualitative data in this study in order to build an understanding of the manufacturing strategy process and practice of MSMEs. In support of my preference for the use of verbatim quotation, in reporting, presenting and analysing the research qualitative data, Glaser and Strauss (1967) assert that the verbatim quotations have helped the researcher to understand the theoretical framework, and communicate clearly the social world that was explored. In the same manner, Walker (1985) has argued that the primary concern in the practical qualitative study was to present the research narrative and analysis across to the social world in a way that is significant, trustworthy and understandable to the reader. The use of verbatim quotation in qualitative research is quite significant, as it has been used to establish the credibility of findings (Bogdan and Taylor, 1975; Long and Godfrey, 2004).

3.6 Ethical considerations

According to Jobber (2004), ethical considerations are moral values and principles that direct our actions and decisions as individuals. As part of Northumbria university requirement for undertaking a postgraduate research study, ethical consideration becomes an integral part of the research process. The researcher will ensure fairness and honesty in conducting the research. All literature materials sourced will be acknowledged and referenced accordingly. The data protection law will be adhered to; the researcher will ensure anonymity and confidentiality among

research participants in the collection of data. Informed consent will be sort, personal data and the identity of participants by any means will not be revealed. Participants will make their own choices to take part in the research, or not. There will be no holding obligation for participation, which means that participants may decide to opt out at any given time without any attached commitment.

Research bias will be avoided, and the researcher will take note of participant bias. Firms assessed documents will be stored in a secured safe and treated with safety as per data protection laws and regulations. This research is solely for academic purpose and the researcher is obliged by law to safeguard all information that will breach the confidentiality of participants. The Northumbria University has its own set-out ethics procedures and process. Several forms including individual's consent form and the organisation consent form were filled out to explain the nature of the research being undertaken to make sure that participants understand and will take part in the research. The research participants are not in any form of obligation and can opt out anytime without any stringent pledges against them.

The research ethical study functions with the purpose of certifying that the research project itself is not harmful to any person participating in the study and that the guiding principles and procedures for privacy, confidentiality, and participation by informed consent are observed, followed and upheld. The researcher took a moral view in this project to show intellectual truthfulness, honesty and respect for other individuals as prescribed by Doloriert and Sambrook (2009) and Punch (2000).

The main ethical characteristics of this research project are:

1. The researcher asked for clearance for the research project within the ethical committee in the Northumbria University;
2. The researcher followed the participant informed consent procedures and guidelines set out by Northumbria University. The cover letter and informed consent forms were sent to research participants to voluntarily give their consent.
3. The research interviews of participants were performed in line with the Northumbria University guiding principles.

4. The research participants responses during the confirmation of the research interview transcripts data

Each research participating individuals were sent a covering letter introducing the researcher, the nature, and background of the study, consent forms to guarantee confidentiality and anonymity. The research participants signed the informed consent form before interview commenced. The informed consent form and the covering letter are both included in the Appendix section of this thesis. The researcher asked for the participants' permission to record the interview conversation with an audio recording device and take note while the interview was still going on. The requests were granted and the interview commenced. The researcher informed the participants as follows:

1. The scope of the research and on how the interview data obtained will be utilised.
2. Observing the participants confidentiality and anonymity.
3. The choice to answer or not to answer questions as they wish during the interview process.
4. Request a copy of the research outcome, no coercion or inducements.
5. Make aware of the duration of the interview to the participants.

(Adapted Research Ethics and Governance Handbook Northumbria University Website.https://www.northumbria.ac.uk/media/27327041/nu-research-ethics-governance-handbook-2016-17.pdf)

3.7 Summary of chapter

The main purpose of this research is to understand manufacturing strategy process and practice of Nigeria MSMEs. This chapter, therefore, showed the research outline, the research process as put forward by Crotty (2003) research methodological design, due to the nature and complexity of the research to answer the *What*, *Why* and *How* questions, the researcher adopted the qualitative research approach, which is widely recognised in social science. Subsequently, the preference of the research approach and the data collection method employed in this research were discussed. The qualitative research method as an approach for social research has advanced a great deal (Creswell, 2007; Bryman, 2008).The

researcher discussed the research philosophy and justified the choice of research philosophy, research approach, and research design and data collection methods used in this research. A qualitative study was chosen by the researcher for the research inquiry. Considering the significance of Nigerian manufacturing industries in developments around the Sub-Sahara Africa and the world and particularly for Nigerian, these businesses have been carefully chosen to enable us to understand the manufacturing strategy process and practice of Nigerian MSMEs. This research was designed to conduct a qualitative study within these MSMEs.

Chapter 4: Data analysis and research findings

4.1 Introduction

This chapter of the study presents the findings of the research based on a qualitative analysis of data acquired from a face to face semi-structured interview conducted with 17 senior managers of Nigerian MSMEs that represent 17 manufacturing businesses in Nigeria. The questionnaires were designed based on the critical review of the literature on manufacturing strategy to enable the researcher to understand the manufacturing strategy process, practice and priorities of Nigerian MSMEs. The researcher also identified the various challenges facing Nigerian MSMEs and the manufacturing decisions that were made. The chapter has four main sections. Section 4.2 presents the data analysis and findings of manufacturing strategy process and practice of Nigerian MSMEs. Section 4.3 presents an analysis and findings of manufacturing decisions that were made by Nigerian MSMEs in supporting their manufacturing strategy. Section 4.4 presents an analysis and findings of the manufacturing priorities of Nigerian MSMEs. Section 4.5 presents an analysis and findings of the manufacturing challenges that were identified by Nigerian MSMEs.

Senior managers, or top-level managers, are also called senior management or executives. These individuals are at the top one or two levels in an organization and hold titles such as chief executive officer (CEO), managing director (MD), General Manager (GM), operations manager (OM), production manager (PM), and quality control manager (QCM). Often, a set of these managers will constitute the top management team, which make decisions affecting the entirety of their firms. Top managers in most organizations have a great deal of managerial experience and have moved up through the ranks of management within the company or in another firm. An exception to this is a top manager who is also an entrepreneur; such an individual may start a small company and manage it until it grows enough to support several levels of management.

The senior managers are top-level management concerned with the organisation as a whole -- its mission, vision, and long-term strategy. As such, the senior managers of Nigerian MSMEs plan heavily and play the visionary role of their various

companies. In this study the senior managers that were chosen are the managers that are involved in the formulation of their company manufacturing strategy, making strategic manufacturing decisions and all aspects of manufacturing operation policy development. These senior managers ensure that all the components of their production processes are put together to deliver, the correct quality of their final products. The chosen senior managers in this study are the one that understands all the aspects of the manufacturing operations, production and the quality in manufacturing.

Table 4.1 Interview profile of Nigerian MSMEs

SMEs	Size of business	Number of employees	Business nature	Location	Interview duration	Interviewees position
McA	Medium	54	Food processing	Lagos	60-70mins	Operation manager
McB	Medium	58	Foundry	Ibafo	60-68mins	Production manager
McC	Medium	55	Cosmetics	Aba	60-66mins	Quality control manager
McD	Medium	63	Food/beverage	Sango Otta	60-65mins	Production manager
McE	Medium	61	Electrical	Benin	60-67mins	Managing director
McF	Medium	71	Pharmaceutical	Lagos	60-68mins	Operation manager
McG	Medium	57	Food supplement	Portharcourt	60-66mins	Production manager

			s			
McH	Medium	62	Aluminium	Asaba	60-67mins	Production manager
McI	Medium	51	Agro-allied feeds	Ibadan	60-66mins	Managing director
McJ	Medium	55	Chemical	Lokoja	60-65mins	Production manager
McK	Small	47	Confectiona ry	Lagos	60-66mins	Managing director
McL	Medium	51	Diary	Warri	60-65mins	Production manager
McM	Medium	52	Textile Dye	Aba	60-67mins	Production manager
McN	Medium	54	Plastic	Warri	60-66mins	Operation manager
McO	Small	35	Paper	Benin	60-67mins	Managing director
McP	Medium	56	Paint	Uyo	60-66mins	Production manager
McQ	Medium	61	Food beverages	Jos	60-65mins	Production manager

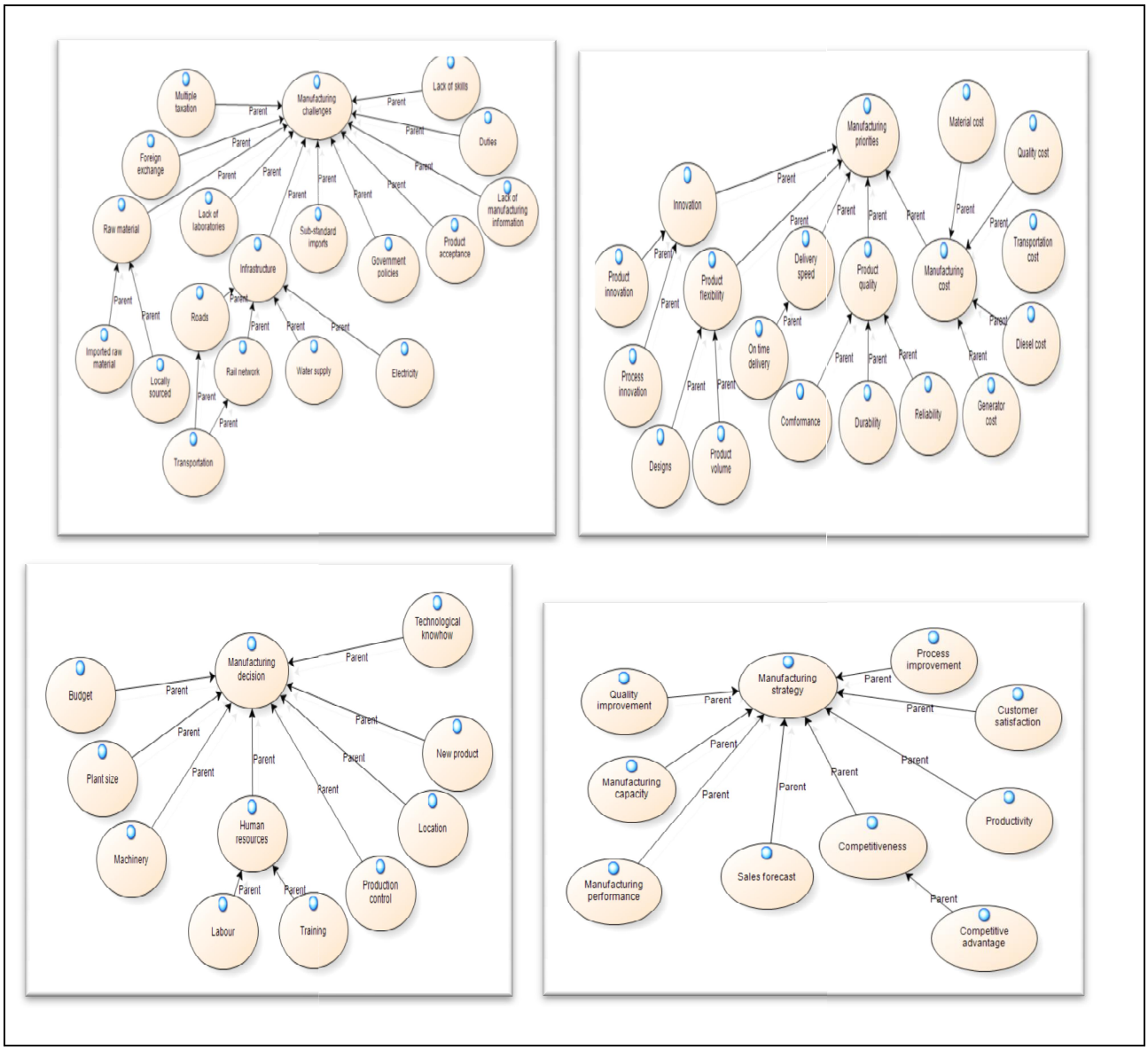


Figure 4.1Visualising the research data analysis with Nvivo software

4.2 Manufacturing Strategy process and practice

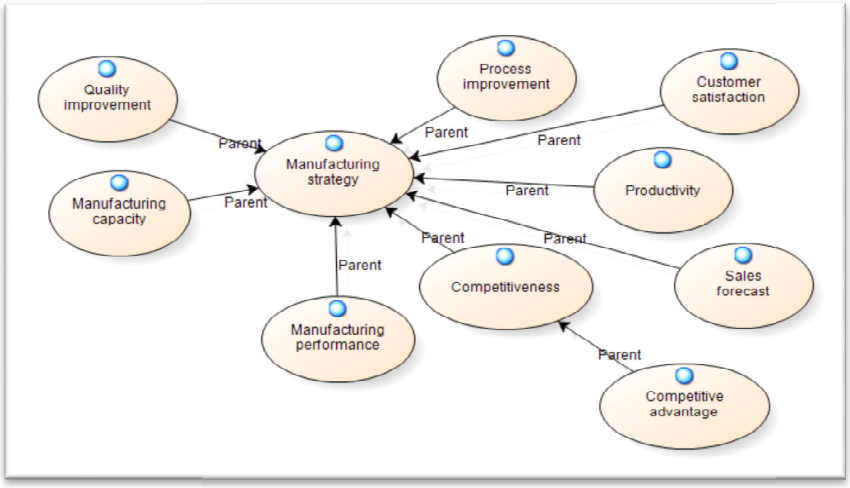


Figure 4.2 Coding for manufacturing strategy

During the interviews of the manager of Nigerian MSMEs were asked the question what is the purpose of manufacturing strategy in your company and how do you formulate this manufacturing strategy? The following responses were recorded, transcribed and are as follows. *''The purpose of our manufacturing strategy is to develop some sort of goals that we want to achieve in setting the direction of the company. Our manufacturing operation involves our daily running of the production process to improve efficiency and reduce manufacturing cost''* (McA). Similarly another manager of the manufacturing SME McJ expressed that *''our manufacturing strategy and plan is very important to us to manage difficult situation in the manufacturing process to produce products that are of high-quality standard''* (McJ) In another instance the manager of manufacturing SME McL asserted that *''the purpose of manufacturing strategy is intended to help build a production plan that analyses and examine the productivity and capacity of production process taking into account the human resources, manufacturing equipment and the set out period to accomplish these goals. Our manufacturing strategy includes the process improvement of manufacturing, sale forecast, budgeting, managing operational cost and improving the product quality''* (McL).

In the interviews, the researcher conducted with managers of Nigerian MSMEs, the researcher realised that every manager has different ways of approaching their manufacturing strategy. Some have considered the present economic situation,

market, and consumer response. According to SME manager McB, ‘’*our manufacturing strategy is formulated based on the economic situation in the country. The economic situation drives the market and consumer behaviour. This in-turn decides how the company formulate the strategy. From the procurement of machinery, the procurement of raw materials, product development, market expansion, and so on. These are all functions of the economic situations’’* (McB).
During the interviews with the managers of Nigerian MSMEs, the following question was asked. Can you tell me about the overall manufacturing strategy formulation process in your company? The response from manager McD is as follows *‘’my company is not stringent in the process of strategy formulation. As a result, strategy formulation can be because of suggestion received from an external source, internal source, press release, our customer demand, or competitor’s move. Regardless of the source, the major process involved in the analysis of this information received and if viable, it can then be adopted and worked on to achieve our manufacturing goals and objectives’’* (McD).

The managers of Nigerian MSMEs have mentioned the need for manufacturing strategy to be linked with the company's shared values and business strategies. The manager of manufacturing SME McH has expressed that *‘’manufacturing strategy is an essential part of our company’s shared values and business strategies, including a well-coordinated manufacturing objectives and action programs designed at accomplishing a lasting sustainable advantage over our company's main competitors’’* (McH).

Likewise, the manager of McA assert that *‘’over the next few years we want to focus on making our plant, process more efficient, and increase our speed to the market. In order to enable us to remain competitive and meet our market expectations within the Nigeria and Africa economy, we have to support our manufacturing processes, make improvements, and increase our manufacturing abilities’’* (McA).

Manufacturing strategy process in Nigerian MSMEs is planned and practiced for various reasons, including Nigerian MSMEs ability to develop new products, satisfy their customers’ demands and consider their production cost. The manager of manufacturing SME McO said that ‘’*we have well set out manufacturing plans that enabled us to develop new products, produce quality products, be able to get these*

products to our customers and the market as quickly as possible''(McO). Likewise, the manager of the manufacturing SME McC in answering the manufacturing strategy formulation process expressed that *''in formulating our manufacturing strategy we have taken into consideration, cost of manufacturing, in terms of electricity supply, sourcing raw material, delivering our products and increasing our sales and customer base''*(McC). The evidence from the research data analysis has shown that strategic transformation is needed by Nigerian MSMEs to improve their manufacturing process. Nigerian MSMEs managers were asked how they formulate their manufacturing strategy and the response from the manager of SME McP is *''we formulate our manufacturing strategy based on so many criteria. We look at our previous set out goals and manufacturing objectives whether they have been accomplished or not. If not accomplished what could have been the reason. Is it as a result of lack of resources or external forces we cannot control such as government policies, we look at our budget and the market in regards to sales forecasts''* (McP).

Also the manager of manufacturing SME McK state that *''we have made some strategic changes in our business to reflect our manufacturing strategy and our future manufacturing plans. We have to continue with improved production efficiency to reduce the cost, for example, mechanise, automate, improve our manufacturing processes and then upgrade all the manufacturing equipment to meet our future manufacturing and production plans''*(McK).

Nigerian MSMEs have considered their manufacturing performance issues in manufacturing strategy process. During the interviews of Nigerian MSMEs, they were asked their manufacturing strategy formulation process. In responding to the question the manager of manufacturing SME McB states that their *''manufacturing strategy is formulated in consideration to our manufacturing performance. We ask ourselves, are we still competitive, are we still producing at a lower cost, are our machines still good enough to meet our production needs, if not how do we procure another machine to improve our manufacturing process. If we are satisfied with all the questions asked we then draw up a manufacturing strategy that will sustain all these concerns raised* ''(McB).

4.2.1 Process improvement

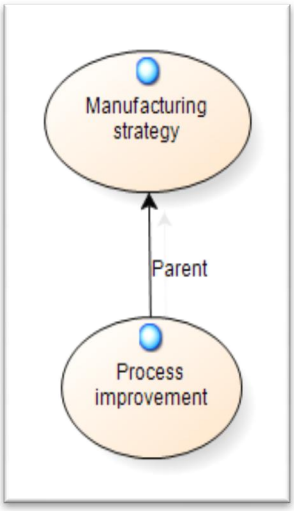


Figure 4.3 Coding for process improvement

The theme manufacturing strategy was coded and generated the high code *process improvement.* As part of the manufacturing strategy to improve the manufacturing process, managers have developed ways of eliminating waste from the production system. The following response was received from manager McC *''from time to time we do a routine audit on our manufacturing process to assess what is working and not working for us. We make a judgement based on these assessments and it enables us to reduce waste resulting from manufacturing defects''* (McC). Similarly, the managers of SMEs McF said that *''as part of our manufacturing strategy, process improvement goal enables us to have a good manufacturing facility which we use to improve the quality of our products, improve our product delivery times and reduce defects.* According to the manager of SME McG ''p*rocess improvements have enabled us in getting rid of process waste and other no added value actions we are supposed to take therefore improving our profitability and manufacturing performance*''(McG).

Subsequently, the manager of manufacturing SME McJ believes that they have to improve their manufacturing process to remain competitive. *''Being a manufacturing business we have to remain competitive by using manufacturing techniques that will enable us to improve manufacturing productivity and increase product quality* (McJ).

The manager of manufacturing SME McH asserted that ''*process improvement as part of our manufacturing strategy allows us to ensure our customers have the*

product satisfaction they want and enable us to maintain the share of our market'' (McH).

The managers of SMEs McK and McN have both acknowledged the significance and difficulties of manufacturing process improvement as part of the 2 manufacturing strategy. According to McK *''continuous process improvement is an important component in our present quality system and it intends to improve the efficiency of the process and help us in getting rid of wasted hard work in the production.* Similarly, the manager of SME McN noted that ''*although continuous improvement can be difficult, we try as much possible to reduce inconsistencies in the production process. We change machines parts that are becoming worn out to reduce defects and avoid manufacturing disruption''.* The managers of Nigeria MSMEs, understand the usefulness of improved manufacturing process as evidenced in the research findings.

4.2.2 Manufacturing capacity

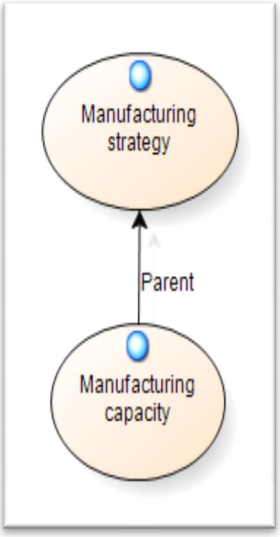


Figure 4.4 Coding for manufacturing capacity

The main theme manufacturing strategy was coded in the template analysis and generated a high code manufacturing capacity. The needs to increase the manufacturing capacity always arise whenever there is a steady increase in product demands. The manager of manufacturing SME McA comments that *''manufacturing strategy has enabled us to increase our manufacturing capacity to meet up with the continuous demands of our products. As the demand increase, we have to increase the production rate of the product line''* (McA). *Similarly, the manufacturing manager*

of SME McI noted that ''as a manufacturing business we do not want to fail our customers, as it can be devastating. When the products are in much demand we have to increase the manufacturing capacity of our plants to enable us to deliver the products at the expected dates'' (McI). A sudden increase in product demand can be a burden to manufacturers who lack the capacity to increase the rate of production. *The manager of McJ states that ''we are steadily developing the manufacturing capacity as we try to ease the burden placed on us by the increasing demand from our growing customer base''* (McJ).

4.2.3 Competitiveness

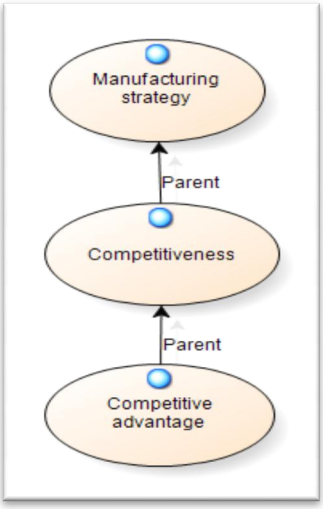


Figure 4.5 Coding for competitiveness

The theme manufacturing strategy was coded and generated the high code competitiveness and a low code competitive advantage. In order to be competitive, Nigerian MSMEs must reduce their manufacturing cost, improve the quality of their products and satisfy the needs of their customers. The managers of Nigerian MSMEs interviewed to understand the impact of global competition on their manufacturing businesses. The manager of SME McO states that ''*The current economic situation in Nigeria has made us look for ways that will enable us to become competitive by reducing our manufacturing cost, increasing productivity to boost our profit and improve the quality of products to satisfy our customers*

One of the drivers of manufacturing competitiveness is a skill. Nigerian MSMEs need the required manufacturing skills necessary to remain competitive. However,

the managers of McC interviewed expressed that ‘’*Nigerian MSMEs are still lagging behind in terms of the manufacturing skill set required to compete with other emerging economies such as China, India and developed manufacturing countries like US, Germany and Britain”*(McC). Nations that have well-developed manufacturing skills have the competitive leverage. Being a competitive manufacturing firm has its own advantage as it can propel the business in an advantageous position. As manufacturing firms advances in their product superiority and process, manufacturing firms with higher labour productivity are positioned to compete favourably. The manager of the SME McF said ‘’*there is no doubt that we have an abundance of labour, but due to our challenging manufacturing environment, we are less productive than our counterparts in developed countries’’* (McF).There is a need for Nigerian MSMEs to increase their labour productivity to improve their manufacturing competitiveness.

4.2.3.1Competitive advantage

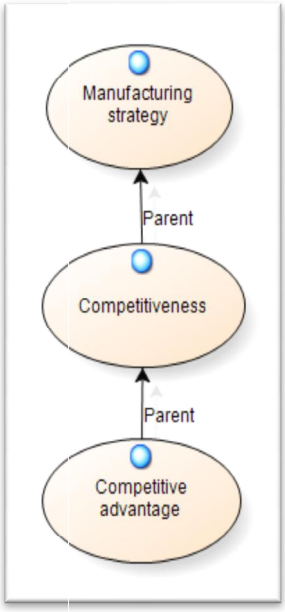


Figure 4.6 Coding for competitive advantage

The need for having certain kind of competitive advantage among Nigerian MSMEs was acknowledged by some managers as their main purpose for adopting a manufacturing strategy. The need for manufacturing strategy competitive advantage was illustrated by the manager of manufacturing SME McF by saying ‘’*the competitive advantage we have as a manufacturing firm over other Nigerian MSMEs*

is our diversification and the quality of our products. We are the only one that offers a legally binding guarantee on the quality of our products. If our product fails within the guarantee period and we don't replace it free of charge, our customers can seek their rights in a court of law. Not so many Nigerian manufacturing firms can guarantee the quality of their products. We are the leaders in quality and range'' (McF).

The excerpts from the interview data have demonstrated that Nigerian MSMEs are able to have a competitive advantage. According to the manager of SME McA *''we have been able to sustain our competitive advantage by making and selling superior and quality products than our competitors at an affordable price''* (McA).

The competitive advantage that firms have over one another varies. The manager of SME McD states that *''the competitive advantage we have is that our product is not only valuable but also unique to us. Our product is difficult to be copied and faked''* (McD). Similarly, the manager of SME McP asserts that *''we have a competitive advantage on the costs of our products which are more affordable than other similar product with the same high quality as ours''.* The role that business locations play is well acknowledged. The manager of manufacturing SME McK states *''our competitive advantage over other MSMEs is our location and infrastructures. We are fortunate to be on the Lagos State Government electricity grid which means the supply of about 80 to 90 percent of steady electricity daily which has to enable us to increase our production at low cost, as we no longer have to buy diesel and run our generators''* (McK). Similarly, the manager of SME McG has noted that *'' we have developed manufacturing excellence through the making of high-quality products, also providing better customer service and achieving lower costs than our competitors* (McG).Research has shown that the location of a manufacturing business can play a major role in its competitiveness. The manager of manufacturing SME McB asserted that ''*geographically we are located in a more suitable environment, we design products that perform better than other competing brands, we make more durable and reliable products, which gives buyers, even more, value than they would have paid for other* products''(McB).

The excerpt from the interview transcripts has shown that customer satisfaction is very crucial in terms of achieving competitive advantage. The manager of SME

McD comments *‘’ we ensure customer satisfaction by producing superior quality products with high performance. Our products are low-priced and are a good bargain to customers that is the reason for our product success in the Nigerian market”* (McD). Likewise, the manager of SME McL states ‘’*we compete favorably on the quality of our products. We are very flexible and provide a very dependable delivery service that can deliver highly reliable and durable products ordered by our customers on time”* (McL). The manager of SME McE states that *‘’we have the ability to customise our products when requested by our customers. We have quick product development ability, we are able to manufacture and introduce new products to the market”* (McE).

