

**INFRASTRUCTURE FACILITIES AND THE
PERFORMANCE OF MICRO, SMALL, AND MEDIUM
SCALE ENTERPRISES (MSMEs) IN JIGAWA STATE OF
NIGERIA**

Thesis Submitted for the Award of the Degree of

DOCTOR OF PHILOSOPHY

IN

MANAGEMENT

BY

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**LOVELY PROFESSIONAL
UNIVERSITY, PUNJAB**

NOVEMBER, 2023

DECLARATION

I hereby declared that the presented work in the thesis entitled “Infrastructure facilities and the performance of micro, small and medium scale enterprises (MSMEs) in Jigawa State of Nigeria” in fulfilment of degree of Doctor of Philosophy (Ph. D.) is outcome of research work carried out by me under the supervision of Dr. Avinash Rana, working as an Associate Professor, in the Department of Marketing, of Lovely Professional University, Punjab, India. In keeping with general practice of reporting scientific observations, due acknowledgements have been made whenever work described here has been based on findings of other investigator. This work has not been submitted in part or full to any other University or Institute for the award of any degree.



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CERTIFICATE

This is to certify that the work reported in the Ph.D. thesis entitled “Infrastructure facilities and the performance of micro, small and medium scale enterprises (MSMEs) in Jigawa State of Nigeria” submitted in fulfillment of the requirement for the reward of degree of **Doctor of Philosophy (Ph.D.)** in the department of Marketing, Mittal School of Business, is a research work carried out by Kani Galadima Muhammad, with registration number 11720073, is bonafide record of his original work carried out under my supervision and that no part of thesis has been submitted for any other degree, diploma or equivalent course.



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DEDICATION

This project work is dedicated to ALMIGHTY ALLAH for his guidance, kindness and protection upon my soul. He has showered upon my soul his bounties of blessings and gift of good health without which my academic pursuit would have been practically impossible, to my beloved parents, my family, brothers and sisters and to all those who contributed immensely towards my quest of knowledge.

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ABSTRACT

This research study examines the adequacies of infrastructural facilities and assessed its effects on the growth and operation of MSMEs in Jigawa State of Nigeria. Earlier studies showed electricity, water, roads/transport, communication, and finance were crucial factors in industrial operations. In Nigeria, the supply of these facilities was highly inadequate and found to be the limiting factor that stagnated the rate of growth of the manufacturing sector in the country most affected were the MSMEs in the study area. The MSMEs were an important sector in the Nigerian economy as they provide a greater percentage of job opportunities, supplied utility for both human and industrial consumption, good source of government revenue as they contributed about half of the country's GDP. A sample of 350 companies was chosen through a purposeful random sampling technique from a total population of 2610 registered MSMEs with the Jigawa State ministry for commerce and industry. Primary and secondary sources of data collection were used for the current research work. Descriptive statistics, percentages, averages, correlation, and ANOVA were used for the data analysis. The infrastructural inadequacies in the country stop the MSMEs sector from performing efficiently to achieve its full potential. It is recommended that the government should put a lot of effort into designing and implementing policies that will provide these facilities to raise the morale of the productive sector to achieve the required efficiency and beyond. The government of Nigeria's support and subsidies to MSMEs should be extended directly to the practicing and true potential investors not to people without investment spirit. Practicing entrepreneurs and potential investors should be educated in investment skills and business management and pay the required attention to infrastructural facilities in their strategic business plans. Investment should always be based on economic reasons rather than political or any other one.

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LIST OF ABBREVIATIONS

MSME: Micro, small and medium scale enterprises
RAC: Research advisory committee GDP: Growth domestic products NG: National grid
ANOVA: Analysis of variance
CVI: Content validity index
DRP: Department of Research Degree Program
NPM: National Policy on MSMEs
ILO: International Labor Organization
NASMES: National association of Small and Medium Scale Enterprises
NERFUND: National Economic Reconstruction Fund
SMEDAN: Small and Medium Enterprises Development of Nigeria
SAP: Structural Adjustment Program
ICT: Information Communication Technology
NBTE: National Board for Technical Education
NUC: Nigeria University Commission
ROI: Return on Investment
PM: Performance Measurement
LPU: Lovely Professional University
CED: Centre for Environmental Development KEDCO: Kano Electricity Distribution
Company
MW: Mega Watts
ETP: Ed Term Presentation
ENT.: Enterprises
RM: Rice Mills
CR: Car Repairs
Y: Yogurt
WF: Welding & Fabrication
WP: Water packaging
BK: Bakery

PC: Plastic Company

GM: Grains Mills BI: Block Industry CP: Carpentry

CW: Car Washing

R: Restaurant Hrs.: Hours Req.: Required

SS: Supplied. KVA:

NIRSAL: Nigerian Risk Sharing System for Agricultural Lending

M: Mean

SD: Standard Deviation

DF: Degree of Freedom

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CHAPTER I

1.1 Introduction

Micro, small, and medium-scale enterprises (MSMEs) are an important sector in the Nigerian economy because of the numerous contributions the sector used to provide to the socioeconomic development of the country. These contributions include employment generation, income, provision of goods and services, rural/regional development, poverty alleviation, and control of rural-urban drift. Manga (2019) discovered that the contributions made by the MSMEs to countries' economies were felt in the areas of job provision, provision of income, and the overall economic competitiveness of many nations. In countries like China, India, Nigeria, South Africa, and Ghana studies revealed that the sector dominated over ninety percent of the total businesses, provide incomes to nearly sixty percent of the employment opportunities, and over thirty percent of GDP in these countries (Abor & Quarterly, 2010; Nigeria SMEs Survey, 2010). Infrastructural facilities were considered "the backbone of economic growth and development of countries". Good provision and efficiency of infrastructural facilities used to aid the various economic sectors of a country to operate with efficiency which could lead to full capacity utilization of resources which in turn ensures higher returns.

There were two main types of infrastructure; economic and social. Economic infrastructure has a direct relation to production they include good roads, stable electricity supply, water supply, markets, and financial institutions. Social infrastructure has an indirect relation to production such as refuse removal, medical services, schools, communication, etc. The current study intended to take into account these facilities' adequacies and their effects on the MSMEs performance in Jigawa State. Aruwa (2004) degree to which opportunities offered by small-scale businesses were achieved and maximized in an economy was influenced by the conducive business atmosphere attained through the provision of basic infrastructure. "These include roads, communication, power, ports, finance facilities, and the instituting and pursuit of strategies such as concessionary financing to encourage and support their growth".

The performance of the MSMEs sector to achieve the above benefits depend upon the country's ability to put in place the required number of infrastructural facilities that could ensure MSMEs perform with efficiency. Unfortunately, the present state of infrastructural facilities in Nigeria discourages investment from both local and external entrepreneurs. The heavy costs involved hampered the movement of resources from productive private investment since investors would only invest where facilities were present and acceptable rates of returns were certain (Aruwa, 2018). Ogbonnaya (2010) found that a significant relationship used to exist between infrastructural facilities were considered requirements for enterprise formation and continued existence.

In Nigeria, infrastructural facilities' inadequacies were creating lots of havoc and hindered the effective performance of the MSMEs. These problems of infrastructural limitations especially outages of electricity supply, shortage of water supply, and poor road connectivity usually compelled MSMEs to look for alternative sourcing that led to higher increasing costs of production.. The alternative sources of these important facilities when employed used to raise production costs thereby affecting the profitability of the MSMEs and would have long-term effects on the sector to growth and development. This resulted in Nigeria having difficulties to attain economic growth and development through the MSMEs as recorded in other countries.

There is an immediate need to communicate the infrastructural problems which MSMEs are currently facing to the government of Nigeria to take the required actions that could allow the country to move from its present condition to a better one in the near future. Because of these identified problems of infrastructural facilities inadequacies in the study area, the current work wished to examine the level of these facilities provision in Jigawa State and assess their impacts on MSMEs performance.

1.2 Background of the study

This research work was designed to study the infrastructural facilities' adequacies and assesses their impacts on MSMEs development in Jigawa State. MSMEs were considered an important sector in developing economies like that of the study area. A report from Nigeria SMEs Survey (2017-2020) revealed that MSMEs constituted 96% of Nigeria's total businesses, contributed 48% of a nation's GDP, and 84% of the employment generation. The need to maintain this position of the sector is very important, therefore aspects that will make it inefficient need to be addressed. Earlier studies revealed that infrastructure facilities and the MSMEs performance were significantly related (Aruwa, 2018; Ogbonnaya, 2010). In related studies, it was revealed that the provision of infrastructure facilities was highly inadequate which resulted in MSMEs' inefficiency (Emezie, 2017; S. Akinyele, F. Akinyele & Ajagunna, 2016; Tsauni, 2005). Emezie (2017) further found "MSMEs in Nigeria were not increasing because of poor infrastructure in the country, power and water supply were the main concern".

Therefore, this research study was initiated to get solutions to the questions below:

- a) What was the current status of infrastructural facilities provision in Jigawa State?
- b) Does the current state of the facilities provide lead to MSMEs' efficiency in the study area?
- c) Finally, to identify which among the infrastructural facilities have greater effects on the MSMEs performance in Jigawa State.

The answers to these questions will help to draft recommendations on the type of strategy to adopt in policy formulation and implementation for MSMEs' better performance. This current study has been an empirical one, it is not aimed at coming up with a final framework, but to open up for further research that may improve the findings. "In an empirical study there is room for further improvement of the findings and the researcher should be willing to change his or her position as new data and insights emerge" (Robson, 2002).

1.3 Statement of the research problem

In countries where infrastructural facilities were adequately provided with the required efficiency, the investment climate became conducive to industrial efficiency. As stated, earlier countries like China, Singapore, and Indonesia were able to achieve economic growth and development through MSMEs but in the country of study (Nigeria) the case was different. Akinyele et al., (2016) found that the MSMEs sector in Nigeria was faced with serious infrastructure deficiencies that affected their operations. The current study intended to identify the infrastructural adequacy and their associated problems in Jigawa State and assesses their impacts on the MSMEs performance. It was understood that there was a paucity of literature on infrastructure provision and its effect on MSMEs performance in the area of study. Therefore, a successful conclusion of this research work would provide proposals that could minimize problems affecting the MSMEs sector to flourish and be able to become among the leading drivers of Nigeria's economic growth and development.

1.4 Rationale for the study

The study area is blessed with fertile land and water suitable for year-round farming an indication that the area is a potential land for growth and development for industries, especially agroallied ones. The area could provide a substantial number of raw materials that could feed and sustain the available industries in the area of study. Unfortunately, the industries were not flourishing in the area of research even though farm produce was supplied in larger volumes. The reason for the slow rate of industrial growth in the area may not have been unrelated to the aspect of poor investment climate resulting from inadequate provision of the required infrastructure facility such as good road, water, power supply, and good telecommunication network. Atkinson (2018) found that "in Nigeria today the infrastructural problems that affected MSMEs performance were issues of electricity inadequacy, poor roads network and transportation systems, effective management of waste, and a lot of others. Furthermore, Nayyar, Sharma, Kishtwaria & Rana (2007) found that business owners in rural communities were faced with multi problems which include finance, problems related to marketing, poor road connectivity,

and inefficient transportation facilities.

If the study is carried out successfully could be an asset to policy formulation and implementation.

In addition, most of the studies conducted on infrastructural facilities and MSMEs' performance in Nigeria were empirical and quantitative in nature. A qualitative study may give more in-depth information than a quantitative study because it allows both the interviewer and interviewee's personal contact and gave them opportunities for more questions and could ask for clearance in areas that were unclear. "Qualitative research was expressed in words. It was used to understand concepts, thoughts, or experiences. This type of research enabled one to gather in-depth information on topics that were not well understood" (Streefkerk, 2019). Qualitative research could be administered through interviews, focus groups, case studies, and discourse analysis.

In Jigawa State, studies on infrastructural facilities and their impacts on MSMEs performance were very handful and hence there was a need to extend a similar study combining both qualitative and quantitative analysis. The topic was selected because of the numerous contributions the MSMEs sector used to provide developing national economies in the world.

1.5 Infrastructure

It is defined as "technical structures that guide and support the society, in terms of water supply, electricity grids, bridges, roads, communication networks, sewers, and it is also explained as the physical components of interrelated systems that provide products and services essential to sustain, enable, or enhance societal living conditions" (Fulmer, 2009). Similarly, "the basic systems and services that are needed in order to support an economy, for example, transport, communication systems, electricity and water supplies (Cambridge Academic Content Dictionary)". According to Merriam Weber Dictionary, "infrastructure is the underlying structure of a country and its economy, the fixed installations that need in order to function. These include roads, bridges, dams, water and sewer systems, railways and subways, airports, and harbors. These are generally

government-built and publicly owned”. In the words of Spacey (2018) “infrastructural development is building and enhancement of initial services with the aim of sparking economic growth and enhancements in value of life”. He added that the different infrastructural development may include transportation facilities, water and electricity supply, and social and green infrastructure.

The economic benefits of infrastructure could increase efficiency and a firm’s output. Spacey further explains that social and green infrastructure could enhance the quality of life and make an area become more competitive in securing highly skilled and talented employees and the concentration of larger enterprises. For example, education could lead to new innovation and positive change in worker performance. While good health system could minimize sick periods and provide the community with the sense of well-being that was needed for taking business and economic risks.

1.6 MSMEs

MSMEs were defined differently by authors who used measures like employment levels, company assets, turnover, etc. Bamidele (2005) defined MSMEs “as those industries whose fixed assets and cost of new investment does not exceed N10 million. He added that, in the new industrial policy in Nigeria, small-scale enterprises are defined as that enterprise with a total investment of between N100,000 and N2 million excluding the cost of capital and including working capital”.

1.7 Performance measurement

Performance measurement was an important aspect of managing a business today due to its numerous benefits to the success and survival of an enterprise. Donglin-Wu (2009) identified performance measurement as “a structured system and a process of gathering, monitoring, and assessing the information about an organization activity, in order to achieve the proposed goals and objectives”. Mabhungu (2017) stated that “performance measurement is a situation by which an organization can evaluate and monitor its important activities and processes.” Measuring the performance of an enterprise may necessitate the entrepreneurs to choose factors for measurement that were very important for an enterprise to succeed and survive as well as provide ways for measurements. He further outlined

aspects of “sales growth, market share, customer satisfaction, profitability and continues existence as measurement tools”. Cocca & Alberti (2010) stated “measuring the performance of an organization was usually referred to basis for the attainment of its objectives”.

1.8 Measures of business performance

(a) Gerba (2016), stated that “financial performance is measured in terms of business growth which is measured by a change in turnover, increase in the number of employees, increase in terms of company’s assets and profit”. In a similar development, Carter & Jones-Even (2008) and Gebreeyesus (2007) justified theoretically that, “they assumed to use growth rate in sales (increase in sales, increase in capital assets and profits) as more precise and give more objective measurement in comparison to other measures of an enterprise performance”.

(b) Similarly, Dobbs & Hamilton (2007) explained that “non-financial performance on the other hand uses qualitative efficacy such as growth, expansion, efficient service delivery, product quality, survival, and competitiveness”. Similarly, Cumby & Conrod (2001) pointed out that “sustainable shareholder value driven by non-financial factors, such as customer loyalty, employee satisfaction, internal processes, and an organization’s innovation as keys to performance measurement”.

1.9 Relationship between infrastructure and MSMEs

Research on the relationship between infrastructural facilities and MSMEs operations discovered that the two were significantly related. Spacey (2018) found that different infrastructural development may include transportation facilities, water and electricity supply, and social and green infrastructure, the economic benefits of these infrastructures could increase efficiency and firm's output. Nwosu (2017) revealed that "difficulties or shortfalls in infrastructural facilities e.g. access-roads, power/water supply, street signage, refuse removal, etc.) were largely recognized as challenges for effective functioning of small businesses". Similarly, Igwe, Amaugo, Ogundana & Anigbo (2018) studied environmental factors that affect investment opportunity, productivity and entrepreneurial spirit in Nigeria. Their study found that, "development of infrastructural facilities used to contribute a lot in raising the level of productivity, stimulating country's economic growth and poverty alleviation". Accordingly, Tsauni (2005) 'examined the relationship between infrastructural costs and business profitability, study revealed that, the level of power provision in Nigeria was very poor and undependable, which raised expenditure on electricity sourcing to about 40% of company costs of production.

1.10 Outline of the research objectives

The literature reviewed opened up an insight that showed ill-provision of infrastructure facilities negatively affected the growth of MSMEs in areas of productivity, profitability, and expansion due to self-provision to accomplish the shortages were associated with high cost (Nwosu, 2017; Tsauni, 2005).

The findings from the literature reviewed made the current research work focused on the formulation of suitable objectives related to infrastructural facilities provision in Jigawa State of Nigeria and their impacts on the growth/performance of MSMEs.

1.11 General objectives

The research was aimed at identifying the availability of infrastructural facilities in the study area and their impacts on MSMEs' growth/performance.

1.12 Specific research objectives

The following were the particular objectives to achieve for this current research work

- (a) To study the current status of available infrastructural facilities as provided by Jigawa State.
- (b) To develop a conceptual framework that could be used as a tool for testing research hypotheses.
- (c) To investigate through a qualitative study, the extent of MSMEs owners' perception of the provision of infrastructure facilities as related to their business operations in Jigawa State.
- (d) To assess the impacts of infrastructure on MSMEs operations in the study area through the use of quantitative data analysis.

1.13 Research hypotheses

Below are the hypotheses for the current study put to test, be rejected, or to be refused to be rejected:

H 1: Positive relationships exist amongst roads/transport and MSMEs operations.

H 2: Positive relation exists between electricity supply and MSMEs operations.

H 3: Positive relations exist amongst water supply and MSMEs operations.

H 4: Telecommunication services and MSMEs operations are positively related.

1.14 Relevance of the research

The absence of industrial estate in Jigawa State of Nigeria to support firms with basic facilities that could facilitate their operations has led to the establishment of industries at different locations in the state. After 31 years of creation there was no single industry that attain a full capacity of being a medium scale enterprise talk less of large scale one. The outcomes of the current research work can have theoretical and practical consequences. From the theoretical perspective, it helps understands the benefits of the Clustering Approach Theory; "the theory proposed that industrial cluster policies can be a growth strategy for a firm and coming together in a geographic concentration of interrelated companies and institutions in a particular field since MSMEs could receive external economic advantages (economics of scale and scope). The clustering and networking offer

a potential growth path for MSMEs (Khatib, 2015). The Networking approach stipulated firms should not be seen in isolation but as being connected in business” they added. The coming together among MSMEs and between MSMEs leads to competitiveness, innovative improvement to products and processes, and successful inclusion of MSMEs in the growth of productivity and networks of global distribution (Foghani, Mahadi & Omar, 2017; Eisebith, 2018; Kadzere, 2016). Practically, if the recommendation is implemented especially on the issue of inclusion of the infrastructure into strategic plans by both government and business owners it will minimize problems that affect the performance effect of poor supply of the facilities.

1.15 Ethical considerations

To conduct successful research work and observe ethical writing in research, an introduction letter was obtained from the Department of Research Degree Program (DRP) LPU, Punjab. The acceptability of the participants to take part in the research was solicited by communicating to them about the study to be conducted in their enterprises so no respondent/participant was to work under duress.

1.16 Limitations of the study

This research examined the availability of infrastructure facilities in Jigawa State of Nigeria and assess the effects of these facilities on MSMEs’ performance. The participating companies included those in business activities such as bakery, rice milling, metalwork, woodwork, tailoring, farming, retail business, food and beverages, block industry, etc. Apart from time factors and limited financial resources, none of the participating enterprises in this research study is a public liability company as such they do not publish their financial activities in any form.

The owners/managers were not willing to release their financial secrecy due to believing that their businesses were under investigation and moreover they associated such belief with government involvement in taxation. Also, the greater percentage of the business owners were not substantially educated as such they do not value the essence of research and as well felt that their wealth is going to be exposed. Without genuine availability of financial information, the researcher finds it very difficult to conduct a good performance

measurement using financial ratios to arrive at acceptable results worth consideration for any policy formulation advantageous to MSMEs development in Nigeria with particular reference to Jigawa State.

1.17 Definition of terms

- (i) Micro-scale enterprises: enterprises with less than 10 workers and capital less than N5million, National Policy on MSMEs (NPM) Nigeria, 2006.
- (ii) Small-scale enterprises: enterprises that have workers between 10-49 and capital N5 million but less than N50 million, (NPM) Nigeria, 2006.
- (iii) Medium-scale enterprises: enterprises with workers from 50-199, assets N50 million but less than N500 million (NPM) Nigeria, 2006.
- (iv) Infrastructure: “refers to technical structures that guide and support the society, in terms of water supply, electricity grids, bridges, roads, etc. that enhance societal living standard” (Fulmer, 2009).
- (v) Business Survival: “the ability of a business to continue operating profitably for the foreseeable future” (Mabhungu, 2017).
- (vi) Business-performance-measurement: “is a structured system and a process of gathering, monitoring, and assessing the information about organization’s activities to achieve the proposed goals and objectives” (Donglin, 2009).