4.2.4Sales forecast

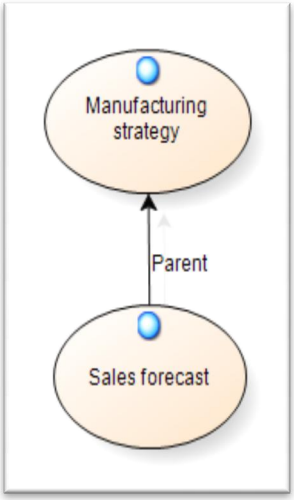


Figure 4.7Coding for sales forecast

The theme manufacturing strategy was coded and generated the high code sales forecast. The managers of Nigeria MSMEs were interviewed to understand the purpose of manufacturing strategy in the company. The manager of McQ states that “*sales forecasts data are essential for all our budgeting requirements needed in the making of our manufacturing decisions and the adoption of a manufacturing strategy with regards to making manufacturing investment in research and product development”* (McQ). Likewise, the manager of McN expressed that *“we evaluate our manufacturing operations using our sales and forecast data to establish what is needed for the business to grow. With the sales and forecast data, we are able to assess plant capacity and the purchase of raw materials”(*McN).

4.2.5Customer satisfaction

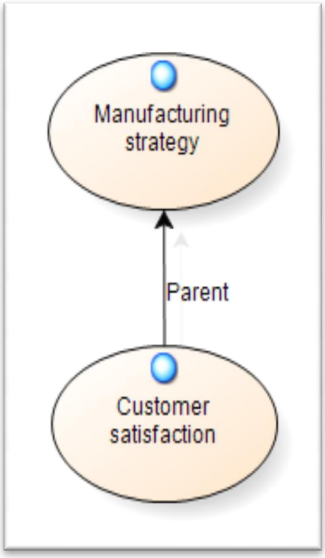


Figure 4.8 Coding for customer satisfaction

The theme manufacturing strategy generated the high code customer satisfaction. Research has shown that satisfied customers are more likely to be retained than unsatisfied customers. During the interview, managers responded that ensuring their customer's satisfaction was part of their manufacturing strategy. The manager of SME McI states that ‘*'customers' satisfaction is very important to us in developing our manufacturing strategy. We make sure all of our customers get every value for their money, by delivering to them high-quality products''* (McI).

In another interview, the manager of SME McC responded that ‘*'as a manufacturing manager I believe that our customer satisfaction is essential to the continued existence of a manufacturing business. That is the reason we propose and plan the manufacturing strategy process in a way that addresses every aspect of the customer's needs''* (McC). Product quality brings satisfaction and added value to customers. The managers of Nigerian MSMEs expressed that having a manufacturing strategy in place has enabled them to meet product quality and demands of their customers, by implementing quality improvement measures in their business. The manager of SME McE asserts *that ''we aim at meeting the maximum quality standards in our product to satisfy our customers' demands in Nigeria''*. Equally the manager of SME McJ states that *''we offer one of the highest quality products. This has enabled us developing products that bring satisfaction and value to our various customers''* (McJ). Customer satisfaction can be achieved

by Nigerian MSMEs in various ways. Customers are satisfied when the products are right and attain the customers' requirement. The manager of manufacturing SME McD expressed that, *as a manufacturer, there is a need for the product to achieve the customers' requirements. Customers are more satisfied whenever their products are right for specification and quality''* (McD).

4.3 Manufacturing decision

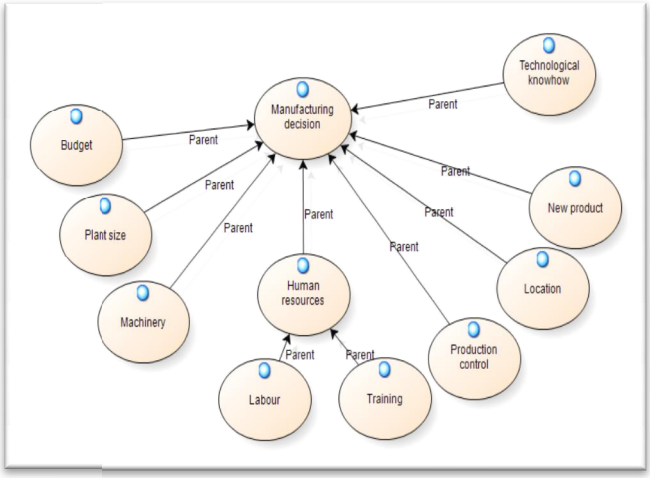


Figure 4.9 Coding for manufacturing decision

The theme manufacturing decision was coded and it generated high codes such as budget, plant size, location, technological know-how, machinery, production control new product and human resources. The manufacturing decisions made by Nigerian MSMEs are the ones generated as high codes. The manufacturing decisions made by Nigerian MSMEs are analysed and discussed separately. The managers of MSMEs McC, McQ, McN, and McM have made manufacturing decisions on production control, plant size, and location. Likewise, the managers of McN, McD, and McG have made manufacturing decision on human resources, technological knowhow, budget and new product. The manufacturing decisions are made towards the manufacturing needs of Nigerian MSMEs.

4.3.1 Production control

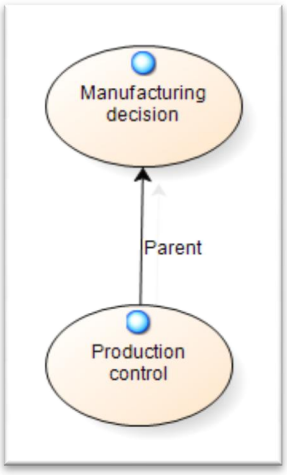


Figure 4.10 Coding for production control

The theme manufacturing decision was coded and generated a high code production control. Nigerian MSMEs are continually having difficulties in meeting up with high production in order to enable them to remain competitive. Production control is useful in every production plant or factory, as it ensures that the delivery dates and short production time are guaranteed. The manager of Nigerian manufacturing SME McM said *that ''there are many decisions we make daily in the production process to enable us to have an excellent production performance. Making wrong production decisions can be fatal and often times lead to a poor delivery performance. We make sure that the orders are right and we stick to the agreed delivery dates in order to reduce waiting for the time to other customers''* (McM). Likewise, the manager of manufacturing SME McC concludes that ''*sometimes it can be very difficult to meet the delivery dates of customers due to some workers altering their order priorities. This was a time that we have to take drastic decisions on the training of all our workforce on the production line to enable them to understand the product quality and design and also ensure that all these standards are continually maintained* (McC). The decision made on having the right trained workforce on the production line has been very useful to Nigerian MSMEs, who took to that strategic option.

4.3.2 Human resources

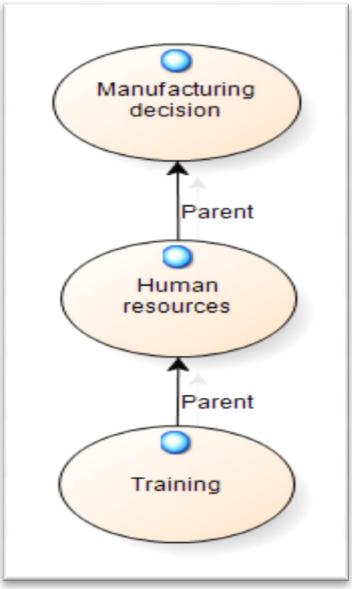


Figure 4.11 Coding Human resources

The theme manufacturing decision was coded and generated a high code human resources and low code training. Nigerian MSMEs manufacturing decisions in human resources are to employ the right people and training their employees. The Nigerian SME manager McD states that *''in our business we focus talents, so our human resources decision is to recruit and train our employees on manufacturing skills*'' (McD). Similarly, the manager of manufacturing SME McG expressed that '' *we need talent and highly knowledgeable employees who can perform their required manufacturing responsibilities, our manufacturing human resources decision is made to employ the people with the right talent''* (McG).

4.3.2.1Training

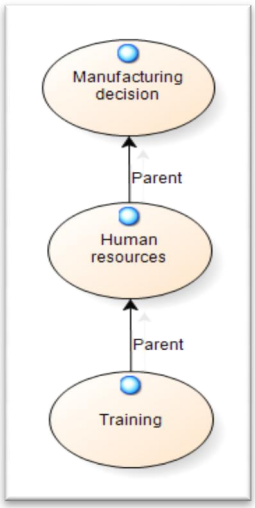


Figure 4.12 Coding for training

The theme manufacturing decision was coded and generated a high code human resources and low code training. Training in most Nigerian MSMEs is not up to date. Training allows the workforce to acquire the necessary skills required to perform their job tasks. Nigeria MSMEs needs talent and highly knowledgeable employees who can perform the required manufacturing tasks. The managers of Nigerian MSMEs understand the importance of training in performing their manufacturing tasks. However, in the interview the manager of manufacturing SME McE said that'' *training people in Nigeria is difficult as the industry does not have the skill set to offer such manufacturing training, Another problem is that the people we have trained in the past left us, after putting huge financial and human resources on their training* (McE). The lack of manufacturing skills is a major risk to the performance in Nigerian MSMEs. Similarly, the manager of manufacturing SME McH asserts that *''not having the required trained positions in the production line can affect the company's output and profitability''* (McH). Nigerian MSMEs needs a skilled workforce in every of their production line to improve their productivity and profitability.

4.3.3Plant size

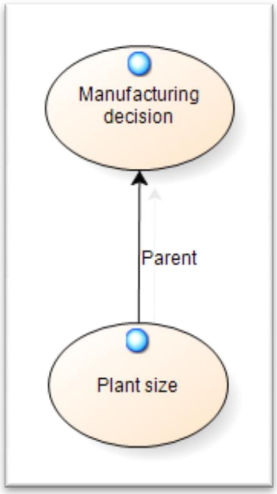


Figure 4.13 Coding for Plant size

The theme manufacturing decision was coded and it generated a high code plant size. The manager of manufacturing SME McQ expressed that *the plant size manufacturing decisions are made to be very much consistent with the resources made available. The significant part of the plant size decisions includes, how we address frequent product demands. Another reason for plant size manufacturing decisions is to increase the production and manufacturing activities. The plant size decision is useful when there is an increase in the product demand as a result of the market push. The manufacturing plant size decision is made to also help deal with the production cost, as a bigger manufacturing plants allow the manufacturing of a variety of products "*(McQ).

The decision that is made on the plant size is to increase manufacturing activities which are dependent on the available resources and market demands. Plant size decision enables manufacturing managers to deal with the production cost.

4.3.4 Machinery

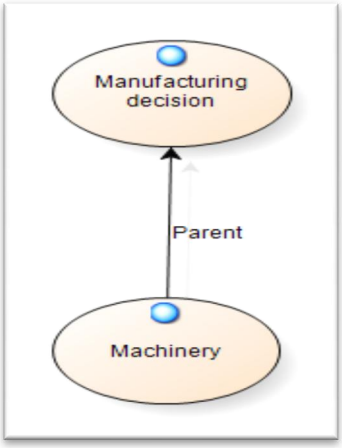


Figure 4.14 Coding for machinery

The theme manufacturing decision was coded and it generated high code machinery. The manager of manufacturing SME McH states that *''the inadequate equipment and machinery needed for improved manufacturing production process has been a major concern to most Nigerian MSMEs. As a manufacturing manager innovation also requires that we have the required equipment, laboratories, and tools, to build and test new products. Nevertheless, several Nigerian companies have not sufficiently invested in these identified issues''* (McH).

Machinery decision is vital as it allowed manufacturing managers to make the necessary manufacturing improvements needed to maximise the production.

4.3.5 Budget

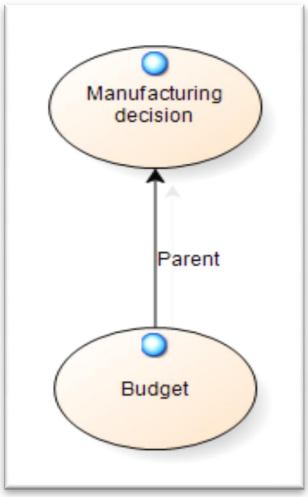


Figure 4.15 Coding for budget

The theme manufacturing decision was coded and it generated a high code budget. The manager of manufacturing SME McE expressed that ‘’*money is always a limited resource to most Nigerian MSMEs. It is common practice among most large manufacturing firms where their managers compete for the allocation of financial resources. As a manager, we have to assess our goals and plans to allocate the limited resources that are available to us. Manufacturing decisions we make in the budget is not always about the monetary terms alone, we consider a lot of issues, raw materials usage, labour and our production output’’* (McE). The budget indicates the MSMEs manufacturing and business intentions. Likewise, it presents a coordinated assessment of the course of action for accomplishing these intentions. Budgeting is twofold, the accounting practice and the decision-making process. The accounting practice is primarily concerned with the manager’s performance and others in the line of planning and using budgets. The two features of budgeting must be incorporated to enable SMEs to reach manufacturing budget decision. This explains largely the intentions of the SMEs into a comprehensive, practical plan of accomplishments. The manager of manufacturing SME McB states that ‘’*the decisions made on budgets enable us to project our manufacturing needs and the means to accomplish it. We have to consider every aspect of the business is it for short-term or long-term purposes*. *Budget decisions are very important, as it enables*

us to mirror all the ongoing manufacturing activities to make the needed adjustments that will move the business forward'' (McB).

Equally the manager of manufacturing SME McG said that *''budget decisions are made to enable us to know how we are doing business wise. Our income in terms capital expenditure is set so that we can focus on our business targets. Sometimes we cut back on expenses if we are not getting the desired results''* (McG). Manufacturing budgeting is the procedure that manufacturing managers employ to support business activities that are resourceful and efficient to their manufacturing operation. The manager of manufacturing SME McK states that *''making manufacturing decision on a budget requires us to look at the cost of production and the viability of the product that we want to include in our budget. If the cost of producing the products is higher than the profit projected we have to think otherwise''* (McK).

4.3.6 Location

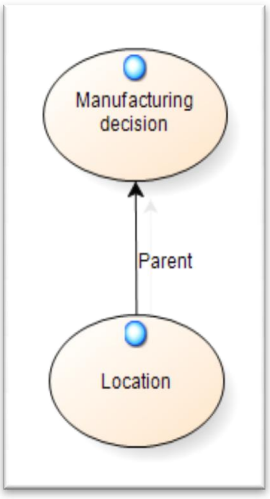


Figure 4.16 Coding for location

The theme manufacturing decision was coded and it generated a high code location. The manager of manufacturing SME McN noted that *making the correct decisions about the location or site of the manufacturing plants and facilities is fundamental to our being able to participate in the global markets. I believe that if we make the right manufacturing choices it will give us some competitive edge''* (McN). The SME manager of manufacturing SME McJ added that ''*having the right manufacturing plant location that is nearer to infrastructures such as good roads*

makes the delivery and distribution of products to the market more easier than in a location where there are no good road infrastructures''(McJ). The manufacturing decisions on location are useful to Nigerian MSMEs as it can aid them locating their businesses and factory in places, where their product can easily be delivered to their customers without incurring too much cost on transportation.

In addition, the manager of manufacturing SME McP states that *the Manufacturing decisions we make on plant locations is very strategic, and as such requires a detailed inquiry. The setup of a manufacturing plant in a wrong location usually impacts on the operational cost. For instance, the poor location of a manufacturing plant might continue to increase the cost of manufacturing and production operations. The cost of transportation and advertising are also impacted by the manufacturing plant location choices and decisions''* (McP). The manager of manufacturing SME McF *''said when we make decisions on factory sites, we take the location of our factory into consideration, as the costs of transportation of finished goods and distribution of domestic products in Nigeria is very high, as a result our manufacturing is mainly done as nearly as possible to the consumers even when it sometimes appears inconvenient''* (McF).

The setting up of a manufacturing plant in the wrong location or an unsuitable site can be costly if there are needs for expanding the plants or relocating the factory which would require moving workers to other places which is a costly thing to do and will disrupt the production cycle. It is well noted that manufacturing decisions are required when setting up new manufacturing plants, or when an existing location needs to be extended, but the extension becomes difficult due to the poor choice of a manufacturing plant site. This could make manufacturing operations problematic.

4.3.7 Technological knowhow

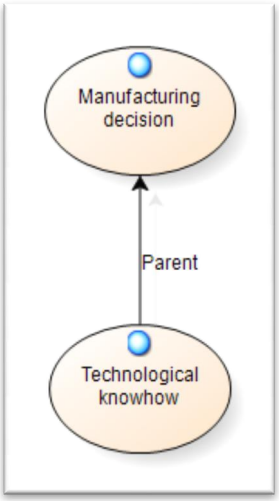


Figure 4.17 Coding for technological knowhow

The theme manufacturing decision was coded and it generated a high code technological knowhow. Manufacturing is regarded as the backbone of many developed countries. The advances made in the global manufacturing technological knowhow have brought transformational changes into the manufacturing industry. The rapid changes that technologies bring into products have made MSMEs managers to urgently respond to their manufacturing technological requirements. Managers of Nigerian MSMEs were asked what manufacturing decision was made. In response, the manager of manufacturing SME McD said ‘*’manufacturing decisions nowadays is all about your technological knowhow. We make the manufacturing decision on technological knowhow to choose the right manufacturing equipment and technologies which will enable us to simplify the product designs and manufacturing process”*(McD). Likewise the manager of manufacturing SME McK said that *‘’making manufacturing decisions on technological knowhow is very complex especially in this present era off of technological advancement which requires that we have the ability to appropriately select the manufacturing process, the products designs, equipment, machinery, and material that will function with the chosen technology, be it the automation of the factory plant”* (McK). Although making manufacturing decisions on technological knowhow can quite challenging sometimes, it is paramount that manufacturing

managers consult with industry experts to avoid making decisions that will be too costly to their business without recording the required success.

4.3.8 New product

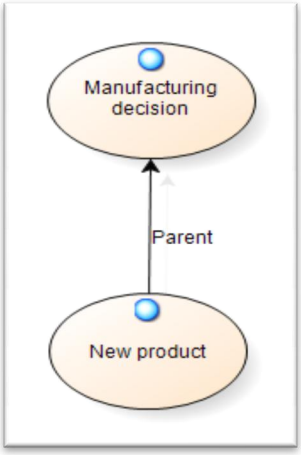


Figure 4.18 Coding for new product

The theme manufacturing decision was coded and it generated a high code new product. New products can offer cost reduction to consumers and customers. Nigerian MSMEs managers were asked what manufacturing decisions were made. In response, the manager of SME McA expressed that ‘*’we make manufacturing decision on new products, which we design and use to change some of our old product line that already exists in the market at a lesser price unit. These new products will still be at the same quality and performance level, but with a lower cost benefit to our product users and customers”* (McA). Similarly, the manager of Nigerian manufacturing SME McJ said that *‘’our new product decisions are sometimes made out of market expectations and customer demands. As a manager, new product decision is very difficult to make as it can sometimes alter the whole manufacturing and production plans. We study the behaviour of our products in the market to check if it is still attracting the right customers before making decision to replace the products with new products”*

MSMEs managers make innovative manufacturing decisions to enable them to deliver new products to them meet their market needs. The manager of manufacturing SME McH states that *‘’as a manufacturing managers our target is to make manufacturing decisions that bring about innovative product ideas and deliver competitive strategies that will enable us to develop new products to meet our*

company's market expectations and needs in other to grow the business'' The making of manufacturing decisions to develop new products is strategic to Nigerian MSMEs in meeting their market demands.

4.4 Manufacturing priorities

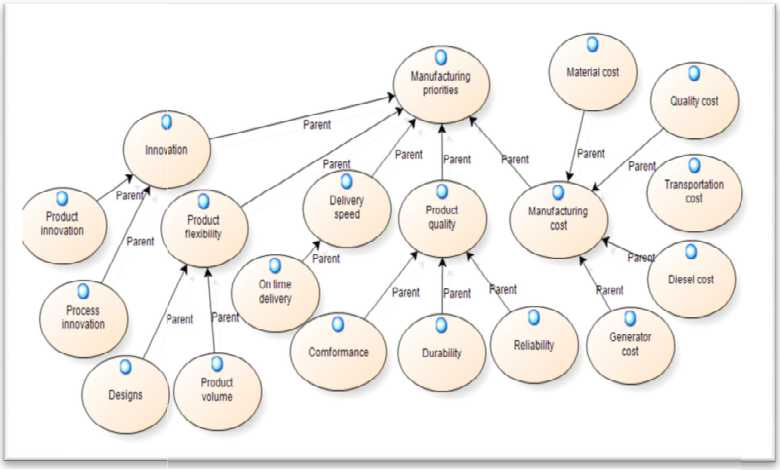


Figure 4.19 Coding for manufacturing priorities

The theme manufacturing priority was coded and it generated several high and low code The manager of McA states that *''our manufacturing priority is to reduce the cost of manufacturing which is on the high side compared to other manufacturing countries in Africa. The cost of electricity in a year alone is enough to buy new machines and equipment to expand and improve the business''* (McA). Nigerian MSMEs have expressed manufacturing cost as their main priority; whether it is product delivery cost, electricity cost, importation cost, and quality cost. The manager of manufacturing SME McK states that ''*we spend lots of money on diesel fuel to generate our own electricity. The electricity supply is less than 8 hours in a day. Can you imagine Nigeria 6th oil producer in the world yet the country import fuel this is not healthy for the economy as the importers pass on the cost to us manufacturers? It cost you more to produce here in Nigeria than many countries of the world.*

Likewise, the manager of SME McD hinted that ''*the cost of importing raw material is very high as the government keeps increasing import duties. The cost of delivering our products to customers is very high as for result of bad roads and poor transport systems. It takes about 3 to 5 days to deliver goods from Lagos to Kano''*

4.4.1 Manufacturing cost

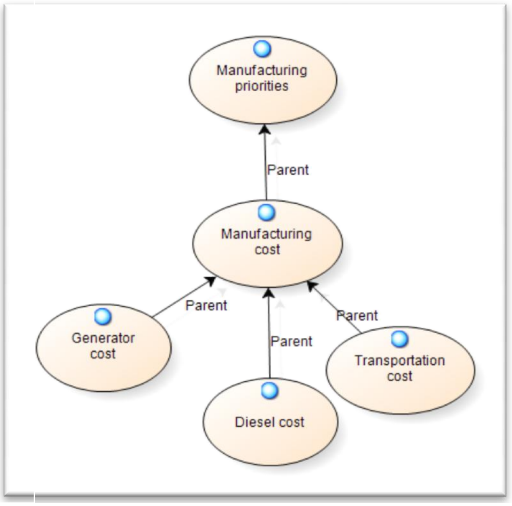


Figure 4.20 Coding for manufacturing cost

The theme manufacturing priority was coded and it generated a high code manufacturing cost, and a low code transportation cost, generator cost and diesel cost. The rising cost of manufacturing has become a major concern for Nigerian MSMEs. The managers of Nigerian SMEs were asked their manufacturing priorities and how they deal with the cost manufacturing. The manager of McC comments that ‘’*high manufacturing cost is the major problem facing us manufacturers in Nigeria, even as we continually cut down on our manufacturing costs by recognising the production setback and then applying all the necessary tools and techniques needed to improve the performance of these setbacks”*(McC).In addition, the manager of Nigerian SME McE said that *‘’for the Nigeria manufacturing industry, the challenges around managing the cost of electricity will increase in the nearest future and not do something about it, is not a good choice for any meaningful manufacturing business that wants to succeed”* (McE). Many of the interviewed Nigerian MSMEs managers confirm that electricity cost was *‘’manufacturing crucial issues”.* Previous studies have shown that many Nigerian MSMEs that have been facing rising costs of manufacturing have been forced to close down their plants. In the findings of this research ‘’ *manufacturing costs are made up of the raw material costs used in production, labour costs used in converting these raw materials into finished products and other incurred costs which are from diesel cost, generator cost and transportation cost acquired during the production and delivery of these products to customers”*(McQ). The manager of SME McA has warned that *‘’if the cost of manufacturing in Nigeria is not properly managed and kept under control, the stability of the entire manufacturing sector, as well as the Nigeria economy, will be*

hurt financially''(McA). The research findings have shown that manufacturing cost remains a major priority for Nigerian MSMEs. Likewise, the manager of manufacturing SME McJ states that *''manufacturing generally is not cheap, but in Nigeria, the case is different as it cost almost three times what it cost in neighbouring Africa countries such as Benin, Togo, and Ghana. In other to reduce cost we try as much as possible to minimise and eradicate waste from our manufacturing process''* (McJ).

4.4.1.1Generator cost

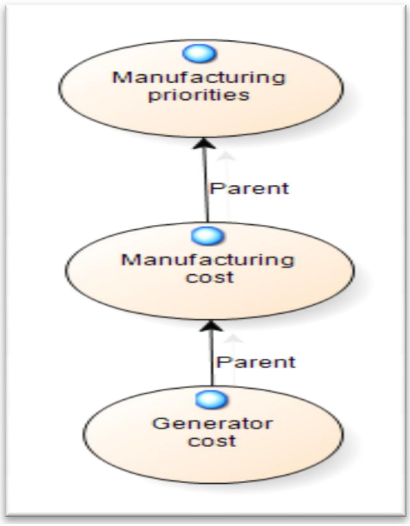


Figure 4.21 Coding for generator cost

The theme manufacturing priority of Nigerian MSMEs was coded and it generated a high code of manufacturing cost and low code generator cost. The manager of SME McD states that *''the cost of generating our own electricity in Nigeria is on the increase. We have to keep our power generating plant running to enable us to meet our production targets as there is constant electricity* shortage''(McD). The current state of electricity supply in Nigeria has become a concern to many manufacturing businesses, therefore the use of their own power generating set to meet their needs in terms of providing electricity. Similarly, another manager of Nigerian manufacturing SME McL lament *''the current state of electricity situation in the country and the cost of buying a generator is very high. The electricity infrastructures are failing us manufacturers who require electricity to power our machines and manufacturing equipment''* (McL). The associated cost of Nigerian MSMEs in buying generators to keep the supply of electricity in manufacturing plant is high. During the interview process of the managers of Nigerian MSMEs, the

manager of manufacturing SME McA said that ‘’*the state of electricity infrastructures in Nigeria is in an appalling condition. This is an issue that has lingered for so long and should not be ignored. The overreaching cost related to generating our own electricity in Nigeria is very high. This makes things difficult for us MSMEs, as it is hard to focus on other problems of our core* business’’ (McA). Generators have become an essential commodity in Nigeria. The costs of generator keep rising, due to the demands placed on it by Nigerians, to enable them to solve their electricity problems.