1.18 Structure of the current study

The work was formulated in seven parts as follows: Part I contain the preliminary pages involving contents and chapter one. Part II contained chapter II a literature review that was subdivided into three, literature review on MSMEs, infrastructure, and performance measurement. Part III contains chapter III, which involved the research methodology used for data collection and data analysis techniques. Part IV involves the presentation of qualitative data and its analysis. Part V contained the research findings and analysis of the quantitative data. Part VI contained a summary, conclusion, and recommendation while Part VII contained a list of references, tables, abbreviations, letters of introduction, and a questionnaire.

CHAPTER 2

LITERATURE REVIEW

2.0 Introduction

This chapter discusses MSMEs, infrastructure, and infrastructure facilities' impacts on MSMEs' performance in Jigawa State. Relevant studies to this research were reviewed and acknowledged accordingly. The first part of the study discussed issues related to MSMEs such as the meaning of the term, its categories and the characteristics of each category, the roles the MSMEs sector played in Nigeria's economic development such as supplies of goods and services, employment generation, income, and foreign exchange. Challenges to MSMEs leading to poor performance were also examined. The second part discussed issues related to infrastructural facilities, their classifications such as economic and social, and the roles they played in Nigerian economic development and some countries as well as MSMEs' growth and development.

2.1 MSMEs defined

MSMEs were defined by several authors using different criterion like the number of workers, asset base, etc. The definitions also differ from one country to another and in some situations, the definition of the term is influenced by a nation's level of economic development or regional development. These led to different versions as regards to the definition of MSMEs in Nigeria and by some organizations.

Table 2.1.1 showing definitions of MSMEs

Serial No.	Author(s)	Year	Definition
1.	The International Labor Organization (ILO)	1999	“Micro enterprises as those with 1-10 workers”. “Small-scale enterprises as those with 11-50 workers, and not bother to talk about the market spread and capital base”.
2.	Bamidele	2005	“Industries whose fixed assets and cost of new investment does not exceed N10 million. Small

scale enterprises were defined as those enterprises with a total investment of between N100, 000 and N2 million excluding the cost of capital and including working capital” (New Industrial Policy of Nigeria).

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|----|--|------|--|
| 3. | Oparanama | 2010 | “Businesses with total assets in capital less than N500, 000.00 (\$3,937.00) and having full-time workers of less than fifty in number”. |
| 4. | The National Association of Small and Medium Scale Enterprises (NASMSE). | | “SME is a business venture that has total assets of less than 150 million Naira with less than 100 workers”. |
| 5. | National Economic Reconstruction Fund (NERFUND) of Nigeria. | | “SMEs are enterprises with total asset value (excluding land) of not exceeding ten million Naira (N10m)”. |

In a related development, Tom, Glay & Alfred (2016) reported in a “13th council meeting on the National Council on Industry held in Nigeria, July, 2001” that categorized three types of businesses each with its characteristics below.

- Micro/cottage-scale-industry: “industry with a total assets base of not greater than N1.5 million consist of working capital excluding cost land and the number of employees below ten”.
- Small-scale-industry: “industry with total assets base greater than N1.5m but less than N50m consists of working capital excluding the cost of land with the number of employees ranges from 11 to 100”.
- Medium-scale-industry: “industry with asset base greater than N50m, but not exceeding N200m consists of working capital but excluding the cost of land with

a number of employees ranges from 101 to 300”.

In Nigeria, the term MSMEs are categorized by the National Council on Industry in Nigeria which categorized three types of businesses each with its characteristics as follows”.

Table 2.1.2: Classification of MSMEs.

S/N	Size Category	Employment	Assets (N million)
1	Micro Enterprises	Less than 10	Less than 5
2	Small Enterprises	10 – 49	5 less than 50
3	Medium Enterprises	50 – 199	50 less than 500

Source: National Policy on MSMEs, 2006 (Nigeria), cited in Tom 2016.

Table 2.1.3 Showing definitions/classification of MSME in the India context

MSME – Merged Criteria: Investment and Annual Turnover			
Sector/Enterprise Type	Micro-Enterprise	Small Enterprise	Medium Enterprise
Manufacturing & services Sector, both	Investment less than Rs. 1 crore Turnover Less than Rs. 5 crores	Investment less than Rs. 10 crores Turnover up to Rs. 50 crores	Investment less than Rs. 1 crore Turnover up to Rs. 250 crores

Source: New MSME definition based on investment and turnover (2020)

2.1.2 Types of businesses MSMEs do in Nigeria

According to Small and Medium Enterprises Development of Nigeria. (SMEDAN, 2013), Nigerian MSMEs used to participate in the following types of businesses.

- (a) Agriculture
- (b) Mining and Quarrying

- (c) Manufacturing
- (d) Sewage, Waste Management, and Remediation Activities
- (e) Construction
- (f) Wholesale and Retail
- (g) Transport
- (h) Hotel/restaurant etc.

2.1.3 Contributions of MSMEs to the Economy

A strong small business contributes to the local economy and strengthens community collectiveness, major drivers of economic growth and development, provide greater job opportunities, could generate up to about 30% of the country's Gross Domestic Product (Mokaddem, 2006; Das, 2008; Tom et al., 2016; Manga, 2019). While (The Daily Trust, Jun 16, 2006; National Policy on MSMEs, 2006; National Bureau of Statistics, 2014) reported "in most emerging economies of the world, MSMEs were the major drivers of economic growth and development". In Nigeria, 30% of industrial production and 98% of the 1.8 million employment opportunities were created by MSMEs.

2.1.4 MSMEs Constraints

Even though the sector provided greater benefits to the economy, still it was associated with some obstacles. Nonyelum & Uzoamaka (2013) found that inaccessibility to infrastructural facilities and services like electricity, water, roads, public transport, and good healthcare, negatively affects the production capacity of entrepreneurs and small-scale businesses in a country. The study suggested that improving accessibility to infrastructural facilities can bring positive performance that reduces cost of operation of the informal sector and as well the adequacy of these facilities was necessary for the incorporation of the MSMEs owners into the rest of the economy.

In Nigeria, the inadequacies of infrastructural facilities are used to create havoc and hinder the effective performance of the MSMEs. These problems of infrastructural limitations especially outages of electricity supply, shortage of water supply, and poor roads condition/connectivity compelled MSMEs to look for alternative sourcing that lead to

increased costs of operation. The alternative source of these important facilities increases production costs thereby affecting MSMEs' profitability which would have an adverse effect of the sector expansion.

Infrastructural deficiency in Nigeria could be the contributing factor that limits the nations to attain economic growth and development through the MSMEs as obtainable in other countries. There is an immediate need to communicate the infrastructural problems which MSMEs are currently facing to the government of Nigeria to take corrective actions required that could allow the country to move from its present condition to a better one in the near future. Oyefuga (2009) found that "MSMEs usually have higher survival rate failure, so benefits go to those created at higher survival rate than to collapse rate. He also admitted that low financial capacity associated with bank loans procedural problems usually become the main bottlenecks to growth and development of small enterprises, especially at early stages of business growth". Accordingly, Abor & Quarterly (2015) identified constraints small and medium-scale enterprises faces that hinder their development including the inability to acquire modern technology, cannot participate in international markets, and difficult laws/ regulations of the land that reduces MSMEs sustained growth potentialities in the country.

Other problems were structured incapacitation, abilities /training, foremost constraints of funds, and related issues. Regulatory policies remained problems that hinder enterprises' growth because small firms find it difficult to bear the obligations due on them to the policies.

In the same development, Ojeka (2011) after evaluating tax policies alongside MSMEs growth in Nigeria, found that "from the most MSMEs studied, were all complaint about high tax rates, complex tax orders, multiple taxes and limited proper educating the business owners about issues that relate to taxation. The study further revealed a higher negative correlation exists between the business and taxation as well as the ability for the business to sustain itself and look for expansion". The management of Nakowa Plastics Company (micro-scale enterprise) situated in Hadejia Jigawa State of Nigeria who specialized in the production of various plastic products, stated "the major problems

confronting the MSMEs in Nigeria includes the inability to compete with foreign substitute products, failure to involve the MSMEs owners in policy formulation and lengthy bureaucratic process to access financial and other government supports by their enterprises”.

2.2 Infrastructure

“The term refers to technical structures that guide and support the society, in terms of water supply, electricity grids, bridges, roads, communication networks, and sewers, and it is also explained as the physical components of interrelated systems that provide products and services essential to sustain, enable, or enhance societal living conditions (Fulmer, 2009; Spacey, 2018) and were generally government-built and publicly owned”. Spacey (2018) further explained that social and green infrastructure can enhance the quality of life and make an area become more competitive in securing highly skilled and talented employees and the concentration of larger enterprises. E.g., education can lead to new innovation and positive change in worker performance. While good health system can minimize sick periods and provide the community with the sense of well-being that is needed for taking business and economic risks.

2.2.1 Categories of Infrastructure

Accordingly, infrastructure was classified into two main categories. Barnawal (2018) distinguished economic and social infrastructures. Economic infrastructure combined basic facilities that help economic development and business. They included telecommunications, electricity, transportation, energy, etc. While social infrastructure combined basic facilities essential for human development. These were health, education, and housing facilities. The two facilities were complementary to one another and essential for overall economic improvement.

Table 2.2.1 showing classification infrastructure were

Zigya-App (2017) differentiated economic and social infrastructure as follows:

Economic infrastructure	Social infrastructure
1- They refer to all such elements of economic change (like power, transport, and communication) which serve as a support system to the process of economic growth.	1- They refer to the core elements of social change (like schools, hospitals, etc.) which serve as a support system for the process of social development of a country.
2- They foster economic growth.	2- They foster human growth.
3- They raise the standard of living of individuals.	3- They increase qualities of people's lives.
4- They have a direct impact on the production activities of firms.	4- They have an indirect impact on the production of activity of a firm.

2.2.2 Economic Infrastructure

Economic infrastructure was those facilities that have a direct relation to production. Their adequacies and efficiencies could impact positively on enterprise productivity which could result into industrialization in the country. They include electricity, water, markets and roads, financial institutions, and communication. But, in Nigeria especially the study area these important facilities were not adequately provided the likely factors that stagnated MSMEs' growth. The following economic infrastructure was examined accordingly as related to the current study.

2.2.2.1 Roads and Transport

Roads and transport facilities were important aspects that aid firm processes and procedures. "Without roads and transport facilities, mobility of both human and material resources will face difficulties as they could not move from areas of supply to areas of demand" (Agba, Ikoh, Ushie & Basse, 2010; Adenipekun, 2013). Additionally, Igwe et al., (2018) found that bad road connectivity limits the easy movement of people and facilities, and the rising costs of delivery leads to price increases and low demand which reduces revenue. Tom et al., (2016) revealed, expectedly one of the policies of a country is to offer an enabling atmosphere for the enterprises to prosper. "The transportation

facilities in Nigeria (roads, railways, ports, and airways) were given the least satisfactory assessment of the twenty-four countries in Africa” (Doe & Asamoah, 2014; Tsauni, 2005).

2.2.2.2 Electricity supply

The regularity of electricity supply was adequately studied and results showed its impacts on business operations across the globe. “In Nigeria, a smaller amount allocated in the yearly budget on public utilities by the government due to Structural Adjustment Program (SAP) conditionality and other reforms followed after, has adversely affected the quantity and quality of infrastructural facilities provided and forced enterprises in Nigeria to source alternatively, especially electricity for their operations” (Tsauni, 2005; Owualah & Okoboh, 2008; Akuru & Okoro, 2014; Sharma & Kharub, 2015; Siyanbola, 2015; Lawrence & Goldman, 2016; Akinyele et al., 2016; Rathod, Patel & Ranpura, 2016; Emezie, 2017). Oraka (2013) further stated, “The problem is very alarming in Nigeria as small enterprise loses 24% of their output due to power insufficiency whereas the medium and large scale loses 14% and 17% respectively”.

Accordingly, (Alarape, 2014; Ekpo & Basse, 2016; Tom et al., 2016; Gumel, 2017; Nwosu, 2017) found that MSMEs need stable power to push their types of machinery and also provide a conducive work atmosphere for employees to function well. Presently, the provision of electricity is poor and unreliable only 4,000 MG was generated and supplied which resulted in light-off, which made it hard and very difficult for the enterprises to operate with efficiency.

In a New Year (2020) message to the country, the President of Nigeria General Buhari stated that “power has been a problem for generations and that there was the need to pick up the pace of progress”. In Nigeria, the power supply problems are rooted in the separation of electricity supply into three different companies (generation, transmission, and distribution) where getting the parts of the value chain to work together becomes an unsolved issue. Additionally, the level of indiscipline of the marketing operators in the system contributed a lot to complicating the problem (BUSINESS DAY, Jan 2020). Similarly, Mato (2020) stressed that you cannot industrialized without a steady electricity supply in a country.

2.2.2.3 Water Supply

The supply of clean and sufficient water for both human and industrial consumption is also very important. Business organizations that require water as their main raw material for production like bottling companies, water packaging companies, milling companies, textiles manufacturing enterprises, etc. need a large volume of water to accomplish a successful production process. Its limitation in supply affects a firm's productivity. Emmanuel (2012) found that the supply of water in Nigeria to meet daily needs is obtained from streams, rain, ponds, and locally dug wells or supplied by boreholes provided either by the government or privately companies on a business basis. The study further observed that about 80% of the water supply to the rural population in Nigeria came from natural sources. The urban water supply was inconsistent due to unequal distribution to various areas by the suppliers depending on who can pay and get. (Das, 2008; Akinyele et al., 2016) highlighted that the "provision of portable water to small enterprises was considered an important infrastructure that could add to productivity rise while its inadequacy posed negative impacts on business operations".

2.2.2.4 Telecommunication

ICTs improve MSMEs' efficacy, lower costs, and widen their markets. The inclusion of ICT services in business is accounted to be a vehicle that supported firms to have a worldwide competition capability associated with improved efficacy, and assure intimate relation to clients and suppliers (Alam & Noor, 2009; Absah, Muchtar, & Qamariah, 2017; Manga, 2019; Ebert & McMillan, 1999; Manochehri, Al-Esmail & Ashrafi, 2012). Organizations using ICT for their operation were found to do very well in marketing and can distinguish goods and services with ease etc. (Lopez & Muneta 2012).

In Nigeria, telecommunication structures were categorized as being wide gaps between the plan and obtained goals due to mismanagement and managerial incapacitation (Akinyele et al., 2016). Asamoah & Doe (2014) found the structure of telecommunication in Nigeria is among those with high subscription costs in African nations. In line with the above, Esselaar, Stork, Ndiwalana, & Deen-Swarray (2006) also found, the main constraints to ICT use still require a lot of money that reduces the profit of a firm due to

high subscription costs. Usually, MSMEs found a lot of difficulties with ICT usage and it is still noticed that they do not have full utilization of the ICT facilities as enjoyed by bigger enterprises.

Accordingly, Alam & Noor (2009) stated “the adoption of the ICT is considered to be a means to enable businesses to compete on a global scale, with improved efficiency, and closer customer and supplier relationships. Therefore, the adoption of ICT was recognized as a crucial condition that enabled SMEs to consider information and communication technology as an important implement in their business to take competitive advantage of the global markets”. Manochehri et al., (2012) found “in order to benefit from ICT adoption, to deliver better services and explore new business opportunities, there should be a satisfaction of at least three conditions: Certain infrastructure; Skilled ICT personnel; Budget to invest in ICT”. The three conditions need to be fulfilled to get better outcomes. Lopez & Moneta’s (2012) supported that, determinants and factors of ICT were grouped into three: company staff, characteristics of the company, and the environment in which the company operates.

The outcome of multiple regressions analysis on telecommunication services adaptation and related features (Noor & Alam, 2009; Nicolas & Acosta, 2010) revealed “perceived benefits, ICT knowledge, and skill, and government support were also significant elements of ICT adoption.

This may suggest that the productive use of ICT was closely linked to the use of organizational resources in general. Moreover, the microclimate of the organization and the organization’s preparedness to adopt ICT were related to factors of the macro environment and expected benefits”. However, based on logical interpretations of empirical studies Consoli (2012) opined that telecommunications service gains to enterprises were determined by many factors.

2.2.3 Social Infrastructure

As earlier stated, social infrastructures combined necessary services for the social well-being of people (Barnawal, 2018; Zigya-App, 2017). Subsequently, Akinlo (2008) found that social infrastructural facilities were crucial factors of production that have higher impacts on a nation's economic growth. Below were some of the social infrastructure facilities examined.

2.2.3.1 Education

To acquire managerial expertise, individuals need to go to schools because MSMEs' growth lies under a skillful labor force and educated leaders, innovative and competitive advantages that ensure better outcomes in terms of revenue and profits, product quality, and delivery of services. Entrepreneurial performance has a direct relationship with training growth and development and increases the number of entrepreneurs, creates job opportunities and better financial management of the enterprises, (Betcherman, Lechie & McMullen, 1997; Carlson & Gilmore, 2000; Beaver & Hutchings, 2005; Njoroge & Mabhungu, 2013; Mayuran, 2016; Yakubu & Fatima, 2017; Emezie, 2017).

Although it was argued that training costs a lot of money but it's worth doing because the benefits to accrue due to training will go beyond the cost incurred. It was suggested that "training should be considered as an investment rather than being a cost". This perception can change the activities of the MSMEs in a country thereby making them more efficient and could impact positively economic growth and development (Mayuran, 2016).

To promote the activities of businesses in a country, there is a need to provide entrepreneurship education, (Harbison & Meyers, 1974; Enefiok & Ekong, 2011; Familiar 2011; Akinyele et al., 2016; Tahir & Inuwa, 2019). Consequently, low expenditure on education could result in the production of a half-baked labor force thereby impacting negatively on a country's productivity thus becomes very difficult to achieve economic growth and development in a country.

Brice & Spencer (2007) conducted an empirical study to find out the variables that were likely to improve starting and efficiently running a business. Using some graduating students, they discovered "the greater the skills in entrepreneurship the higher the level of

efficiency leading to increased productivity”.

Gabadeen & Raimi (2012) disclosed that entrepreneurship education in Nigeria was faced with funding problems that affect the proper implementation of programs contained in the curriculum. This problem was noticed by the National Board for Technical Education (NBTE) and National Supervisory Agencies in Nigerian University Commission (NUC). Alaegbu (2019) found that the current and future entrepreneurs in Nigeria were not adequately trained, as a result, unable to use the principles of entrepreneurship in better business practices for the attainment of their business growth. Consequently, “many start-up businesses have collapsed completely due to the lack of education which makes it difficult for the owner to interact well with customers and develop new strategies at tackling competition” (Akinyele et al., 2016).

2.2.3.2 Sanitation

Sanitation is another infrastructural facility essential for noble societal living standards. There is some aspect of sanitation that has a direct relation to industrial operation and it can affect the performance of SMEs. “Public health measures include improvement of environmental sanitation both in rural and urban areas, removal of stagnant and polluted water, slum clearance, better housing, clean water supply, better sewage facilities, control of communicable diseases”, (Pandve, 2008 & Familari, 2011).

In West Africa, Nigeria is one of the nations that have a poor record in relation to water and sanitation facilities accessibility by its populace. Cities in Nigeria are continuously threatened with an increase “in squatter settlements, overcrowding dwellers, breakdown of waste disposal arrangements, air, and water pollution and inadequate water and sanitation services” (Emmanuel, 2012). A greater percentage of the reported cases of diseases that led to illness and mortality were as a result of poor provision of clean drinking water and sanitation facilities and services (Nwankwoala, 2011).

2.2.3.3 Health

Health institutions were also an important sector of the economy. A healthy body can work better and contribute more positively to enterprise activities. The provision of health facilities indirectly leads to decreasing cost of production thereby increasing the revenue of the firm. Familoni (2011) found that the provision of health facilities was crucial to the socio-economic production function. A healthy mind was found in a healthy body, health is the main determinant of employee efficacy and productivity. The provision of health as a social product has a lot of implication for the many parts of the economy, it has to be provided on a large scale and require a large sum of resources that can only be provided by the public fund. Szreter (2004) said that even though it was assumed for a long that urbanization and trade were associated with negative health risks, on the other hand, “the process of industrialization has in general been considered to have a much more positive relationship with human health”. This implies industrialization of a nation will determine the availability of provision of health facilities. He added that if required facilities for MSMEs were provided, growth and development in a country can lead to industrialization leading to a rise in human health.

2.2.3.4 Impacts of Infrastructure on industrial performance

Infrastructure facilities significantly relate to industrial performance in all economies irrespective of the country’s level of development. Morley & Perdakis (2000) examined ‘trade liberalization and public spending in Egypt’ results showed that export-led growth pursued by the authority in the country was obstructed by the inadequacy of the necessary infrastructure throughout the period examined. Infrastructure facilities significantly predict MSMEs’ performance, and investors would like to invest in areas that have adequate provision of infrastructural facilities because of cost-cutting (Lawrence & Goldman, 2016; Inuwa & Tahir, 2019). “Poor facilities supply negatively affects the costs structure and the points of optimality where an enterprise maximizes profits in relation to cost efficacy” (Kimuyu & Kayizzi, 1998). They further observed that in developing nations inadequate power supply and roads were the two major infrastructural constraints that challenged the industrial sector.

Adenikinju (2005) showed that enterprises in Nigeria usually experience electricity failure while in operation without earlier notice that increased costs due to work stoppage and idle worker hours, damaged materials in the production process, and loss in output and equipment damages leading to increase per unit cost of production. Poor facilities supply increase business uncertainty, cost operations, lower competitive capabilities, and ROI which could also affect the potential for growth for both MSMEs and large-scale enterprises in Nigeria, (Nwankwoala, 2000; Adenikinju 2005; Cissokho & Seck 2013). The problem of infrastructure in Nigeria is getting more serious to the extent that multinational corporations were fleeing out to neighboring countries to produce.

2.2.3.5 Infrastructure Inadequacy

Even though infrastructural facilities were closely related to industrial operations in a country, deficiency was observed in Nigeria and impacted negatively on the MSMEs businesses in the country (Sani, 2001; Aruwa, 2004; Boter & Lundstrom, 2005; Siyanbola, 2015; Olawoyin, 2017). In a related development, Ogbonnaya (2010) clearly established, it is not good industrial policies or motivational factors to manufacturing sector alone can lead to the achievement of the goals for growth to the sector, efforts will be fruitless if required infrastructural facilities were not adequately and efficiently provided to align with the policy formulated. In a related outcome (Agboli & Ukaegbu, 2006; World Bank, 2014) providing adequate infrastructural facilities becomes necessary components needed for economic liberalization to succeed in achieving the set goals of effective allocation of resources, improvement of assets, higher production, and exportation.

The infrastructural facilities inadequacies and their implication on MSMEs in Nigeria have been observed and found that the current conditions of infrastructure in Nigeria were very poor for economic activities to take place with success, especially the manufacturing sector (Abdullahi, Jakada & Kabir, 2016; Osamwonyi & Tafamel, 2010). They explained further that power was in short supply and unsteady, associated with low voltage. Roads are in a worse situation, the provision of water for human and industrial needs also not defensible, and the communication system which is vital in today's business effectiveness not functioning very well due to an epileptic power supply. The absence of these facilities

had made it necessary for the MSMEs to provide them at a very high cost that affects the entrepreneurs' incentives. As a result, the climate couldn't motivate to warranty enhancement for manufacturing which surely led to low and adverse operations of the MSMEs due to unfavorable conditions to invest in the sector. The authors also observed government has not earnestly been supportive of the provision of a favorable environment for MSMEs to function efficiently in Nigeria.

Agboli & Ukaegbu (2006) examined the business environment and the enterprise performance and discovered "monetary reduction on public spending adversely affected the quality of public infrastructural facilities because of poor maintenance". In another development Akinyele et al., (2016) observed "infrastructures were now rotten and need renovation, restoration, and replacement. The roads were in bad shape, most of the electrical installations were obsolesces, and water supply was inadequate for human and industrial consumption which made it difficult for the MSMEs to operate with efficiency". Infrastructure inadequacy problems were not in Nigeria alone but also found in other African countries. Tirimba, Mbugua & Njeru (2014) asserted that the main problem for low investment and unacceptable level of MSMEs performance in Kenya was due to the poor condition of the infrastructure. "The Economy Strategy Paper, (2003)" considered infrastructural facilities inadequacy as serious element which blocked businesses in Kenya to run profitably. It was further identified poor road conditions and accessibility to working places, power supply/utilities as the main problems.

2.2.3.6 Infrastructure and the economy

A nation's economic growth that could lead to economic development is significantly influenced by the number of infrastructure provisions in the country (Oduyoye, Adebola & Binuyo, 2013; Abdullahi, 2015). They observed that infrastructure covers services such as telecommunications, transport, roads, and railways connectivity. These services were important in augmenting the growth of enterprises big or small in all economies; hence it was not amazing that infrastructural improvement related directly to the level of economic development in all countries. Their studies also found that the function of infrastructural facilities was in company operation activities, firm produce delivery to market, and aided

to encourage the provision of important societal facilities like schools and hospitals. For example, good roads can help to deliver raw materials safely to a company premises and distributes company products to areas of demand.

Infrastructure inadequacies can hamper the production stages which will affect the SME's performance in a negative way.

Poor provision of both economic and social infrastructures stagnates the speed of enhancement of a nation's economic development. The findings have long been observed by Hirschman (1958) whose point of view was that "enlarged availability of electricity supply and transportation amenities are necessary prerequisites for growth and development in all economies and necessity for investment, running cost is advocated because of its direct influence on finished goods and as well its motivation for other productive activities to be derived".

2.2.3.7 Infrastructure and MSMEs performance

Provision of qualitative infrastructural facilities was a greater challenge for many third world countries. Some studies observed efficient service delivery of facilities could greatly influence the growth potential of small-scale enterprises.

Ahwireng-Obeng & Piaray (1999); Chimucheka (2013) & Leboea (2017) found that access to public physical infrastructures such as water, electricity, good roads, telephones, electronic media, and postal services were all crucial for business start-up, development, and growth. While limited access to public infrastructure services was a major constraint to MSME's survival and growth as it limits the operations and restricted access to markets and raw materials.

Nkechi, Emeh & Okechukwu (2012) highlight that small enterprises that enjoyed government and other supports and low-cost facilities usually have greater chances of survival than those that do not benefit. While Kinyua (2014) reported that, current state of infrastructural facilities does not improve MSMEs' performance in Kenya.

2.3 Performance Measurement

Performance Measurement (PM), is an important aspect of managing a business today due to its numerous benefits to the success and survival of an enterprise. There were some tools offered for monitoring and evaluating enterprise activities toward the achievement of organization objectives. Mabhungu (2017) stated that measuring business performance is a process used by an organization in assessing and controlling its crucial activities and procedures. Accordingly, Cocca & Alberti (2010) reported that performance measurement to business organizations activities were generally considered as vehicle that leads to victory.

2.3.1 Argument for Performance Measurement

There is a continuous discussion or argument whether about performance measurement is an essential factor that can be used to enrich business performance due to the facts it aids in managing/ assessing the firms' critical undertakings (Amir, 2011; Goh, 2012; Al-Matari, Al-Swidi & Fadzil, 2014). Therefore, it is essential to take an appropriate framework to measure the operations of an organization's activities so as to accomplish its set goals and survival.

A good performance measurement system can help an organization check its activities. It is good to check in order to find out whether the organization moved on the right path leading to the realization of the set objectives. Those that applaud the use of performance measurement included (Simons, 2000; Alfaro, Ortiz & Poler, 2007; Donglin-Wu, 2009). Their studies further observed monitoring enterprise activities on a continuous basis and adopting changes where necessary were very important for enterprises to achieve success.

2.3.2 Financial Performance

It is a process for measuring firms' activities by employing quantitative variables to measure performance. Gerba (2016); Carter & Even (2008); and Gebreeyesus (2007), assumed that positive change in company sales, assets and profits as more specific measurement indices to company business performance than other indices used to measure enterprise's performance.

2.3.3 Non-Financial Performance

Non-financial performance on the other hand uses qualitative efficacy to measure firms' activities. Dobbs & Hamilton (2007) and Cumby & Conrod (2001) proposed aspects of growth, expansion, efficient service delivery, product quality, survival & competitiveness, sustainable shareholder value driven by non-financial factors, such as customer loyalty, employee satisfaction, internal processes, and an organization's innovation as keys to performance measurement.

2.3.4 Financial Ratios

Arbuckle (2020) stated that "financial ratios expressed the relationships between financial statement items. Although they provided historical data, management could use ratios to identify internal strengths and weaknesses, and estimate future financial performance. Potential investors could also use the information obtained from financial ratios for decision-making after a comparison of different companies in an industry. Financial ratios include liquidity and the current ratio, solvency ratios and financial stability, profitability ratios and margins, and common efficiency ratios". Similarly, Basu (2019) stated, there were four basic financial ratios used to measure business performance and make comparisons between companies. The financial ratios include debt ratios, profitability ratios, liquidity ratios, and asset turnover ratios.

2.3.5 Performance Measurement in MSMEs

Good management was the key to the overall performance of the organization (Gibcus & Kemp, 2003). Additionally, performance measurement in small-scale enterprises assists management to detect its areas of strengths and weaknesses from the results obtained (Eniola & Entebang, 2015). Naturally, small enterprises were smaller in size with unplanned policies and improper business record keeping. The majority of them were under the management of those who established them and gave less regard to the record-keeping of their strategies. Businesses consider measurement of performance only when the need arises to address a particular aspect of the firm which lacks proper planning Mabhungu (2017). Thus, measuring performance in MSMEs was very difficult due to the difficulty to analyze financial information because of poor business records, (Bannes &

Coulton, 1998; Sapienza & Grimm, 1970; Ladzani & Seeletse, 2012).

2.3.6 Subjective business performance measurements

Due to the unavailability of financial information that could be used to undertake objective analysis to measure the MSMEs' business performance for the current study, a subjective analysis was thought to be crucial. Vij & Bedi (2016) found that "there was a strong positive relationship amongst objective business performance and subjective business performance".

2.3.7 Peculiarities of the Study Area

The operation difficulties due to infrastructure deficiency especially electricity and finance have made MSMEs' survival in the study area threat able. Another problem identified was marketing inefficiency where credit sales created problems with growth and continuity. During a discussion with Citizen and Royal Bakeries in the study area owners complained bitterly about credit sales and recoveries where capital used to hold up by some customers. A societal trend in business to be accepted to remain in business or opt out. The proprietor of Citizen Bakery explained that to continue in this type of business, a proprietor has to get three sets of capital to work with all times. One set of capital in the hands of customers, second set in current production processes and the third set is hold as a contingency in case recoveries from credit sales were unduly behind the schedule. A similar complaint was made over a radio broadcast on November 12th, 2020 (Sawaba Radio, Nigeria) in a program 'Star of the Week'- Maman Khalid stressed, "current situation affected my business to large extent due to huge credit sales and on continues basis all days".

On the second visit to Nakowa Plastics Company in 2019 the gate of the company was found locked due to the inability to maintain types of machinery in the absence of electric power from the National Grid. It has led to sending off of over 40 workers thereby fueling the tempo of unemployment in the area.

Also, the level of literacy of the business owners in the study area posed other problems such as a lack of differentiation between the enterprise funds and personal spending. Most workers were either family members or relatives who do not value the organization as an

entity and abide by the employment relationships.

Record-keeping was another crucial issue for effective organization management which was lacking in MSMEs, especially where the levels of literacy of the business owners were low as obtainable in the study area. These problems and many others made it difficult to measure performance for a longer period in the area of study.

To achieve the goals of this study, non-financial performance measurement was considered most appropriate because the financial measures may not be applied with success due to aforementioned problems.

2.3.8 A Conceptual Framework

Kothari (2004) stated that “a concept which can take different qualities of qualitative values is called a variable”. Where variables are influenced or resulted from other variables, becomes dependent variables. The variable that causes a variable or creates changes in it “is called the independent variable. A conceptual framework consists of independent variables which cause changes in the dependent variable”.

2.3.9 Contemporary Theories as Relates Firms Growth

A theoretical framework provides an understanding of theories relevant to the present research area and communicates results into the broad body of knowledge being considered. There were some theories if understood and applied in the running of MSMEs can greatly minimize the problems being faced by the MSMEs and reduces their failure rates especially, in the study area.

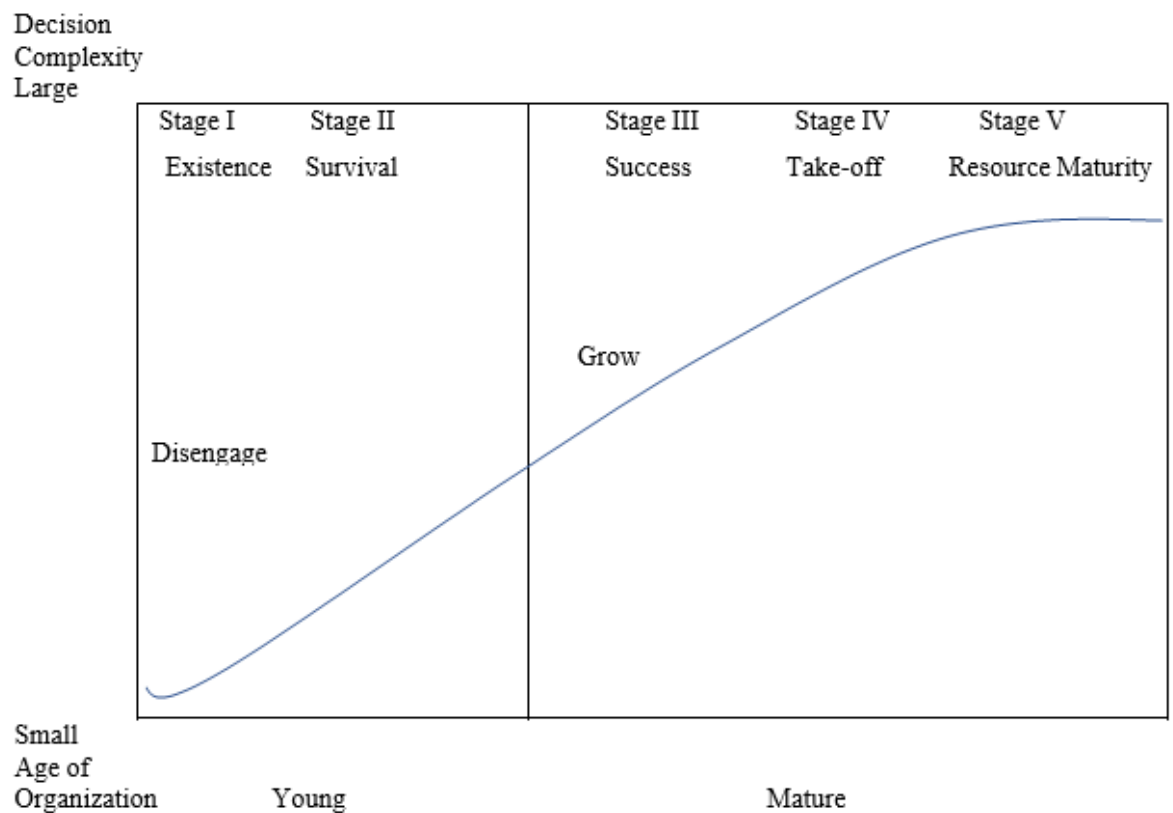
(i) Clustering Approach Theory: The clustering approach theory proposed “industrial cluster policies can be a growth strategy for a firm and coming together in a geographic concentration of interrelated companies and institutions in a particular field since MSMEs can receive external economic advantages (economics of scale and scope)” Khatib (2015).

(ii) Networking Approach Theory: “The Networking approach stipulated firms should not be seen in isolation but as being connected in business”. The coming together among MSMEs and between MSMEs leads to competitiveness, innovative improvement to products and processes, and successful inclusion of

MSMEs in the growth of productivity and networks of global distribution (Eisebith, 2018; Foghani, Mahadi, & Omar, 2017; Kadzere, 2016). “Both clustering and networking theories offer a potential growth path for MSMEs” (Khatib, 2015).

Unfortunately, the benefits of these theories could hardly become obtainable due to the non-existence of the industrial estate in the whole study area. Still, there are no identified efforts from the government for the establishment of industrial estate in the state.

(iii) Graph 2.3.9 shows the growth theory of a firm



SME’s Theory of Growth: Business success is an important aspect of its survival, growth, and development which depend upon the managerial capability to coordinate the dynamic nature of the internal and external environmental factors (infrastructure facilities included) of organizations. Churchill and Lewis (1983) developed a theory of the growth of the firm. They posited that an organization goes through five stages of growth from the existence

stage to the maturity stage as represented in the graph below.

Under each of these stages, they observed some associated problems that need to be addressed for an organization to succeed in the next stage.

➤ Stage (i): This is the first stage a business enters and is known as the existence stage. The main problems associated with the existence stage are how to get customers and the organization's ability to satisfy customer demand for its goods or services as scheduled.

➤ Stage (ii): At the survival stage, the business has shown that it is a feasible business venture. A good number of customers were obtained and sufficiently satisfied with the company's products or services in order to maintain good relations with them. The main issue of concern has shifted from company existence to proper management of revenue generated and expenses.

➤ Stage (iii): This is the business success stage. At this stage, enough size of a business is attained with good product market penetration to warrant economic victory. The company attained a position that could earn average or above-average revenues/profits.

➤ Stage (iv): A take-off stage. The main issues of concern at this stage are how to make the organization grow and ways to finance the set growth.

➤ Stage (v): A resource maturity stage.

The greatest concerns at this stage are to consolidate and control the financial gains brought on by rapid growth and retain the advantages of small size, including flexibility of response and the entrepreneurial spirit. The corporation must expand the management force fast enough to eliminate the inefficiencies that growth can produce and professionalize the company by use of such tools as budgets, strategic planning, management by objectives and standard cost systems. At this stage company has advantages of size, financial resources add managerial talent.

2.3.10: MSMEs and Regulatory Framework in Nigeria

In Nigeria, the government established some policies aimed at regulating the activities of the industrial sector to make them succeed, maintain some level of growth rate and continue to survive to attain economic development. Idem et al (2022) examined these policies framework that included: -

- (a). Companies and Allied Matters Act (CAMA) 2020, responsible for company registration.
- (b). Small and Medium Enterprise Development Agency of Nigeria (SMEDAN) Act, 2004, responsible for service facilitation as relate to SMEs welfare, creating, packaging and promoting cottage and MSMEs initiatives.
- (c). Company Income Tax Act (CITA) Cap. C 21, Laws of Federation of Nigeria 2004, responsible for formulating tax laws in the country.
- (d). Standards Organization of Nigeria SON (2004) “Act, 2004, responsible to make provisions for MSMEs, aims to standardize the quality of goods produced, exported and imported by businesses, including MSMEs in Nigeria, at the national, international, regional and grassroots levels”.
- (e). National Agency for Food and Drugs Administration Control (NAFDAC) “Act, 2004, responsible for regulating, controlling individual persons, business organizations, and companies including MSMEs on how to manufacture, advertise, distribute, sell and use food, drugs, cosmetics, medical devices, bottled water, detergents, and chemical. Access to good quality food and medicines is a primary condition for human survival”.
- (f). Nigeria Risk Sharing System for Agricultural Lending (NIRSAL) launched in 2011 and incorporated in 2013 by the Central Bank of Nigeria specifically designed by the Federal Government of Nigeria to encourage small scale farmers for a continues investment in agriculture. The agency will give them protection against any uncertainty by taking care of greater percent of risk/losses that might occur”.

Some of these regulatory agencies affected the MSMEs’ operations. For example, as observed by Ojeka (2011) after evaluating tax policies alongside MSMEs growth in Nigeria, found that “from the most MSMEs studied, were all complaint about high tax

rates, complex tax orders, multiple taxes and limited proper educating the business owners about issues that relate to taxation. The study further revealed a higher negative correlation exists between the business and taxation as well as the ability for the business to sustain itself and look for expansion” as mentioned in item 2.1.4. But Idem (2022) stressed that “taxation is a means for generating and redistribution of revenue to public services and for the provision of social amenities and economic development”.

It was also observed that, majority of the MSMEs in the study area could not benefit from NIRSAL program due to corruption and fear of the unknown as cried out by some proprietors of small firms.

2.3.11 MSMEs Management

Proper entrepreneurial skills acquisition could be an integral part for effective MSMEs management in developing countries. As examined by Ng’ora et al. (2022) and found that the required skills to “effectively manage the MSMEs for better performance include financial management, marketing, human relations and entrepreneurial skills to run a successful business venture and enable MSMEs to survive, compete and thrive in a dynamic business environment. However, due to the low absorption capacity, many micro and small entrepreneurs and managers lack these necessary managerial skills”. The results of their study showed that “the managerial skills of MSMEs owners and managers have a significantly positive effect on MSMEs performance”.

In the study area, information obtained from the MSMEs owners about the management of their enterprises showed that, the operation difficulties due to infrastructure deficiency especially electricity and finance have made MSMEs’ survival in the study at risk. Another problem identified was marketing inefficiency where credit sales created problems with growth and continuity. A societal trend in business to be accepted to remain in business or opt out.

Another important issue with regards to MSMEs management in the study area was the level of literacy of the business owners that posed barriers to MSMEs growth. Additionally, it was observed that most MSMEs employees were either family members

or relatives who do not value the organization as an entity and abide by the employment relationships.

On financial issue, record-keeping was another crucial issue for effective organization which was lacking in MSMEs of the study area. The low level of educational qualifications of the MSMEs owners as observed that, greater percentage of them attained secondary school certificates as their highest qualification. This made it difficult for them to appreciate and apply the new entrepreneurial techniques such as the keeping of business records, separation of business finances from personal finances, seeking financial facilities, and professional advice in the management of their enterprises all these affected industrial development negatively in the area. Item 6.1

Another important issue to MSMEs effective management was failure of some MSMEs to incorporate proper feasibility studies with regard to infrastructural facilities also impacted negatively on their productivity.

In view of the above, this research study was initiated to get solutions to the questions below:

- a) What was the current status of infrastructural facilities provision in Jigawa State?
- b) Does the current state of the facilities provide lead to MSMEs' efficiency in the study area?
- c) Finally, to identify which among the infrastructural facilities have greater effects on the MSMEs performance in Jigawa State.