4.4.1.2 Diesel cost

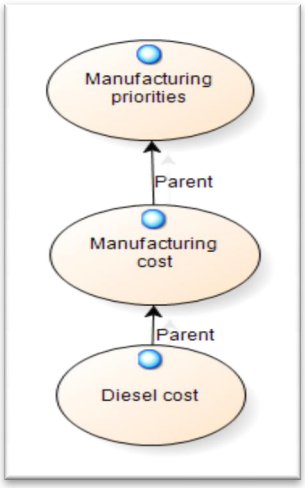


Figure 4.22 Coding for diesel cost

The theme manufacturing priority of Nigerian MSMEs was coded, and it generated a high code of manufacturing cost and low code diesel cost. The manager of SME McH states that *the cost of buying diesel daily to power our generating plant is very high as petroleum marketers keep inflating their prices of diesel due to its high demand”*(McH). Diesel is an essential petroleum product as it used to power generators that the Nigerian MSMEs need in generating electricity for production and for powering trucks for transporting manufactured products. The manager of manufacturing SME McE expressed that ‘’*Nigeria is the highest producer of crude oil in Africa and ranked about 6th in the world. Yet the cost of petroleum products in Nigeria is the highest among major oil-producing* countries’’ (McE). Likewise, the manager of manufacturing SME McK states that *“the high cost of diesel has become a major concern to MSMEs who needs it power their generators and*

trucks. The money we spend on buying diesel annually is enough to expand and grow our business. The money we set aside each year for meeting the cost of diesel is enough to hire more people into our business'' (McK). The high cost of diesel to Nigeria MSMEs is something that they really worry about, due to its impact in increasing the total manufacturing cost.

4.4.1.3 Transportation cost

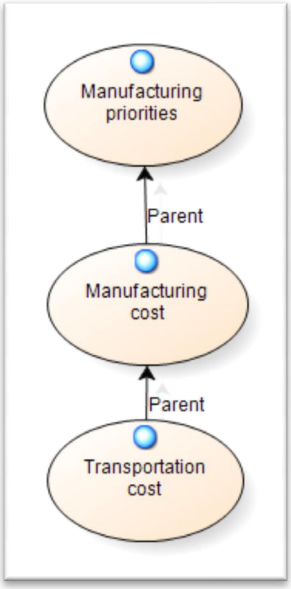


Figure 4.23 Coding for transportation cost

The theme manufacturing priority of Nigerian MSMEs was coded and it generated a high code of manufacturing cost and low code transportation cost. Transportation is essential for the delivery of manufactured products from the factory floor to the consumers. The manager of SME McB states that *''the transportation cost in Nigeria is high as for result of many factors, such as bad roads and the high cost of petrol and diesel needed to drive the vehicles''*(McB). Similarly, the manager of manufacturing SME McD asserts that *''Transportation cost in Nigeria is higher than most of other African countries. The roads are in a very terrible condition, transporting manufactured products from the southern part of the country where our factory is based in the northern part of Nigeria, could take on average 3 - 5 days to get to the destination of our customers. In the process, some of these products are either being broken or completely destroyed''* (McD). Transportation cost is a major concern to Nigerian MSMEs as result of poor road infrastructures which makes the

transportation of manufactured products from one part of the country to another part very difficult, adding more cost to the manufacturers. The transportation system in Nigeria needs some major transformation to enable it to meet the industry required standards.

4.4.2 Product quality

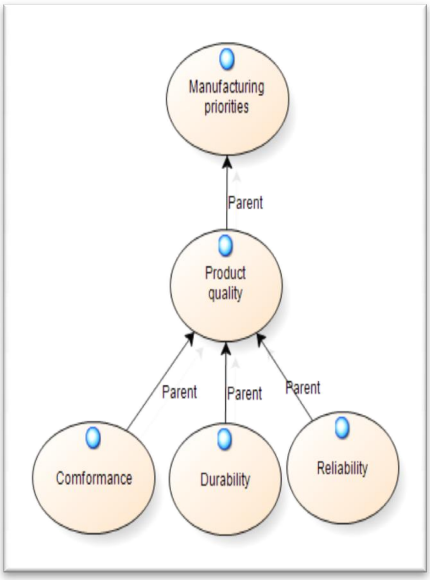


Figure 4.24 Coding for product quality

The data analysis shows that there are quite a number of reasons that motivated Nigerian MSMEs to ensure the quality of their products to meet the required market standards. The themes developed from these research findings as coded above are the durability of products, reliability of product and product conformity. The figure above shows the data coding of themes in the manufacturing priorities of Nigerian MSMEs which emerged from the coded data of the interview transcript analysed. The data analysis shows that there are quite a number of reasons that motivated Nigerian MSMEs to ensure the quality of their products to meet the required market standards. (McH). According to the manager of SME McK, *''the greater trustworthiness of many western imported products has ignited substantial assessment of locally manufactured products among Nigerian MSMEs managers''*. Similarly, manager of McD comments *''the quality of our products is very important to us as a means of accomplishing our customer's expectations. Customers are more satisfied when they realise their products are of the required standard and of the highest quality. Our products are durable, reliable and conform to one of the highest qualities of similar products within the Nigeria manufacturing industry''* (McD).

The managers of Nigerian MSMEs have to ensure product quality, by making sure that the entire process of producing their product is well established and efficient. Although the quality requirement of many manufacturing products in Nigeria are set up by the Standard Organisation of Nigeria (SON),''*to us manufacturers in Nigeria product quality simply means meeting at least the standard requirement to customer needs ''*(McH). According to manager of SME McB ''*product quality comprises of the product specifications, designs, using the right raw materials for the product manufacturing preparation and the final manufactured products delivered to consume''* (McB). *While the manager of SME McF* believes that quality is attained when products meet specific customer's expectation and said *''all our products meet the set-out quality standards recommended by customers. Manufacturing products with defects and faults can attract additional costs to production and dents the long-standing reputation of business''* (McF). There is no doubt that product defects can attract unwanted cost to manufacturers that is why the manager of SME McJ assert that ''*to ensure quality of products, we have quality standards built into our production process and all finished products are checked by quality managers to ensure that the product meets the required quality standards''*(McJ). Similarly, the manager of SME McP states ''*we managers ensure all our employees care about how all our products are manufactured to meet set-out quality standard and requirement''* (McP).

The managers of Nigerian SMEs know the significance of product quality, nevertheless, the quality of their product sometime is not under their control as they have relied upon imported raw materials. They have had issues of sub-standard raw materials imported from China, which is not helping the quality of their products. The manager of McE states that ''*the source of raw material is very important to ensure product quality, whereby the raw material is not up to the required standard, it is going to impact on the product. Defects in products can amount to waste, that is why we have good quality checks in place. A manufacturing defect may occur in products if the design is altered during the production process of the product, even when care was applied in the preparation of the product. Having a good quality control enables the manufacturers to ensure that the product does not depart from its intended designs''* (McE). The use of inappropriate raw materials could have an impact on the product quality. The use of the right raw material will ensure product

quality. Manufacturing managers of Nigerian SMEs were asked, their policy on product quality improvement. The manager of manufacturing SME McA responded in the interview saying *''our policy on quality is well defined in terms of making defect-free and durable products that are suitable for our business. The quality policy includes our obligation to quality requirements and continuous improvement. We are committed to Standard organisation of Nigeria (SON) quality requirements. Our business has well-documented quality objectives that allow us to reduce the rate of waste and raise the product pass first-time level quality test. The quality control tests and inspections are ways we ensure the quality of our products. We have a quality inspector or tester in our factory that performs the quality audits''* (McA). The manager of McC expressed that *'' some of our highly trained employees on quality control have left to seek employment in bigger manufacturing firms recently. We have faced a lot of quality issues resulting from imported raw materials from China that are below our quality requirements''* (McC). Likewise, the manager of McM believes that *''quality is a major challenge in that sometimes you get your suppliers selling to you things that don't really measure up to the quality standards you want, and you have no other option than to have to spend more money trying to put things right, and this will add more to your cost of production''* (McM)

4.4.2.1Durability

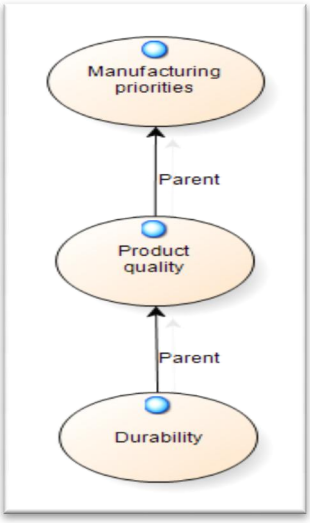


Figure 4.25 Coding for durability

The main theme of manufacturing priorities was coded in the template and generated product quality as a high code and durability as a low code. The manager of SME McD asserts that *''customers are pleased when their products*

have a long lifespan" (McD). Likewise, the manager of McA believes that ‘'*better product usage and dependability will help reduce the rate of return of products as consequence of failures and enhance the product lifespan"* (McA). According to the manager of SME McO *‘'products might fail prematurely due to a number of key components in the product that is while we ensure quality to extend the life of the product. These key components are the parts that render the product out of order when they stop working and will not extend the product life"* (McO). Similarly, the manager of McE in the interview states that *‘'product durability can be ensured by having, a better and clearer user guide, simplifying product designs for easy usage and improving the product lifespan"*(McE). Product failures have been attributed to poorly written user instruction and product guidance manual. *‘'A quality product might fail its users if the user instruction is poorly written or not well understood"* (McJ). Additionally, the manager of McH believes *‘'product failures can make-up additional cost to manufacturers and might change customer perception about the product quality"*(McH).

4.4.2.2 Conformance

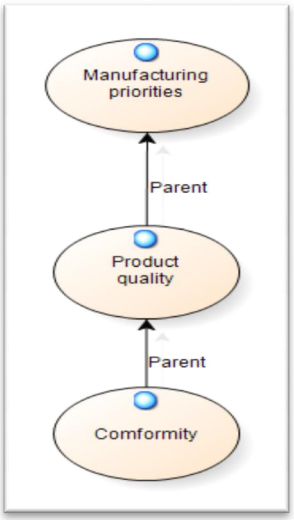


Figure 4.26 Coding for conformance

The main theme of manufacturing priorities was coded in the template and generated product quality as a high code and conformance as a low code. The manager of SME McL believes that *‘'to meet the conformance conditions, manufacturing quality systems should continually implement the use of an only accepted standard of procedures, materials, equipment, and workers prior to any action that might be performed.* Furthermore, manager of Nigerian SME McJ states

that *''the best course to ensure the quality of products is to avoid problems and faults from happening in the first* instance'' (McJ). To ensure product quality conformity *''the procedure we have in place also ensured that all the process and product analysis are well performed and that the test results meet the required specifications''* (McK). Likewise, the manager of McD asserts that *''in the case of any variation in the test results, the manufacturing quality system we have in place enables us to take the appropriate measures to rectify whatever that might have gone the wrong way. The systems we have in place also enable us to generate nonconformance reports. These reports generated enable us to manage concerned materials with the problem and prevent subsequent products with problems from proceeding to the finish line and to customers''* (McD). Product quality conformance is part of the manufacturing strategic plan. Similarly, McK manager comments that *''we take manufacturing quality as an essential part of our strategic plans. The purpose of ensuring quality in all our products is for it to satisfy and meet customers'* needs'' (McK).

4.4.2.3 Reliability

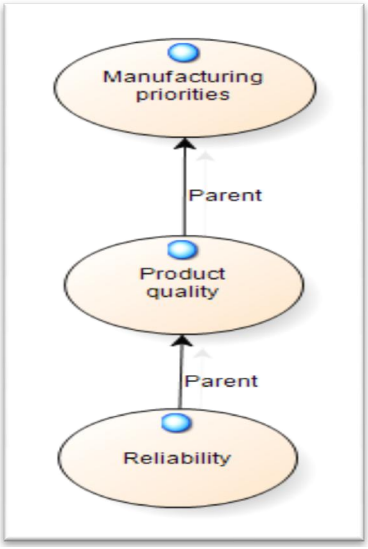


Figure 4.27 Coding for reliability

The interview data were transcribed and the main theme of manufacturing priorities was coded in the template and generated product quality as a high code and reliability as a low code. Evidence from the research data analysis has shown that quality reliability is useful in identifying issues that might result in faults and failures in product and the production system. The manager of SME McD expressed that *''we take the quality of our products seriously. In order to avoid failures in our*

products, we carry out reliability and quality to meet our standard and international standard'' (McD). The product reliability test is done to eliminate waste and identify faults. Likewise, the manager of SME McP said *''product reliability test is part of our quality policy to ensure strength and reduce losses in the operations of our production system. The reliability test we embark on enable us to find out faults in the product and eliminate waste in the production''* (McP). Studies have shown that traditionally product reliability is achieved doing the broad test in the product and the production process. According to the manager of SME McA *''product reliability is very crucial in the production process to identify faults that could lead to losses in the production system''* (McA). Similarly, the manager of SME McC expressed that *''the product quality reliability test process enables us to assess our machines to identify the causes of product* failures'' (McC).

Technology has been identified as the driver of product quality and reliability. The manager of SME McO during interview state that *''good technologies enable designs that are drivers of product quality reliability and the prevention of failures and the elimination of waste''* (McO). Similarly, the manager of SME McG believe that ''*the product reliability tests are important since it allowed us to locate design mistakes which might lead to product defects and failures''* (McG). Policy in product quality is drafted to enable manufacturing firms put in practice measures that will ensure that products are defect free and faults are identified. During the data collection interviews, the manager of SME McM said *''in our manufacturing company, as part of the product quality reliability responsibilities, we have been using the reliability test to detect faults and prevent failures in our products''* (McM).

Guarantying product quality and reliability are essential to keeping the customer base and promoting the product brand. Managers of Nigerian MSMEs were interviewed and the manager of McK asserts that*'' we have been recognised in Nigeria for the quality and reliability of our products due to our technologically improved innovative production processes. We have earned this status as a matter of hard work and vigorous efforts to guarantee the reliability and quality of all our manufactured products''* (McK) Quality checks are ways of ensuring the quality of products. The manager of SME McE has stated that *''in order to ensure that we accomplish our company's quality objectives, we carry out rigorous quality checks*

at every stage of manufacturing starting from product planning all through to the final product delivery'' (McE).

4.4.3 Product flexibility

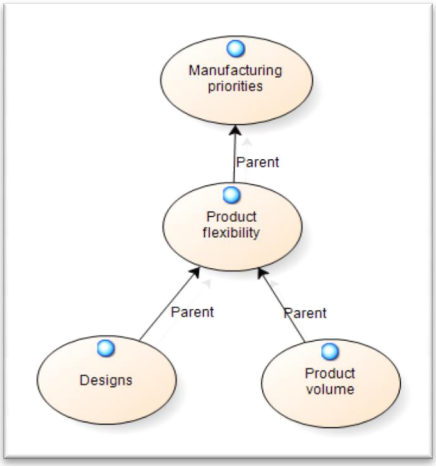


Figure 4.28 Coding for product flexibility

The theme manufacturing priorities were coded and it generated high code product flexibility. There has been an increased attention paid to product flexibility among Nigeria MSMEs, which design products due to rapid changes in technologies globally. Managers of Nigerian MSMEs are under continuous pressure to regularly improve their products. The manager of SME McK states our *product flexibility enables us as manufacturers to be able to respond to the market needs and demands, by bringing in designed new products soon to the market''*(McK).

4.4.4Delivery speed

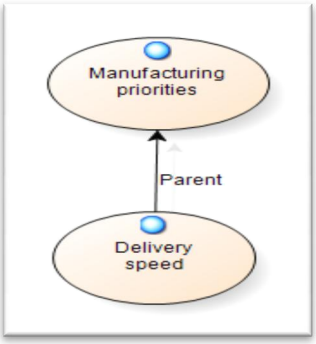


Figure 4.29 coding for delivery speed

The theme manufacturing priorities were coded and generated a high code delivery speed. The manager of McB states that ‘'*as a manufacturing our manufacturing*

priority is to be able to deliver our products to many of our customers in time'' (McB). Similarly, the manager of McE states that ''*delivering our products quickly to the market is our priority*'' (McE).Products delivered to customers quickly can help build a good customer relationships as the delivery targets are met. How the manager of McO states that ''*we try everything possible to deliver our products in time, but sometimes the delivery is not under our control, sometimes we have unforeseen delays in the transport, raw material, and power failures''* (McO). Product delivery can be delayed by electricity supply failures, bad roads, and poor transport network.

4.4.5 Innovation

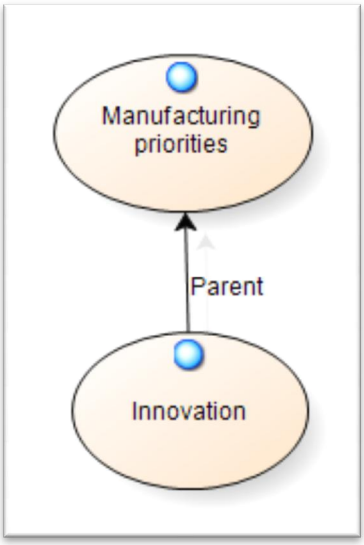


Figure 4.30 coding for innovation

The theme manufacturing priorities were coded in the interview transcript data and it generated a high code innovation. Innovation as a manufacturing priority is vital for the manufacturing advancement and transformation. The managers of Nigerian MSMEs were asked, how often do you develop new products? The manager of SME McA said ''*not too often*, *one of the greatest impediments deterring the manufacturing sector in Nigeria is the lack of manufacturing product innovation; as it hampers the industry's ability to apply skills to lessen the effects of other limitations in the country. The Nigerian manufacturing sector of the economy needs new measures, processes, and mechanisation of activities to be globally competitive''*.

Similarly, the manager of SME McL said that *''innovation is what that strengthen and sustain the advancement, transformation, and improvements required for our manufacturing performance. The manufacturing industry needs innovation to succeed. The lack of innovation is one of the greatest barriers deterring the smooth running of manufacturing businesses in Nigeria. Innovation is vital to me as a manufacturer as the lack of it obstructs the ability of manufacturers to utilize technology. The Nigerian manufacturing sector needs new ideas for product design, and modification to remain competitive''* (McL).

4.5 Nigerian MSMEs challenges

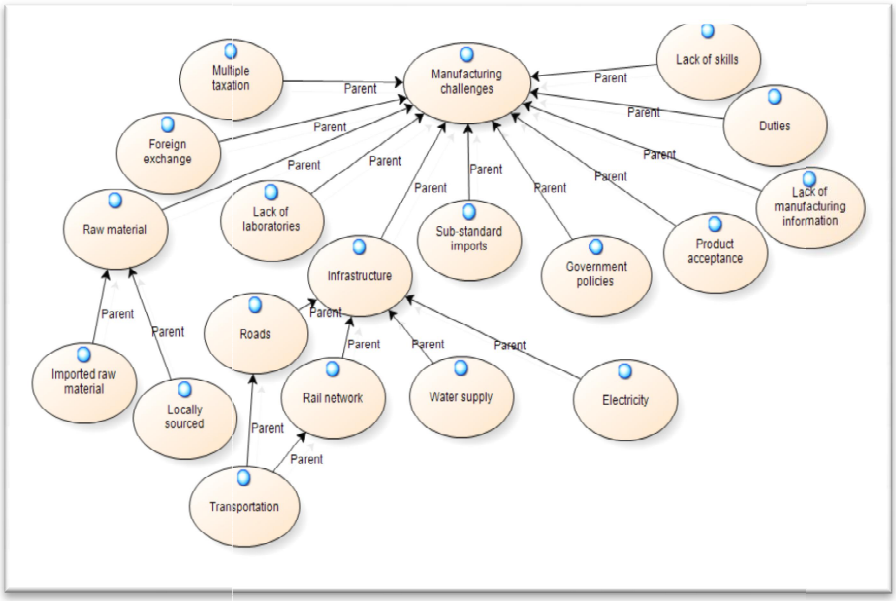


Figure 4.31 Coding for Nigerian MSMEs challenges

The theme challenges of Nigerian MSMEs was coded and generated twelve high codes which are: infrastructure, product acceptance, lack of skill, multiple taxations, funding, sub-standard product, lack of laboratories, lack of raw material, foreign exchange, lack of information, duties and government policies. In recent time the Nigerian manufacturing sector has not been able to make an optimal contribution to the growth of the economy due to challenges in energy and other basic infrastructures.The country has not been able to maintain steady electricity supply which would have helped to improve the manufacturing production ability of the sector. Interviews were conducted among 17 Nigerian MSMEs to determine their manufacturing challenges. The interview enabled the researcher to get first-hand

information from manufacturing managers that help to identify the daily challenges being faced by SMEs, based on their manufacturing experiences.

Their comments, opinions, and views on their daily manufacturing challenges were noted *''the challenges we face as manufacturers in Nigeria are huge. We face challenges of poor electricity supply, infrastructural decay, inadequate security, continuous government policy change, increase in import duty levy, multiple taxations, fuel cost and the declining exchange rate for foreign currency needed for importation of machines and raw materials. It cost more to produce in Nigeria than every other place in Africa. The country currently is generating less than 5000 megawatt of electricity which is far below the demand for any meaningful industrial growth''*(McE).The challenges that Nigerian MSMEs face in terms of electricity supply, has become their main concern as due to its importance in manufacturing production operation.

4.5.1 Infrastructural challenges.

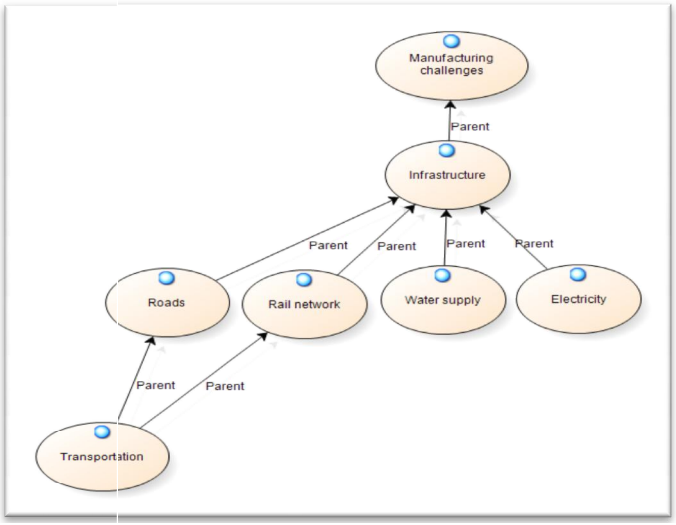


Figure 4.32 Coding for infrastructure

The theme infrastructure generated several high codes such as electricity, roads, rail network and water supply. The problem with infrastructural facilities has been an enduring challenge among Nigerian MSMEs, particularly with individuals that are concerned with the supply of electricity and road maintenance quality. It can be noted that most of the interviewed MSMEs managers agreed and mentioned poor electricity supply, the state of the roads and inadequate transport network as their main concerns. The manager of Nigerian manufacturing SME McD have expressed that, *''in this 21st century the type of the infrastructures in Nigeria is at their worst*

state. No good roads, no adequate, electricity supply, and even water which are the most needed necessity of most Nigerians'' (McD).

Similarly, the manager of manufacturing SME McB asserts that ''the *appalling state of the roads infrastructures is not good for business when it comes to the transportation of manufactured product to other parts of the country. Many lives are been lost on a daily basis as these roads have become death traps to commuters''* (McB). The manager of manufacturing SME McP have responded that *''the Nigerian government has failed to address the systemic problems affecting the competitiveness of MSMEs such as electricity power supply and high transportation costs''* (McP). The Nigerian MSMEs needs to deal with these several challenges to enable them to play a leading role in advancing the manufacturing sector of the Nigerian economy.

4.5.1.1 Electricity

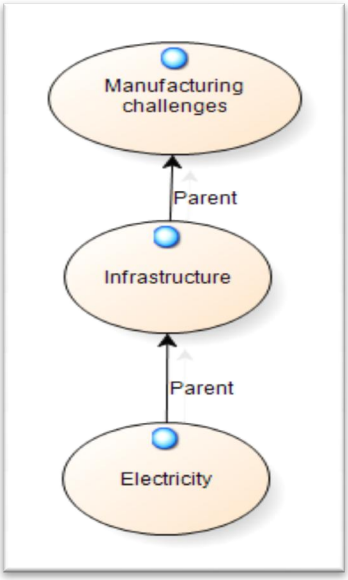


Figure 4.33 Coding for electricity

The interview transcript was coded to enable the researcher to generate themes that will help in analysing the primary data. Manufacturing challenges is the main theme that generated high code infrastructure and low code electricity. The Nigerian MSMEs managers interviewed, have expressed their dissatisfaction with the ongoing electricity supply challenges, they are currently experiencing on a daily basis. They believe the electricity outages have made them to become less competitive. For instance the manager of manufacturing SME McA said that, *''the unreliable power and electricity supply outage in the country has made us less competitive as our*

heavy machinery requires significant amount of power from electricity to function properly. This situation has made us to spend heavily on heavy generating plant for electricity which is not part of our initial plans'' (McA). Furthermore, Nigerian MSMEs have acknowledged that the unstable electricity supply in the country remains their main challenges to an effective operational realisation of production in their various plants. The manager of manufacturing SME McC states, ''*the critical situation right now, is that there is more frequent power cuts and fluctuations in electricity supply than previously. We experience power outage day in day out, this decline means as a manufacturing firm we are unable to meet up with our daily production needs and targets''* (McC)

The interviewed managers and owners of MSMEs in Nigeria have acknowledged the fact that access to a dependable and effective electricity supply is good for the manufacturing industry, as their major challenge remains access to adequate electricity supply. The manager of manufacturing SME McF states ''*constantly, poor electricity supply has limited the production process of our manufacturing plants; this unavoidably has reduced the speed of production and the scale of our production output''* (McF). The unreliability of electricity providers in Nigeria means there is an insecurity of electricity for MSMEs, as this have adverse multiple impacts on their manufacturing equipment and machines when they are consistently switched on and off as a matter of these electricity power outages.

Similarly another manager of manufacturing SME McD responded saying, ''*the main impacts that electricity supply outages and failure have on our manufacturing productivity is enormous, due to constant forced stops and unexpected halts in our manufacturing production processes, this continue to disrupt the smooth running of our production assembly lines and often times lead to malfunctioning of equipment and breakdown of our machines*''(McD).

The Nigerian MSMEs managers of (McB, McH and McJ) believed that in order to enable their businesses to succeed and compete favourably with their counterparts globally, the problem of power generation and electricity supply needs to be addressed by the government. Similarly SMEs managers McB and McH believes Nigeria businesses needs the same level playing field to compete with their global counterparts, which they acknowledged that electricity failures is their greatest hindrance to manufacturing success. *''There is a fundamental crisis in Nigeria with the power sector, the lack of stability in the electricity generation and supply is*

having adverse impact on businesses that rely on electricity'' (McB). Similarly the manager of manufacturing SME (McH) responds, *''we manufacturers are the hardest hit. Electricity supply and power outages have not enabled us to maximise our full manufacturing potentials''*. Equally m*anager* of manufacturing SME (McJ) pointed, *''as local manufacturers we are at a disadvantage due to inadequate electricity supply and power outages which have reduced our production output and have made us less competitive when compared with our foreign counterparts''*(McJ).