The answers to these questions will help to draft recommendations on the type of strategy to adopt in policy formulation and implementation for MSMEs' better performance.

2.3.12 Research Gaps

Though there have been numerous studies with regard to the relationship between infrastructure facilities and MSMEs performance (Akinyele et al., 2016; Lawrence & Goldman., 2016; Igwe et al., 2018; Emezie, 2017). Still, there was a scarcity of literature that necessitated the need for expanded studies on the important topic "the infrastructural facilities and its impacts on MSMEs performance", especially in Jigawa State.

Most of the studies on the infrastructural absence or inadequacies were generalized and carried out in cities where there were industrial estates and a concentration of industries (Siyabola, 2015; Gumel, 2017; Leboea, 2017; Nwosu, 2017; Aruwa, 2018). While “the nature and implications of such infrastructural absence or inadequacies could be deeply varied as between small enterprises located in urban areas and those in rural and semi-urban areas” Das (2008). There was scanty literature touching on the rural states without industrial estates where the available enterprises were established in isolation from one another as in the case of Jigawa State. As forwarded by (Yusuf, Said & Ahmed, 2015; Tirimba et al., 2014) that most of the studies conducted on MSMEs operations were in developed states, leaving the rural areas untouched.

Additionally, the MSMEs owners’ perceptions about infrastructure provision by the government in the study area were also not adequately examined and most of the previous studies conducted were quantitative in nature as such there is a need to complement them with qualitative studies.

This study considers the lack of proper feasibility studies and contingency planning as part of contributing factors to most problems confronting the MSMEs performance in Jigawa State. For example, infrastructure availability was not fully assessed before the establishment of an enterprise in a particular location. This was because most of the location decisions were usually political and ethnically motivated rather than based on economic reasons. The Jigawa State Industrial Policies of 1998 that led to the establishment of industries in five different locations were good examples as all the established industries by the Jigawa State Government faced one kind of infrastructural facility problem or the other that led to the abandonment of most of them and huge numbers of resources wasted away.

CHAPTER 3

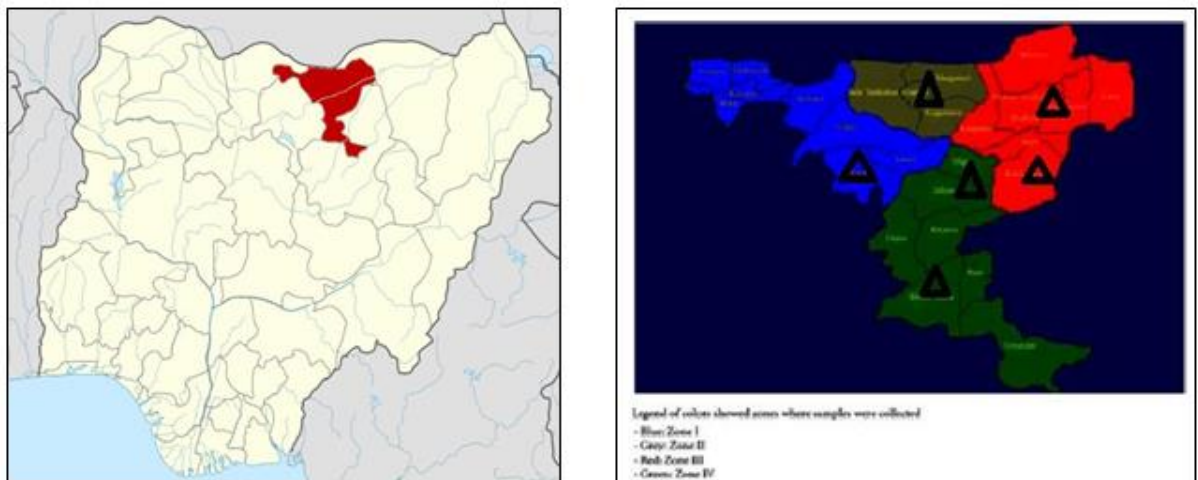
RESEARCH METHODOLOGY

The chapter contained the methods adapted for the present research work. They included “study areas, research design, the population of the study, sample size, sampling techniques, methods of data collection, and techniques of data analysis applied in the expression of data collected”.

3.1 Area of the Study

Jigawa State is among Nigerian 36 states. It was selected to be the area to conduct this current study. The State has a landmass area of 23,154 sq., and 4,361,002 people according to the 2006 National Census, with a current projection of a 3% growth rate. It has twenty-seven local government areas and Dutse city as the state capital.

Figure 3.1 (a & b) The Map of Nigeria and Jigawa State



Δ indicates industries' locations (*author's compiled*)

Source: Department of Geography, Bayero University Kano, Nigeria. (2018 Field Survey)

The State is blessed with fertile land and abundant water resources that made it possible for people to engage in the production of various farm produce in abundance. But, due to the lack of enough processing industries, poor infrastructural facilities, absence of international markets, and poor storage facilities, the farmers usually sell their farm

produce at very low prices sometimes to the extent of incurring losses. The availability of industries that can process the farm produce to add value is highly needed to increase farmers' wealth and hence become motivated to commit more efforts and resources to expand production. The above factors made the area a potential atmosphere for entrepreneurship and investment that could lead to the establishment of various industries that may eventually lead to industrialization. It was hoped results of this research can motivate government and policymakers to take appropriate measures in designing policies conducive to establishing industries more specifically MSMEs in the area thereby making it possible to benefit from its numerous contributions towards economic growth and development.

3.2 Research Design

A purposive sampling using a non-probability sampling method was applied and selected the respective respondents for the study. It was believed that using sound judgment could result in saving resources (time/money) and at the same time obtaining a good representative of the population.

3.3 Population of the Study

The population of the study consisted of 2,610 registered manufacturing MSMEs in the Ministry for Commerce and Industry Jigawa State, Nigeria. (Field Survey, 2018).

Category	Frequency
Micro	1,513
Small	1,022
Medium	75
Total	2610

Source: Shettima, 2017.

3.4 Sample Size

The ever-increasing need for a representative of statistical sample in empirical research has created the demand for an effective method of determining sample size. To address the existing gap, Krejcie & Morgan (1970) came up with a table for determining sample

size for a given population for easy reference.

Table 3.1(a) Table for Determining Sample Size for a Finite population

<i>N</i>	<i>S</i>	<i>N</i>	<i>S</i>	<i>N</i>	<i>S</i>
10	10	220	140	1200	291
15	14	230	144	1300	297
20	19	240	148	1400	302
25	24	250	152	1500	306
30	28	260	155	1600	310
35	32	270	159	1700	313
40	36	280	162	1800	317
45	40	290	165	1900	320
50	44	300	169	2000	322
55	48	320	175	2200	327
60	52	340	181	2400	331
65	56	360	186	2600	335
70	59	380	191	2800	338
75	63	400	196	3000	341
80	66	420	201	3500	346
85	70	440	205	4000	351
90	73	460	210	4500	354
95	76	480	214	5000	357
100	80	500	217	6000	361
110	86	550	226	7000	364
120	92	600	234	8000	367
130	97	650	242	9000	368
140	103	700	248	10000	370
150	108	750	254	15000	375
160	113	800	260	20000	377
170	118	850	265	30000	379
180	123	900	269	40000	380
190	127	950	274	50000	381
200	132	1000	278	75000	382
210	136	1100	285	100000	384

Note.—*N* is population size. *S* is sample size.

Source: Krejcie & Morgan, 1970

Two methods applied for the sample size determination was based on the application of the combined procedures prepared by Krejcie and Morgan (1970) in the table above since we have a finite population of 2610 and the work of Mugenda and Mugenda (2003) where they stated that that for a known population of less than 10,000, a sample size to choose

from is between 10-30% of the total population. From the table above, the total population of 2,600 will have a sample size of well for the population of 10 sample size is 10 respectively. Applying the formula y Krejcie and Morgan our sample size will stand at 345.

The second method applied was the work of Mugenda and Mugenda where it was calculated at 14%, from the three categories of the MSMEs, $2610 \times 14\% = 364$. Combining the two results $345+364 = 709$. $709 \div 2 = 354.8$. Conveniently, 350 sample size was thought to be good enough for the study.

To accomplish a successful study, a selection criterion for the sample size was based on Krejcie and Morgan, (1970) sampling size determination table. As adopted by Okpara and Kabongo (2009), applying the model in this study, from the total of 2,610 listed manufacturing MSMEs by Jigawa State Ministry for Commerce and Industries as at the 2018 Field Survey, the current research sample size was expected to be 345.

Accordingly, Mugenda and Mugenda (2003) provided that, if the population for the study is below 10,000, a sample size to choose from is between 10-30% of the total population. Using this method, the sample size for this study was calculated at 14% to derive the sample size.

Table 3.2 Determination of a sample size

Category	Frequency	Percentage	Sample
Micro	1,513	14%	211
Small	1,022	14%	143
Medium	75	14%	10
Total	2610		364

Combining the two methods above, a convenience round figure of 350 was assumed to be the sample size for this study. The selection of the company owners, managers, directors, and operation managers was also expected to be from the twenty-seven local government areas across the state.

3.5 Sampling Techniques

To study the total population usually creates lots of difficulties, as such there is greater need to take small portion of the total population that will adequately represents the whole. “Researchers often need to sample just a few in order to understand the whole” (Moss et al., 2019). They further stated that, “sample is just a small piece or part of something that represents a larger whole. Random sampling occurs when a researcher ensures every member has an equal chance of being selected to participate in the study”. The sampling frame for this current study were the registered micro, small and medium scale enterprises in Jigawa State of Nigeria that totaled to 2,610 as at the time for conducting this research. The whole world cannot be studied but only a portion. Proximity and accessibly to required information is very much crucial for the conduct of a successful research undertakings. Jigawa State, Nigeria was selected on these bases.

After determining the sample size, a purposive non-probability sampling method based on the personal judgment of the researcher has been applied to the study. Non-probability sampling method was chosen for this study because easier to apply, faster in data collection and very much advantageous when cost of administration was to be considered. Specifically, the current study involved qualitative research and a pilot study. The peculiarities of the study area in terms of insecurity that prevails in Nigeria which created restrictions of movement has made it uncompromised to use the technique.

3.6 Methods of Data Collection

Both two main methods of data collection were employed in the conduct of the current research work. For primary data, a field survey using a questionnaire and discussions were conducted.

Questionnaires were appropriate for this study because non-observable information was to be collected because it inquired “about feelings, motivations, attitudes, accomplishments as well as experiences of individuals”. The instruments got the additional advantages of having a lower cost of administering and using less time as an instrument of data collection Tirimba et al., (2014). A focus discussion with government officials and some company officials was conducted that enriched the study with

qualitative data.

While the secondary data were used and obtained information from documentation such as books, journals, periodicals, papers, other research, and online materials. The study has been both qualitative and quantitative in nature. The questions in the instruments reflected on the infrastructural facilities and their impacts on MSMEs' performance in the study area.

3.7 Techniques of Data Analysis

The data collected were analyzed using descriptive statistics (tables, graphs, charts, frequency, and percentages) as adopted by Usman & Tahir (2018). The correlation analysis was used to find out relationships amongst the constructs used. One-way ANOVA was also applied and analyzed the data collected. Results obtained from qualitative data were analyzed and interpreted in thematic analysis form. SPSS software was used to run tests for relationships among variables under study, and the results obtained could be used for decision-making.

3.8 Questionnaire Development

A questionnaire is a series of questions asked to selected respondents to obtain important data for particular subject under investigation of a research topic (Roopa & Satya, 2012). They added that a well -structured questionnaire is very vital to a successful conduct of a study intended. For this current study, the questionnaire was prepared on a seven-point Likert-Scale as applied in a similar study by Mushtaq and Khan (2012) though their study was conducted on a 5-point Likert Scale. The variables included water supply, roads/transport, electricity supply and telecommunication services. The items contained in the instrument were intended to assess the level of impacts of infrastructural facilities on MSMEs performance in the study area. The instrument was divided into four sections that represented each of the variables mentioned above with a total of ten (10) questions each that give a sum total of forty (40) questions respectively. The outcomes are expected to show the level of relationship between the variables under study. Options were classified into Much Very low (MVL-1); Very Low (VL-2); Low (L-3); Moderate (M-4); High (H-5); Very High (VH-6); Much Very High (MVH-7).

3.8.1 Pilot Study

“A pilot study is defined as a small study to test research protocols, data collection instruments, sample recruitment strategies, and other research techniques in preparation for a larger study” (Mazza, *Hassan & Schattner*, 2006). A pilot study is conducted purposely for the following:

- A pilot study is among the essential steps for a conduct of a successful research study. It helps detect the likely problems and deficiencies to encounter in the research instruments and procedures before the conduct of the main research work.
- A pilot study assists research team become acquainted with research protocols and the procedures employed for particular research project. On the process, a pilot study helps members of the research team choose appropriately among two or three competing tools, for example, a face-to-face interview or through a telephone conversation.
- Results Interpretation Criteria and Processes

Is good to clearly outlined criterion that will make pilot study successful. The criterion to adopt should aligned with stated objectives. The results obtained can easily be interpreted as the outcome may suggest whether to stop, continue with some adjustments or continue without adjustments but with close monitoring.

For a questionnaire to be applied in a survey it needs to be tested for reliability and validity. A sample was taken for that purpose and the following results for reliability were obtained.

3.8.2 Reliability Statistics

Below were results obtained from pilot study conducted. A total of 50 respondents were selected randomly from the available MSMEs in the study area. Reliability test for consistencies were conducted for the instrument proposed for the research work. The questionnaire was prepared on a 1-7-points Likert Scale which ranged from much very low, very low, low, moderate, high, very high, much very high impacts. The results of Cronbach's Alpha were very good for all the four parts of the instrument since it ranged from an approximate level of 60%-90%. This showed that the instrument was good

enough to apply for the current study.

Table 3. 3: Reliability; Road Accessibility/Condition on the Performance of MSMEs

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	Number of Items
.888	.868	10

Table 3.4: Reliability Statistics, Electricity Supply Impacts on MSMEs, Performance

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.581	.608	10

Table 3.5: Reliability Statistics; Water Supply Impacts on MSMEs' Performance

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	Number of Items
.742	.760	10

Table 3.6: Reliability Statistics; Telecommunication Services and MSMEs' Performance

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	Number of Items
.742	.760	10

3.8.3 Content Validity of a Questionnaire

Content validity is the extent of a measurement tool represent the measured construct and it is considered as essential evidence to support the validity of a measurement tool such as a questionnaire for a research (Yusoff, 2019). For this current study a systematic approach was employed by taking some copies of the designed instrument to some group of experts for face validity index testing to ensure the content were properly and adequately constructed as proposed by Yusoff 2019.

3.8.3.1 The definition and formula of I-CVI

- I-CVI (item-level content validity index)
- The proportion of content experts giving item a relevance rating of 3 or 4
- $I-CVI = (\text{agreed item}) / (\text{number of expert})$

The results obtained for the four parts of the instrument from the six experts were shown below.

Table 3.7: The relevance rating on the item scale by six experts: Road access /condition of roads on MSMEs' performance

	Expert 1	Expert 2	Expert 3	Expert 4	Expert 5	Expert 6		Experts in agreement	I- CVI	UA
Item										
Q1	1	1	1	1	0	1		5	0.83	0
Q2	1	1	1	1	1	1		6	1	1
Q3	1	1	0	0	1	1		4	0.67	0
Q4	1	1	1	1	1	1		6	1	1
Q5	1	1	1	1	1	1		6	1	1
Q6	1	1	1	1	1	1		6	1	1
Q7	1	1	1	1	1	1		6	1	1
Q8	1	1	1	1	1	1		6	1	1
Q9	1	1	1	1	1	1		6	1	1

Q10	1	1	1	1	1	1		6	1	1
								S- CVI/AVE	0.95	
Proporti on	1	1	0.9	0.9	0.9	1		S-CVI/UA		0.8
Average proportion of items judged as relevance to six experts							0.95			

Table 3.8: The relevance rating on the item scale by six experts: Electricity supply on MSMEs' performance

	Expert	Expert	Expert	Expert	Expert	Expert		Experts in agreemen	1- CVI	UA
Item										
Q1	1	1	1	1	1	1		6	1	1
Q2	1	1	1	1	1	1		6	1	1
Q3	1	1	1	1	1	1		6	1	1
Q4	1	0	1	1	1	1		5	0.93	0
Q5	0	1	1	1	1	1		5	0.93	0
Q6	1	1	1	1	1	1		6	1	1
Q7	1	1	0	0	1	1		4	0.76	0
Q8	1	1	1	0	1	1		5	0.93	0
Q9	1	1	1	1	1	1		6	1	1
Q10	1	1	1	1	1	1		6	1	1
								S- CVI/AV	9.6	
Proportion Relevance	0.9	0.9	0.9	0.8	1	1		S-CVI/UA		0.6
Average proportion of items judged as relevance to six							0.92			

Table 3.9: The relevance rating on the item scale by six experts: Water supply on MSMEs' performance

	Expert 1	Expert 2	Expert 3	Expert 4	Expert 5	Expert 6		Experts in agreement	1- CVI	UA
Item										
Q1	0	0	0	0	1	1		2	0.33	0
Q2	1	1	1	1	1	1		6	1	1
Q3	1	1	1	1	1	1		6	1	1
Q4	1	1	1	1	1	1		6	1	1
Q5	1	1	1	1	1	1		6	1	1
Q6	0	0	1	1	1	1		4	0.67	0
Q7	1	1	1	1	1	1		6	1	1
Q8	1	1	1	1	1	1		6	1	1
Q9	1	1	1	1	1	1		6	1	1
Q10	1	1	1	1	1	1		6	1	1
								S- CVI/AVE	0.9	
Proportion Relevance	0.8	0.8	0.9	0.9	1	1		S-CVI/UA		0.8
Average proportion of items judged as relevance to six experts							0.92			

Table 3.10: The relevance rating on the item scale by six experts: Telecommunication services on MSMEs' performance

	Expert 1	Expert 2	Expert 3	Expert 4	Expert 5	Expert 6		Experts in agreement	1- CVI	UA	
Item											
Q1	1	1	1	1	1	1		6	1	1	
Q2	1	1	1	1	1	1		6	1	1	
Q3	1	1	1	1	1	1		6	1	1	
Q4	1	1	1	1	1	1		6	1	1	
Q5	1	1	1	1	1	1		6	1	1	
Q6	1	1	1	1	1	1		6	1	1	
Q7	1	1	1	1	1	1		6	1	1	
Q8	1	0	1	1	1	1		5	0.83	0	
Q9	1	0	1	1	1	1		5	0.83	0	
Q10	0	0	0	0	1	1		2	0.33	0	
								S- CVI/AVE	0.90	0.7	
Proportion Relevance	0.9	0.7	0.9	0.9	1	1		S-CVI/UA			
Average proportion of items judged as relevance to six experts								0.9			

The recommended cut-up points for a content validity index (CVI) score by at least six experts is 0.83 as recommended by several authors there-in contained in the work of Yusoff (2019). The CVI obtained from the tables above for the four parts of the instrument developed were 0.95, 0.92, 0.92, 0.9 respectively. This shows that the face validity of the instrument used was good enough to apply for the study since the content validity indexes were greater than the recommended value score of 0.83.

CHAPTER 4

DATA PRESENTATIONS

4.0 Introduction

In this chapter, data collected from secondary sources from government ministries and agencies about the current provision of the infrastructure facilities in the study area were presented. Pederson L. et al., (2020) found that, “in secondary data there is much information available that has been collected in the past upon which subsequent research could be conducted in a timely manner”. Secondary data was considered most appropriate for this section of the research. Data collected using this approach were presented in tables and charts below.

4.1 Current provision of infrastructure facilities in Jigawa state

As contained in the research objectives that this current study intended **to examine the current status of infrastructural facilities in Jigawa State**, below were the outcomes of the availability of the infrastructure facilities as obtained from secondary data provided by government agencies and documents from publications.

4.1.1 Roads and Transport

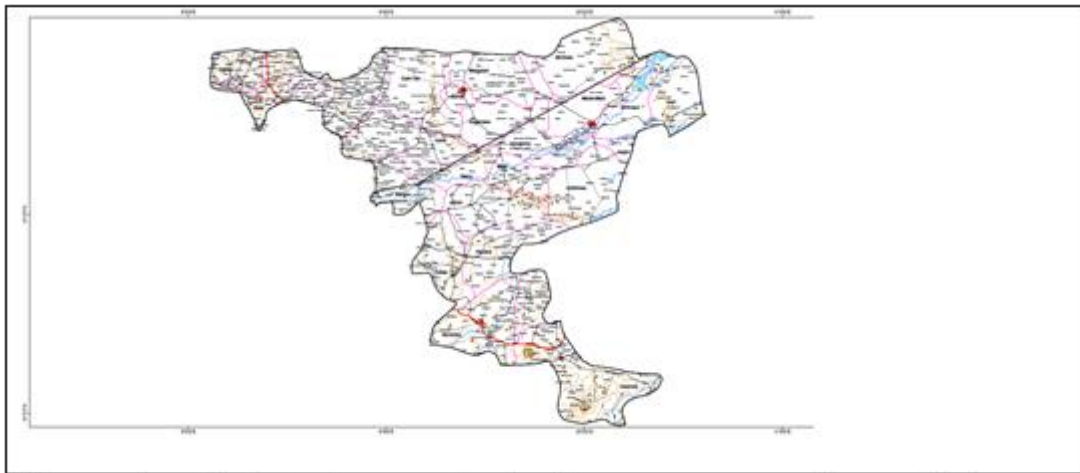
“A road is a long piece of hard ground built between two places so that people can drive or ride easily from one place to another (CED) Centre for Environmental Development. Accordingly, a road is a long, narrow stretch with a smoothed or paved surface, made for traveling by motor vehicle, carriage, etc. between two or more points ([www.dictionairy.com>browse>road](http://www.dictionairy.com/browse/road))”.

(a) Roads

Roads and transport facilities were important aspects that aid firm processes and procedures. Without roads and transport facilities, mobility of both human and material resources will face difficulties as they could not move from areas of supply to areas of demand. (Agba et al., 2010 & Adenipekun, 2013). Additionally, Igwe et al., (2018) found that bad road connectivity limits easy the movement of goods and services raising the cost of delivery and leading to price increases and low demand which reduced revenue. Tom et al., (2016) revealed that one of the policies of a country was to offer an environment

conducive to enterprises to prosper. Earlier studies by (Doe and Asamoah, 2014 and Tsauni, 2005) who examined transportation facilities, of the twenty-four countries in Africa, revealed that Nigerian transports facility (railways, airways, roads, and waterways) were given less concern for their effectiveness by the government.

Map 4.1 Map of Jigawa State showing transportation systems



Source: <https://geoinfotechstore.com/product/jigawa-state---topographic-map-11829>

Keys to the map

■ Federal Road
 ■ State Road
 ■ Feeder Road
 Rail line
 ■ River

From the map above, the keys show the types of roads, the rail line and rivers that cut across the state as further explained by the Surveyor General, Jigawa State Ministry of Land and survey (2021).

Table 4.1.1.1 shows current roads coverage in Jigawa State

Type of roads	Length of Kilometer Coverage
Federal Roads	638.479
State Roads	3,030.194
Feeder Roads	808.885

Source: Office of the Director of Land Administration, Jigawa State (2021).

According to the Director of Land Administration in Jigawa State Ministry for Land and Regional Planning, all the Federal Roads that cut across the state were constructed by the Federal Government of Nigeria and their maintenance was under it. The roads covered a total length area of 638.479 km. The State Roads with a total length of 3,030.194 were constructed by the Jigawa State Government while the Feeder Roads with a total length of 808.885 were constructed by the State and various Local Governments in the state, their maintenance was done by the respective organs that constructed them.

b) Railways

Railways were very important means of transport, especially in the movement of bulky goods, and low-cost advantages led to lower costs of production. But the current railways status in the state was not encouraging because it was inherited from the colonial masters and had not been in use for many decades. The rail lines were a straight line that touched the border line of only 5 local government areas out of the 27 local governments in the state as could be seen on the above map. The rail lines were in bad condition and abundant since transportation by train had been abandoned for many decades. As a result, the transportation system in the area to conduct the study faced many challenges with regard to railways which could assist in the movement of heavy and bulky goods associated with lower cost than other means of transport. The certainty of the safety of goods in transit was even higher using railways than roadways.

c) Airways

The airways were another important means of transportation as it was better and speedier to use it for the transportation of perishable items as well as imports and export. But it was unfortunate that the only airport constructed in Dutse, the State Capital known as (Muhammadu Nuhu Sunusi International airport) is an airport serving the city of Dutse (WIKIPEDIA). Therefore, there was no identified relationship that exists between the airport and the MSMEs operations in Jigawa State.

d) Waterways

The study area was located in the interior far away from the coastal areas. Transportation by water was also considered much better and cost less when it comes to the movement of bulky and heavier items. But in the study area when goods arrived in the port, a company had to use trucks to move the goods to the interior which was a far-away distance journey that would increase the cost of production substantially.

For example, “**Transport in Tanzania** an African country includes road, rail, air, and maritime networks. The road network is 86,472 kilometers (53,731 mi) long, of which 12,786 kilometers (7,945 mi) is classified as a trunk road and 21,105 kilometers (13,114 mi) as a regional road. The rail network consists of 3,682 kilometers (2,288 mi) of the track. The commuter rail service is in Dar es Salaam only. There are 28 airports, with Julius Nyerere International being the largest and the busiest. Ferries connect Mainland Tanzania with the islands of Zanzibar. Several other ferries are active on the countries' rivers and lakes” (https://en.wikipedia.org/wiki/Transport_in_Tanzania. May 8, 2022).

The above information showed that transportation facilities were lacking in the study area if compared to what was obtainable in **Tanzania**. It was indicative that MSMEs in **Tanzania** will have higher opportunities to benefit from the low cost of transportation than the study area with the only road as means of transport.

4.1.2 Electricity Supply

According to Collins English Dictionary, electricity is defined as “a form of energy that can be carried by wires and is used for heating, lighting, and to provide power for machines”. Firms require an electricity supply to power their types of machinery for production processes and other purposes. MSMEs need stable power to push their types of machinery and also provide a conducive work atmosphere for employees to function well. Currently, the electricity supply is irregular and erratic (about 4,000 megawatts) generated and supplied thereby resulting in low shading, making it hard if not impossible for enterprises to perform efficiently, (Alarape, 2014; Ekpo & Basse, 2016; Tom et al., 2016; Gumel, 2017 and Nwosu, 2017). In the year 2020 message to the country, the President of Nigeria General Buhari stated that “power has been a problem for generations

and that there was the need to pick up the pace of progress”. Similarly, Mato, (2020) stressed that “you cannot industrialize without a steady electricity supply in a country”. Electricity supply in Nigeria was the responsibility of three major companies namely generation, transmission, and distribution companies. The transmission and distribution companies were private and profit-oriented companies. After power was generated, another separate company was charged with the responsibility to distribute the electricity for consumption to both residential and industrial benefits. A staff from one of the regional offices of the KEDCO the company that distributed electricity to consumers stated that for his company to provide electricity for twenty- four (24) hours, the generating and transmission companies have to generate and release at least twelve thousand (12,000) MW daily. Surprisingly, only four thousand (4,000) MW were ably generated and supplied to thirty-six states and Abuja which was highly inadequate. The assertion was supported by a report from Power Africa Fact Sheet (2019), the report revealed that the country has the capacity to generate twelve thousand five hundred (12,500) MW with available installed equipment but only four (4,000) MW was generated much lower than the requirement.

A similar report by the Federal Ministry of Power, Nigeria (2017) through the Power Sector Recovery Implementation Program also revealed that the country has the capacity to generate twelve thousand (12,000) MW but the generation stands at four thousand (4,000) MW only for a population of about two hundred (200) million people and industrial consumption. The electricity supply in Nigeria was highly inadequate.

“In Pakistan, according to Pakistan Economic Survey 2019-20, the installed electricity generation capacity reached 37,402 MW in 2020 for a population of about 221 million inhabitants”.

Table 4.1.2.1 Shows comparison of electricity generation in Nigeria and Pakistan

Country	Population (Million)	Generation capacity (MW)	Sources
Pakistan	221	37,402	Pakistan Economic Survey 2019-20
Nigeria	200	4,000	Power Africa Fact Sheet (2019)

The difference between the two countries was too wide an indication that the industrial operations in Pakistan would not be threatened by electricity supply inadequacies as felt by Nigerian industries.

After the last ETP, additional data was thoughtful to accomplish this current study as it was also advised by the current research study supervisor. Due to the prolonged Covid-19 pandemic and the prevailing security issues and challenges in Nigeria that limited mobility, the study was able to obtain additional secondary data from fifty-one (51) companies with regard to electricity and water. Power was a crucial factor of production, and its adequacy and efficient supply that tally with company requirements would ensure efficiency, growth, and development for enterprises.

Table 4.1.2.2 Shows a summary of electricity requirements/supplied by NG

ENT.	RM	CR	Y	WF	WP	BK	PC	GM	B I	CP	Café	CW	R
Hrs. Req.	68	44	24	90	34	104	24	48	44	6	10	58	36
Hrs. SS	19	26	18	43	4	51	18	24	14	4	4	25	16
% less	72	41	25	52	88	51	25	50	68	33	60	57	56

Source: Field Survey, 2021.

Keys: ENT. - Enterprises; RM - Rice Mills; CR- Car Repairs; Y- Yogurt; WF - Welding & Fabrication; WP -Water packaging; BK - Bakery; Plastic Company; GM - Grains Mills; BI - Block Industry; CP - Carpentry; CW- Car Washing; R- Restaurant; Hrs. - Hours; Req. - Required; SS - Supplied.

Interpretation: From the table above, it was indicative enough that the information showed that MSMEs in the study area were suffering a lot from electricity supply as greater percentage got less than 50% of their daily requirements. The few of them that needed to balance about 25% of what they required was due to the special line connection which was very costly, making it very difficult for many companies to afford especially MSMEs. Some of these enterprises had to provide 100% of the electricity requirement because of the total supply inadequacy in the area. The report of the Power Africa Fact Sheet (2019) as stated earlier, only 4,000 MW of electricity was generated daily in Nigeria for the 36 states including Abuja the Federal Capital, and the 744 local governments areas in the country. The electricity inadequacy led to increased costs of production that affected productivity, profits, and expansion of the enterprises.

4.1.3 Water Supply

According to Encyclopedia Britannica, water is defined as “a substance composed of chemical elements **Hydrogen and Oxygen** and existing in gaseous liquid and solid states. It is one of the most plentiful and essential compounds. A tasteless and odorless liquid at room temperature, it has the important ability to dissolve many other substances”.
<https://www.britannica.com> › Science› Chemistry.

The Jigawa State Water Board and Rural Water Supply were the two agencies responsible for the provision of water to the public under the monitor-ship of the State Ministry for Water Resources. To ease the provision and management of the water supply, the supply structure was divided into seven zones. The table below showed the seven zones and the number of pump stations in each of the zone.

Table: 4.1.3.1 showing the distribution of pump stations the for-Water Supply

Zonal Areas	Number of pump stations
Hadejia zone	30
Dutse zone	28
Ringim zone	26
Gumel zone	26
Jahun zone	16
Kazaure zone	18
Birnin kudu zone	10
Total	154

Source: Zonal office Hadejia, Jigawa State Ministry for water resources November 2019.

The distributions above showed that there were one hundred and fifty-four (154) pump stations across the state to provide clean drinking water 24 hours daily to the population of over five (5) million people and for industrial consumption. The Zonal Manager in charge of (the Hadejia zone) revealed inadequate pump stations, electricity supply irregularities, low & fluctuating voltage capacity from NG, fuel & lubricants shortages as well as lack of enough full-time workers were the main problems that led to supply

inadequacies for both public and industrial requirements.

(b) Water

Out of the fifty-one (51) MSMEs purposefully selected and their management was asked to provide some data with regards to water daily company needs and the volume supplied from the government sources. A greater number of the companies contacted did not depend on water supply from the government pipeline due to supply inadequacy and irregularity. The majority of them have to drill their own water using the company generator which leads to additional costs of production. This observation tallied with the report from one of the district managers who provided that the average daily supply per individual in the state was only 9 liters. This volume of water supply was too short even when compared to the standard recommended volume as contained in the report by Habitat International (October 2013) which stands at 34.9 liters for an individual per day.

In Ghana, the average water supply in Accra city stands at 60-120 liters per capita per day (<https://www.researchgate.net/Su.....>, May 8, 2022) when compared to a Nigeria semi-urban city supply that stands at 34.1 liters per capita per day as provided by Habitat International (October 2013) was observed to be a highly inadequate while to the study area with only 9 liters per person was too short.

4.1.4 Telecommunication Services

It is defined as “the transmission of information by various types of technologies over the wire, radio, optical or other electromagnetic systems. It has its origin in the desire of humans for communication over a distance greater than that feasible with the human voice, but with a similar scale of expediency; thus, slow systems (such as postal mail) are excluded from”. <https://en.wikipedia.org/wiki/Telecommunication>.

The telecommunication facilities in Nigeria included radio, television, fixed and mobile telephones, and a large number of privately owned and operated internet cafes in most towns in the country. It was observed that the Nigerian communication systems were characterized by poor service delivery due to power supply fluctuations, poor networking, high cost of data subscriptions, and high billings (sourced:

<https://wikipedia.org/wiki/telecommunication>, November 26, 2019).

Telecommunications bring industrial prosperity, lower operation costs, and expanded markets. The inclusion of ICT services in business was accounted to be a vehicle that supported firms to have a worldwide competition capability associated with improved efficacy, and assure intimate relation to clients and suppliers (Alam & Noor, 2009; Absah et al., 2017; Manga, 2019; Ebert & McMillen, 1999 and Ashrafi & Muntaza, 2012). Organizations using ICT for their operations were found to be more efficient in marketing, product and service differentiations became easier, etc., (Lopez & Muneta, 2012).

In Nigeria, telecommunication structures were categorized as being with wide gaps between the plan and obtained goals due to mismanagement and managerial incapacitation (Akinyele et al., 2016). On costs and benefits studies found “cost structure of telecommunication in Nigeria was considered high among the African Nations and use of ICT still require a lot of money that reduces firms’ profit due to high subscription cost” (Stork et al., 2006 and Doe & Asamoah, 2014).

4.2 Social Infrastructure

Table 4.2.1 showing Health facilities across Jigawa State

Type of facility	Number
*Tertiary	2
*Secondary	12
*PHCs	682
*Private	8
*Total functional facility reporting	704
*Non-reporting facility	13

Grand total	717
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Source: Federal Ministry of Health, Nigeria. Via www.dhis2nigeria.org.ng November 23, 2019.

Table 4.2.2 shows Educational Institutions across Jigawa State

Type of school	Public	Private
Pre-primary and primary	2338	449
Junior secondary school	550	41
Senior secondary school	189	10
Science and technical sch.	10	Nil
Total	3087	500

Source: ASC information and coverage, Jigawa State annual report 2017/2018.

Table 4.2.3 shows tertiary educational institutions

University	2
Polytechnic	3
College of Education	2
School of Nursing	2
Health Technology	1
Informatics Institute	1
Total	11

Source: Office of Director of higher education, Jigawa State Ministry of Education. Field Survey, 2019.

**Table 4.2.4 Comparison; standard ratios and current facilities supply in
Nigeria/study area**

	Standard Ratio	Obtainable Ratio	Remarks	Sources of Data
Health Facilities	WHO Doctor-Patient Ratio 1:600	Nigeria Doctor-Patient Ratio 1:2753	Gap too wide	Business Day (March 4, 2020)
	Projected population 6,061,792	Health institutions 717	Highly inadequate	Business Day (March 4, 2020)/ NPC, 2006.
	UBEC (Class- Student Ratio, SS) 1:40	Obtainable in Hadejia LG Schs. Jigawa State. 1:149	A wide gap exists.	Universal Basic Education Commission (UBEC, 2004)
Water Supply	Semi-Urban Nigerian City 34.9 liter/person	Water board Jigawa State 9:1 liter/person	Highly inadequate	Habitat International (October, 2013); Jigawa State Water Board, Hadejia Zonal Office (August 2020)
Electricity Supply	Power generation to supply 24 hours 12,000MW	Available capacity generated 4,000MW	Highly inadequate	Power Africa Fact Sheet (2019)

Interpretation: The information contained in the table above showed that all the infrastructural facilities in the study area were highly inadequate to provide the services required for the MSMEs to perform with efficiency. The outcomes of the qualitative data obtained go along with the above findings. The majority of MSMEs interviewed cried out

about these facility shortages. The shortages of the facilities necessitated many of the enterprises to go for alternative supplies that increased the cost of doing business. For example, MAJASTIK RICE MILLS in the study area required 8 hours of consecutive supply of electricity but they usually got only one hour of electricity supply per day and worst of all low voltage capacity that could not satisfy any of the company's needs. The findings also go along with the large number of studies conducted (Lawrence and Goldman, 2016; Gumel, 2017; Leboea, 2017; Emezie, 2017 and Tahir & Inuwa, 2019) found "a positive relationship exists between the infrastructural facilities and MSMEs performance". Unfortunately, these facilities were inadequately provided in most developing countries Nigeria inclusive. Other studies on infrastructural facilities inadequacies and their implication on MSMEs revealed that the current conditions of infrastructure in Nigeria were very poor for economic activities to take place with success, especially in the manufacturing sector. Power was in short supply and unsteady, associated with low voltage. Roads were in worse situations, provision of water for human and industrial needs was also not defensible. The communication system which is vital in today's business effectiveness was not functioning very well due to an epileptic power supply (Abdullahi et al., 2016 Osamwonyi & Tafamel, 2010). Educational facilities that were supposed to provide skills to run a successful business were inadequate as compared to standard levels as shown in table 4.2.4 above. King & McGrath (2002) found that majority of MSMEs operated in Kenya were operated by educationally ill-equipped entrepreneurs. They further revealed that "studies suggest that those entrepreneurs with more education and training were more likely to be successful in the MSMEs sector". Therefore, for MSMEs to perform with efficiency in Nigeria, business owners need to be well-educated in terms of management and skills.

In a budget (2020) presentation before the State House of Assembly, the Governor of Jigawa State Muhammadu Badaru Abubakar claimed that the state has a total road coverage of over 2,400 km. All the major towns in the state were reliably interconnected with road networks with feeder roads connecting a large number of communities to the Federal and State roads in the area. This claim along with the quantitative findings of this

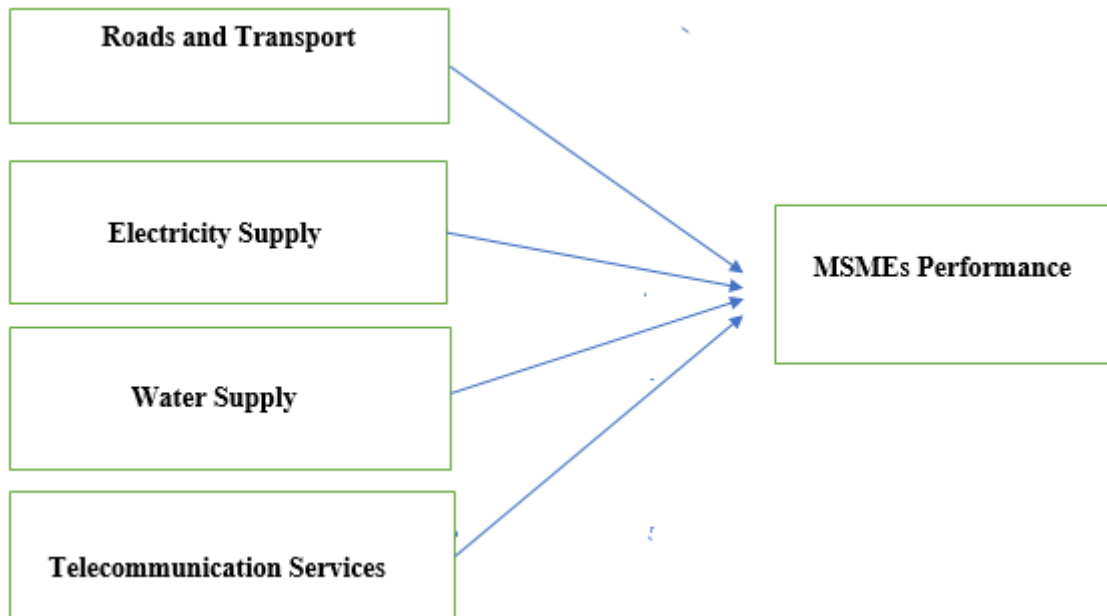
current study where the results showed the accessibility and condition of roads did not constitute obstacles to the MSMEs operations in the study area. In a similar development, Abdullahi (Freedom Radio Barka da Hantsi, August 27th, 2020), lauded the achievement of social amenities in Jigawa State where he stated that “I traveled extensively in Nigeria but one could hardly see a state with roads connectivity and in good condition like that of Jigawa State”. The claim was supported by the report from the National Competitiveness Report in Nigeria, published by the National Competitive Council of Nigeria. In the report, Jigawa State was placed 9th in the country in terms of quality infrastructure and not surprisingly number one in the quality of roads sub-category with a score of 96.38%. The above information answered study objective one as stated that **“to examine the current status of infrastructural facilities in Jigawa State”**.

4.3 A Conceptual Framework Model

The development of a Conceptual Framework Model was part of the current study objectives that state **“To develop a conceptual framework that could be used as a tool for developing and testing business performance research hypotheses in relation to current study”**.

The conceptual Framework Model “contained dependent and independent variables”. Independent variables for current research were; infrastructural facilities that consisted of roads/transport, electricity, water, and telecommunication that affected the dependent variable - MSMEs performance which may result in firm efficiency, growth, profitability, innovations, product quality, employment growth, and so on. From the literature reviewed, a model of a conceptual framework was developed from a similar study by Mushtaq and Khan (2012).