Most Nigerian manufacturing businesses have been affected by the poor supply of electricity, an appalling situation where SMEs have to search for funds to enable them acquire power generating plants that are not only costly, but expensive to run as it requires daily fuelling with diesel which is costly and add up to the overall manufacturing cost of production and make these MSMEs less profitable. These numerous challenges confronting MSMEs often times have led to closures of so many MSMEs as their finance disappear. There is doubt that the unsteady electricity supply and high cost incurred in generating power is more challenging for some MSMEs than other problems such as tax and security. The electricity situations in Nigeria have made many MSMEs to generate their own power. The manager of manufacturing SME McO said, *''we use generator nearly all the time. The electricity providers sometimes distribute low voltage that is not enough to power our machines and* plants. Sometimes it we this for weeks, which means we have to keep up with *running our generators to provide the needed electricity for powering our factory to guarantee steady production* process'' (McO).

The Nigeria government has made several investments in power generation without much recorded success. The power sector still does not have the capacity to generate enough electricity that will help transform the manufacturing sector of the economy. The manager of McQ explain that *''the power infrastructure has been the main problem confronting the Nigerian manufacturing sector of the economy. Despite the government effort on privatisation of the power sector, there is still failure with the electricity distribution and supply across the country. The present power generation stands at less than 5000 megawatts which are far below the capacity need for any meaningful industrial growth''*(McQ)*.*

Nigerian MSMEs have expressed their opinions on the electricity crisis facing the country, as one of their greatest manufacturing challenges. They have also expressed their displeasure about the government failures to make these electricity providers accountable. Due to these electricity challenges, Nigeria MSMEs feel that they are not in good position to compete with their foreign counterpart. Nigerian MSMEs McK noted that ''*electricity crisis is the greatest challenge facing the manufacturing industry. With this crisis, local manufacturing firms are not able to compete with their foreign counterparts. The electricity supply is not evenly distributed, yet the providers bring exorbitant bills that are not the actual meter readings but estimated to their own advantage. We have asked the electricity providers to go back to the pre-paid meters that are used to before they changed it. The government has not challenged the electricity providers, despite their shortfallings"* (McK). There is a need for the steady supply of electricity for MSMEs to enable them to carry out their manufacturing and production functions. There is a general agreement among Nigerian MSMEs that electricity remained there major manufacturing challenge

4.5.1.2 Roads

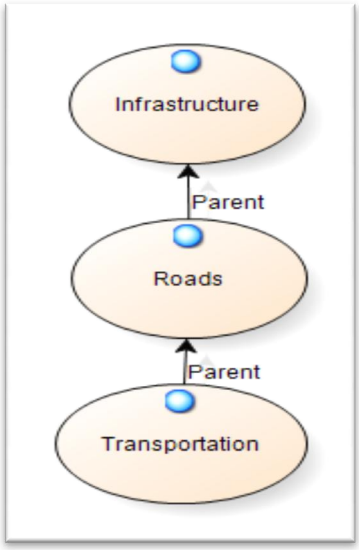


Figure 4.34 Code for roads

The theme infrastructure was coded in the data set and generated a high code roads and low code transportation. The importance of road in economic development cannot be ignored or overlooked. The Nigerian MSMEs have

expressed their concerns about the poor conditions of the roads. The manager of SME McQ during the interview emphasized that *‘’good road network is what we need to ease our transportation problems. The current states of the road are really bad. The roads have become a danger to many commuters and transporters as they cause delays to delivery and distribution of manufactured products to customers’’* (McQ). The issue of bad has become a source of worry to many MSMEs as these roads cause delay to delivery of products to the destinations of customers. Similarly the manager of McF expressed that ‘’*the roads in the southern part of the country are really bad. The bad road infrastructures have created an inadequate inner-city transport service, which is obstructive to the economic activities and productivity of the inner-cities and country in general’’* (McF).Good road can facilitate the smooth distribution of goods on time to every destination. However the manager of manufacturing SME McO assert that *‘’Nigerian roads are worse than that of neighbouring African countries. Most sections of the entire road infrastructural network are covered with deep ditches and holes which causes road accidents, damages to cars and travel delays’’* (McO).The Nigerian roads need steady maintenance to keep it good conditions. The manager of manufacturing SME McH said *‘’the lack of adequate road maintenance culture, have led to the poor states of the Nigerian roads. Successive government have failed to perform the required road repairs’’* (McH). The government needs to take the necessary actions to repair and fix the bad roads.

4.4.1.3 Rail network

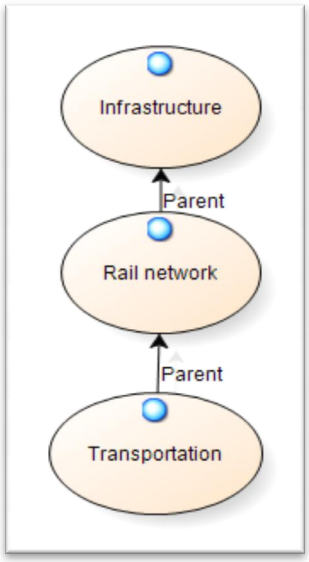


Figure 4.35 Coding for rail network

The use of rail in the transportation of bulky and heavy goods is well acknowledged. The good rail network will help ease the burden of transporting goods by road. The need for adequate rail network infrastructures is long overdue. The manager of manufacturing SME McD expressed that *''there are no adequate rail networks for transporting bulky items which cannot be transported by roads''* (McD).

In addition, the manager of manufacturing McK expressed that *''the present rail network is one-sided in that it is not well distributed across the country. Having a good rail network will help reduce the transportation problems that we are presently facing right now. It can take an average of 3 to 5days to deliver products to Northern region of the country if we are lucky''* (McK). The good rail network is needed for speedy product delivery to customers on time.

4.5.1.4Transportation

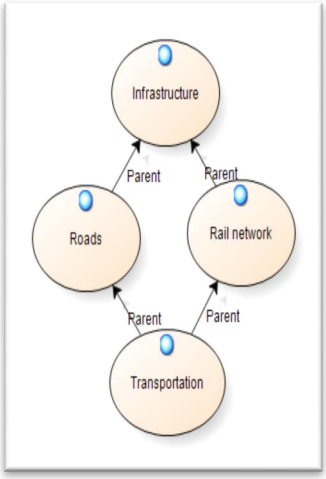


Figure 4.36 Coding for transportation

The theme transportation emerged from the coding of road and rail infrastructures. Most Nigerian manufacturing businesses and SMEs have expressed their dismay over the current situation of the transportation policy in the country. According to the manager of McA *''the transport system is inadequate. The roads are a death trap to transporters as they are very bad and lack the required maintenance''* (McA). During the interviews of managers of MSMEs, they identified areas in the transport system the government needs to pay attention and focus on as the role that transportation plays in the distribution of manufactured products are well acknowledged. During the interview process for the collection of primary data in Nigeria, the manager of manufacturing SME McF expressed that *''in every country that wants to grow economically it is important to note that a good transport network is needed to make the movement of manufactured goods and products on time and easily to customers by reducing waiting time and the associated cost due to delays''* (McF).

Similarly, the manager of SME McL in an interview said that *''it is important to know that transportation can play a linking role among the numerous steps that result in the manufacturing of products from the raw material conversion to the actual distribution of the products to customers''*(McL). Evidence from the interview of managers of the Nigerian MSMEs has shown that high cost of transportation was as result of poor infrastructures. *''The costs of transporting goods within the country*

(Nigeria) is rising due to the poor state of all the transport infrastructures, be its rail network and roads across various states of the country"(McJ). Likewise, the manager of SME McN asserts that *''the cost of transportation is very high in Nigeria because of the bad state of our roads. One day journey to transport products to the north from the south might take 3 to 4 days if you are lucky. Sometimes the breakdown of the vehicle due to the bad roads causing delays to the delivery of products and adding more cost to us*'' (McN). Despite the concerns raised by many MSMEs *''the transport infrastructural development is still not keeping pace with the development of the industrialisation goal of the government. It cost more to transport goods within Nigeria when compared to our neighbouring African countries. The roads are death traps and causes delays to heavy-duty trucks used in transporting our goods and products to a remote area of the country''*(McI). Similarly, the manager of McQ expressed ''*I think transportation is a big concern to us manufacturers as the roads are very bad. The cost of transportation is high as for result of these bad roads. Many transporters do not want to go to places their car is likely to break down as a result of bad road. Each time you want to transport your products to those areas it comes with a high price''* (McQ). Evidence gathered so far from quite a number of Interviewed managers of Nigerian MSMEs have highlighted the state of the nation's transport infrastructures which seems to be on the decline. Furthermore, the manager of SME McD said *''our transport infrastructure in Nigeria is inadequate, which in essence remains an impediment to the country's development and economic growth. We still lag behind in terms of good road and rail infrastructures. The cost of transportation in Nigeria is sky rocking at moment for the distribution of products to our customers''* (McD).

4.5.2 Product acceptance

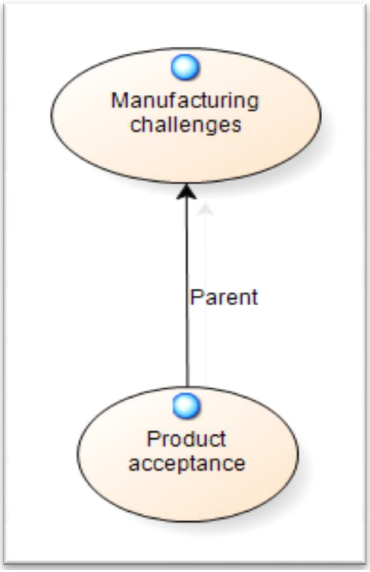


Figure 4.37 Coding for product acceptance

The main theme manufacturing challenges from the template analysis generated a high code product acceptance. The interviewed managers of McL and McI believes Nigeria MSMEs are constantly faced with dumped imported products that are sometimes of low quality yet the patronage for these products continue to grow. ... *''As a manufacturer in Nigeria, our main challenge is product acceptance''* (McL). Similarly, the SME manager of McI mentioned that *''for every product, the competition is fierce, particularly from importers. This fierce competition coupled with the local attraction for products made outside the country contribute to the poor product acceptance''* (McI).

The managers of interviewed SMEs McI and McO believes that there is an existential lack of awareness among Nigerians about the locally manufactured product even when they are presumably of better quality than the imported ones. McO manager suggested that there is a need for the MSMEs to invest in their product advertising and marketing. *''Often times many Nigerian manufactured products are easily accepted in neighbouring West African countries as in the case of large manufacturing firms and yet that of some SMEs which have better quality products are not''* (McO). Likewise the manager of SME McL comment *''we have a serious challenge in product acceptance; as a result, many manufacturers are closing down their production plant. If you start manufacturing a product that*

appeals to customers before you know it the product is being faked and this will drive down your product acceptance and sales''.(McL)

The manager of Manufacturing SME McM believes that other MSMEs should incorporate into their manufacturing strategy the idea of a robust marketing approach by providing to their customers much needed added value with high-value product to enable them to build long lasting relationships. ... *''The issue of corruption in Nigeria is killing our products. The government failures to address the importation of fake substandard products or make a complete ban on the locally counterfeited product has made many people lose trust in the quality of locally manufactured products. Product acceptance is very vital to the continued survival of the Nigerian MSMEs sector of the economy that is why we are providing high-value product to our customers*. (McM).

The SME manager of McP has also noted the need for government to crack down on counterfeit and fake product manufacturing factories before these products make their way to the public. *''In Nigeria product acceptance rank high among the numerous challenges confronting us local manufacturers. Many Nigerians still identify the locally made product as being inferior to the imported products. This is a serious issue because when Nigerians that are supposed to be patronizing the locally manufactured product perceive it as inferior to the imported products.''*(McP).

The manager of SME McD thinks that the people's mindset needs to change in the Nigeria, so that when they see ''*a quality product, even if it is manufactured locally, they should be able to see it as valuable as the imported foreign product of the same quality''* (McD), in order to help move the manufacturing industry forward.

The evidence gathered from the interviews of Nigerian MSMEs and the findings from the data analysis has revealed the feelings and perceptions of many Nigerians towards, locally manufactured products despite their qualities. This is a major concern to many Nigerian MSMEs. The manager of manufacturing SME McQ expressed that *''as a manufacturer in Nigeria, one of our major challenge is product acceptance. For every product, the competition is fierce, particularly from importers. This fierce competition coupled with the local attraction for products made outside the country contribute to the poor product acceptance in the country''* (McQ).

Product acceptance continues to be a challenge to many Nigerian MSMEs. Despite the fact that some of the products are better than imported once there is still a lack of acceptance, as most MSMEs do not advertise their products.

4.5.3 Multiple taxation

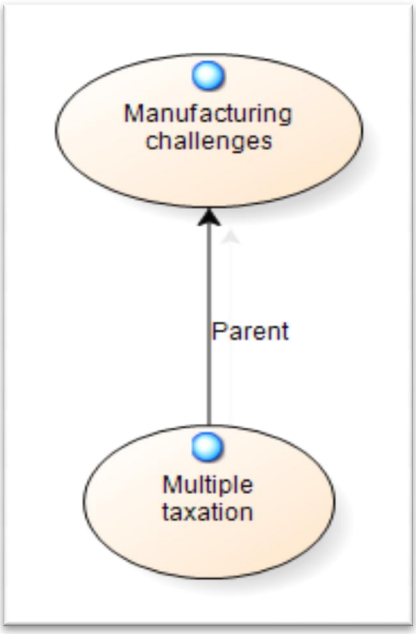


Figure 4.38 Coding for multiple taxation

The main theme manufacturing challenges from the template analysis generated a high code multiple taxation. The managers of MSMEs McQ and McJ have expressed their dissatisfaction about the complexity of the Nigeria tax system, and the multiplicity of the taxes they are asked to pay by the Nigerian government. ‘’*The tax system is unfair to us manufacturers as it continues to increase our cost as manufacturers. The multiple taxes we pay have increased the cost of doing and establishing businesses in Nigeria. These multiple taxes have put off so many prospective investors”* (McQ). Similarly, the manager of SME McJ has also expressed that *‘paying multiple taxes is a huge burden to our business. This has not only increased the cost of doing manufacturing business significantly but also put off people willing to partner with us by making an investment in our business. As a matter of urgency, the government needs to address this situation’* (McJ).

These Nigerian MSMEs McB and McD believe that the multiple taxes they pay to the government is hugely placing an overwhelming burden on their manufacturing businesses. Managers of MSMEs McB expressed the need for the government to address the tax situation by ‘*harmonizing all the levies and taxes we are asked to*

pay across the country as manufacturers. We pay environmental waste tax to the federal government and at the same time, the state government asks us to pay tax levy on pollution' (McB). The manager of McD states that *'multiple taxes are indiscriminately imposed and slammed on manufacturers by the various government bodies. These multiple taxes are great concern to us, in terms of its added cost to our manufacturing businesses, and the ways and manner the government is enforcing these unacceptable levies and taxes on us. The government needs to harmonize the taxes we pay across the country''* (McD).

The payment of multiple taxes by Nigerian MSMEs has become huge burden and challenge to their manufacturing businesses. The manager of McG has expressed its concerns over the effect of these multiple levies and taxes on their businesses, often times paying the same levies and taxes multiple times. *''The taxes we pay in this country as manufacturers are too much, and are not encouraging us to continue to do business in Nigeria. The various government agencies in this country keep levying us with the same levy with different names. On one instance we have to pay for environmental pollution, in another one, we have to pay for environmental waste exposures''* (McG).

The evidence drawn from the interviews of managers of MSMEs and the findings of the data analysis has revealed that MSMEs in Nigeria face the uphill task and challenge of having to pay multiple taxes levied on them across various government bodies

4.5.4 Lack of skills

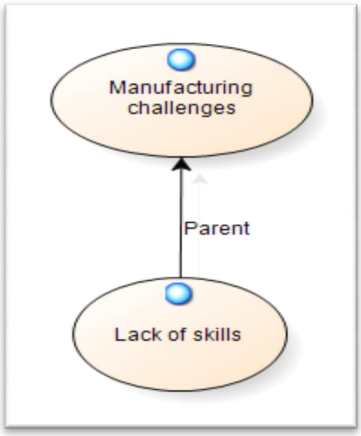


Figure 4.39 Coding for lack of skills

The main theme of manufacturing challenges coded from the template analysis generated the high code lack of skills. The Manager of manufacturing SME McM noted that ‘’*there is a dearth of manufacturing skills in Nigeria’.* This was acknowledged by the manager of SME McK as an ‘*impediment to the realisation of the full manufacturing potentials and development of the sector of the economy’’* (McK).

Similarly the manager of SME McN emphasised that *’many people employed do not have the necessary skill set needed to advance manufacturing practice in this country of ours Nigeria, except few of us managers that have been in the manufacturing business for a long period of time...It is important for us manufacturing managers to be aware of the new challenges that might arise as a result of process change or manufacturing plant alterations’* (McN). It can be evidenced from the responses from the Nigerian MSMEs managers has shown that many of the Nigerian MSMEs are encountering the lack of manufacturing skills required to make progress their businesses.

4.5.5 Government policies and regulations

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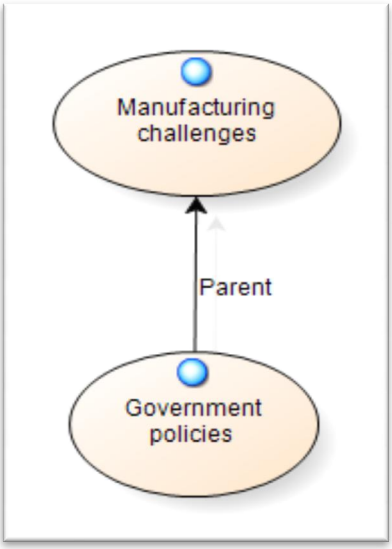


Figure 4.40 Coding for government policies

The main theme of manufacturing challenges coded from the template of the interview transcript generated the high code government policies**.** The role that the

government plays in the economy is vital to the survival of the manufacturing sector of the economy. Interviewed managers of MSMEs in Nigeria have raised their concerns over the devaluation of Naira the country's currency. The devaluation means they have to spend more to secure foreign currency needed for their importation of raw materials. *''Our manufacturing in Nigeria depends mainly on foreign exchange to succeed, given that the large share of the raw materials we use for manufacturing are imported. The present economic situation is not helping our business as the devaluation of the country's currency by CBN means our budget is affected by the Naira fall which leads to spending more money to secure the foreign currency (dollar) needed for importation''* (McI).

The government policy on local content allows for buying and using locally manufactured products, however, this is not really the case or practiced since the government still allows the importation of similar products. Although the policy on local content could have had a positive impact and be beneficial to local manufacturers, it has not been well implemented. *''The lack of government support to us manufacturers in this country is on many fronts affecting the manufacturing sector. In the last four years the government have had so many different regulations on manufacturing, ranging from subsidy and the local content act which are supposed to be beneficial to local manufacturers. However, this has not been the case as the local content which is supposed to allow local manufacturers to be competitive, is not being implemented''* (McM). Over the years the Nigerian government have not provided an enabling environment, for SMEs to succeed. The policies are not followed, it becomes impossible for many SMEs to develop and advance their manufacturing operations.

Likewise another SME manager noted that ''*we need a very robust policy from the government. Policies that would develop and sustain MSMEs in Nigeria needs to be formulated and implemented by the government. The banks regulation proposed by government is not being followed. I think we need the same level playing field and support from the banks as other businesses''* (McD). The remarks made by MSMEs imply that the Nigerian government do not always keep the promise the make. The government role on foreign exchange and other regulation that reduce the burden on sourcing foreign exchange funds, could give significant support to Nigerian

manufacturing businesses. *''The continuous fluctuation and unstable currency(Naira) is of great concerns to us manufacturers as this trend continues to impact on our importation of machinery parts and raw materials needed for production. The government has to find ways to stabilise the currency from free fall''* (McJ).

Managers of Nigerian MSMEs believe that the government has not done enough to help manufacturers that import raw materials, machinery and parts needed for productions. The manager of MCF imply that *''to enhance the performance of the manufacturing sector of the economy, the government has to address the energy and infrastructural challenges which have inhibited the maximum contribution to the sector GDP and economic growth of this country''*(McQ). The government policies are crucial to the survival of MSMEs. There are several policies that government can implement that will help Nigeria MSMEs to favourably compete with other manufacturing firms in the emerging economies of the world, such as tax break, duty waivers, and funding.

4.5.6 Funding

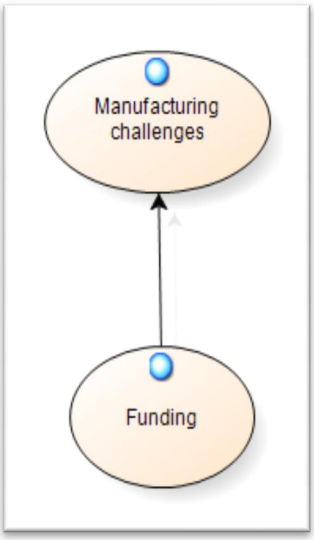


Figure 4.41 Coding for funding

The main theme of manufacturing challenges was coded from the template of the interview transcript and generated the high code funding**.** Managers of Nigerian MSMEs (McD and McF) have acknowledged the operational cost associated with self-generation of electricity power supply as their main manufacturing concern. *"In the past one year, we have been generating our own electricity. I can categorically*

tell you that it is very expensive to run a generating plant for electricity which we all depend on to enable our manufacturing process"(McD). Likewise, other SMEs managers made remarks that: *"one big problem confronting us as manufacturers in Nigeria is the problem of high manufacturing cost. The amount of money we spend on fuel (diesel) to power our generating plant is at a very high cost, and is having an adverse impact on our day to day business as our heavy machines require a lot of electricity supply to power it which will amount to buying more fuel in order to sustain our production process"* (McF).

Apparently, these remarks signify that Nigerian MSMEs are constantly confronted with rising cost for the purchase of fuel (diesel) to power their generating plants. This dreadful scenario facing Nigerian MSMEs is as a result of the continuous shortage of electricity supply. According to the manager of SME McB *''the challenges currently facing the manufacturing sector are inadequate to supply and excessive cost of electricity. We have to buy diesel, which is a big burden on us. The cost of fuelling generators to power our machinery make up for about 40% - 45% of the total production cost. I can tell you categorically that it is the main reason much Nigerian products is not competitive enough with their overseas counterparts"* (McB).

According to the manager of SME MCA *''adequate funding is needed for Nigerian MSMEs to make the necessary investment in acquiring new machinery to advance and develop their manufacturing process. Funding is also needed for manufacturing improvement and research"* (McA). Similarly, the manager of SME McJ states that *''Inadequate funding is one of the various challenges we face as manufacturing firms in Nigeria. The banks should make funds available to SMEs for loans, as part of the government stipulated financial provision to support manufacturers*. *''...Arguably, the most obvious challenge is lack of financial support. Only short-term funds are available in Nigeria, and those funds are tailored to meet importation (trading) and not manufacturing''* (McK).

Nevertheless, the manager of SME McH believes that ''*most of the banks are not lending to us SMEs. While we have to struggle with this challenge, few lending banks are not helping with the situation at hand as they lend at a rate which is not in line with the government provision for SMEs. As at the year 2015 the lending*

interest rate is at a double digit figure averaging 32%. While the Bank of Industry (BOI) agenda to lend at 9% is in line with government provision, it only finances the purchase of machinery only" (McH). There is need for funding initiatives for Nigerian MSMEs to support the growth of their businesses. Banks can be major players in this regard; however their attitudes towards Nigerian MSMEs in terms of lending must stop

4.5.7 Sub-standard imports

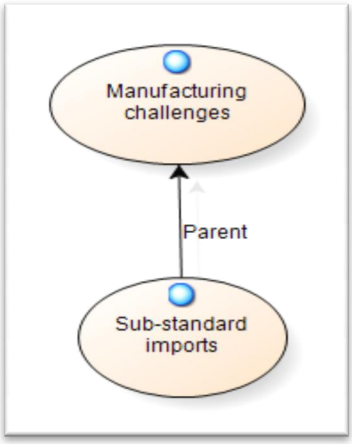


Figure 4.42 Coding for sub-standard imports

Many interviewed Nigerian MSMEs owners and managers have voiced their discontent on the influx of sub-standard imported products into the country. ... *"The country is being flooded with imported fake and sub-standard products that are killing our business. Despite the appalling quality of these products, they are cheaper"* (McH). Another interviewed manager of Nigerian MSMEs comments ...*"We have to compete with cheap fake sub-standard imports that are coming into this country unchecked"* (McI). Evidence from the primary data has shown that the influx of sub-standards imports into the country remains one of the numerous challenges facing Nigerian MSMEs which in fact, have made them less competitive.

Similarly, another interviewed manager responded that the *"importations of sub-standard products are dangerous to human consumption and the economic well-being of the country. I think for the good interest of people's well-being, the government needs to ban these products and sanction the importers of such products "* (McH). In another instance The manager of manufacturing SME McB expressed that *"there should be a strong control on fake and counterfeit products, which circulate in the market, and often times are detrimental to the consumers of*

such products and harmfully damage the brand of similar products'' (McB). *''The manager of SME* (McD) *acknowledged that there is a major concern where the locally manufactured products have to compete with sub-standard imported products*. *The local manufactured products have to compete with a lot of fake imported products from china which are cheap and also low in quality''* (McD). Equally the manager of manufacturing SME McP have acknowledged that *''there is the need for having a strong product and process standards which are necessary to support the Nigerian product exports as well as giving the local consumer the self-assurance to locally made products''* (McP). The danger that these sub-standard products posed to its users and the general threat to the Nigerian economy is of great concerns, requiring some MSMEs managers, calling for a total ban and the sanctions of importers of such products.

4.5.8 Lack of laboratories

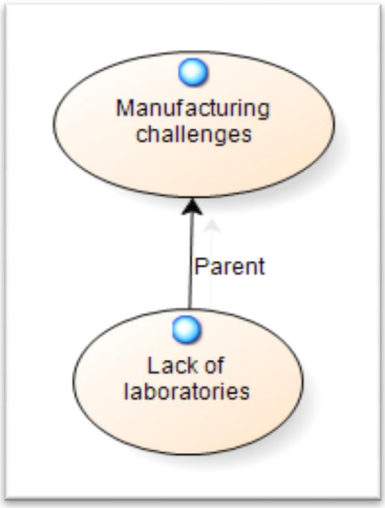


Figure 4.43 Coding for lack of laboratories

The theme manufacturing challenges generated the high code lack of laboratories

SMEs managers of McO,and McP have expressed their concerns over the lack of commercialised laboratories in Nigeria for proper quality control test of both imported and locally manufactured products. ...*''The charges brought against many Nigerian manufactured products by importers that made in Nigeria product lacks*

quality cannot be verified as the country lacks laboratories for testing products on industrial scale"(McO).

Likewise, the managers of Nigeria MSMEs McP and McI comments that the...*"Lack of commercialised quality control testing laboratories in Nigeria has made it possible for dubious importers to take advantage of the failed system and import fake sub-standard products into the country"*(McP). The evidence gathered so far from the findings of the research has shown that Nigeria MSMEs faced a serious threat from both *''imported fake sub-standard product and the counterfeit of the locally manufactured product* if the government *body that is responsible for the quality control tests and checks do not take an appropriate action"*(McI). The need for commercialised laboratories is long overdue. Laboratories are vital for products improvements and developing new products. The requirement of laboratories for performing tests that will help in detecting defects in products could also aid Nigerian MSMEs in research and development activities.

4.5.9 Duties

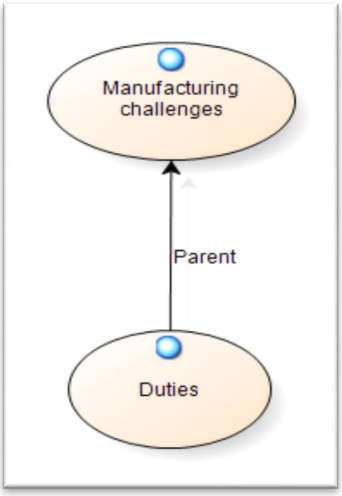


Figure 4.44 Coding for duties

The theme manufacturing challenges were coded in the template and it generated the high code duties. Import duties are levied on imported goods such as raw material, machines spare parts, and other finished products. Duties are levied on goods by the government for economic reasons. It can help to generate revenue for the government. It has been used also to discourage the importation of certain products as the duties paid are made very high. However, this approach sometimes

works and sometimes it doesn't work. The manager of manufacturing SME McD said that *''previously the Nigerian government had advocated the import substitution strategies; imposing duties on imports into the country in order to protect local manufacturing firms without dealing with how Nigerian manufacturers might become internationally competitive. This led to price rises of imported products since local manufacturers were not able to produce at low costs even with the government imposed duties on imports*'' (McD). In addition, the manager of manufacturing SME McG expressed that *''the duties levied on imported manufacturing equipment, machines and raw material attract a very high price in terms of cost. The import duty-free requirements that were usually applied on all imported raw materials and equipment have been stopped by the government. This has made raw materials to attract a substantial amount of duty tax measures, which have now created scarcity, shortages in supply and has led to increased price rise''* (McG).

4.5.10 Lack of raw material

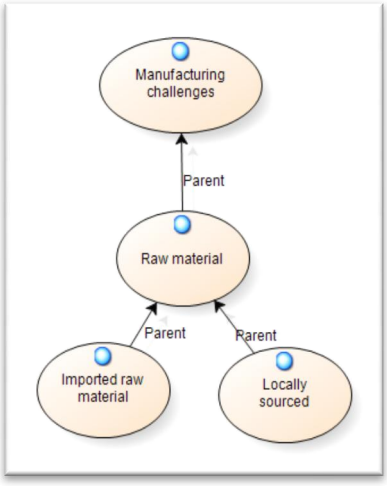


Figure 4.45 Coding raw material

The theme manufacturing challenges generated a high code lack of raw material and low codes imported raw material and locally sourced. The lack of raw material is a major concern to many Nigerian MSMEs, as it has made most of them to cut down on their production. In the interview managers of Nigerian MSMEs, were asked about their manufacturing challenges. In response to the question, the manager of SME McI said that *one of our major challenges is the lack of raw materials, due to high foreign exchange rate slammed on importers. We are cutting*

down on most of our products due to the scarcity of raw materials. We rely on these importers for the supply of the needed raw material to continue production. The scarcity of raw material is affecting our business as we struggle to meet some of the customers demand'' (Mcl). The lack of raw material is something serious as it can potentially shut down most of the MSMEs factory. Likewise, the manager of manufacturing SME McO expressed that *''the lack of raw materials has made us slow down on our production activities. We are currently searching for alternative suppliers as our present supplier can no longer meet our demands. The lack of information on these raw materials available has made things a bit difficult for us. Some these suppliers do not have websites; we have to rely on a conversation with other businesses. Sometimes we go to the addresses provided but we are unable to find any of these suppliers''* (McO). The lack raw material also impacts on Nigerian MSMEs customers' demands, which have made these SMEs to source for raw material elsewhere. The dependent on many suppliers could be the appropriate measure taken to tackle the problem.

4.6 Summary of data analysis and findings

The findings of this DBA thesis summarises the results from the face to face semi-structured interviews conducted within Nigerian MSMEs, using the template analysis to analyse the data from the qualitative research. The findings have possible implications for the Nigerian government, MSMEs, policymakers and manufacturing managers. The finding adds to the understanding of manufacturing strategy in SMEs by identifying the strategic process and practice adopted. In understanding the strategy process, the researcher discovered that process improvement and manufacturing capacity are part of the strategy process. The findings will build on the ways MSMEs make decisions to identify their manufacturing priorities and deal with manufacturing challenges. The communication of the findings of this study will help empower Nigerians and other developing nations to understand the gains that can be accomplished by having a manufacturing strategy in place to respond and solve manufacturing problems.

The purpose of this research is to reveal the work completed by the researcher in area of the manufacturing strategy of firms in emerging economy, in the context of Nigerian MSMEs and identify other manufacturing challenges facing the

manufacturers. The findings of this study indicated that the alarmingly high cost of production is a major challenge facing most MSMEs in Nigeria and other emerging economies of the world. These difficulties were comparable to other studies which were presented in the literature review. The major challenge facing MSMEs managers is that they lack experts and professionals in this area and as such rely on a foreign professional to set up their manufacturing plants and factory. The situations result in so many delays and added cost to the businesses. The Nigerian MSMEs recognised that as a manufacturing good practice, the need for an adoption of a manufacturing strategy was essential. This is useful especially for the continuous production improvements, to achieve the desired products quality, which will enable manufactured products to be able to endure the growing global competitive environments and compete with other products from the developed countries. The research findings indicate the need for urgent skill development program among Nigerian MSMEs to help reduce the manufacturing challenges encountered daily as a result of the skill shortages. It is important that manufacturing managers have the right training and skill to be able to make the right manufacturing decisions. The findings from the answers put forward by manufacturing managers during the interviews noted that there are measures and quite a number of recommendations that can be put in place to reduce manufacturing challenges. Most Nigerian MSMEs have to compete with imported products flooding the market. Although these products are of low quality, they are being consumed by much Nigerian due to the fact that they are far cheaper than the locally produced products. Despite this worrying trends among Nigerian manufacturing firms. There is still lack of research and development and the ability to broaden the market to enable them to compete with products made around the world.

Chapter 5: Discussion of findings

5.1 Introduction

This chapter of the study presents the research framework developed for the Nigerian MSMEs and discusses the main findings of the research thesis. The research framework was created based on the findings of the study as to help understand manufacturing strategy process and practice in Nigerian MSMEs. The research framework presented in Figure 5.1 shows the findings of the study in both answering the research question and meeting the research aim and objectives. This chapter has four main sections. Section 5.2 discusses the manufacturing strategy process and practice of Nigerian MSMEs. Section 5.3 presents the manufacturing decisions made within the Nigerian MSMEs in supporting their manufacturing strategy. Section 5.4 presents and discusses the manufacturing priorities of Nigerian MSMEs. Section 5.5 discusses the manufacturing challenges identified by Nigerian MSMEs. The four sections discussed the findings of the study in answering the research question, meeting the aim and set-out research objectives.

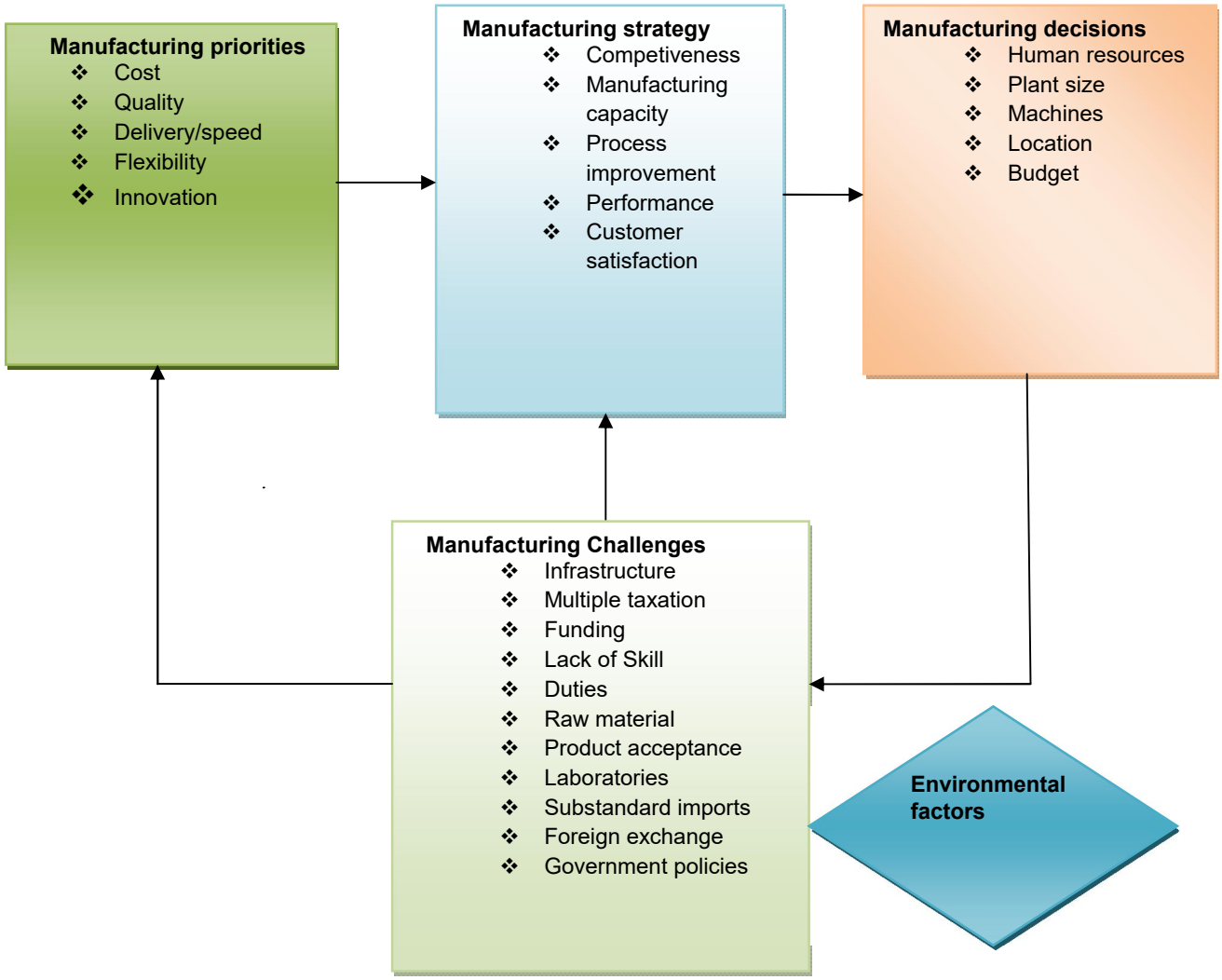
The main purpose of this chapter is to look at the empirical findings and evidence gathered in the research in relation to the research objectives and question. This chapter considers and discusses the research results obtained and presented in Chapter 4 and synthesized them with the literature reviewed in chapter two of this thesis to further develop manufacturing strategy in MSMEs. Insights from the research qualitative studies have supported in providing a strong analysis on problems related to the subject under consideration. The chapter forms a description of the whole thesis to integrate the facts that have emerged from the study and the outcome compared with previous research findings.

The research findings for each of the four research objectives are summarised and described within the perspective of the recent academic knowledge of the subject matter. The chapter concludes with a framework that promotes an understanding of the manufacturing strategy process and practice of Nigerian MSMEs. The chapter is comprised of four sections which represent the four research objectives presented in chapter one of the thesis.

With reference to Figure 5.1, the manufacturing strategy variables represent the manufacturing strategic considerations for Nigeria-based MSMEs, as well as the manufacturing decisions, priorities, and challenges which were discussed in-depth in Chapter 2 of the literature review. These manufacturing strategic considerations have been greatly influenced and shaped by the manufacturing challenges encountered within Nigerian MSMEs. In accordance with the Nigeria-based MSMEs interviewed as part of this study, the manufacturing priorities and challenges have shaped the way the Nigerian MSMEs make strategic manufacturing decisions and formulate their manufacturing strategy. In order to reflect on the discussion presented within the next sections of this chapter, Figure 5.1 sets the scene by diagrammatically enabling the researcher to capture and present the main knowledge contribution of this doctoral research.

Figure 5.1 presents the manufacturing strategy, the strategic manufacturing decisions that were made by Nigerian MSMEs to enable them to respond to their manufacturing priorities and challenges. Building further on the findings from the data analysis in Chapter 4 and synthesising them with the relevant extant literature in Chapter 2 will enable us to explore the phenomenon in question and eventually make a further contribution to both the current body of knowledge and professional practice. This study has made a contribution to the understanding of MSMEs manufacturing strategy process and practice in the area of manufacturing competitiveness, manufacturing capacity building, process improvement, customer satisfaction, and manufacturing performance. The research findings build on the work of Amoako-Gyampah and Acquaah (2008) in developing the economy, which highlighted that manufacturing cost and quality are competitive priorities for manufacturing firms. The research findings emphasis on quality makes contribution to practice by providing means by which MSMEs can mitigate the effects of increased competition

Figure 5.1 Understanding Nigerian MSMEs manufacturing strategy framework



5.2 Building an understanding of manufacturing strategy in Nigerian SMEs

The researcher intends to meet the set-out objectives of this research in building an understanding of the manufacturing strategy process and practice of Nigerian MSMEs, by discussing some of the manufacturing strategic initiatives adopted by Nigerian MSMEs. Manufacturing strategy has a broad range of application in both manufacturing and production management. The findings of the research have shown that manufacturing strategy is part of Nigerian MSMEs business plans. The present application of manufacturing strategy process and practice in many MSMEs

in modern times has brought some rapid transformation in their business practices (Hilmola *et al,* 2015; Barnes, 2002). This study supports the works of (Hilmola et al (2015) and Löfving et al(2014), who stated that manufacturing strategy in MSMEs is increasingly becoming related to manufacturing values and that there is growing support for the positive relationship between MSMEs manufacturing strategy and its performance. An important aspect of the manufacturing strategy process and practice development in this research findings is that the researcher has established that in the emerging economies manufacturing strategy characterizes one of the ways in which MSMEs planned manufacturing objectives can be accomplished.

5.2.1 Process improvement

Process improvement is one of the manufacturing strategy applications as evidenced in the research findings. In this present era of manufacturing technological advancement and product innovation, no manufacturing firm wants to be confronted with poor quality products, financial losses, and product delivery interruptions, due to unreliable production processes (Srivastava and Jena, 2011). The evidence from the research findings adds to the work of Srivastava and Jena (2011) as the improved manufacturing process of Nigerian MSMEs has led to better quality products and reliable production. The research findings also support the adoption of an appropriate manufacturing strategy to deliver continuous production process improvements, needed for ensuring manufacturing product quality, faster product delivery, competitive advantage, and manufacturing performance (Jevgeni *et al.,* 2015). Repeatedly, most Nigerian manufacturing firms have failed to acknowledge their manufacturing problems and the major causes of poor manufacturing performances. The research findings build on the work of Jevgeni *et* al(2015), as the evidence from the research findings have shown that the managers of Nigerian MSMEs employed their manufacturing process improvement plans, which enabled them to improve the quality of their products, improve product delivery times, reduce manufacturing waste and product defects. The use of obsolete manufacturing equipment and technologies has brought inefficiencies and non-realization of customers and market expectations (Jevgeni *et al.,* 2015; Srivastava and Jena, 2011).Consequently, in order to withstand the global competitive market environment, MSMEs must adopt manufacturing and business

practices that constantly meet their customers and market expectation and improve production processes (Jagoda and Kiridena, 2015; Srivastava and Jena, 2011). In today's competitive and ever-changing global manufacturing environment, suggests that there are no provisions for manufacturing errors, non-performance, and inefficiencies (Juran, 2016). The findings have shown that Nigerian MSMEs managers have ensured that their manufacturing processes are continually improved on to achieve better product quality and minimise waste resulting from defects. The findings further build on the work of Srivastava and Jena (2011) and Jevgeni *et al.,* 2015 whose findings have shown that that process improvement can eliminate defects, waste and improve product quality.

5.2.2 Manufacturing capacity

In the research findings, there is a general consensus among Nigerian MSMEs that they responded mainly to their market and customer demands by increasing their production capacity to lower cost, improve profits and productivity. This builds on the work of Cachon and Lariviere (1999) that the increases in the manufacturing capacity are usually considered to be a required sign to market allocation increases to meet customer demands. Nevertheless, research has shown that whenever other manufacturing firms observe their business competitors increase their manufacturing capacity, they recognize this as a major threat and warning to their personal share of the market (Hitt, Ireland, and Hoskisson, 2001). Although most Nigerian MSMEs agreed that they have increased their manufacturing capacity to enable them to serve their market and meet customers' demands. However, this was slightly different with the assertion of Bloodgood and Katz (2004:2), who have argued that *''capacity increases are usually required to satisfy any major increases in market share, yet market share does not always equate with profitability and competitiveness''.*

The findings of this research adds to the claim made by Bloodgood and Katz (2004:2), that *''capacity increases are usually required to satisfy any major increases in market share'',* however this research finding cannot add to the claim made by Bloodgood and Katz (2004:2), that *market share does not always equate with profitability and competitiveness''* as the research has not tested for the causal relationship between manufacturing capacity, competitiveness, and profitability.

Therefore this study cannot build on that assumption. Instead, the findings further add on to the work of Murray (2016), which asserts that most manufacturing firms have repeatedly utilized the manufacturing capacity as a strategy to increase their production throughout the period of high market demands. In general consensus, the findings have shown that Nigerian MSMEs manufacturing strategy on capacity is to meet market demands and increase manufacturing production.

5.2.3 Customer satisfaction

Manufacturing firms should know that offering the best quality products can motivate their customers to continually buy the products (Gupta *et al*., 2003). Evidence from the research findings has shown that there is collective agreement by Nigerian MSMEs that customer satisfaction as a manufacturing strategy was made possible by their product performance and quality improvements measures adopted. The findings build on the study of Kotler (2009), which noted that customer satisfaction has been associated with the value that customers get from their product as a result of its performance and quality. It has also been noted that the customer satisfaction plays significant role the product improvement and performance of manufacturing firms' (Ayuba, 2014). The research findings have shown that Nigerian MSMEs have builds their customer satisfaction manufacturing strategy around the quality of their products. This finding adds to the work of Anderson *et al* (2004) which states that organisations are expected to lose their market share, whenever their products cannot effectively meet their customer needs. Since the manufacturing firms operate in a globalised economy, they should focus some of their resources on product quality improvement measures to help satisfy customer needs (Gustafsson *et al*., 2005). Customer satisfaction as a strategy has been utilised to evaluate how manufactured products meet or exceed the consumer's expectation (Chauhan and Limbad, 2013; Ayuba, 2014).The research findings show that Nigerian MSMEs have satisfied their customers by providing quality products that meet their customers and market expectations.

5.2.4 Competitive advantage

Manufacturing firms can beat their competitors when they create and sustain their competitive advantage (Hilmola *et al*., 2015). Competitive advantage is formulated in the business strategy of manufacturing firms and later transferred to the

functional manufacturing strategy (Frohlich and Dixon, 2001; Hayes and Wheelwright, 2006; Hill, 2009). The research findings revealed that having some kind of competitive advantage was illustrated by Nigerian MSMEs as a factor for their adoption of a manufacturing strategy. Also, this empirical evidence, from the research suggests that Nigerian MSMEs have endeavoured to have a competitive edge over their competitors by improving their product quality and satisfying their customer needs. It was practical that all the Nigerian MSMEs are looking at for innovative ways to be competitive despite their various manufacturing challenges; hence they are adopting a manufacturing strategy process and practice as an approach for them remaining competitive.

Equally the investigative work of Adebambo and Toyin (2011) reveals that the rapidly competitive global marketplace puts enormous pressure on organisations to find new ways of building and bringing value to their customers. The research findings show that several of the Nigerian MSMEs that participate in this study recognized the need to bring in business value and to have some type of competitive advantage as the main reason for their decisions to adopt a manufacturing strategy. It is very imperative for every Nigerian MSMEs to maintain their competitive advantage by providing distinctive values to their customers. One of the interviewed manager of the SMEs states that ‘’ for them to manufacture quality products, bring value and satisfy their customers’ needs, they must adopt a manufacturing strategy. Empirical evidence from this study implies that the global competitive demand is one of the numerous reasons for the adoption of manufacturing strategy by Nigerian MSMEs.

The competitive capabilities of manufacturing firms have been identified as the real performance of plants with regard to their competitors in terms of manufacturing cost, quality, delivery, flexibility and innovation (Gray et al., 2009; Schoenherr et al., 2012). The early production and operations management literature were centred on a broad range of best practices and techniques (Hayes and Wheelwright, 1984; Hill, 2009). While competitive capabilities symbolises the resources that manufacturing firms can make the most of to have a competitive advantage (Ferdows and De Meyer, 1990; Rosenzweig and Roth, 2004).

5.3 Nigerian MSMEs manufacturing decisions

In this doctoral research it is imperative for us to know how Nigerian MSMEs decisions are categorised and made in the manufacturing related activities The concept of several scholars and professionals who made numerous contribution to the advancement and development of manufacturing strategy decision categories and its related policy area was first present in the 1980s (Hayes and Wheelwright, 1984). Since then the study of decision areas of MSMEs in manufacturing strategy process has received broad attention (Rusjan, 2005) Evidence from this study findings have shown that Nigerian MSMEs make strategic decisions to support their manufacturing priorities and to deal with their manufacturing challenges. These evidence from the study is supported by the claim that manufacturing strategic decision categories, fit into the idea of manufacturing priorities and other manufacturing challenges, that manufacturing managers have to assess and make decisions on to improve their manufacturing operations (Hallgren *et al.,* 2011; Sainidis, 2013). Operational needs are included in the MSMEs decisions categories which are generated by their manufacturing priorities and challenges (Schroeder *et al.*, 2011). The evidence from the research findings has shown that Nigerian MSMEs have made both structural and infrastructural manufacturing decisions which further builds on the works of Díaz Garrido et al (2007) and Slack et al (2010) who have categorised manufacturing decisions in structural and infrastructural

5.3.1Human resources

The research findings have shown that Nigerian MSMEs human resources decisions are made for various reasons, such as job creations, employee trainings and skill acquisitions. The findings adds to the work of Miltenburg (2005) in which he states that MSMEs human resources decisions are related to the policies made regarding employee skills, training, job expansion and performance appraisal. Human resources decisions are made as product moves from one customer to another, employee with well developed skills are necessary in making the required manufacturing changes (Miltenburg, 2005). The value human resources in every organisation cannot be overlooked. Human resources recognise talents and the contributions made by employees to their organisations.

5.3.2 Plant size

The size of a manufacturing plant and the number of employees can influence the decisions made by MSMEs (Swamidass and Kotha, 1998; Cagliano and Spina, 2000; Spring and Dalrymple, 2000; Choudhari et al., 2012) Research have shown that MSMEs are less likely to embark on Advance manufacturing technology (AMT) than in large manufacturing firms with bigger manufacturing plants (Swamidass and Kotha, 1998; Choudhari et al., 2012). Plant size can determine the volume of production. Evidence from the research findings has shown that Nigerian MSMEs plant size decision is made for various reasons to enable them to meet the increase in the product demand and the reduction of product cost as more volume is produced.

5.3.3 Machinery

The research findings have shown that Nigerian MSMEs have made manufacturing decisions on the purchase of machinery to enable them to improve their manufacturing processes.The findings adds to the studies of Tan et al (2006) and Hallgren (2007) who stated that It is important to know that for managers to achieve their manufacturing process objectives, decisions on new machines and equipment have to be made within the manufacturing function, to enable managers to allocate the resources for the purchase of the needed machinery and equipment.

5.3.4 Location

The research findings have shown that Nigerian MSMEs locations have played a significant role in their business. According to the research findings, MSMEs located in urban areas have more access to electricity, transport, and market. Despite the poor infrastructural facilities in Nigeria, the urban areas and cities have better infrastructures than the rural areas. Hence Nigerian MSMEs located with these places are impacted by the business environment. The SMEs in the cities are able to perform better in terms of operating cost than their counterparts in the rural location. The findings add to the studies of Aremu and Adeyemi (2011), Ariyo (2005) and Malik et al (2002), who stated that SMEs located in the city have performed better in terms of job creation, earnings and manufacturing skills as they have more

access to training facilities in the cities than in the rural area. Location is important in Nigerian MSMEs decisions

5.3.5 New products

New products manufacturing decisions are very complex, as it can make or mar the manufacturing businesses. The making of manufacturing decisions to develop new products is strategic to Nigerian MSMEs in both meeting their market demands and giving them the competitive edge. The research findings have shown that Nigerian MSMEs make innovative manufacturing decisions to enable them to deliver new products to meet their market needs. The finding adds to the studies of Yan et al (2017), which shows that new products are made out of strategic decisions, by manufacturing organisations to meet their market demands and to create a competitive advantage.

5.3.6 Budgeting

The evidence collected from the research findings has shown that the manufacturing decisions made on budgets have enabled Nigerian MSMEs to project their manufacturing needs and set aside the resources required to accomplish business targets and manufacturing needs. The research findings add to the findings of Schlegel et al (2016) which show that manufacturing budget decisions are made to enable manufacturing businesses to make investments and allocate resources to support their manufacturing operations. Budgeting decisions have enabled Nigerian MSMEs to support their manufacturing operations and manage their expenditures.

5.3.7 Technological knowhow

The rapid changes that technologies bring into products have made MSMEs managers to urgently respond to their manufacturing technological requirements. The research results have shown that the manufacturing decision made in technological knowhow has enabled Nigerian MSMEs to appropriately select their manufacturing processes, products designs, equipment, machinery, and material that will function with their chosen technology, be it the automation of the factory plants. The research results add to the studies of Baines et al (1999) which states that although a technological decision has enabled manufacturing businesses to

choose their process and product designs, it can be quite challenging sometimes to choose the right technology without having an expert knowledge.

5.3.8 Training

The training and development of SMEs have continued to lead in the policy considerations of the emerging economies (Cook and Nixson, 2000). Training in most Nigerian SMEs is not up to date (.Apulu, 2011) Training allows Nigerian MSMEs workforce to acquire the necessary skills required to perform their job tasks (Aremu and Adeyemi, 2011). The research findings have shown that Nigeria MSMEs needs the talent and highly skilled employees who can perform the required manufacturing tasks. The Nigerian MSMEs understand the importance of training in performing their manufacturing tasks. However, the research findings have shown that the training done by MSMEs has not delivered the expected results as many people trained in the past left after much investment was made for their training. The findings support the works of Accenture(2014), which states that the lack of manufacturing talent around the globe has slowed down the growth in the global manufacturing economy.