Chart 4.3.1 shows a Conceptual Framework model



H 01: There is a positive relationship between roads and transport and MSMEs performance. As postulated by Igwe et al., (2018) “that bad road connectivity limits the easy movement of people and facilities, and the rising costs of delivery leads to price increases and low demand which reduces revenue, thereby affecting MSMEs performance”.

H 02: There is a positive relationship between electricity supply and MSMEs performance. As stressed by Mato (2020) “that you cannot industrialized without a steady electricity supply in a country”.

H 03: There is a positive relationship between water supply and MSMEs performance. As Das (2008) and Akinyele et al., (2016) highlighted “portable water supply to small enterprises was considered an important infrastructure that could add to Support to hypotheses incorporated in the thesis accordingly. Productivity rise while its inadequacy posed negative impacts on business operations”.

H 04: There is a positive relationship between telecommunication services and MSMEs performance. As found by (Lopez & Muneta 2012) that, “organizations using ICT for their operation were found to do very well in marketing and can distinguish goods and services

with ease etc”.

4.3.2 Validation of Conceptual framework

Conceptual framework validation was considered very important as it could increase the level of satisfaction that the proposed structure would fit for the purpose of its development. Joslin (2019) found a “**Use Cases Technique**” as one of the ways where the constructed conceptual framework would be taken to different experts in the field for their observations and contributions which could help a researcher discover new items that were not earlier included. The continuous application of this technique would help come up with a standard structure of conceptual framework that would rightly fit the research program intended.

After an intensive review of related literature, a structured model of a conceptual framework was formulated as adopted from a related study by Mushtaq & Khan (2012) and a similar study by Tirimba et al., (2014) both studies found “positive relationship exists between independent variables and dependent variable”. The model was taken to different faculty members both at LPU (India) and at my home University (Nigeria). The observations made by these experts contributed immensely towards the development of the above model of the conceptual framework that deems fit for the current study. This technique of checking the developed conceptual framework with others has since been adopted by Stojanov (2015) who stated that asking experts in the field to validate the developed conceptual framework would help to come up with a model that could appropriately fit the work intended.

The concept above and the information followed thereafter have also answered our research objective two which stated “**To develop a conceptual framework that could be used as a tool for testing business performance research hypotheses**”.

4.4 Results for Qualitative Data

As contained in the methodology for current research work, two main methods for data collection were applied for the conduct of this research work. Current research intended “**To investigate through qualitative study the extent of MSMEs owners’ perception on the provision of infrastructure facilities as relating to their business operations in**

Jigawa State”.

Ten MSMEs were selected conveniently for qualitative study. Information was gathered through discussion and interviews guided by a checklist. Results were summarized and presented in thematic analysis forms. Focus discussion was found suitable as the respondents showed their interest during the conduct of the exercise on different occasions in the period that covered June

2019 to March 2021. The participants included enterprise owners, managers, and officials from government agencies. This section of the study answered part of the observations made by RAC members which stated that this study lacks qualitative inputs.

4.4.1: Theme I: -Roads and Transport

In Jigawa State road transport was not a threat to MSMEs operations because all the twenty-seven local government areas in the state were efficiently interconnected with the roads network as claimed by the state governor on pp.14 above. In the course of conducting this current study greater percentage of the enterprises contacted none complained about road connectivity but only the costs of transportation which were caused by other factors such as the high cost of fuel and motor vehicle maintenance.

In the study area, some owners/managers were interviewed and obtained information with regard to roads and other transport facilities provided by the public and how these facilities affected the operations of their businesses. A greater percentage of the enterprises do not have location problems with regards to proximity to roads as many of them were established by the roadsides except Auyo Pure Water Company and Dairy Products which was located away from the nearby road. **Therefore, our hypotheses H 01 which stated that there is a positive relationship between roads and transport and MSMEs performance is accepted.**

Subtheme: Availability of Roads

Enterprise 1; the manager of the company (Auyo Pure Water Company and dairy products) complained bitterly about the proximity of his company to the nearby road because the company was located away from the main road. “We used to face more difficulties to move out our products, especially during the raining period”.

Enterprise 2; the manager of Three Brothers Rice Mills said that marketing company products were also a concerning issue due to the distance covered to meet and satisfy distanced customers and bring in raw materials. He stated further “additional costs were incurred that raises the price of our products that affected sales, revenue and other potentialities”.

Enterprise 3; the production manager of Majestic Rice Mills Birnin Kudu stated that “one the aching problem to his company operations was that of transportation for both raw materials and finished goods. Although there were good roads connectivity and accessibility, Lorries and Trucks lost their routes along the company location thereby creating many problems that raised the cost and eventual loss of revenue”. “Additional costs have to be incurred for Lorry owners to move-in and move-out raw materials and finished goods”.

Subtheme: Road Condition

Enterprise 1; the manager of Auyo Pure Water Company and dairy products explained that during rainy times the company vehicles used to face a lot of difficulties. “If there was a heavy downfall of rain the vehicles could not go out of the company premises for distribution of company products and production usually stop”. He further reiterated that “there was even a day when one of our company vehicles was stopped in the mid of hard mud where it took all our company workers two good days to release it out”. The manager said that sometimes the issue of inaccessibility affected the company’s production activities for two to three days without production because the products could not be distributed due to road closure caused by rainfall.

Subtheme: Cost of Transport

Enterprise 1; the manager of Three Brothers Rice Mills explained that transportation of raw materials to the company consumed a substantial part of the company resources. A truck cost N550, 000 - N600, 000 at the time of the company visit in mid-2020 for a single trip to supply raw rice to the company. The transportation cost adds substantially to the unit cost of company products.

Enterprise 2; in a similar case, Yakubu Welding and Fabricating Company situated along

Court Road in Hadejia the proprietor has this to say “my company suffered from transportation costs to bring in the raw materials into the company”. He further said the price was higher due to the non- availability of a railway network in the area which was cheaper compared to road transport. Another reason was due to the non-clustering of related businesses that could combine efforts to make a bulk purchase of raw materials from the supply point which could reduce cost. He further said, “price charged for the transportation of incoming raw materials negatively affected the operations of my company with regards to the cost of production, prices of finished goods, sales and revenue”.

Enterprise 3; the manager of Majestic Rice Mills Birnin Kudu stated that location disadvantages since lorries and trucks changed routes that gave the company advantages of availability of transportation facilities with lower costs but now the company used to incur additional costs for carriage of in-coming and out-going of both raw materials and finished products that raised the price of their products. Transportation problems negatively affected company performance in terms of productivity and profits the manager said.

Enterprise 4; a small beverages company located at Mallam Madori Local Government explained the problems faced with regard to product transportation. The company used to incur additional expenses to aid the distribution of finished products to various marketplaces using vehicle riders. The distributors work on commission bases out of company revenue thereby affecting profits and expansion potentialities of the company. Most of the problems stated above by business owners/managers have since been identified by previous studies, (Agba et al., 2010 & Adenipekun, 2013) discovered “without roads and transport facilities, mobility of both human and material resources will face difficulties as they could not move from areas of supply to areas of demand”. “Bad roads connectivity limits easy movement of goods and services, rise cost of delivery leading to price increase and lower demand which reduce revenue” Igwe et al., (2018). Furthermore, Kimuyu and Kayizzi-Mugerwa (1998) observed that “in developing nations, inadequate power supply and roads were the two major infrastructural

constraints that challenge the industrial sector”. The economy Strategy Paper (2003) “considered infrastructure inadequacies as critical elements that blocked profitable business in Kenya. The study further identified poor condition of roads and accessibility to land/place of work, power supply, and utility as main problems”.

4.5.2: Theme II: - Electricity Supply

Firms require an electricity supply to power their types of machinery for production processes and other purposes. MSMEs need stable power to push their types of machinery and also provide a conducive work atmosphere for employees to function well. In the year 2020 message to the country, the President of Nigeria General Buhari stated that “power has been a problem for generations and that there was the need to pick up the pace of progress”. Similarly, Mato (2020) stresses that you cannot industrialized without a steady electricity supply in a country.

Subtheme: Daily Hours Supply

Enterprise 1: Majestik Rice Mills, the operation manager explained that the company operation usually runs on 70 tons production capacity per day. “The production processes involved soaking, parboiling (steaming), drying and milling”. The power requirements to do all these processes was about 8-10 hours of consecutive supply of electricity every day without break. Unfortunately, the electricity supply from the National Grid in the area was highly irregular and the time supplied can hardly exceed one (1) hour only and associated with low voltage capacity that could not turn the company machines for milling processes.

Enterprise 2: In Yakubu Welding and Fabricating Company, the manager said “electricity supply which was on shift bases became a major challenge to the business operations such as inefficiency and low productivity”. “Apart from raw materials, electricity was a major factor in the company operations but its supply was very much uncertain. Sometimes the supply used to be at odd hours of the day (mid-night while people retired from active life)”. The proprietor said that the company used to experienced light-off for long periods during active moments (8:00 am- 6:00 pm) which affected company performance.

Enterprise 3: Three Brothers Rice Mills narrated that a major challenge to the company operations was inadequate power supply from the national source of electricity supply. The poor power supply necessitated the company to enter into an agreement with a power supply company in the area and got connected to a special line that could give the company a substantial amount of electricity directly from the transmission station.

Enterprise 4: A partner with cottage rice threshing business holdings said that the main source of power to their company operations was electricity supply from the National Grid. The supply of electricity in the area used to be at odd hours of the day (midnight). They have no other option than to stay and work the whole night, very uncomfortable due to security issues prevailing in Nigeria.

Enterprise 5: The operation manager of the Auyo Table Water Company stated that they solely provided their own electricity for production because of the total failure of its supply from the National Grid in the area. “Look around no single electric pole or cable was sighted connecting the company at the time of the visit in June 2019”. It was not a wise decision to put money where it will yield no benefit said the manager. The manager re-emphasized that, the electricity supply in the area was too poor and sometimes took weeks without a spark of light in the area.

Enterprise 6: the proprietor of Nakowa Plastics Company complained bitterly about infrastructure failures in Nigeria, especially electricity which was very much crucial to the operations of his company. The company types of machinery required full voltage capacity and for longer hours to cover the production processes which was not obtainable in the present-day power supply in Nigeria.

Enterprise 7: Is a small-scale beverage company that produces yogurt and ice-cream products located along M/Madori road in Jigawa State. The manager of the company stated that “after production, the company products still need a stable power supply to maintain a certain level of temperature for refrigeration to avoid products spoilage”. As a result, more money used to be spent to maintain the required temperature.

Subtheme: Cost of Power Supplementation

Enterprise 1: the production manager of Majestik Rice Mills explained that due to supply inadequacy of the daily requirements of electricity to meet up with the company production requirements, the company resorted to out-sourcing their own power that consumed more than 50% of company revenue. The company had to purchase and maintained two generating plants of 350 KVA and 150 KVA for complete milling requirements and lighting.

Enterprise 2: at Yakubu Welding and Fabricating Company, the manager stated that “when my company opted for the generator for power supply, the cost was so high which reduced my profits of the company substantially”. He further explained “if a one thousand Naira (N1000.00) worth of units of electricity was purchased from the National Grid used to provide a minimum of ninety- six hours (96hrs) of electricity supply as of 2019. But if the same amount i.e. (N1000.00) was used to buy fuel for the generator it could only provide a maximum of ten hours (10hrs) of electricity supply”. When the cost and benefits analysis was taken into consideration for the two instances, it could be concluded that insufficient electricity supply significantly affected company profit and growth potency negatively.

Enterprise 3: to supplement the power requirement by Three Brothers Rice Mills, the company had to purchase a large number of electrical poles, rolls of cables, and transformers and got connected to a special line that will provide the company with a substantial amount of power to complement company production requirement. The arrangement consumed a huge amount of money from the revenue and eventual increase in the cost of production, and price of company products that reduced revenue.

Enterprise 4: the proprietor of Nakowa Plastics Company stated that power supply inadequacies forced the company to relocate to another site to improve the supply of electricity which led to the abandonment of all established structures. The new site consumed a huge amount of money but still, the benefits were not all that encouraging. Company revenue was used to purchase a large volume of fuel and lubricants for the maintenance of the company generators leading to higher production costs that affected

the company operations negatively, cut down sales, and revenue, and the company was placed at a competitive disadvantage, especially with foreign goods.

Enterprise 5: the operation manager of Auyo Table Water Company stated the fueling of the generator and its lubricants consumed away a large sum of the revenue that affected the profits and growth prospects of the company.

Enterprise 6: is a small-scale beverage company. Due to the nature of the company's production processes and the extended need for electricity after production, the company made arrangements with the Electricity Distribution Company in the area and got connected to a special line with higher billing charges that increased production costs. If the unsold products if returned back, the company has to refrigerate the products again which leads to additional costs to the company that impacted negatively on the company profits.

Subtheme: Voltage Capacity

Voltage Capacity is a universal phenomenon of concern to all enterprises that necessitate many of them to go for power supplementation that raises the cost of production substantially.

Enterprise 1: the production manager of Majestik Rice Mills stated that the low voltage capacity provided by the power supply agency to the company was too low to turn the company production machines a situation that forced them to purchase two generating sets where fuel and maintenance of the generators became the issue of cover to the company operations.

Enterprise 2: similarly, it is the same situation as in Majestik Rice Mills above, the proprietor of Nakowa Plastics Company complained so bitterly about the low level of the voltage supply that the types of machinery of his company failed to move. Worst of all is the unnoticed light off that used to create machine damage and spoilage of materials in the production process that caused a lot of losses to the company.

Enterprise 3: the production manager of Three Brothers Rice Mills also cried so much that poor power supply with regards to low voltage and supply fluctuation created lots of concern for the company where a large sum of company resources was used to

supplement the lost energy. It was observed that the lack of industrial estates in the area that could lead to industrialization may be a factor that militated against getting electricity supply from the National Grid. As once aired out on a Radio Jigawa Broadcast on Thursday evening (31 December 2018), a management staff of the KEDCO (the company that supplies electricity in Nigeria) stated that “electricity was now supplied to areas of high demand”, specifically mentioned industrial areas in urban centers. Unfortunately, industries in the study area were located in rural communities and were far away from one another which made it very difficult for the supplying company to provide the required amount of electricity for their respective operation requirements. All problems related to electricity (hours of supply, voltage capacity, reliability of supply, etc.) that affected industrial performance as voiced out by the various stakeholders above were earlier observed and communicated by previous studies. Akinyele et al. (2016) observed that “utmost the infrastructures in Nigeria were now rotten and need renovation, restoration, and replacement. The roads were in bad shape, most of the electrical installations were obsolesces, and water was inadequate for human and industrial consumption which made it difficult for the MSMEs to operate with efficiency”. Kabir et al., (2016) and Osamwonyi & Tafamel (2010) on their various studies on infrastructural facilities inadequacies and its implication on MSMEs performance in Nigeria observed that “the current condition of infrastructure in Nigeria is very poor for economic activities to take place with success, especially the manufacturing sector. They further explained that power has been in short supply and unsteady, associated with low voltage, and the government has not earnestly been supportive towards the provision of a favorable environment for SMEs to function efficiently in Nigeria”. Agboli and Ukaegbu (2006) studied business environment and enterprise performance and “discovered that monetary reduction on public spending in Nigeria adversely affected the quality of public infrastructural facilities because of poor maintenance”. The inadequacies of infrastructural facilities were found in other nations. Tirimba et al., (2014) previously observed reason for poor investment and deplorable level of MSMEs performance in Kenya was associated with the poor state of infrastructural facilities. The

economy Strategy Paper, (2003) “considered infrastructure inadequacy as a critical element that blocked profitable business in Kenya. The study further identified poor condition of roads and accessibility to land/place of work, power supply, and utility as the main problems”. **From the responses gathered above on electricity supply we rejected the hypotheses H 02 which stated that there is a positive relationship between electricity supply and MSMEs performance.**

4.5.3 Theme III: - Water Supply

Business organizations that require water as their main raw material for production like bottling companies, water packaging companies, milling companies, textiles manufacturing enterprises, etc. need a large volume of water to accomplish a successful production process. Its limitation in supply affected the firm’s productivity. Das (2008) and Akinyele et al., (2016) highlighted “portable water supply to small enterprises was considered an important infrastructure that could add to productivity rise while its inadequacy posed negative impacts on business operations”.

Subtheme: Reliability of supply

All companies under study provide their own water to accomplish their production requirements. Most of the supply from the public sources was connected to the electricity supply from N G which it’s very low and unstable that affecting the efficient supply of the required water for effective processes.

For example, the proprietor of a successful and well-managed small farm situated in Ringim Local Government in the study area. The farm has four sections (poultry, livestock, farm, and garden). Water was very important and essential to the running of the farm but due to supply irregularity and unreliability of its supply from public sources water was solely provided by the farm using its own generation set which added cost to the business operations.

Subtheme: Waste management

Waste management was another issue of concern to some companies under study as additional costs were incurred to do that.

Enterprise 1: for example, Nakowa Plastic Management explained that wastewater management by the company was another matter of concern due to the non-provision of the sewage management system within the company premises which led to increased cost of production.

Enterprise 2: accordingly, the production manager of Three Brothers Rice Mills said that his company was facing a harder problem with the management of waste materials. According to the management of the company, the challenges the company faces with regard to waste management include the removal of dust from burnt rice offal and waste water that caused additional expenses. The dust used to affect a large number of neighboring households to the company and even caused the closure of a public school to save the students from the negative impacts of the polluted environment. **The results obtained from the qualitative data on water supply made the study reject hypotheses H 03: which stated that there is a positive relationship between water supply and MSMEs performance in the study a**

4.5.4: Theme IV: - Telecommunication Services

Telecommunications bring industrial prosperity, lower operation costs, and expanded markets. The inclusion of ICT services in business was accounted to be a vehicle that supported firms to have a worldwide competition capability associated with improved efficacy, and assure intimate relation to clients and suppliers (Alam & Noor, 2009; Absah et al., 2017; Manga, 2019; Ebert & McMillen, 1999; Ashrafi et al., 2012). “Organizations that used ICT in their operation were found to do better in the market and can easily distinguish products, services, etc.,” (Lopez and Muneta 2012).

Subtheme: Service benefits

Enterprise 1; the manager of Three Brothers Rice mills stated “my company benefitted from the services of telecommunication. Although the services were provided by private companies and the prices charged were high and associated with network problems of connectivity still the company benefitted a lot from the services provided. The manager of the company stated that “telecommunication services is an important tool used to reach our distanced customers”. Issues related to customer relations were made possible and easier using ICT services he added. **The outcome lead this study accept the hypotheses H O4 which stated there is a positive relationship between telecommunication services and MSMEs performance.**

Subtheme: Cost of subscription

On the issue of the subscription cost, all entrepreneurs contacted were having the same complaints about the high cost of billing structures of the communication companies as it used to consume some reasonable part of the firms’ revenue that could be used for growth and other development activities in the respective companies. They further emphasized that the cost became worst among those whose business operations involved the use of data.

Issues, as regards ICT in Nigeria, were examined earlier by previous studies Akinyele et al., (2016) identified that “telecommunication structures in Nigeria were categorized as being with wide gaps between planned and obtained goals due to mismanagement and managerial incapacitation. In a related study, Doe and Asamoah (2014) found that “the cost structure of telecommunication services in Nigeria was considered high among the African Nations. In a similar development,

Stork et al., (2006) found that “the main constraints the use of ICT still requires a lot of money that reduces firms’ profit due to high subscription cost”.

4.5.5: Theme V: - Company Finances

Management of company finance is an important aspect of the efficient running of business operations. Although it was not forthcoming for the enterprise owners/managers to release financial data of their various companies some were able to explain their bitter experiences with their inability to benefit from government financial support to uplift their businesses.

Subtheme: Government financial support

Enterprise 1: the owner of Ringim Farms has this to say as regards government financial support. The proprietor said that an agency from the Federal Government of Nigeria known as “**Nigeria Risk Sharing System for Agricultural Lending (NIRSAL)**” launched in 2011 and incorporated in 2013 by the Central Bank of Nigeria specifically designed by the Federal Government of Nigeria to encourage small scale farmers for a continues investment in agriculture”. The agency will give them protection against any uncertainty by taking care of greater percent of risk/losses that might occur. The proprietor said, “my farm was not able to benefit due to corruption and fear of the unknown”.

On the issue of bank facilities, the proprietor said it was very costly and the culture of the society discouraged him to secure bank loans due to interest rate charges. These were the main reasons for the slow growth of the farm because the growth was usually financed internally.

Enterprise 2: the manager of Royal Bakery stated that financial supports from the government were difficult to get due to corruption, political and bureaucratic processes in the country. Recently the government announced for funds to be released in Nigeria to support small business owners and potential entrepreneurs. “One could be observed that those who benefitted from such support were people without entrepreneurial consciousness” the manager irritated. “The fund was distributed without any criteria specified for MSMEs’ benefits. Anybody can apply online and if successful his account got credited. Many of the beneficiaries ended up solving their immediate social problems

such as the purchase of motorcycles, and android phones, marrying additional wives, and a host of other expenditures unrelated to business activities but only consumption.