5.4 Nigerian SMEs manufacturing priorities

The term manufacturing priorities are set out goals and objectives manufacturing firm's wants to accomplish in the future and are very much linked to the concept of manufacturing capabilities (Hallgren *et al.,* 2011; Lin *et al.,* 2012). This study has identified the Nigerian MSMEs manufacturing priorities within the scope of manufacturing. The evidence from the study has shown that manufacturing priorities are strategic options that are pursued by Nigerian MSMEs, as part of their planned action to address their manufacturing challenges and as a long-term plan as highlighted in the works of (Barnes, 2002; Amoaka-Gyampah and Acquaah, 2008; Gonzalez-Benito and Suarez-Gonzalez, 2010). Manufacturing priorities are also competitive priorities of MSMEs (Hayes *et al*., 2005; Größler and Grübner, 2006). The empirical evidence gathered from this study finding has shown that Nigerian MSMEs manufacturing priorities are identified as manufacturing cost, product quality, product delivery speed, product flexibility and innovation which further adds to the woks of Gonzalez-Benito and Suarez-Gonzalez (2010) and Hayes et al (2005).

5.4.1 Manufacturing cost

There are many factors that are contributing to the manufacturing cost of Nigerian MSMEs as evidenced from the empirical findings of this study. Participating MSMEs indicated that their highest cost burden is on electricity generators, transportation, material, energy and quality cost. Electricity supply as noted by many Nigerian MSMEs involved in this study has become a strategic concern due to many halts in the production process as a result of power failures and inadequate supply of electricity. The apex body that represents SMEs has lamented the cost incurred by manufacturers on generating their own electricity (SMEDAN, 2009).

Transportation cost has been reported by Nigerian MSMEs as a concern, due to bad roads, inadequate rail network for trains, freight and rising cost of fuel to power vehicles as evidenced in the research findings. Despite the fact that Nigeria is the leading exporter of petroleum crude in Africa (Mckinsey, 2013), the country still struggles to meet demands for the use of refined petroleum product such as petrol, diesel, kerosene, and gas that are needed for daily business activities (KPMG, 2014). The research result has shown that the high cost and scarcity of fuel has impacted on the transport industry as well as Nigerian MSMEs, on the slow delivery of their products. This cost that most Nigerian MSMEs accumulate all the time in their supply chain has an overall growing effect, especially with those MSMEs which operate as suppliers to other manufacturing businesses.

Despite the fall in crude oil prices globally, the cost of refined petroleum products in Nigeria, such as petrol, diesel, and kerosene are still on the high side (BBC, 2015). At present, the Nigerian refineries are operating below capacity, and the ministry of petroleum has to import refined petroleum products with other oil marketers to boost the supply of refined products to meet the current demands (BBC, 2015).

The findings have shown a decline in the supply of products due to high transportation cost. The findings support the work of Slack et al (2007) who asserts that high transportation cost has been noted to be a contributing factor to the global decline in the supply chain. The research findings have shown that was the case of most Nigerian MSMEs who export their products to other ECOWAS countries. The material cost is linked to supplies required within the manufacturing process (Hill, 2009). Evidence from the findings of this study implies that material costs add

up to a great proportion of the manufacturing cost incurred by Nigerian MSMEs. Insufficient stock accessibility within the Nigerian MSMEs supply chain have led to increased demand, and put enormous pressure on the prices of materials, leading to a rise in cost. The research finding has shown that material cost has led to an increased production cost. The finding adds to the work of Hill (2009) who states that material cost has had a damaging effect on the manufacturing firms who require low inventory for Just-in-time manufacturing structure which allows speedy delivery of products. There is a general agreement

5.4.2 Product quality

The manufacturing of quality product as a priority is very comprehensive, in terms that it can be analysed from eight different standpoints; perceived quality, durability features conformance, serviceability, aesthetics reliability and performance (Garvin, 1987). The research findings have shown that there are quite a number of reasons that motivated Nigerian MSMEs to ensure the quality of their products to meet the required market standards. Empirical evidence from the study has shown that product quality has become a vital competitive matter among Nigerian MSMEs. The needs for manufacturing quality products arise from customer demands. Exceeding customer's expectation is something Nigeria SMEs are still struggling with. The study finds that Nigerian MSMEs have not exceeded their quality expectation. The managers of Nigerian SMEs believe that product quality is important to them. However, determining the quality of their product sometimes is not under their control. They have had issues of sub-standard imported raw materials from china which has not helped the quality of their products. The standard organisation of Nigeria (SON) which is the apex body responsible for checking the quality of imported products does not have the right apparatus to carry out their functions (SMEDAN, 2005, Akanya, 2014). There are many quality issues such as standardisation, testing, and control that have to be properly addressed by the Standard Organisation of Nigeria (SON) to enable Nigerian MSMEs to become a competitive global player in the manufacturing industry (Akanya, 2014; Okorie and Humphrey, 2016). Empirical evidence from research has shown that the source of raw material is very important to Nigerian MSMEs, to ensure the quality of their products. The findings also show that whenever materials that are not the standard

requirement are used, it has affected the quality of their products. This has implication for managers of MSMEs who wants to ensure the quality of their products. The findings build on the work of Akanya (2014) who stated that product quality is possible when the right materials are used during the product manufacturing process. These research findings have shown that product quality is a major manufacturing priority for Nigerian MSMEs to enable them competes both locally and globally. However, this was not the case for MSMEs in developed countries, where quality production system is well implemented and practiced (Slack and Lewis, 2007; Hallgren *et al*., 2011).The cost of having a poor manufacturing quality can be high, leading to product failures, recalls, wastefulness, product setbacks, and customer dissatisfaction (Garvin, 1987; Rose *et al.,* 2008; Okorie and Humphrey, 2016). In today's global markets Nigerian MSMEs must seize the opportunity to make their products on time, first time and every time to accomplish and sustain their competitiveness (Okorie and Humphrey, 2016). Even as customer expectations have risen over time, manufacturing quality has become a total necessity, regardless of where products are made and sold (Dengayach and Deshmukh 2001; Hill and Hill, 2009). Evidence from the research findings has shown product quality starts right from the source of the raw materials. The findings add to works of Rose et al(2010)and Garvin (1987) who stated that the best path to achieving quality is to avert problems and errors from happening in the first instance. The empirical research evidence presented in this study has shown that in order to meet conformance requirements, manufacturing managers must ensure that the manufacturing quality systems put in place should repeatedly be able to enforce the use of only approved processes, materials and tools prior to any step being performed. The research findings build on the work of Bergquist et al (2012) which suggest that the quality systems ensured that all the manufacturing processes and product tests are carried out in a way that the results meet the set-out specifications. Evidence from the research results has shown that the economic situation which the Nigerian MSMEs are presently operating in is characterized by rapid transformation brought on by market deregulation and globalization. In order to compete, Nigerian MSMEs must improve their performance, by reducing costs and increasing quality. Nevertheless, making high-quality products has been a setback for some Nigerian MSMEs for a long time, due to inadequate quality standards in place (Okorie and Humphrey, 2016). The extant

literature signified that manufacturing firms in developed countries were able to take most of the market share because of their higher product quality (Elg *et al.*, 2011).

Most Nigerian manufacturers have ignored the possibility of having a quality management system put in place, until the influx of cheap substandard manufactured products from China into the country, when they suddenly realised that quality was central to their business survival, competitiveness and that consumers could no longer be overlooked (Okorie and Humphrey, 2016). Nigerian MSMEs as evidenced in the research results noted that the Standards Organisation of Nigeria (SON) has engaged with different measures to better the standards and quality of products, but there are still gaps in the execution of quality control and standards in some other products. The Nigerian manufacturing industry currently lacks commercial laboratories for the testing of products and there are no quality standards for certain products, such as machine spare parts and electronic components (Akanya, 2011). In the absence of a clearly defined procedure of quality standards and facilities for the assessment of quality, it is difficult to verify the case made against locally manufactured products as being inferior (Malik *et al*., 2002). Having commercialised laboratories will remove the huge burden on the government and most MSMEs who have to send their products to a different location far away from their sites.

5.4.3 Product delivery speed

Manufacturing firms are constantly facing the demands to improve in terms of response time, lead time, and being on time (Rose *et al*., 2010).This study recognises product delivery as a manufacturing priority for Nigerian MSMEs, which strategically follows the reduction of lead time in every area of the plant operations, authenticating the previous studies by Suri (2001), Grössler and Grübner (2006) and in more recent study by Da Silveira, and Sousa (2010) and Hallgren *et al* (2011). The evidence gathered from the research result has shown that delivering the product on time is a priority for Nigerian MSMEs. However, there are many challenges that have made it difficult for Nigerian MSMEs to deliver their product on time such as shortage in electricity supply, raw material supply and transportation.

Product delivery entails increasing the speed of delivery and meeting the product delivery date (Sainidis and Robson, 2016). Evidence from the research findings has

shown that product delivery is a manufacturing priority for Nigerian MSMEs for them to be able to increase their delivery reliability, speed and reduce product lead time.

The research finding adds to the researches of Ward *et al* (1996) and Hallgren (2007) that product delivery is determined in terms of delivery reliability and delivery speed. Many studies have shown that the delivery reliability is dependent on the time delivery which in turn is the capacity to deliver according to scheduled plans (Hallgren, 2007; Slack and Lewis, 2011). Despite product delivery being a manufacturing priority as manufacturing cost, product delivery was not considered an order winner but considered an order qualifier that needs to be maintained at a practical level across the manufacturing operations as stated by (Hill, 2009 and Thürer *et al*., 2013). Evidence gathered from this research has shown that there are many factors that have impacted on the product delivery of Nigerian MSMEs. The issues of electrical power supplies, lack of good road infrastructures and supply chain. These findings will continue to impact on MSMEs product delivery until they are properly addressed.

5.4.4 Manufacturing flexibility

There has been an increased attention paid to product flexibility among Nigeria MSMEs, with product designs due to rapid changes in global technologies. Evidence from the findings of this research has shown that the managers of Nigerian MSMEs are under continuous demands to improve their products designs regularly. Product flexibility as a manufacturing priority has been a major competitive measure for many manufacturing firms (Oke, 2013). The significance of product flexibility in supporting other manufacturing priorities such as cost, quality, delivery, and innovation has been well accepted (Bolwijn and Kumpe, 1990; Hayes *et al*.,2005; Oke, 2013). .There has been debate by management scholars and professionals on the relationship of manufacturing priority of product flexibility with organizational performance (Hallgren, 2007; Amoaka-Gyampah and Acquaah, 2008). The research result has shown that most Nigerian MSMEs are not flexible as such, as they do not have the capability to manage the ever-changing manufacturing operational environment in product customisation, product volume and mix. As Nigerian MSMEs faces unstable and continually changing business environment, with increasing difficulty in product design and high levels of

customisation, there is a need for flexibility in the manufacturing environment as asserted by Fernandes *et al*(2012) and Oke (2013) to help reduce the flexibility challenges they are facing. Product flexibility as a manufacturing priority has the capacity to manage environmental uncertainty and control the ability to make changes in product design, product mix and materials (Swamidass and Newell, 1987; Dangayach and Deshmukh, 2001; Rose *et al*., 2008; Fernandes *et al*., 2012). Manufacturing product flexibility has been identified as a significant source of competitive advantage in coping with the turbulent market and uncertain business environment (Oke, 2013; Sainidis and Robson, 2016).

5.4.5 Manufacturing innovation

The case made for innovation in MSMEs as a manufacturing priority has been well acknowledged (O'Sullivan *et al.,* 2011). The research findings have shown that Nigerian MSMEs see innovation as making changes and introducing new product features. The findings add to the work of Fagerberg et al (2005) who described Innovation in manufacturing as making a modification to an already established product by introducing some new features. The problem with being innovative by Nigerian MSMEs is the lack of internal funds, financial resources, and technological abilities. There is a need for Nigerian MSMEs to partner with others to expand their resources to enable them to be able to successfully innovate in both their process and products. Innovation in its own right occurs in products, manufacturing processes, and services (O'Sullivan, 2002; O'Sullivan *et al.,* 2011).

Tidd *et al* (2005) and O'Sullivan *et al* (2011) asserted that innovation is an incremental process during programmes such as lean manufacturing, sigma six, quality conformance, and can also be a radical or transformational process. The research findings have shown that Innovation is vital to Nigerian MSMEs in improving their production process, converting materials into finished products. The findings concur with O'Sullivan (2002) and O'Sullivan et al (2011) who stated that innovation is useful in improving the production process and in improving the competitive advantage of manufacturing firms. Innovation in the manufacturing process of SMEs has been linked to process technology and the manufacturing concept of lean manufacturing, agile manufacturing and just in time (JIT), which enabled manufacturing businesses to eliminate waste(Schroeder *et al.*, 2011).

5.5 Manufacturing challenges of Nigerian MSMEs.

Nigerian MSMEs manufacturing challenges are peculiar to that of most manufacturing firms in developing nations. The research findings have shown that Nigerian MSMEs manufacturing challenges are poor infrastructural facilities such as electricity supply, multiple taxations, lack of raw materials, insufficient funds from the banks in the form loans, high lending interest rates and not being able to access funds that the government provides for the manufacturing sector development and as subsidies to all Nigerian manufacturing firms. The identified challenges will enable the research to meet the research objectives set out for this study.

5.5.1 Electricity

The electricity challenges facing Nigerian MSMEs can be compared to that of most developing nations with particular reference to many African manufacturing countries (Mickensey, 2013). The research findings have shown that electricity supply and distribution is vital to the manufacturing performance of Nigerian MSMEs. The NIRP (2014) report and the work of Olugbenga *et al.*(2013) show that Nigeria manufacturing firms need an additional 12000 -15000 megawatts of electricity supply and distribution to address the present manufacturing electricity demands.

The research findings have shown that the electricity supply and distribution have been on the topmost plan for most of the Nigerian MSMEs, as the electricity supply outages and failures have led to poor manufacturing operations and performances. The findings adds to the work of Malik et al (2002) who noted that the electricity shortages and distribution have been a barrier and challenge to many manufacturing businesses in Nigeria who wants to maximise the scale of their production The research findings add to the works of Ayanruoh (2013) and McKinsey (2013) who agreed that the systemic gap amid the demand for electricity supply and the existing capacity has led to the continual and prevalent shortages of electric power for industrial scale (Ayanruoh, 2013, McKinsey, 2013). The research findings have recognised the shortage of electricity supply and distribution as the direct result of the government failures and the lack of investment on electricity infrastructures that are long overdue for turnaround maintenance. The research finding has shown that the poor electricity supply has resulted in an increased cost of production. The research findings add to the studies of KPMG (2013), UNIDO (2013) and NIRP (2014), who noted that the lack of adequate electricity in Nigeria has led to high cost of production and making the cost of locally manufactured products in the country

more expensive than most manufactured products within other developing nations of the world. Evidence from the research has shown that the lack of adequate electricity supply has led to an increase in the use of a generator for electricity supply which has led to high cost of production.

The research findings support the study of Ayanruoh (2013) which states that the consequences of electricity supply shortages are that, it has led to the use of generators for electricity for both industrial and residential consumption which cost estimate is between 1.5-2.0 billion nairas ($10 million) per week. The research findings have shown that Nigerian MSMEs have made some recommendations to the government to build steady and cost-efficient power grid as they believe that electricity is crucial to the success of socio-economic development of the country. The Nigerian power sector remains one of the country's greatest infrastructural challenges with restricted access to electricity making an investment in the manufacturing sector difficult and less attractive (Balogun, 2016). According to a recent study, Nigeria with a population of about 177miillion presently produces about 3,879 megawatts of electricity compared to South Africa's 45,645 megawatts and a population of about 54million. The research findings have helped to identify the electricity supply shortages as a manufacturing challenge to Nigerian MSMEs.

5.5.2 Transportation

The findings of this study recognize transportation as an important factor for the manufacturing and economic development of Nigerian MSMEs. The role that transportation plays in the delivery and distribution of manufactured products across the world needs to be acknowledged, as it is a very important tool for the global manufacturing supply chain (Wieland and Wallenburg, 2013). Despite the fact that manufacturing is fundamental to the distribution of manufactured products, however, the evidence gathered from this present study identified that Nigerian MSMEs lack transportation infrastructures as a result of the government policy failures. The research findings build on the study of Adeyemi (2011) which has shown that the freight costs within Nigeria are very high, due to the poor rail network in place and the inadequate road infrastructures across the length and breadth of the country. The research findings also reveal that high cost of transportation is among the numerous challenges faced by Nigerian MSMEs. The

high cost of transporting manufactured products across Nigeria states and local governments as a result of bad roads have caused delays, increased manufacturing cost and affected the smooth distribution of products to their desired destination on time (Malik *et al*., 2002; Onuorah, 2009; NBS, 2014).

5.5.3 Lack of laboratories

The research findings have expressed the concerns of the managers of Nigerian MSMEs over the lack of commercialised laboratories in Nigeria for testing of both locally made and imported manufactured products. The research findings have shown that the claim made against locally manufactured products as being inferior or being of low quality to the imported manufactured products cannot be easily verified, as the country does not have enough laboratories to test products on an industrial scale. This has become a concern to many local manufacturers and importers. The research findings add to the study of Akanya (2011) which has shown that the lack of laboratories is not just a problem for the Nigerian manufacturers alone, but also a major challenge to many genuine importers and exporters of manufactured products. The research findings have also revealed that the substandard products imported into Nigeria are mostly from the Asian countries. The research findings also show the worries and frustration of Nigerian MSMEs about the influx of substandard manufactured products into the country due to the lack of laboratories for testing these products. The research findings build on the claim made by Nwachukwu (2016) that the lack of laboratories have enabled dubious manufacturers to continue to counterfeit high selling products, and importers bringing in substandard and fake manufactured products into the country which are dangerous to consumers and to the Nigerian economy. Lack of laboratories for testing manufactured products means there is no adequate quality control in place for imported goods, be it raw materials or finished goods. The standard organisation of Nigeria (SON), the government body in charge of quality control of products, lacks the ability to check the quality of all consumed products within Nigeria (Okorie and Humphrey, 2016).

5.5.4 Sub-standard products

The manufacture of substandard products arises from substandard production which can be addressed by educating manufacturing personnel and enforcing quality standards for manufacturing firms (Caudron et al. 2008).The responses from

the interviewed managers of Nigerian MSMEs have echoed the need for standard products across the manufacturing sector of the economy. The results of the research findings have shown that substandard products are dangerous to the competitiveness of Nigerian MSMEs. The interviewed managers of Nigerian MSMEs have expressed their view that *''the country is being flooded with imported fake and sub-standard products that are killing our businesses''.* Substandard products are dangerous to its users and the Nigerian economy. There is a public outcry against the government for not banning such products and prosecuting the manufacturers of such products (Nwachukwu, 2016). Substandard products are bought for different economic reasons. According to studies, substandard products are bought due to the price advantage it has over other standard genuine equivalent products (Moores and Dhaliwal, 2004; Wang, 2005). The findings have shown collective agreement among managers of the Nigerian MSMEs to ban the importation of some products and those perceived to be substandard manufactured products in Nigeria is good, but it is like fighting a lost battle as there are many factors that are not being tackled such as the operation of open borders from many African neighbours, as the Nigerian customs, immigration, and the police are all seen as corrupt agencies of the government.

The impact of substandard and counterfeit products on the global economy, represent 2.5% of the global trade in the year 2013, which USD461 billion in earnings equivalent to the combination in GDP of the Czech Republic and Ireland put together or the GDP of Austria (Stryszowski and Kazimierczak, 2016). Although the finding of the research adds to the study of Stryszowski and Kazimierczak (2016), which shows that substandard and counterfeit products are not characterised with emerging economies alone. European Union countries still face a similar problem. The evidence from the research findings of suggests that most Nigerian MSMEs have the notion that the substandard and counterfeit products are mostly imported from the Asian countries, with the imports from China being their main concerns. However, substandard imports and counterfeit products are not peculiar to Nigeria alone as it is a global concern, even many advanced and well-developed economies in the European Union have experienced higher impact and a huge economic losses to the tune of USD 116 billion (EUR 85 billion) in 2013, which represent 5% of their total imports (Stryszowski and Kazimierczak, 2016).

Evidence obtained from the research findings have shown that substandard imported products rob the Nigerian government and MSMEs of their financial earnings, which result in economic losses. The findings build on the studies of Treadwell (2011) and Penz *et al* (2009) who assert that there are many problems created by counterfeit, fake and substandard products that cannot be completely ignored, as substantial earnings are lost to the criminal gangs that are engaged in the illicit act of manufacturing and selling of these products. The manufacturing and selling of substandard and counterfeit is a global problem. The research result has shown that substantial amount of financial revenues are lost to counterfeit and substandard products, due to the fact that many consumers of such products cannot distinguish between the fake and the genuine products. These substandard products are bought by consumers because their price cost less. The evidence from the findings builds onto the studies of Mishra and Shukla (2015) and Qian (2008) who expressed in their studies that consumers of counterfeit and fake product are not able to differentiate them from the genuine products, but price was considered to be the main reason that consumers' choose substandard and counterfeit products instead of genuine products when they make purchasing decisions and choices.

5.5.5 Funding

MSMEs are engines that drive economic development in Nigeria (CBN, 2013). MSMEs funding is good for expansion and growth of the business through capital investment. The research findings showed that Nigerian MSMEs lacks the funds to finance their business. This finding further builds on the work of Fatai (2009) who assert that Nigerian MSMEs lacks the finance for manufacturing operations.The financing of MSMEs is crucial to its survival and developmental growth. Finance contributes to about quarter of successful SMEs in Nigeria (Ogujuiba et al., 2004). The evidence gathered from the empirical findings of this research has shown that Nigerian MSMEs lack the funds to make investments to help them grow their businesses. Nigerian MSMEs go bankrupt due to the lack of funds. Nigerian MSMEs are also worried about the associated cost from the generation of their own electricity. The bank is not lending to Nigerian MSMEs due to fears that the loan might not be repaid. The research findings revealed that Nigerian MSMEs were being discriminated by the banks as they refuse to lend to them. However, the

banks that lend to them charge a higher interest rate above the standard lending rate to other bigger corporations. This research finding is very important as it further adds to the works of Fatai (2009) and Luper (2012) that Nigerian banks are lending to MSMEs at a higher interest rate more than the rate they charge for bigger manufacturing firms. Nigerian banks, by virtue of their position in the economy, are sources of finance for businesses. These research findings differ with the study done by the World Bank (2001) in Nigeria which showed that over two-third of Nigerian firms had a relationship with banks. The research finding adds to the work of Terungwa (2011) that showed that Nigerian MSMEs have no access to banks credit facilities. The empirical research findings have shown that banks are the main source of funds available to Nigerian MSMEs however, their concerns are with the banks not giving them the access to loans, despite the contribution they make to the economy. It has been noted that the Nigerian financial system has the capability to provide liquidity, however, the banks are not lending to the MSMEs sector, which they consider a very high-risk area among other businesses due to its operational challenges in Nigeria. This research finding has helped identified and reviewed the funding challenges experienced by Nigerian MSMEs. The literature reviewed have shown that commercial banks are favourable towards large corporations, which present better business plans, with more reliable financial data, improved chances of success and higher success for the banks than SMEs (Aremu and Adeyemi,2011). When banks do loan to SMEs, they tend to charge them at higher rates, considering their risk and also applying tougher vetting measures, which increases the costs of borrowing (UNCTAD, 2002; Aremu and Adeyemi, 2011). Despite the Nigerian MSMEs dominance in the creation of jobs, SMEs usually have found it difficult to obtain proper credit or equity. For instance, the loans given to SMEs are often restricted to a shorter period of time to enable them pay off any considerable investment (UNCTAD, 2002).

5.5.6 Multiple- taxation

The multiplicity of taxes is not a well recognised term in the taxation administration; however the term is broadly used among Nigerian MSMEs to depict where the tax fee collected is charged on the same individual or business in respect of the same tax by more than one government ministry, state and local government (Sanni,

2012). Evidence from the empirical findings of this research have shown collectively that Nigerian MSMEs are not satisfied with the complexity of the Nigeria tax system, and the multiplicity of the taxes they are asked to pay by the Nigerian government. This was the case of Nigerian MSMEs whose comments are, *''we are being harassed continually by different government agencies to pay the same tax several times. The tax system is unfair to us manufacturers as it continues to increase our cost as manufacturers. The multiple taxes we pay have increased the cost of doing and establishing businesses in Nigeria. These multiple taxes have put off so many prospective investors''.*

This study adds to the claim made by Ocheni and Gemade (2015) that the payment of multiple taxes by Nigerian MSMEs has become a huge burden and challenge to their manufacturing business operations. In general, the managers of Nigerian MSMEs have collectively expressed their concerns over the effect of these multiple levies and taxes have on their businesses, often times paying the same levies and taxes multiple times. These findings can be supported by studies of Shahrodi (2010) and Ocheni and Gemade (2015) that have shown the multiplicity in taxes makes an investment in businesses difficult, as it creates uncertainty for investors who do not know the extent their business income would be levied or taxed.

Some studies have shown that taxes make a valuable contribution to the wellbeing and economic development of nations, by making funds adequately available for the creation of public services and employments (Holban, 2007; Chu, *et al.*, 2008) Nevertheless Nigerian MSMEs agreed that the taxes should be administered fairly. This finding supports the studies of Holban (2007); Adebisi, and Gbegi (2013) that tax should be administered in a way that put into consideration the incomes of SMEs to guarantee their business and operational survival. Evidence gathered from the findings of this study has shown that issues with harassment from various government agencies and thugs have forced most Nigerian MSMEs to shut down their businesses. This research finding adds to the findings of SMEDAN (2010) which states that Nigerian MSMEs go bankrupt after their fifth year of being in business. The multiple taxes have hindered many manufacturing business operations in Nigeria, particularly in the SME sector of the economy.

The Nigerian MSMEs managers who participated in the research interviews have expressed that they continue to pay excessive taxes and levy which has impacted on their business improvement needs and growth. In addition, some of these MSMEs managers have noted their struggles with limited financial resources. This research finding builds on the work of Ihua (2009) which considered multiple and increased taxes as a vital issue that has made most SMEs in Nigeria to fail in their various businesses. The tax regime of Nigerian government needs to be addressed by its policymakers to consider MSMEs and other smaller businesses in another sector of the economy. Although the multiple tax system generates revenue to different tiers of government in Nigeria, nevertheless the impact on MSMEs and other similar business is enormous and has caused many of them to go bankrupt in their businesses. Nigerian MSMEs have continued to make economic contributions in terms growth, GDP, and job creation.

5.5.7 Foreign exchange

The exchange rate is the price at which one country's currency is traded for another one. It is an essential economic measure that when it depreciation or appreciation changes the performance dynamics of any manufacturing economy (Hashim and Zarma, 1996; Odili, 2014). The research finding has shown that Nigerian MSMEs were feeling the impact of the currency Naira depreciation against the US dollar, which added more cost to their manufacturing budget plan for raw materials importation. This finding adds to the study of Yuchin (1995), who presents evidence that in a large section of manufacturing and emerging economies, that true exchange rate unpredictability slowed down economic growth and decreased productivity. The research findings also build on the study of Adeniran *et al* (2014) who expressed that the increase in the exchange rate as a result of the depreciation of the Nigeria currency Naira has had some major impacts on MSMEs who imports raw materials from other countries overseas. However, Aliyu (2011) have argued that depreciation of the Nigerian currency can help export, while its appreciation would expand import and discourage export. In contrast, the situation among Nigeria MSMEs is different, as the research findings have shown that most of the manufacturing businesses rely on imported materials. As such the export level is on the decrease since there are not enough products to be exported as a

result of the shortages of the imported raw materials for local production. Nevertheless, Odili (2014) suggests that there is always a market shift from the purchase of foreign manufactured products to the locally made ones, whenever there is depreciation in the exchange rate. Foreign exchange money is required by Nigerian MSMEs in the form of easy access to government grants and loans to allow them to be able to compete with their foreign counterparts from other emerging economies of the world. Countries such as China, United Kingdom, and Germany have schemes that support MSMEs.