Enterprise 3: the manager of Three Bothers Rice Mills complained bitterly about the negative outcome of policy intervention on rice importation by Nigeria aimed at empowering local production of the product. “Efforts made by my company yielded no fruits due to bureaucratic processes and corruption in the country”. The company was lost in the game that touched the heart of the company proprietor. The company proprietor had to source a large sum of money from other business holdings and injected it into the company to sustain its operational activities. “Collateral requirements, rate of interest, corruption, and bureaucratic processes were issues that blocked my company’s chances to obtain a bank loan to finance growth” the manager re-emphasized.

Enterprise 4; the proprietor of Nakowa Plastics Company complained about fund limitations in times of seasonal higher demand for his company products. “If one applied for a bank facility to take care of the high demand period for his company products, the fund will not be available on time due to bureaucratic processes until after 2-3 months of the cycle”. “My company sales record used to be very poor during that time since I was operating at a point of competitive disadvantage”. The government support was also notwithstanding due to corruption in the country. He said “I applied for government financial support that was aired on the media, all efforts to benefit from such support used to be frustrated and abortive because of bureaucratic processes and corruption”. “Only those who were very close to government functionaries or political party leaders were usually considered” he added further. These were people who don’t have the entrepreneurial spirit in them who usually spent the money assigned for investment on consumption and other non- investment venture”.

The bank facility was also very costly due to high-interest rates which if care was not taken could lead to company bankruptcy as such running a business using a bank facility became a high-risk option.

A previous study by Aruwa (2009) that examined the finance options for MSMEs in Nigeria, backed up the above-observed problems. The study found that there were a

number of financial chances for MSMEs in Nigeria to benefit from. Although government opens up for them to benefit from, MSMEs are usually met with hard challenges in accessing the money. The study observed further “SMIEIS fund lacks standard guidelines for fund disbursement, the unregulated informal finance institutions finance the MSMEs much more than the formal sources and the informal sources make up more than half of the MSMEs mix of funds”.

4.5.6 Theme VI

Emerging Theme: The Jigawa State Industrial Policy (1998)

Having observed the low level of industrialization and realization of its importance to regional socio-economic-development, Jigawa State Government initiated a policy that led to the establishment of some industries in the state. The information from the Office of the Director of Commerce in the Ministry of Industry, Commerce and Cooperatives Jigawa State and a beneficiary of policy known as “Jigawa State Equipment Leasing Scheme Fund” 1998. An initiation that encouraged potential investors in the state to forward their business plans for government support in kind. Machinery and equipment were provided by the government while the potential investors provided land and buildings for the business take-up. Three industries were established in three different locations in the state and were far away from one another i.e. in Dutse, Hadejia, and Ringim respectively. The development of these industries was too slow and at the time of conducting this study, none of these companies was functional though that of Hadejia a Plastic Company stayed longer than the other two.

After these companies failed to satisfy the needs for their establishment, the government established state-owned companies that included, a dairy company in B/kudu, flour mills in Gumel, rehabilitated inherited rice mills in Hadejia and a tomato paste company in Kazaure. These companies also failed and the government auctioned them out to interested individuals in the state, now the dairy farm in B/Kudu and rice mills in Hadejia were the ones successfully taken over and still functioning and growing. It was observed that the motives that led to the establishment of these companies were not economically instigated but to satisfy the political dispensation of the state. What were the reasons for

being located in isolation and far away from one another? The problems being faced by these industries were observed to be improper feasibility studies and contingency planning in relation to infrastructure availability which were part of the prerequisites to business success and sustainability of a business venture.

The flour mills established in Gumel survived a very short period of operations because due to the non-availability of wheat or maize in the area, it has to be obtained from distanced places which increased the cost of production. The company was faced with a very high unfavorable competitive disadvantage that led to running the business at higher losses. The company was closed and resources wasted away.

The Three Brothers Rice Mills in Hadejia, Water Packaging, and Yoghurt Company in Auyo, Nakowa Plastics Company, Majestic Rice Mills, Beverage Production Company, etc. all were identified to have problems with electricity supply, sewage management, roads/transport, etc. that stemmed out due to improper feasibility studies, especially with regards to infrastructure and inadequate strategic contingent plans for the businesses before their establishment.

The lack of proper feasibility studies was observed to be the factor responsible for the closure of some industries or relocation to another site to improve the supply of required inputs. In a previous study, Ravi (2016) found that “the essence of a feasibility study is to determine the viability of a business venture in a specific area or sector of business”. The author viewed that a feasibility study helps a potential investor to visualize whether the intended business will succeed or fail and be able to study whether the thought idea can be put into practice. It is a determining factor for the continuity of a business or either wise. The profitability of a business venture is very crucial to the success and continuity of a business and this can be ascertained if a well-defined feasibility study was conducted before a business is established consequently a feasibility study is a good source of information on whether to commit resources to a new venture business or not (Ravi, 2016).

The results obtained above have gone along with the study objective which stated **“To investigate through qualitative study the extent of MSMEs owners’ perception on the provision of infrastructure facilities as relating to their business operations in Jigawa State”**.

CHAPTER 5

ANALYSIS OF THE QUANTITATIVE DATA

5.0: Introduction

“Quantitative data analyses techniques typically work with algorithms, mathematical analysis tools and software to gain insight from the data, answering questions such as how many, how often, and how much. Data for quantitative data analysis is usually gotten from avenues like surveys, questionnaires, polls, etc., data can also come from sales figures. Quantitative data can be analyzed using descriptive statistics that is used to explain certain phenomena and inferential statistics used to make predictions” Eteng O. (2022).

This chapter was the results of the quantitative data collected through the use of a structured questionnaire based on a 1-7-point Likert Scale. Three hundred and seventy (370) instruments were given out to various selected enterprises. Good numbers were returned successfully that tally with the study sample size of 350. The success of this good response was due to the established good rapport between the researcher, research assistants, and respondents. Secondly, constantly visiting the respondents’ and reminding them of importance of their participation success in the conduct of this research work helped a lot.

5.1: Descriptive Statistics

The descriptive statistics were first obtained to describe the owner/manager characteristics of the respondents. Results were classified in terms of sex, age, education, experience, and types of business operated as displayed in the following tables.

Table 5.1.1: showing the distribution of MSMEs ownership by gender

Gender	Frequency	Percent
Male	315	90.0
Valid Female	35	10.0
Total	350	100.0

Interpretation: Of the three hundred and fifty (350) respondents that operated on one type of MSMEs or the other under the current study, 315 were male representing 90% of the

total population while 35 numbers were female representing only 10%. This showed that most of the MSMEs operated in the study area during the conduct of this research work were under the ownership of male entrepreneurs rather than the female.

Table 5.1.2: shows age distributions for MSMEs owners

Range	Frequency	Percent
18-25	59	16.9
26-35	155	44.3
Valid 36-45	107	30.6
above 60	29	8.3
Total	350	100.0

Interpretation: Out of the 350 respondents the table above indicated that the range of age of the enterprise owners showed that a higher percentage was within the ranges of 26-35 and 36-45 respectively. The two groups represented 74.9% and were people in their prime youth age group who used to empathize with issues related to social competition rather than economic competition. Their interests were more on cars to drive, elegant cloth, houses to leave, additional wives, and so on all at the expense of their enterprise development.

Table 5.1.3: shows the distribution of levels of education of MSMEs owners

Levels	Frequency	Percent
Arabic	20	5.7
Primary	53	15.1
Valid Secondary	209	59.7
High. Edu.	68	19.4
Total	350	100.0

Interpretation: From the table above, 20 owners attended Arabic schools, 53 primary schools, 209 secondary schools, and 68 attended higher education. The results indicated

that a greater percentage of the MSMEs owners under the current study ranged from Arabic to secondary education a total of 272. This may be one of the contributing factors for low entrepreneurial skills among the business owners that led to wrong decisions taking in terms of the type of business to choose, business location, and their inability to appreciate the value of research.

Table 5.1.4: shows the distribution of levels of education of MSMEs owners

	Frequency	Percent
1-5year	116	33.1
6-10year	131	37.4
Valid 11-15	44	12.6
Above	59	16.9
Total	350	100.0

Interpretation: The range of business experience among the MSMEs owners under study showed that those in groups 1-5 and 6-10 years constituted 246 representing 70.5% respectively. The result indicated that a greater percentage of the MSMEs owners under study fall within the range of 1-10 business years of experience while 29.5 were within the range of 11-15 and above 16 years of business experience.

Table 5.1.5: showing the distribution of MSMEs by business types

	Frequency	Percent
Micro	211	60.3
Valid Small	124	35.4
Medium	15	4.3
Total	350	100.0

Interpretation: The table above indicated that 211 representing 60.3% were micro-scale enterprises, 124 representing 35.4% were small-scale enterprises and 15 representing 4.3% were medium-scale enterprises. The findings go along with Shettima, (2017) who

found that out of 2610 registered

MSMEs in Jigawa State, 1,513 were micro-scale, 1,012 were small scale while the remaining balance of 85 were medium-scale enterprises.

5.2 Data Analysis of Infrastructure Facilities Impacts on Enterprise Performance

The following were the results of the quantitative data obtained from the business owners' responses and analyzed accordingly.

5.2.1 Road

The current research work examined levels of impact of the road network on MSMEs performance in Jigawa State. A 1-7-point Likert Scale questionnaire was used to generate the data. The scale levels were “*Much Very low (MVL-1); Very Low (VL-2); Low (L-3); Moderate (M-4); High (H-5); Very High (VH-6); Much Very High (MVH-7)*”. Ten important performance measurement indices were identified to be very useful for this current analysis. Results were communicated in table 5.2.1.1 below.

Table 5.2.1.1 Impacts of road accessibility on MSMEs performance in Jigawa State “Descriptive Statistics”

Number		Minimum	Maximum	Mean	Standard Deviation
Employee Turnover	350	1	3	1.36	.583
Employee Satisfaction	350	4	7	6.19	1.001
Customer Satisfaction	350	4	7	6.29	.966
Product Innovation	350	3	7	5.10	1.004
Process Innovation	350	4	7	5.54	.759
Product Quality	350	4	7	5.53	.704
Service Quality	350	4	7	6.27	.793
Return On Investment	350	4	7	5.19	.658
Sales Growth	350	5	7	6.65	.605
Market Share	350	4	7	5.75	.883
Valid N (listwise)	350			5.41	0.796

The study observed that road accessibility in Jigawa State was good enough, the respondents showed that the effect of road accessibility on MSME's performance was very high as could be read from the various performance measurement indices identified above. With employee turnover, it was negatively related since the mean was much very low at ($M=1.36$, $SD=.583$). With other indices above road, accessibility was positively related. The mean values for employee satisfaction were very high at ($M=6.19$, $SD=1.001$); for customer satisfaction, the effect was very high ($M=6.29$, $SD=.966$); the effects of road access to process innovation were high ($M=5.10$, $SD=1.004$); on product innovation, product quality and market share the effects were approximately very high at ($M=5.54$, $SD=.759$) and ($M=5.53$, $SD=.704$) and ($M=5.75$, $SD=.883$) respectively. On service quality, the effect was very high ($M=6.27$, $SD=.793$). On return on investment, the effect was high at ($M=5.19$, $SD=.658$). While on sales growth the effect was approximately much very high at ($M=6.65$, $SD=.605$). The results indicated that road accessibility was positively related to various MSMEs performance measurement outcomes. Only employee turnover has a negative significant relationship with the road in Jigawa State. It was indicative that employee turnover has the lowest mean value of 1.36 very much less than the average mean as indicated on the Likert Scale. Similar results were also found in a similar study conducted in the rural economy like that of the current study in Kenya, on factors affecting MSMEs operations. Tirimba et al., (2014) found that the availability of good road network has affected the business performance among enterprises under study to a great positive extent. In line with the above findings, Nonyelum & Uzoamaka (2013) found that MSMEs that lack proximity to facilities such as electricity, water, roads, public transport, and good healthcare, usually face difficulties in their production process.

Table 5.2.1.2: One-Way ANOVA: Owners' Perceptions on Road Access to MSMEs Performance Descriptive Statistics

Number		Mean	Standard Deviation	Standard Error	95% Confidence Interval for Mean		Min.	Max.
					Lower Bound	Upper Bound		
Poor	5	5.2000	.55227	.24698	4.5143	5.8857	4.40	5.80
Fair	27	5.5037	.50344	.09689	5.3046	5.7029	4.30	6.00
Moderate	253	5.3885	.54100	.03401	5.3216	5.4555	4.10	6.10
Good	56	5.3554	.51696	.06908	5.2169	5.4938	4.20	5.90
Excellent	9	5.2556	.65976	.21992	4.7484	5.7627	4.10	5.90
total	350	5.3860	.53663	.02868	5.3296	5.4424	4.10	6.10

Interpretation: from the table above, it was observed that perceptions of the business owners on road access to the performance of their businesses showed a greater number of business owners 253 out of 350 respondents indicated there was a moderate effect of road access to the performance of their businesses followed by good responses while those who indicated poor effect were only 5 thus indicated that road did not constitute negative effect on MSMEs performance in the study area.

Table 5.2.1.3: “Test of Homogeneity of Variances”

	Levene		Df1	Df2	Sig.
	Statistics				
	Based on Mean	.354	4	345	.841
	Based on Median	.219	4	345	.928
Mean	Based on Median and with adjusted df	.219	4	337.739	.928
	Based on trimmed Mean	.351	4	345	.843

Interpretation: from the table above, results showed all levels of significance for mean, median, and median with the adjusted degree of freedom trimmed mean inclusive indicated higher values of above 80% which implied road access in the area of study significantly affected MSMEs performance in a positive way.

Table 5.2.1.4: One-way ANOVA- Owner’s perception of Road Condition and MSMEs performance

Descriptive Statistics								
Mean								
	Number	Mean	Standard Deviation	Standard Error	95% Confidence Interval for Mean		Min.	Max.
					Lower Bound	Upper Bound		
Poor	8	5.2375	.50409	.17822	4.8161	5.6589	4.40	5.80
Fair	30	5.3900	.60932	.11125	5.1625	5.6175	4.10	6.00
Moderate	247	5.4053	.52064	.03313	5.3400	5.4705	4.10	6.10
Good	59	5.3373	.56809	.07396	5.1892	5.4853	4.20	6.00
Excellent	6	5.2500	.63797	.26045	4.5805	5.9195	4.10	5.80

Total	350	5.3860	.53663	.02868	5.3296	5.4424	4.10	6.10
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Interpretation: from the table above, perceptions of business owners on road conditions to the performance of their businesses showed a greater number of business owners indicated there was a moderate impact of road conditions on the performance of their businesses followed by good responses while those who indicated poor impact were only 8 thus indicated road condition did not constitute reasonable negative effect on MSMEs performance in the study area.

Table 5.2.1.5: Test of Homogeneity of Variances

	Levene Statistics	Df1	Df2	Sig.	
Mean	Based on Mean	.777	4	345	.541
	Based on Median	.482	4	345	.749
	Based on Median and with adjusted df	.482	4	340.5	.749
	Based on trimmed mean	.696	4	345	.595

Interpretation: results above showed a level of significance for all measurements that were positive. For median and median with an adjusted degree of freedom were very high both stand at about 75% each indicating that road condition in the area of study significantly affected MSMEs' performance in a positive way. **The results generated for road accessibility/condition accepted our research hypothesis H 01 that stated road provision in the study areas positively related to MSMEs performance.**

5.2.2: Electricity Supply

This research work intends to find out the levels of impact of electricity supply on the MSMEs performance as it could be observed from various performance measurement outcomes. Data was generated using a questionnaire of 1-7 points Likert Scale. The scale levels were “*Much Very low (MVL-1); Very Low (VL-2); Low (L-3); Moderate (M-4); High (H-5); Very High (VH-6); Much Very High (MVH-7)*”. Results were communicated in the table below.

Table 5.2.2.1: Owners' perception of the impact of electricity supply on MSMEs performance

Descriptive Statistics									
Measurement Indices	Number Statistics	Min. Statistics	Max. Statistics	Mean Statistics	Std. Dev. Statistics	Skewness		Kurtosis	
						Statistics	Std.	Statistics	Std. Error
Employee-Turnover	350	4	7	6.44	.746	-1.010	.130	-.180	.260
Employee Satisfaction	350	1	3	1.53	.608	.686	.130	-.485	.260
Customer Satisfaction	350	1	3	1.88	.646	.116	.130	-.633	.260
Product Innovation	350	1	2	1.72	.450	-.984	.130	-1.037	.260
Process Innovation	350	1	2	1.85	.362	-1.922	.130	1.705	.260
Product Quality	350	1	3	1.89	.578	.007	.130	-.092	.260
Service Quality	350	1	3	1.68	.498	-.407	.130	-1.006	.260
Return on Investment	350	1	4	1.77	.589	.184	.130	-.007	.260
Sales Growth	350	1	4	1.61	.554	.252	.130	-.211	.260
Market Share	350	1	4	1.43	.518	.662	.130	-.110	.260
Valid N (listwise)	350			2.18	.555				

The electricity supply was another important factor examined in the current study. The observed means for electricity supply and MSMEs performance gave an overall mean of 2.18 which indicated a very low effect. For employee turnover, the effect was very high ($M=6.44$, $SD = .746$). On employee satisfaction, ($M = 1.53$, $SD = .608$). On customer satisfaction, ($M = 1.88$, $SD = .647$). On process innovation, ($M = 1.72$, $SD = .450$). On product innovation, ($M = 1.85$, $SD = .362$). On Product Quality, ($M = 1.89$, $SD = .578$). On service quality, ($M = 1.68$, $SD = .498$). On return on investment, ($M = 1.77$, $SD = .589$). On sales growth, ($M = 1.61$, $SD = .554$). On market share, ($M = 1.43$, $SD = .518$). The results indicated that the electricity supply in the study area was poor as 9 out of the 10 observations on various indices indicated a very low effect. But there was a higher significant effect on employee turnover with a mean of 6.44 which is very high as indicated on the Likert Scale used for this current study. Similar findings on the relationship between electricity supply and MSMEs performance were earlier communicated. Accordingly, Tsauni (2005) found that MSMEs in Nigeria operates with difficulties due to undependable supply of electricity and water associated with unjustifiable bills for utilities that are sent without time schedule. Similarly, Akinyele et al., (2016) in a study conducted on infrastructural development as a forecaster to SME performance in Nigeria found that small scale enterprises were not growing in the country due to power outages and their inability to maintain generators due to high cost of fuel and other lubricants lead to incompetency as a result of idleness in the absence of power supply from national grid to work on with. Lawrence & Goldman (2016) emphasized that the privatization of electrical production in Nigeria in 2013 did not bring any positive change to supply of electricity in the country.

Table 5.2.2.2: Owners' perception of Voltage Capacity and MSMEs operations requirement

T-test					
Group Statistics					
	Voltage capacity	Number	Mean	Standard Deviation	Standard Error Mean
Mean	No	300	2.1810	.21779	.01257
	Yes	50	2.1780	.19197	.02715

Interpretation: from the group statistics above, it was observed that the MSMEs owner's perceptions about the level of voltage supplied from the NG and the operation needs showed wide variations. 300 out of 350 study sample sizes were not provided with full voltage capacity to tally with the industry requirements that indicated the operations of their enterprises were negatively affected by the low voltage capacity supply from the NG.

Table 5.2.2.3: Independent Samples Test

Levene's Test for Equality of Variances				t-test for Equality of Means						
		F	Sig.	T	Df	Sig.(2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of Difference	
									Lower	Upper
Mean	Equal variances assumed	2.053	.153	.092	348	.927	.003	.0327	-.0614	.067
	Equal variances not assumed			.100	71.74	.920	.00	.030	-.057	.063

Interpretation: results from the table above indicated a significant level of .153 greater than .05, implying equal variances were assumed among groups. The same assumptions also applied to the 2-tailed test where the significant values were .927 and .920 respectively which were much higher than 0.05 both in the rejection region. That means voltage capacity affected the operation of MSMEs in the study area.

Table 5.2.2.4: One-way ANOVA for Generator Percentage used and MSMEs performance

Test of Homogeneity of variances					
		Levene Statistics	Df1	Df2	Sig.
Mean	Based on Mean	.702	4	345	.591
	Based on Median	.486	4	345	.746
	Based on Median ad with adjusted df	.486	4	321	.746
	Based on trimmed mean	.694	4	345	.596

Interpretation: from the above table it was observed that the levels of significance for the three variables were greater than 0.05 out of the acceptance region. Results indicated greater impacts existed when small enterprises opted for power supplementation for company operations. In line with the above, Siyanbola (2015) discovered that outages of power supply associated with higher cost of electricity supplementation usually becomes a more challenging issue to greater number of enterprises than combined problems of finance and others.