5.5.8 Lack of skills

The lack of managers with management skills and trained workforce represents a major barrier to the continued existence of MSMEs in Nigeria (Agwu and Emeti, 2014).The managers of Nigerian MSMEs have expressed that ‘’*there is a shortage of manufacturing skills in Nigeria' which has become an* ‘*impediment to the realisation of the full manufacturing potentials and development of the SME sector of the economy''.* The evidence obtained from the findings of this research has shown that Nigeria as a country lacks some of the basic training infrastructures for acquiring skills needed for advancing the operations and manufacturing practice of SMEs. The research findings further adds on to the works of Aremu and Adeyemi (2011), in which they assert that Nigerian SMEs lack the necessary competence and required knowledge of production operation, advertising, investment, and budgeting, which have led to misappropriation of funds wrong costing and making poor manufacturing decisions that led poor performance. Evidence from other studies has shown that the lack of manufacturing skill is not peculiar to Nigerian MSMEs alone; as this remains a huge problem for many other manufacturing firms around the world (Accenture and Manufacturing Institute, 2014).The lack of the necessary manufacturing skills has reduced the productivity and performance of most Nigerian MSMEs.

5.6 Summary

The study has shown that there is a need for Nigerian MSMEs to adopt a manufacturing strategy to enable them to respond to their manufacturing priorities and challenges. MSMEs are valuable to the Nigerian economy. The government and all other stakeholders should corroborate with the government to tackle the

challenges impeding the MSMEs manufacturing process and practice. This thesis chapter has offered a framework that will aid in the successful adoption and deployment of manufacturing strategy among Nigerian MSMEs. The framework has helped identified the manufacturing challenges and priorities of Nigerian MSMEs. The chapter as well established the business advantages that are linked with the application of manufacturing strategy as well the manufacturing decisions made by Nigerian MSMEs. The manufacturing challenges identified in the research findings, if well tackled could allow more improvement of the MSMEs sector of the Nigerian economy. This will enable them to compete both locally and globally.

Chapter 6: Conclusions and recommendations

6.1Conclusions

SMEs are regarded as the backbone of many national economies of the world and are key drivers for economic growth. In order for MSMEs to sustain their competitiveness, it is essential that they take advantage of their capabilities and support their manufacturing and business requirements. This research supports studies within manufacturing strategies in SMEs. The purpose of this research is to increase our understanding of manufacturing strategy in SMEs. In order to provide SMEs with useful advice on how to work with manufacturing strategies, this research focuses on key features that are considered to be significant for the manufacturing strategy practices and success in Nigerian MSMEs.

The main objective of this research is to build an understanding of the manufacturing strategy process and practice of Nigerian MSMEs Based on the theoretical background of manufacturing strategy, this study also reviewed the manufacturing decisions made by Nigerian MSMEs and identified their manufacturing priorities and challenges The study adopted a qualitative research approach, in which semi-structured interviews were conducted to gather primary data, from 17 Nigerian MSMEs that participated in the study. The template analysis a kind of thematic analysis was utilised for the data analysis. The evidence from the research findings has shown that Nigerian MSMEs, like most firms from developing nations, have several manufacturing challenges that could inhibit their competitiveness.

In the absence of tough competitive business environment, there is enough evidence in this research to show that the Nigerian MSMEs challenges have important concerns on their manufacturing priorities of cost, quality, flexibility and delivery and innovation. There is a need for Nigerian MSMEs to consider their various manufacturing challenges before making manufacturing decisions and formulating their manufacturing strategy. Nigerian MSMEs are continually faced with the increased global competitive challenges, particularly from countries such as China and India, given these countries continuous improvement in manufacturing technology, the business and competitive environment of Nigerian MSMEs are expected to become even more different and difficult.

In such an unstable and challenging business environment, the formation and successful practice of manufacturing strategies are essential for Nigerian MSMEs in accomplishing better business practice and manufacturing performance. There is a need for Nigerian MSMEs to place greater significance on challenges such as government policies and regulation when making decisions and formulating their manufacturing strategy.

The interference of various government policies and regulations on the Nigerian MSMEs business practices and manufacturing decisions have forced most of them to pay more attention to the reduction of manufacturing cost to remain competitive by having tradeoffs, in product quality, flexibility and manufacturing delivery performance. More so, the approvals of tough monetary laws and policies by the government have had an unfavourable outcome on the manufacturing strategy process and practice of Nigerian MSMEs. The manufacturing practice of Nigerian MSMEs is still developing with the technological innovation in the manufacturing strategy process. The manufacturing decisions made in the plant are usually considered by senior MSMEs managers who know and understand the strategic importance and consequences of such decisions made. The manufacturing plant size, location, and human resources decisions are all strategies, made to boost MSMEs competitiveness. These manufacturing decisions are made taking advantage of the business position and nearness to market, availability of raw material and the availability of financial resources for investment.

Most Nigerian MSMEs have placed their high priority on the reduction of manufacturing cost to remain competitive in the global manufacturing business. Although this will help to accelerate the manufacturing practices adopted at the plant level. Nevertheless, the MSMEs focus on the reduction of cost alone could have some damaging impact on all other manufacturing priorities and performance, even as MSMEs customers place their demand on having more differentiated products and other products that have the highest standard in quality. In addition, Nigerian MSMEs should continue to examine external factors that will be required to enable them to respond to ever-shifting trends in the global market. The study also contributes to the discussion of the role that government policies and other external

manufacturing challenges play in the manufacturing practices and the manufacturing strategies of firms in emerging economies of the world.

6.2 Answering research question and achieving research aim and objectives

The primary aim of this study was to help develop an understanding of the manufacturing strategy process and practice in MSMEs. An understanding of the manufacturing strategy was acknowledged by achieving the set-out research objectives and answering the research question. The subsequent section discussed how the research objectives and question were achieved and answered in the study.

Research Objective 1: To develop an understanding of the manufacturing strategy process and practice of Nigerian MSMEs. The researcher identified 17 MSMEs within Nigeria, where each manager representing these MSMEs were interviewed to establish an understanding of the manufacturing strategy process and practice of Nigerian MSMEs. The researcher identified the strategic initiatives adopted by the Nigerian MSMEs. The research findings have identified process improvement, manufacturing capacity, competitiveness and sales forecast as the manufacturing strategy considered by Nigerian MSMEs. A preliminary study was carried out which required conducting seventeen interviews with senior managers of Nigerian MSMEs. The interviews resulted in the gathering and analysing of a rich set of qualitative data. During the data analysis, the themes that could enable us to understand the manufacturing strategy process and practice of Nigerian MSMEs were established. The themes identified in the research findings are process improvement, manufacturing capacity, competitiveness, and sales forecast.

Objective 2: To examine and review the manufacturing decision made by Nigerian MSMEs.

This objective was achieved by examining and reviewing the manufacturing decisions made by Nigerian MSMEs. This objective was achieved in section 4.3 of chapter 4 of the data analysis and findings. The research findings in section 4.3.1, section 4.3.2, section 4.3.3, section 4.3.4 and section 4.3.5 revealed that Nigerian MSMEs made manufacturing decision on their plant size, human resources, budgeting, location and technological know-how. The manufacturing decisions

revealed in the research findings have enabled the researcher to achieve the research objective set at section 1.9 and answer the research question in section 1.9.1 in chapter 1 of this thesis.

Objective 3: To identify and review the manufacturing priorities of Nigerian MSMEs. This objective was achieved by identifying and reviewing the manufacturing priorities of Nigerian MSMEs. This objective was achieved in section 4.4 of chapter 4 of the data analysis and findings. The research findings in section 4.4.1, section 4.4.2, section 4.4.3, section 4.4.4 and section 4.4.1 identified manufacturing cost, product quality, delivery speed, flexibility and innovation as the Nigerian MSMEs manufacturing priorities. The manufacturing priorities identified in the research findings have enabled the researcher to achieve the research objective set at section 1.9 and answer the research question in section 1.9.1 in chapter 1 of this thesis.

Research Objective 4: To identify the challenges of Nigerian MSMEs.

This objective was achieved by identifying the manufacturing challenges faced by Nigerian MSMEs. This objective was achieved in section 4.5 of chapter 4 of the data analysis and findings. The research findings in section 4.5.1, section 4.5.1.1, section 4.5.1.2, section 4.5.1.3 and section4.5.1.4 revealed that electricity supply, roads, and rail networks are the infrastructural challenges that faced the Nigerian MSMEs. The research findings in section 4.5.2 to 4.5.10 identified product acceptance, multiple taxations, sub-standard imports, lack of skill, lack of raw materials, foreign exchange, duties, lack of laboratories and government policies as the other manufacturing challenges faced by the Nigerian MSMEs. These findings have enabled the researcher to achieve the set-out objective in section 1.9 and answer the research question in section 1.9.1.

6.3 Research contributions to knowledge

This research has made several academic contributions to the body of knowledge in enhancing the literature of manufacturing strategy of firms in emerging economy and also bridging the gap in the knowledge areas related to the Nigerian MSMEs. The major contributions to knowledge are as follows:

1. This is the first time that the research topic manufacturing strategy of SMEs has been empirically researched in Nigeria. This study also dealt with the request of Ehie and Muogboh (2016) that suggested for more research on manufacturing strategy of firms in developing countries to be carried out. The research makes a contribution to academic knowledge by adding to the study of manufacturing strategy of MSMEs, especially in the perspective of emerging economy.
2. This study will help other academic researchers in Nigeria who want to broaden their knowledge in the area of manufacturing strategy and support other scholars to replicate this study in large manufacturing firms.

3. The study adds to the body of knowledge in the area of the manufacturing strategy, in the perspective of emerging economies, with its focus on Nigerian MSMEs and thus, represents originality of the subject.

4. The study adds to the body of knowledge by reviewing literature that enabled us to understand the manufacturing strategy an emerging economy and gain the process and practice in.

6.4 Contribution to practice and implications for managers

This research has made several contributions to professional practice in understanding the manufacturing strategy process and practice of SMEs in emerging economy. The results from this research have an important implication for manufacturing managers who endeavour to implement the manufacturing strategy results into their manufacturing and production operations. Although most MSMEs owners and managers are more interested in earning more profits than growing their businesses, this research finding will support MSMEs which aspire to develop into a more successful business, by moving away from the traditionally-based manufacturing practice, to a more improved process-based manufacturing practice.

The empirical findings of this research have helped to establish the importance of the different task carried out by owners/managers of MSMEs in making better manufacturing decisions and adopting the right manufacturing strategy. Without the necessary dedication and supports from the MSMEs owners and managers, the adoption of manufacturing strategy will not be successfully achieved. The evidence

gathered from the research findings showed that top managerial support is needed for improving the manufacturing strategy and practice of MSMEs in an emerging economy; with reference to Nigerian MSMEs.

In terms of the implications for managers and practitioners, this research presents the evidence and direction for the understanding of the adoption of manufacturing strategy and its practice in MSMEs. This research is useful to all manufacturing managers and professional practitioners who are concerned about making sure that, all improvement needs of MSMEs are met. The research contributions to professional practices are:

1. The research findings will enable MSMEs managers to broaden their knowledge and understanding of the whole manufacturing strategy process and practice, rather than having a functional focus concerning only their work positions and jobs.

2. The research findings will enable MSMEs not to dwell only on internal issues alone, rather they should focus and exchange their manufacturing operational views with other external stakeholders, such as suppliers, customers, government agencies, lending banks, investors, and competitors to advance their manufacturing objectives and practices.

3. The study is useful to MSMEs as it will enable them to have a long-term manufacturing strategy agenda which include long-term manufacturing performance, rather than focusing on short-term financial gains only.

4. The research findings will help MSME managers on how to re-evaluate their manufacturing strategies from time to time, so as to allow strategic transformations to be made over time.

5. This research finding presents an in-depth understanding and knowledge of the competitive advantages that manufacturing strategy can provide to MSMEs who adopt the manufacturing strategy practice.

6. This research finding has provided the practical knowledge and understanding required in the manufacturing strategy process, which will

enable MSMEs to continually achieve considerable improvements in their manufacturing production and operational effectiveness.

7. The findings of this research have provided the necessary measures that will aid MSMEs, in best serving and meet their market expectations and customers' demands and needs.

8. The research results will assist MSMEs who wants to enhance and accelerate their manufacturing process efficiency.

6.5 Implications for policymakers and government

The various government organisations and other policymakers that have the duty of assisting SMEs must ensure that MSMEs integrate into their manufacturing practices a manufacturing strategy, as it will enable them to enhance their competitive advantage in the current competitive economic environment. The government bodies must reassess their course of actions and initiate more programmes that will advance the manufacturing strategy process and practice within the MSMEs sector of the economy.

MSMEs in emerging economies act significantly in the creation of employment and poverty reduction, particularly in the growing inner-city areas, which can be improved by the plans that make possible the access to a dependable electricity supply. Policymakers should be concerned with the effects that infrastructures such as poor roads and electricity supply failures and outages have on the operation and productivity of MSMEs. The government should take drastic measures that will help build good infrastructures and improve the electricity supply. The Nigerian government should adopt measures that reduce the rate of electricity supply failures. The most evident part of this research finding is for the improvement and consistency of the electricity delivery, which is required to be assessed and checked thoroughly. This might need some interim measures to reduce mechanical faults, for instance, the turnaround maintenance of the electrical conductors and delivery infrastructure, or it could also need lasting solutions by increasing the generating capability of the power plants. In the absence of an improved quality electricity delivery, the governments and electricity providers can assist MSMEs, by providing dependable electric load reduction plan, which could enable them to plan

their production activities during the time when electricity failures and outages occur. The sharing of backup electric generators could assist more MSMEs to have the access to use backup electricity supply during power outages. Nevertheless, the sharing of electric generators among MSMEs for electricity generation requires that they have good relationships and trust with one another. Evidence from the findings of this research suggests the location of Nigerian MSMEs is significant in determining the infrastructures available. The distant in MSMEs factories locations could also become a barrier to them being able to share electricity generators. MSMEs can make their investment in the acquiring of renewable energy technologies such as solar panels, wind turbines, and inverters to enable them to complement their electricity supplies; however, they require some information to this regard. The competitive performance of MSMEs also depends on their product quality and the capability to meet up with the delivery of orders on time.

Considering all of the above explanation, it can be agreed that these research contributions are vital to the owners and managers of Nigerian MSMEs, government bodies and policymakers in the manufacturing industry. This study is considered appropriate in this present time of fast technological innovations in manufacturing practices, and the evidence gathered from the findings of this research, will help to fill up the gaps that exist in the literature of manufacturing strategy of firms in emerging economy. The findings of this study will assist MSMEs not just in the Sub-Saharan Africa region, but also in the other emerging economies and developing nations, to improve their MSME sector by taking advantage of the opportunities offered by the adoption of manufacturing strategy process and its practice. Putting into practice the findings of the manufacturing strategy research, this will enable MSMEs in Nigeria and other Sub-Saharan Africa area, to attract more trade, foreign investments, and business partnerships.

6.6 Comparing manufacturing priorities in Nigeria with developed nations

Table 6.1 provides the comparison of the research findings of manufacturing priorities of the Nigerian MSMEs with that of developed nations. The findings showed some similarities and difference in manufacturing priorities

Table 6.1 Nigerian manufacturing priorities compared with developed nations

Manufacturing priorities	Nigeria	Developed nations
Cost	Cost of production is high and is a major priority, in terms of the high cost of generating electricity due to power outages, high transportation cost due poor road infrastructures and inadequate transport networks and high energy(diesel, petrol, and gas) cost due to poor functioning refineries	Labour cost is high due to high standard of living, energy cost is high
Delivery	Product delivery time is longer as there are no supply chains. The delivery time is impacted by external factors such as poor roads infrastructures and inadequate transport network.	Product delivery time is shorter due to the well-established supply chain. The product delivery mechanisms are well established
Flexibility	Not a much priority as the manufacturing process is impacted by so many external factors, such as infrastructure	A major priority to meet new market demands in terms of new product designs and product volumes
Quality	The findings showed only three product quality characteristics and dimension, which are durability, conformance, and reliability	Eight product quality characteristics and dimension, which are durability, conformance, reliability, features, performance, serviceability, aesthetics and perceived quality

6.7 Research limitations

In the real world, there is no study without its own limitations, this study is not different. Just like any other research in this study, the limitations were considered below.

The first limitation of this study was based on the fact that the empirical data gathered was subject to the level of access allowed to the researcher. Hence, the managers of MSMEs taking part in the research might have concealed some very important information from the researcher, which perhaps might have to alter the research result, without the researcher being aware. However, the managers interviewed demonstrated good knowledge of the subject being researched.

The research was limited to Nigerian MSMEs only. The researcher believed that while the study was limited to only the Nigerian MSMEs, however, some of the findings of the research are expected to be the same with large Nigerian manufacturing firms. Nonetheless, the findings of this current study cannot be generalised without conducting a further comparative study of the other manufacturing sectors. Likewise, notwithstanding the fact that the challenges facing Nigerian MSMEs are the same, it is still not easy to generalise the findings of Nigerian MSMEs with the outcome of the research conducted in other MSMEs in the emerging economies of the world without performing a further study.

Primarily, there could be personal bias in the interview answers given by MSMEs managers,' since they are the words of their personal experiences. Even though the research participants were MSMEs senior managers who quite understood the interview questions asked, however, there might be bias as a result of the subjective nature of MSMEs managers which cannot be totally avoided. The researcher could only imagine that the words spoken by MSMEs owners and managers during the research interviews are views shared by their individual organisations and not just their personal opinions. In the future prospective studies in manufacturing strategy of SMEs in emerging economies should include quantitative and secondary data to support the research findings. The research did not examine the performance of Nigerian MSMEs in terms of profits and share of

the market. Most MSMEs are not willing to discuss or share their performance measures due to the sensitive and confidential nature of the matter. Most companies fear that their information might be given out to their competitive rivals. In this regard as such, the researcher feels that any data collected regarding the performance of SMEs will be subject to bias. The limitation of the research methodology is concerned with the use of the qualitative research approach. Although the qualitative research approach gave an in-depth insight into the underpinned study manufacturing strategy of Nigerian MSMEs and manufacturing challenges, however the research findings from the participating MSMEs cannot be generalised. The researcher observed that the evidence obtained from the different participating Nigerian MSMEs managers was presented by one senior manager in every SME, whose views could have been interpreted differently by another manager. As a consequence, another researcher might understand the perceptions of Nigerian MSMEs managers' and the study outcome differently.

6.8 Recommendations for further research

Comparative studies can be performed in other Sub-Saharan African countries, such as Cameroon, Ghana, to establish the differences in the perspective of emerging economies. For instance, in the developed countries, researchers have compared manufacturing strategy process in the UK, Germany Sweden and USA.

Although much study has been carried out in the area of manufacturing strategy process, its application and practices are relatively a new phenomenon of study in Nigeria. Hence, further study is required to be carried out in other countries within the Africa continent, as well as other emerging economies of the world to generalise the research findings. A further research should consider the impact of manufacturing strategy implementation on manufacturing performances in emerging economy and its successful deployment outside the scope of this present study.

6.9 Recommendations and strategic options for Nigerian MSMEs

The research findings in chapter 4 of this thesis have helped to identify the various manufacturing challenges faced by the Nigerian MSMEs. The researcher has made a recommendation for some strategic options that needs be adopted to deal with those manufacturing challenges. The strategic options are:

6.9.1 Strategic options for electricity supply

The research findings identified and analysed in section 4.5.1.1 of this thesis have shown the need for the Nigerian Government to implement measures that will help solve the electricity challenges facing MSMEs. The findings identified electricity supply shortages and failures as one of the numerous challenges facing Nigerian MSMEs. Reforming the electricity and energy supply sector is long overdue. The Government needs to replace the already aged electricity power grid with the new electricity grid. The Installation of new electricity generating plants will help reduce the electricity failures that MSMEs present experience. There is a need for the government to expand the present electricity infrastructure network so as to increase the coverage areas. The government needs to develop a framework that will legally allow and support the participation of other private sectors in generating their own electricity. The Government should consider other alternative sources of energy used in generating electricity, such as the installation of solar panels, wind turbines, and inverters.

6.9.2 Strategic options for multiple taxations

The research evidence obtained in the data analysis section 4.5.3 of this thesis has shown that multiple taxations remained major concerns to most Nigerian MSMEs. The payment of multiple taxes by Nigerian MSMEs has become huge burden and challenge to their manufacturing operations. There is a need for the Nigerian government to implement a tax system that can reduce the overall burden of taxation on MSMEs. This can be achieved by providing some kind of tax incentives in the form of a tax rebate. The Government should introduce new levy and tax collection procedures that can be properly monitored to stop MSMEs from being exploited by other government agencies. The Government should organise workshops for its different bodies and officials on the impacts of corruption on the economy and its consequences The Nigerian Government should legislate laws that are strongly against corruption and its practices. Monitoring and punishing government officials and individuals that are involved in these corrupt activities and practices.

6.9.3 Strategic options for lack of financial resources

The research findings identified in the data analysis section 4.5.6 of this thesis have shown that Nigerian MSMEs lacks the financial resources to advance their manufacturing operations. The findings also show that Nigerian MSMEs lacks the required investment to advance their manufacturing operations. There is a need to enhance MSMEs financial capability. The Government should establish supports for MSMEs. The Government and other manufacturing stakeholders should help initiate some form of cordial relationships among banks and MSMEs. The Government should liaise with banks and all other financial bodies to provide funding plans for MSMEs. The Government should propose affordable long-term loan schemes to MSMEs and ensure that the scheme is properly monitored.

6.9.4 Strategic options for government policies

The research findings in section 4.5.5 of the data analysis have shown that The role government plays in the economy is vital to the survival of the manufacturing sector of the economy The Government should provide an enabling business environment for the MSMEs to attract investors. There are several policies that the government can implement that will help the Nigeria MSMEs to compete favourably with other manufacturing firms in the emerging economies of the world, such as tax break, duty waivers, and funding. The Government should introduce a fair but strong financial policy, which makes the process of acquiring loans from the financial institutions straightforward for MSMEs**.** The Government should involve MSMEs owners, managers and other manufacturing stakeholders in formulating manufacturing policies. The Government should provide training facilities to MSMEs business proprietors.

6.9.5 Strategic options for funding in MSMEs

The findings in section 4.5.6 of chapter 4 of this thesis have shown that there are needs for the funding initiatives for Nigerian MSMEs to support the growth of their businesses. The banks can be major players in this regard; however, their attitudes towards Nigerian MSMEs in terms of lending must change. The Government should liaise with the banks to initiate new guidelines for supporting MSMEs. The Government should create incentives that make funds available for MSMEs**.** The

Government should liaise with the banks in order to reduce the high cost of borrowing for MSMEs, by lowering the interest rates. The Government should support the financing of MSMEs by encouraging banks to support MSMEs initiatives that can improve the infrastructural facilities.

6.9.6 Strategic options for skills in MSMEs

The research findings in section 4.5.4 indicated the needs for urgent skill development program among Nigerian MSMEs to help reduce the manufacturing challenges encountered daily as a result of the skill shortages. It is important that manufacturing managers have the right training and skill to be able to make the right manufacturing decisions. The managers of MSMEs should conduct training sessions for their employees. The Government should liaise with managers of MSMEs and other manufacturing stakeholders to establish some training programmes for MSME. Managers and owners of MSMEs to conduct training tailored to the developments of their businesses, MSMEs owners and managers should recognize the skill set that they need to enable them to succeed. Managers and owners of MSMEs should invest on the particular skill that will help in advancing their manufacturing production and operations. The government should liaise with academic institutions to develop programmes that could help train MSMEs employees and managers.

6.9.7 Strategic options for management awareness in MSMEs

The research findings in chapter 4 of this thesis have shown that often times MSMEs have relied so much on the job experience alone. There is a need for MSMEs managers to acquire more managerial skills through special training to improve their manufacturing knowledge. The government and other manufacturing stakeholders should initiate training programmes to enhance MSMEs owners and managers management business awareness. There is a need for the government to establish a manufacturing institute like in most developed

6.9.8 Strategic options for product acceptance in Nigerian MSMEs

The research findings in section 4.5.2 have shown an existential lack of awareness among Nigerians, about the locally manufactured product even when they are presumably of better quality than the imported ones. The research result has demonstrated that despite the superior quality of most Nigerian manufactured products when compared with other imported products. The unacceptance of most locally manufactured products is a marketing issue, and not a product quality concerns. Most of the Nigerian locally manufactured products are not well advertised, as most of these MSMEs lack the finances to pay for advertisement. The more Nigerian consumers are made aware of the locally manufactured product, the more they will accept such products. The strategic option for product acceptance is to create product awareness, by adopting an extensive marketing approach.

6.10 Reflection on the DBA study

Studying for a DBA degree in the Newcastle Business School of Northumbria University has been an amazing experience, and one of the bravest decisions of my life and academic career. As an international research student coming to the United Kingdom, my expectations were very high and so far I have not been disappointed. My supervisors have been very supportive and encouraging. Nevertheless, my supervisors are very clear in their approach in directing and guiding me to succeed. More so, my colleagues have been helpful in their constructive criticism and recommendation during doctoral presentations and the doctoral faculty conferences. Despite having a Master degree in Business Administration, scholarly writing skill for a doctorate level study was still lacking. Even though I have written some business plans and reports during the course of my work life in the past, the approach used in writing a good scholarly research in Northumbria University is entirely different. The doctoral study gave me the opportunity to be trained and developed as a researcher and acquired the fundamental skills required in writing a scholarly research. I acknowledge that am still in the learning process of writing and making good research debates and making a critical judgment on other people's work. The doctoral experience has sharpened my critiquing and reviewing abilities. The two weeks doctoral training block was awesome, which gave me the competency and confidence to learn in diverse areas such as conducting literature

search and review and choosing the appropriate research methodology and data analysis techniques that enabled me to conduct my research successfully. I have also learned the significance of making the accurate citations and referencing other people's work.

During the entire course of my doctoral study, I have embarked on a research project titled the Manufacturing Strategy of Firms in Emerging Economy: the study of Nigerian MSMEs. This topic was embarked upon to make a contribution to academic knowledge and professional practices and help fill the gap in the literature of manufacturing strategy in emerging economy. The research findings have practical implications for Nigerian MSMEs sector, manufacturing practitioners, government, and policymakers. For a start, a research proposal was submitted to kick-start the research process. The research process commenced after the proposal was approved by the two designated panel members by the business graduate school. The recommendations made by the research panel were taken on board, and it enabled me to make good progress on this research project. The annual progression gave the opportunity to submit the work done so far and engaged in the discussion of the progress made with my assigned research panel. During this research activity, I traveled to Nigeria to collect primary data through the interview of 17 senior managers of Nigerian MSMEs. The interview process lasted for a period of 3weeks in Nigeria which enabled me to travel to different SMEs locations across the country. The whole exercise was financially expensive. Some of the difficulties encountered in collecting the primary data were as a result of traveling to different locations, some within the distance 250 miles apart. Most of the SMEs managers were not keeping up with the time booked with them for the interviews, this completely altered other plans I had in mind. Most of the managers understood the interview questions; this was very useful in collecting the primary data. The interview of Nigerian MSMEs managers enabled me to gain some interview skills. The research experience gained in conducting a qualitative study has enabled me to further develop my research skill, as my previous researches were in the quantitative study.

Reflecting on the interview data, impression management was acknowledged from the research participants as several positive statements were given. In Nigeria, cultural values are always expressed by many people as being sensitive to their differences and how they are seen by others. According to Newman (2009), impression management is an act of presenting a favourable public image of oneself so that others will form positive judgments. Primarily, there could be personal bias in the interview answers given by MSMEs managers,' since they are the words of their personal experiences. Even though the research participants were MSMEs senior managers who quite knowledgeable and understood the interview questions asked, however, there might be bias as a result of the subjective nature of MSMEs managers which cannot be totally avoided. The researcher could only imagine that the words spoken by MSMEs owners and managers during the research interviews are views shared by their individual organisations and not just their personal opinions.

6.11 Summary

It is hoped that research in the future will further broaden the knowledge of manufacturing strategy process and practice in view of other sections beyond the subject area dealt with in this study. Insights gained from the research inquiry suggest that, even as manufacturing firms adopt a manufacturing strategy and make more sophisticated manufacturing decisions, problems such as infrastructures (roads, water supply, electricity supply) among others, remained as a major challenge to a good manufacturing strategy practice in Nigerian MSMEs.

Nevertheless, due to the competitive advantage linked with having a manufacturing strategy, some MSMEs are encouraged to make use of a more robust approach in making their manufacturing decisions. The actual gains derived from a manufacturing strategy includes an improved manufacturing capacity, competitive advantage, to better product quality, customer satisfaction, and improved productivity. This study establishes that Nigerian MSMEs owners, directors/managers are keen in advancing their manufacturing process and practice, despite their numerous manufacturing challenges. It is accepted that the results achieved in this study would be helpful in providing some crucial direction for MSME managers desiring to understand manufacturing strategy process and

practice in emerging economies or developing nations of the world. This study has satisfied its aim and objectives and has responded the research question provided at the commencement of the research. The study has offered important contributions towards explaining the manufacturing strategy process and practice in Nigerian MSMEs and emerging economy. Even though many manufacturing practitioners and researchers have endeavoured to examine the manufacturing strategy process and practice in MSMEs, nevertheless no procedure or guidance has been put in place that could enable managers of Nigerian MSMEs to make manufacturing decisions and deal with their manufacturing challenges.

This concluding chapter of the thesis has presented the research contributions to practice and knowledge, the research approach applied in the study, limitations of the current study, and recommendations for further study and framework for understanding Nigerian MSMEs manufacturing strategy. Empirically this study has adequately added to the body of knowledge and practice by proving the evidence that can enhance the understanding of manufacturing strategy process and practice in MSMEs, thus broadening the research subject area in manufacturing operation and production management. The findings of this study are useful to manufacturing practitioners, the Nigerian government, policymakers and academics who want to advance their knowledge of manufacturing strategy in an emerging economy.

The findings of the study have shown that Nigerian MSMEs challenges are peculiar to that of many emerging economies and Sub-Sahara Africa countries. This thesis has made many contributions to the body of knowledge and management practice in the field of manufacturing strategy where such research is limited, especially in the SMEs sector of Sub-Sahara Africa and emerging economies like Nigeria. To the researcher's knowledge, it is the first time that the topic manufacturing strategy in SMEs has been extensively studied in the Sub-Sahara Africa in particular with Nigeria. This research provides a great in-depth knowledge of the benefits of manufacturing strategy practice for companies in the Sub-Sahara Africa region and emerging economies. The research adds to the body of knowledge in the field of manufacturing strategy process and practice, in SMEs particular within the context of emerging economies, while focussing on Nigeria and therefore, represents originality to this field This research has made an academic contribution by adding

to the limited literature on this subject, by filling the gap in knowledge in this subject area which is related to Nigeria, Sub-Sahara Africa nations and emerging economies .

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Appendice

Appendix1

Faculty of Business and Law

Informed Consent Form for research participants

Title of Study	Manufacturing Strategy of Firms in Emerging Economy: The Case of Manufacturing SMEs in Nigeria
Person(s) conducting the research	Julius Ubaka Eziashi
Programme of Study	Doctorate of Business Administration (DBA)
Title of Research Project:	Manufacturing Strategy of Firms in Emerging Economy: The Case of Manufacturing SMEs in Nigeria.
Address of the researcher for correspondence	Faculty of Business and Law Newcastle Business School City Campus East 1 Newcastle, Upon Tyne NE1 8ST United Kingdom
Telephone	+447553582459
E-mail	Julius.eziashi@northumbria.ac.uk
Description of the broad nature of the research	Investigating manufacturing strategy formulation process in Nigeria manufacturing SMEs and their manufacturing priorities and challenges.
Description of the involvement expected of participants including the broad nature of questions to be answered or events to be observed or activities to be undertaken ,and the expected time commitment	Participants are expected to be owners, directors and managers of Nigerian manufacturing SMEs. It will involve face to face semi-structured interview of participants to give their opinion on how they formulate their manufacturing strategy and identify their manufacturing priorities and challenges.

Information obtained in this study, including this consent form, will be kept strictly confidential (i.e. will not be passed to others) and anonymous (i.e. individuals and organisations will not be identified *unless this is expressly excluded in the details given above*).
Data obtained through this research may be reproduced and published in a variety of forms and for a variety of audiences related to the broad nature of the research detailed above. It will not be used for purposes other than those outlined above without your permission.
Participation is entirely voluntary and participants may withdraw at any time.
By signing this consent form, you are indicating that you fully understand the above information and agree to participate in this study on the basis of the above information.

Participant's signature ***Date***
Student's signature ***Date***
Please keep one copy of this form for your own records

Appendix 2

RESEARCH ORGANISATION INFORMED CONSENT FORM
Faculty of Business and Law
University of Northumbria

Completion of this form is required whenever research is being undertaken by Business and Law staff or students within any organisation. This applies to research that is carried out on the premises, or is about an organisation, or members of that organisation or its customers, as specifically targeted as subjects of research.
The researcher must supply an explanation to inform the organisation of the purpose of the study, who is carrying out the study, and who will eventually have access to the results. In particular issues of anonymity and avenues of dissemination and publications of the findings should be brought to the organisations' attention.
Researcher's Name: Julius Ubaka Eziashi
Student ID No. (if applicable):_____
Researcher's Statement:

Dear Sir/madam,
I am a doctorate research student in Business Administration in Northumbria University at Newcastle, United Kingdom. As a requirement for the doctorate programme, I am currently conducting a research on Manufacturing Strategy of Firms in Emerging Economy: The Case of Nigerian Manufacturing SMEs.

The purpose of this research is to enable us understand manufacturing strategy formulation process among Nigerian manufacturing SMEs and identify their manufacturing priorities and challenges.

I intend to accomplish this through a qualitative research approach centred on conducting semi-structured interviews among owners, directors and managers in manufacturing SMEs. In addition the study will make valuable contribution to knowledge that will inform academics, business practitioners and policy makers on the development and design of support initiatives for Nigerian manufacturing firms.

Please be assured that all information given will be kept strictly confidential, and will be used for academic purposes only. By participating in the interview and giving your opinion, it is my belief that the results will help guide future manufacturing decisions and manufacturing strategy formulation programmes.

Thank you for your time and anticipated co-operation

Any organisation manager or representative who is empowered to give consent may do so here:
Name: _____
Position/Title: _____
Organisation Name: _____
Location: _____
If the organisation is the Faculty of Business and Law please completed the following:

Start/End Date of Research / Consultancy project:	Start: End:
Programme Year Sample to be used: seminar group, entire year etc	
Has Programme Director/Leader, Module Tutor being consulted, informed.	

Anonymity must be offered to the organisation if it does not wish to be identified in the research report. Confidentiality is more complex and cannot extend to the markers of student work or the reviewers of staff work, but can apply to the published outcomes. If confidentiality is required, what form applies?

[ ] No confidentiality required
[ ] Masking of organisation name in research report
[ ] No publication of the research results without specific organisational consent
[ ] Other by agreement as specified by addendum

Signature: _____ Date: _____
This form can be signed via email if the accompanying email is attached with the signer's personal email address included. The form cannot be completed by phone, rather should be handled via post.

Appendix 3

Pilot interview questions

Faculty of Business and Law
Newcastle Business School
City Campus East 1
Newcastle, Upon Tyne
NE1 8ST
United Kingdom
Email:julius.eziashi@northumbria.ac.uk
24th December, 2015.

Dear Sir/Madam,
Please find below my proposed interview questions.

Question 1 *What is the name of your company?*
Question 2 *What management position do you hold in your company?*
Question 3 *What is the number of people employed in your company?*
Question 4 *What is your company annual recorded turnover in (₦) naira?*
Question 5 *How old is your company?*
Question 6 *What is the nature of your manufacturing?*
Question 7 *What is your purpose of having a manufacturing strategy*
Question 8 *How do you formulate your company's manufacturing strategy?*
Question 9 *What is your comment on the overall manufacturing strategy formulation process of your company?*
Question10 *What manufacturing decision do you make?*
Question 11 *How do you make your manufacturing decisions?*
Question 12 *What are your manufacturing priorities?*
Question13 *How do you identify your manufacturing priorities?*
Question 14 *Do you have a preference for any particular manufacturing priority? If no, why have you not? If yes, why have you?*
Question15 *What are your manufacturing challenges?*
Question 16 *How would you describe the challenges you face as a manufacturer in Nigeria?*
Question 17 *Cost is a major issue to Nigerian manufacturing SMEs, how do you deal with the cost of your manufacturing?*
Question 18

What is your policy on product quality improvement?
Question 19 *How do you ensure the quality of your products?*
Question 20 *What is your company's main competitive advantage?*
Question 21 *How do you maintain or sustain this competitive edge over your major competitors?*
Question 22 *How is your product able to compete with imported manufactured products?*
Question 23 *How often do you develop new products?*
Question 24 *How do you determine your company's products?*
Question 25 *How is manufacturing decision made in terms of volume of product?*
Question 26 *How and where do you source for your raw materials?*
Question 27 *What do you consider to be a key manufacturing success in your company?*
Question 28 *What role can the Government play to support the development of the manufacturing Industry in Nigeria**?***

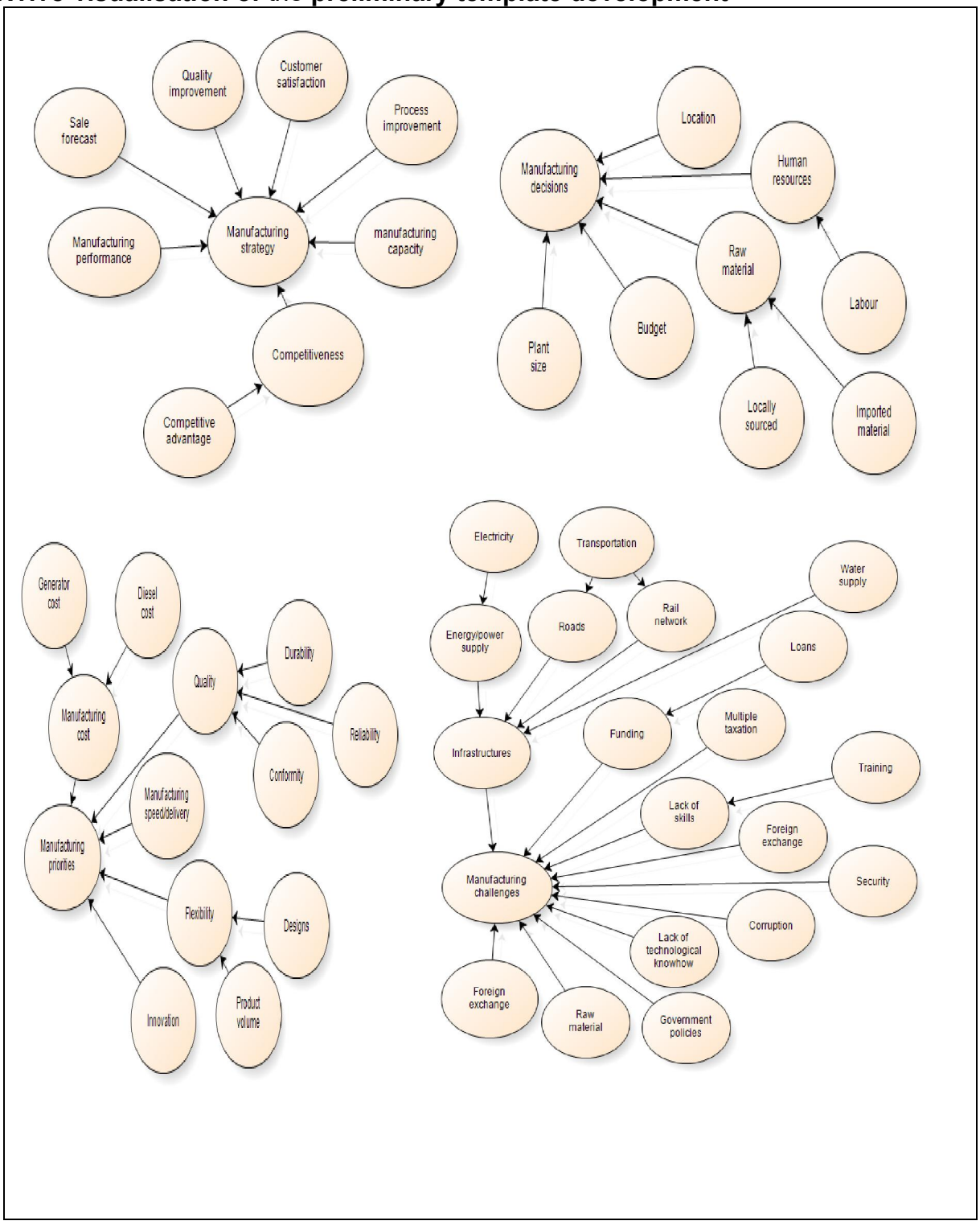
Appendix 4

Interview questions

Question 1 *What is the name of your company?*
Question 2 *What management position do you hold in your company?*
Question 3 *What is the number of people employed in your company?*
Question 4 *What is your company annual recorded turnover in (₦) naira?*
Question 5 *How long have you established your company?*
Question 6 *What type of product do you manufacture?*
Question 7 *What is your purpose of having a manufacturing strategy*
Question 8 *How do you formulate your company's manufacturing strategy?*
Question 9 *What manufacturing decision do you make?*
Question 10 *What are your manufacturing priorities and how do you identify these priorities?*
Question 11 *What are your manufacturing challenges and how do you deal with these challenges?*
Question 12 *Cost is a major issue to Nigerian manufacturing SMEs, how do you deal with the cost of your manufacturing?*
Question 13 *What is your policy on product quality improvement?*
Question 14 *How do you ensure the quality of your products?*
Question 15 *What is your company's main competitive advantage?*
Question 16 *How do you keep up with this competitive edge over other competitors?*
Question 17 *How is your product able to compete with imported manufactured products?*
Question 18 *How often do you develop new products?*
Question 20 *How do you determine your company's products?*
Question 21 *How and where do you source for your raw materials?*
Question 22 *What do you consider to be a key manufacturing success in your company?*
Question 23 *What do you suggest that the Government should do to support the manufacturing Industry in Nigeria**?***

Appendix 5

Nvivo visualisation of the preliminary template development



Appendix 6

Interview excerpt

Interviewer:
What is your purpose of having a manufacturing strategy?
Manager (McA)
The purpose of our manufacturing strategy is to develop some sort of goals that we want to achieve in setting the direction of the company. Our manufacturing operation involves our daily running of the production process to improve efficiency and reduce manufacturing cost. . We have made some strategic changes in our business to reflect our manufacturing strategy and our future manufacturing plans. We have to continue with improved production efficiency to reduce cost for example mechanise, automate, improve our manufacturing processes and then upgrade all the manufacturing equipment to meet our future plans. We have been able to sustain our competitive advantage by making and selling superior and quality products than our competitors at an affordable price.

Interviewer:

How do you formulate your company's manufacturing strategy?

Manager (McA)

Over the next few years we want to focus on making our plant, process more efficient, and increase our speed to the market. In order to enable us remain competitive and meet our market expectations with the Nigeria and Africa economy, we have to support our manufacturing processes, make improvements, and increase our manufacturing abilities. We have well set out manufacturing plans that enabled us to develop new products, produce quality products, be able to get these products to our customers and the market as quickly as possible. In formulating our manufacturing strategy we have taken into consideration, cost of manufacturing, in terms of electricity supply, sourcing raw material, delivering our products and increasing our sales and customer base. We formulate our manufacturing strategy based on so many criteria. We look at our previous set out goals and manufacturing objectives whether they have been accomplished or not. If not accomplished what could have been the reason. Is it as a result of lack of resources or external forces we cannot control such as government policies. We look at our budget and the market in regard to sales forecast

Interviewer:
Can you comment on the overall manufacturing strategy formulation process in your company?

Manager (McA)

Overall our manufacturing strategy has been successful with few challenges here and there. We look at ways we have to accomplish our set out goals and objectives and our manufacturing vision as a business. With the resources available to us we ensure the quality of our products and deliver quickly to our customers on time. We

have also changed our manufacturing process to enable us accomplish our manufacturing priorities. Manufacturing strategy is formulated with consideration to our manufacturing performance. Are we still competitive, producing at a lower cost, are our machines still good enough to meet our production needs, if not how do we procure another to improve our manufacturing process. Manufacturing strategy has enabled us increase our manufacturing capacity to meet up with the continuous demands of our products. As the demand increase we have to increase the production rate of the product line''

Interviewer:
How do you make your manufacturing decisions?
Manager (McA)
Em! I can tell you that making a manufacturing decision is not an easy thing to do. How we make our manufacturing decision is based on certain criteria. We have a plan and vision for our business. Based on this the manufacturing decisions are made. For instance we look at what is working for us and things that are not working. We make amend to that are not working and improve on things that are working. We take into consideration cost of manufacturing, production speed, quality of our products, sales volume and our customer base.
Interviewer:
What are your manufacturing priorities?
Manager (McA)
Our manufacturing priority is to reduce the cost of manufacturing which is on the high side compared to other manufacturing countries in Africa. The cost of electricity in a year alone is enough to buy new machines and equipment to expand and improve the business. The electricity supply is less than 8 hours in a day. We spend lots of money on fuel to generate our own electricity. Can you imagine Nigeria 6th oil producer in the world yet the country import fuel this is not healthy for the economy as the importers pass on the cost to us manufacturers. It cost you more to produce here in Nigeria than many countries of the world. The cost of importing raw material is very high as the government keep increasing import duties. The cost of delivering our products to customers is very high as result of bad roads and poor transport system. It takes about 3 to 5 days to deliver goods from Lagos to Kano

Interviewer:

Do you have a preference for any particular manufacturing priority? If no, why have you not? If yes, why have you?
Manager McA
My first preference will be to have constant electricity supply in the country. Why? This will drastically reduce the cost of manufacturing because we don't have to generate our own electricity any more. My second preference is to have good roads this inevitably will reduce cost and time of delivery of our products. There is infrastructural decay in the country which needs to be addressed by the government to move the country forward.

Interviewer:

How would you describe the challenges you face as a manufacturer in Nigeria?

Manager (McA)

The challenges we face as manufacturers in Nigeria are huge. We face challenges of poor electricity supply, infrastructural decay, inadequate security, continuous government policy change, increase in import duty levy, multiple taxations, fuel cost and the declining exchange rate for foreign currency needed for importation of machines and raw materials. It cost more to produce in Nigeria than every other place in Africa. The country currently is generating less than 5000 mega watt of electricity which is far below the demand for any meaningful industrial growth.

Interviewer:

Cost is a major issue to Nigerian manufacturing SMEs, how do you deal with the cost of your manufacturing?

Manager (McA)

Manufacturing generally is not cheap, but in Nigeria the case is different as it cost almost three times what it cost in neighbouring Africa countries such as Benin, Togo and Ghana. In other to reduce cost we try as much as possible to minimise and eradicate waste from our manufacturing process. Defects in products can amount to waste, that is why we have a good quality checks in place.

Interviewer:

What is your policy on quality improvement?

Manager (McA)

Our policy on quality is well defined in terms of making defect free and durable products that are suitable to our business. This includes our obligation to quality requirements and constant improvement. We are committed to Standard organisation of Nigeria (SON) quality requirement. We have well documented quality objectives that allow us to improve on time delivery, reduce the rate of waste and raise the product pass first time level quality test. Quality control tests and inspections are ways we ensure the quality of our products. We have a quality inspector or tester in our factory that performs the quality audits.

Interviewer:

How do you ensure the quality of your products?

Manager (McA)

Product reliability is very crucial in the production process to identify faults that could lead to losses in the production system. Better product usage and dependability will help reduce the rate of return of products as consequence of failures and enhance the product life span. As manufacturer we want to ensure that we produce a high level of quality in everything that we make. We ensure the quality of our products by staying committed to our quality objectives to reduce the rate of waste, improve product speed and raise the level of product pass first time test. We have improved manufacturing process in our factory that ensure product conformance and is easily monitored. There are various ways we certify the quality of products, which range from the physical components of the product to the actual performance of the product itself.

Interviewer:

What is your company's main competitive advantage?

Manager (McA)

The competitive advantage we have as manufacturing firm over other Nigerian manufacturing SMEs is our diversification, and the quality of our products. We are the only one that offers a legally binding guarantee on the quality of our products. If our product fails within the guarantee period and we don't replace it free of charge, our customers can seek their rights in a court of law. Not so many Nigerian manufacturing firms can guarantee quality of their products. We are the leaders in quality and range.

Interviewer:

How do you support or sustain this competitive advantage?

Manager (McA)

We have been able to sustain our competitive advantage by making and selling superior and quality products than our competitors at an affordable price.

Interviewer:

How are you able to compete with imported manufactured products?

Manager (McA)

It is a very stiff competition in Nigeria. We are not only competing with other products manufactured in Nigeria. There are a lot of counterfeit products in this country. These fake and cheap products are killing our own industries with the attendant high unemployment profile. Government and its agencies should identify and name the specific countries whose citizens or firms export fake and sub-standard products to Nigeria and their local collaborators. Then blacklist and prosecute them and in some cases demand compensation. Government must do everything possible to avoid a situation where Nigeria becomes a dumping ground for all manners of fake goods. This is also the only way to stem the ugly trend to relocate manufacturing firms to the neighbouring countries. Our product is fairly priced and its quality and our guaranty of our product make us a strong competitor.

Interviewer:

How often do you develop new products?

Manager (McA)

As a matter of fact, most of our new products are made out of the desire to maintain competitiveness in our product type. We develop new products based on identifying new market opportunities and making a product to suit that area

Interviewer:

How do you determine the company's products?

Manager (McA)

Some of our company's products are specifically designed for our customers and are customer specific. While other products are determined by the market demands of our quality brands.

Interviewer:

How is decision made in terms of volumes of product?

Manager (McA)

Sometimes our products are designed, produced, and delivered to our customer specifications in response to their orders. The volume of products is also determined by anticipating the market demand of the product.

Interviewer:

How do you source for your raw material?

Manager (McA)

We source for the best quality raw material both locally and by importation from overseas. Recently we have focused on locally sourced raw materials as the cost for importation of raw material has almost tripled due to the depreciation of the value Nigerian currency naira. The exchange rate for the dollar, euro and pounds is at its highest in 40 years.

Interviewer:

As a manufacturer what do you consider to be a key success in your company?

Manager (McA)

Good question, despite the numerous challenges we encounter year in year out we are still in business and able to maintain and retain our customer base. This has been sustained by the quality of our products and the ability to guarantee our products to customers. We are able to maintain our cash flow and balance our books.

Interviewer:

What role can the Government play to aid the development of the manufacturing industry?

Manager (McA)

I think the last government of Jonathan and this current government have realised the crucial role of the manufacturing sector and that diversification is the key to economic survival. Manufacturing is important to the GDP of Nigeria. To enhance the performance of the manufacturing sector of the economy, government has to address the energy and infrastructural challenges which has inhibited the maximum contribution of the sector to GDP and economic growth of this country.

Interviewer:

What can be done to enable Nigerian manufacturing SMEs to compete successfully both nationally and globally?

Manager (McA)

As it stands now, a lot of things need to be done in terms of policies and institutional framework on the part of governments and their agencies and serious efforts on the part of the manufacturing firms themselves. It is on this note that I would like to make some recommendations. Inadequate supply of electricity is a major setback to the smooth running of the manufacturing business. It is recorded that MAN members spent billions of naira to fuel their generating sets in 2011 and over 470 billion naira in 2014. This was due to the Government's plan to generate 10,000 mega watts in 2010 which was not achieved. The country is currently generating less than 5000 mega watts of electricity which is far below the demand for any meaningful industrial growth.

Appendix 7

Pilot interview schedules

Making contact	Rationale	Date	Reply
Emailed participant 1	Participant informed of the nature of the research and its significance	03 Nov 2015	Replied after three days to agree a date
Emailed participant 2	Participant informed of the nature of the research and its significance	03 Nov 2015	Replied after two days
Emailed participant 3	Participant informed of the nature of the research and its significance	06 Nov 2015	Replied after two days
Emailed participant 4	Participant informed of the nature of the research and its significance	06 Nov 2015	No reply
Emailed participant 2	Informed participant to schedule time and date for the pilot interview	11 Nov 2015	Replied after two days to schedule interview
Emailed participant 1	Informed participant to schedule time and date for the pilot interview	12 Nov 2015	Replied after four days to schedule interview
Emailed participant 3	Informed participant to schedule time and date for the pilot interview	12 Nov 2015	Replied after two days no schedule interview
Emailed participant 4	Participant informed of the nature of the research and its significance	12 Nov 2015	No reply
Emailed participant 1	Informed participant to agree date	25 Nov 2015	Replied next day for agreed date
Emailed participant 2	Informed participant to agree date	25 Nov 2015	Replied after two days to agree date
Email received from participant 1	Participant set date for interview	01 Dec 2015	Interview took place 03 Dec 2015
Email received from participant 2	Participant set date for interview	07 Dec 2015	Interview took place on 10 Dec 2015
Email received from participant 3	Participant set date for interview	04 Feb 2016	Interview took place 22 Feb 2016