Table 5.2.2.5 shows the percentage of revenue used for the purchase of fuel for the company generator Descriptive Statistics

%	Number	Mean	Standard Deviation	Standard Error	95% Confidence interval for mean		Min.	Max.
1-10%	69	2.14	.19	.02	2.10	2.18	1.90	2.60
11-20%	21	2.20	.25	.06	2.08	2.31	1.90	2.70
21-30%	119	2.21	.21	.02	2.17	2.25	1.80	2.70
31-40%	67	2.22	.22	.03	2.17	2.28	1.80	2.70
Above 40%	74	2.13	.21	.02	2.08	2.18	1.80	2.60
Total	350	2.18	.21	.01	2.16	2.20	1.80	2.70

Interpretation: from the descriptive statistics, it was observed that those that used 1-10% of revenue to purchase fuel were 69 MSMEs; 11-20% were 21; 21-30% were 119; 31-40% were 67; above 40% were 74 all to generate power for their enterprise operation requirements. Therefore, it was observed that only 25% of the MSMEs under study were using 1-20% of the generated revenue for fueling while 75% of the MSMEs were using up to 21 and above% that indicated greater percentage of the revenue was used to purchase fuel thereby affecting the potentialities for enterprise growth and development. In an earlier study, Tsauri (2005) studied the costs of infrastructure and company profits and revealed: “the degree of electricity supply in Nigeria was sad and unreliable, this made the costs incurred on electricity sourcing on power supply going up to about 40% of production cost”. Those firms that suffer from power outages were forced to generate power using generators that made their costs of production per unit greater and ended up at a competitive disadvantage (Frederick & Adarkwah 2016 and Akinyele et al., 2016). **The findings as regards to aspects of electricity lead us to reject hypotheses H 02 which stated that electricity supply is positively related to MSMEs performance in the study**

area. Therefore, qualitative and quantitative findings as per this current study were positively related since both findings rejected our hypotheses H 02 mentioned above.

5.2.3: Water Supply

This current work studied the level of impact relationship of water supply on the MSMEs operations in Jigawa State. A questionnaire of 1-7 points Likert Scale was applied in taking the observations. The scale levels were “*Much Very low (MVL-1); Very Low (VL-2); Low (L-3); Moderate (M-4); High (H-5); Very High (VH-6); Much Very High (MVH-7)*”. Results were communicated in table 5.2.3.1 below.

Table 5.2.3.1: Descriptive Statistics on Water Supply on MSMEs Owner’s Perception towards Enterprise performance

Descriptive Statistics					
Measurement Indices	Number	Min.	Max.	Mean	Standard Dev.
Employee Turnover	350	3	7	6.01	.815
Employee Satisfaction	350	1	5	2.37	.633
Customer Satisfaction	350	1	4	2.61	.528
Process Innovation	350	1	4	2.38	.521
Product Innovation	350	1	4	2.73	.455
Product Quality	350	1	4	2.69	.516
Service Quality	350	1	4	2.53	.618
Return on investment	350	1	3	1.87	.657
Sales Growth	350	1	4	2.40	.602
Market Share	350	1	4	2.31	.474
Valid N (listwise)	350			2.79	0.582

The observations above showed the means value of water supply as impacted on various MSMEs performance measurement outcomes; On employee turnover, the effect was very high at ($M=6.01$, $SD=.815$); on employee satisfaction, process innovation, sales growth, market share, and return on investment the effect was very low as their mean values were

“(M=2.37, SD=.633),(M=2.38, SD=.521), (M=2.40, SD=.602), (M=2.31, SD=.474), (M=1.87, SD=.657) respectively”. On customer satisfaction, product innovation, product quality, and service quality were having approximate mean values of “(M=2.61, SD=.528), (M=2.73, SD=.455), (M=2.69, SD=.516) and (M=2.53, SD=.618) respectively”. Results indicated fewer impacts on small enterprise processes in the study area. It was also seen that employee turnover has a higher mean value of 6.00 points that tally with much higher effects on the scale applied. That means water supply in the study area leads to a higher employee turnover impacted negatively on company revenue that was used to provide water for its production needs thereby reducing profits generated and growth potentialities that affected employment tempo. Akinyele et al, (2016) highlighted that continues shortage of water supply from the public sources for both human and industrial use is a long-unsolved issue in Nigeria. In similar findings, Emezie (2017) examined the prospects and challenges of MSMEs in 21st century Africa. His study found that MSMEs in Nigeria were stagnating due to poor provision of infrastructure in the country. Electricity and water supply were the two most important facilities that were of worry because of their supply inadequacies which is associated with much higher costs when you get them a situation majority of the MSMEs owners cannot afford.

Table 5.2.3.2: Water connection from the public supply and MSMEs performance:

T-Test

Group Statistics				
Water Connection	Number	Mean	Standard Dev.	Standard Error Mean
No	132	2.7947	.18914	.01646
Yes	218	2.7881	.18750	.01270

Interpretation: from the table above, it was observed that a greater number of the enterprises under study connected to the public water supply sources though services were not sufficiently provided.

Table 5.2.3.3: “Independent Samples Test”

	Levene's test for equality of variances F Sig.		t-test for equality of means						
			T	Df	Sig.(2-tailed)	Mean difference	Std. error difference	95% confidence interval of difference	
								Lower	Upper.
Equal variances assumed	.232	.630	.319	348	.750	.00662	.02075	-.03418	.04743
Equal variances not assumed			.319	274.59	.750	.00662	.02079	-.03431	.04755

Interpretation: Levene's test for equality of water connection from the public sources indicated that the significant level is .630 which is greater than .05 which means equal variances were assumed among groups. The same assumptions may apply to the 2-tailed test where the significant values were both .750 respectively which were much higher than 0.05 in the rejection region. That means water supply significantly affected the operation of MSMEs in the study area.

Table 5.2.3.4: MSMEs owner’s perceptions on water treatment and business performance One-Way ANOVA

Test of Homogeneity of Variances				
	Levene Statistic	df1	df2	Sig.
Based on mean	.776	4	345	.541
Based on median	.683	4	345	.604
Based on median and adjusted df	.683	4	339.039	.604
Based on trimmed mean	.764	4	345	.550

Interpretation: from the above table it was observed that the levels of significance for the three variables were greater than 0.05 out of the acceptance region. This showed that amount of money spent on water treatment does not significantly affect the revenue generated and the MSMEs operations in the study area.

Table 5.2.3.5: MSMEs owner’s perceptions on water treatment and business performance Homogeneous Subset Mean

Tukey HSD	Number	Subset for alpha = 0.05
Water Degree of Obstacles		
Severe	22	2.7500
Major	57	2.7754
No obstacles	55	2.7945
Minor	214	2.7967
Moderate	2	2.9000
Sig.		.470

Interpretation: The table above showed the amount of money spent on water treatment out of company revenue. It was observed a greater number of the respondents (214) the effect was minor, with 57 major obstacles 55 no obstacles, 22 severe obstacles, and only 2 with moderate obstacles. The result indicated that water treatment was not taking much of the company revenue in the study area. The significant P-value was

.470 greater than .05 in the rejection region. The proposed hypothesis H 03 that stated a positive relationship exists between water supply and MSMEs was also rejected since the relationship was negative.

5.2.4: Telecommunication Services

The current study intended to find out the impact levels of telecommunication services on the various performance measurement outcomes in Jigawa State MSMEs. A 1-7-point Likert Scale questionnaire was applied for the study. The scale levels were “*Much Very Low (MVL-1); Very Low (VL-2); Low (L-3); Moderate (M-4); High (H-5); Very High (VH-6); Much Very High (MVH-7)*”. The results were obtained as shown in table 5.2.4.1 below.

Table 5.2.4.1: MSMEs Owner’s perceptions on telecommunication services and business performance

Descriptive Statistics					
Measurement Indices	Number	Min.	Max.	Mean	Standard Dev.
Employee Turnover	350	1	6	1.52	.676
Employee Satisfaction	350	4	7	5.90	.933
Customer Satisfaction	350	4	7	5.96	.570
Process Innovation	350	4	7	5.27	.817
Product Innovation	350	4	7	5.44	.656
Product Quality	350	4	7	5.51	.667
Service Quality	350	4	7	6.35	.921
Return on investment	350	4	7	4.83	.616
Sales Growth	350	4	7	6.44	.652
Market Share	350	4	6	5.07	.661
Valid N (listwise)	350			5.23	.717

From the result above, it was discovered that the levels of impacts of telecommunication services on various performance measurement outcomes were: On employee turnover, ($M=1.52$, $SD=.676$). On employee satisfaction, ($M=5.90$, $SD=.933$). On customer satisfaction, ($M=5.96$, $SD=.570$). On process innovation, ($M=5.27$, $SD=.817$). On product innovation, ($M=5.44$, $SD=.656$). On Product Quality, ($M=5.51$, $SD=.667$). On service quality, ($M=6.35$, $SD=.921$). On return on investment, ($M=4.83$, $SD=.616$). On sales growth, ($M=6.44$, $SD=.652$). On market share, ($M=5.07$, $SD=.661$). Results indicated that there was a positive significant effect of telecommunication service on MSMEs performance in Jigawa State as 8 out of the 10 observed mean values close to very high levels on the scale used. It was also identified that service quality and sales growth were having the highest mean values of 6.35 and 6.44 respectively while employee turnover with the least means value of 1.52. That means a negative relationship exists between employee turnover and telecommunication service in the study area. The overall mean values for all the observations were 5.23 which indicated high levels of impact of telecommunication services on MSMEs' performance. Previous studies revealed that a positive relationship exists between telecommunication services and industrial prosperities in terms of productivity, expanded markets, better relations with customers, and increased profits that would ensure growth and development of the industrial sector and the economy in general (Ebert & McMillen, 1999; Matthews, 2007; Alam & Noor, 2009; Ashrafi & Muntaza, 2012; Lopez & Muneta, 2012; Absah et al., 2017 and Manga, (2019).

Table 5.2.4.2: shows frequencies of owners' responses on telecommunication service and MSMEs performance as categorized

Measure	Frequency
Good	346
Very Good	2
Fair	2

Interpretation: the results above indicated that the number of respondents who considered the telecommunication service was good are 346, 2 very good while 2 indicated fair. The result indicates that over 98% of the respondents show that telecommunication service has a positive impact on MSMEs in the study area.

Table 5.2.4.3 Test of Homogeneity of Variances

Levene Statistics		df1	df2	Sig.
Based on Mean	1.832	4	345	.122
Based on Median	1.069	4	345	.372
Based on trimmed mean	1.526	4	345	.194

Interpretation: from the above table it was observed that the levels of significance for three variables were greater than 0.05 out of the acceptance region. This showed that telecommunication services significantly affected the operations of MSMEs in the study area in positive ways.

Table 5.2.4.4: MSMEs owner’s perceptions of telecommunication services and business performance One-Way ANOVA

Sum-Squares		df	Mean Square	F	Sig.
Between Groups	.4	4	.1	.637	.636
Within Groups	55	345	.2		
Total	55	349			

Interpretation: the result of the one-way ANOVA above showed that the significant P- value was .636 greater than .05 out of the acceptance region. The result indicated telecommunication service did not constitute a problem to MSMEs’ performance in the study area as per the business owners’ responses.

Table 5.2.4.5: MSMEs owner’s perceptions of telecommunication services as the degree of obstacles to business performance

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No obstacles	67	11.3	19.1	19.1
	Minor	282	47.4	80.6	99.7
	Moderate	1	.2	0.3	100
Total		350	59	100	
Missing	System	245	41		
Total		595	100		

Interpretation: from the table above, the number of responses that considered the level of obstacles of telecommunication services as minor to firms’ operations was 282 and those with no obstacles were 67 out of the study sample size i.e. 350. This indicated that telecommunication services did not constitute many problems to the operations of MSMEs in the study area.

**Table 5.2.4.6: MSMEs owner’s perceptions of telecommunication services
insufficiency to business operations**

T-Test

Group Statistics				
TelcomInsuff	N	Mean	Std. Deviation	Std. Error Mean
No	262	5.24	.394	.024
Yes	88	5.21	.408	.044

Interpretation: from the table above, the number of responses that considered service insufficiency with YES was 88 while those who answered NO were 262 indicating there was service efficiency of telecommunication services in the study area. **The outcomes of results of telecommunication services and MSMEs performance lead us accept hypotheses H 04 since it doesn’t constitute negative impacts on MSMEs operations in the study area.**

5.3 Correlation analysis of independent variables

This current research ran correlation analyses and found the nature of the relationship between predictor variables and their effects on MSMEs’ performance in Jigawa State.

Table 5.3.1: Correlation of independent variables

	Road	Electricity	Water	Telecom
Road	1.000			
Electricity	-.947	1.000		
Water	-.898	.981	1.000	
Telecom	.985	-.924	-.870	1.000

Based on the type III sum of squares Interpretation: the outcome of the correlation between road and electricity from the data obtained was -.947 which indicated a strong negative relationship existed between the two variables. The two variables were having

opposite effects on MSMEs performance in the study area. Similarly, road and water got the same relationship their correlation was $-.898$, and their effects on MSMEs' performance were also not in the same direction. Also, the correlation between water and telecommunication was $-.870$ a relation that showed a strongly negative relationship on the effect of MSMEs in the current study area. Similarly, the correlation of electricity and telecommunication was $-.924$, a strong negative relationship exists between the two on the effects of MSMEs in the study area. But the correlation between road and telecommunication is $.985$ which means a strong positive relationship exists between the two variables. An indication that road and telecommunication were having the relationship of the same impact on MSMEs' performance in the study area. In a similar situation, electricity and water were having a strong positive relationship as the result of their correlation was $.981$ positive and very close to 1 that indicated similar effects on MSMEs performance in the study area. In a related finding, Tsauni (2005), "identified that electricity and water were twin factors that exert similar impacts on MSMEs operations in Nigeria's business environment". The analyses above answered research objective three **"to assess the impacts of infrastructural facilities on MSMEs performance in Jigawa**

State". It has also taken care of the observation made by the RAC members "use proper research methods/ statistical technique as per the research objectives".

5.4 Current Study Findings

This current study was able to discover the following:

(a) Lack of industrial estate

In an established industrial estate, basic facilities for successful industrial operations were provided for MSMEs to benefit from. In Jigawa State, government did not established industrial estate for the MSMEs to benefit from economies of scale that could raise the tempo of industrial growth and development.

(b) Poor infrastructure supply

This research observed that the current status of the facilities supplied in the study area was very poor. With the exemption of roads, other facilities under consideration especially electricity and water were poorly supplied. Their supplementation used to consume a huge amount of small enterprises' income thereby affecting their development potentialities in negative ways.

(c) Existence of entrepreneurial spirit among the people of Jigawa State

The people of Jigawa State were endowed with entrepreneurship in them. Many of them used to participate in one type of business or the other such as manufacturing, agriculture, commerce, welding and fabrication, service industries, and lots of others. The current study observed that in Jigawa State, people/government used to establish business ventures without taking cognizance of real economic reasons but to satisfy their social/political interests. The low level of entrepreneurial skills and knowledge among the investors since most of them acquired only secondary/ primary certificates as their highest level of education attained who ended up with wrong investment decisions that affected MSMEs operations in terms of growth, survival leading to resource wastage. The current study considered such kind of investment as “**investment blindness**”.

(d) Low level of education among the business community

Although there was entrepreneurial spirit among the people of Jigawa State, they lack the needed skills and technical know-how on how to run a successful business venture. The inadequacies of the educational facilities were among the main reasons for such a problem.

(e) Establishing a business venture for a reason other than the economic one

In Jigawa State, people used to establish business ventures without taking cognizance of real economic reasons but to satisfy social/political interests. In Jigawa State, people with entrepreneurial spirit used to establish business ventures without proper feasibility studies based on economic reasons but to satisfy personal interests. That is why most of the businesses established were sited at the proprietor locality, with no consideration of

either input supply or marketing of the fished products.

(f) Low participation for women in a business venture

In the study area, out of the 350 respondents, only 35 number were female while their male counterparts were 315, the gap was too wide.

(g) The study area is a potential area for industrial growth

The area is blessed with numerous potentialities for the production of a large volume of farm produce due to the availability of both human and material resources that will encourage the establishment of MSMEs and industries for economic growth and development of the state.

(h) Lack of processing industries

The lack of processing industries to process the farm produce to make value-added products reduced farmers' wealth to a great extent thereby demotivating them to put more effort to produce more.

(i) Poor policy

The policy-making and implementation especially with regard to industrialization for the state were usually very poor. A good example was that of the Jigawa State Industrial Policy of 1998 which led to the establishment of State-owned industries that were established in 3 different locations of the state. No considerations of economic viability for their establishment but only to satisfy the political dispensation of the state and the greediness of those making the policy. They prepared each of the 3 zones to get a share of the state resources rather than to come up with a policy for a continues wealth creation for the state.

(j) Wide variations of facility costs

The cost difference between the facility supplement and that supplied by the government agency e.g., electricity was too wide as stated by the proprietor of Yakubu Welding Company. He cried out that if an N1000 worth of electricity unit was subscribed from the NG will provide a minimum of 96 hours of electricity supply, but if the same N1000 worth of fuel was purchased for company generator it could only provide a maximum of

10 hours of electricity supply.

(k) Outcomes of correlation analyses

Outcomes of the correlations analysis in 5.3.1 above for independent variables on the impact on MSMEs operations showed that water & electricity were positively related and exerted similar impacts on the performance of MSMEs. Similarly, roads & telecommunication services were positively related and got similar effects on MSMEs' performance. But any combination other than the two outlined above the relationships were negative and exert opposite impacts on MSMEs performance in the study area.

5.5 Study Outcomes Beneficiaries

Those to benefit from this study outcomes were the MSMEs stakeholders in Jigawa State who included the government, policy makers, existing and potential investors, the neighboring states and the government of Nigeria at large. Understanding these outcomes and its application in policy making and implementation could minimize many business risks that may result into MSMEs efficiency, growth and development.

Research is a continues process and could apply in varied procedures and processes. As a result, the outcomes could be applicable in other similar studies either in the same study area or any other one. The current research processes and outcomes could be applied in other countries especially those with similar economic processes and culture.

5.6 Limitations of the study

This research examined the availability of infrastructure facilities in Jigawa State of Nigeria and assess the effects of these facilities on MSMEs' performance. The participating companies included those in business activities such as bakery, rice milling, metalwork, woodwork, tailoring, farming, retail business, food and beverages, block industry, etc. Apart from time factors and limited financial resources, none of the participating enterprises in this research study is a public liability company as such they do not publish their financial activities in any form. The owners/managers were not willing to release their financial secrecy due to believing that their businesses were under investigation and moreover they associated such belief with government involvement in

taxation. Also, the greater percentage of the business owners were not substantially educated as such they do not value the essence of research and as well felt that their wealth is going to be exposed. Without genuine availability of financial information, the researcher finds it very difficult to conduct a good performance measurement using financial ratios to arrive at acceptable results worth consideration for any policy formulation advantageous to MSMEs development in Nigeria with particular reference to Jigawa State.

Due to these limitations, it would be very difficult to undertake such kind of research on multi-nations capacity. But with combine efforts in terms of human and financial resources and support from international organizations it will be possible to carry out such kind of research on multi-countries basis and arrived at a comprehensive finding that may have wide range of acceptability across nations' boundaries.

It is hoped that the issues above would have the blessings of experts whether the sample applied for the current study could apply in other regions or countries using the same methods and procedures of the phenomenon or with some adjustments.

CHAPTER 6
SUMMARY, CONCLUSION, RECOMMENDATION, AND STUDY
IMPLICATIONS

6.0 Introduction

This is the conclusion part of the research work. It provides the briefs on the chapters discussed, the conclusion, and the implications of the study findings on various economic activities in Nigeria with particular reference to Jigawa State for economic and other development plans that could move the State from the current low level of industrialization to an improved levels.

6.1 Discussion on study implications

On industrial growth and development, this current study observed that the supply level of infrastructural facilities especially electricity, water, high cost of transportation fare, and educational/health facilities provided in the study area impacted negatively on the MSMEs' productivity due to insufficient and unreliable supply of the facilities. For example, electricity supply on shift bases associated with low voltage capacity compelled MSMEs in the study area to look for alternative sources that increases cost of doing business thereby affecting growth potentialities of the MSMEs sector. The educational facilities that could give room for educating people were also inadequate leading to high level of illiteracy among the business class making it very difficult for many among them to acquire the required level of skills and technical knowhow to effectively manage their enterprises to achieve significant measurable capacity utilization.

Secondly, the gaps that existed between the required facilities by the MSMEs and the actual supply from the government sources were clearly identified which will make the firms prepare well to ensure operations continuity. Although the shortcomings of the infrastructure facilities were identified, the cost of supplementation to many MSMEs in the study area has become a major challenge since some will prepare to stay idle in the absence of some of the facilities due to cost implications. A point stressed by the proprietor of Yakubu Welding and Fabrication Company who explained that wide gap between price per unit of electricity from the National Grid and cost of fuel to provide

same hours of electricity supply was so wide that make them to stay idle in the period of non-supply than to use company generator.

Thirdly, non-clustering among the businesses in the study area blocked the chances of MSMEs to benefit from economies of scale in terms of low-cost supplies of the facilities. The government could not supply the required facilities to various company locations scattered across the state (the study area). This problem also stops enterprises to combine efforts and resources to make bulk- purchases that could reduce costs. As postulated by Clustering and Networking Theories that coming together of firms to concentrate in an area could make it easier for the government to provide the required facilities with easiness with lower costs that could benefit the MSMEs to have production cost advantages. Both clustering and networking theories offer a potential growth path for MSMEs” (Khatib, 2015).

Fourthly, the low level of educational qualifications of the MSMEs owners as found from the study was that greater percentage of them attained secondary schools as their highest qualification. This made it difficult for them to appreciate and apply the new entrepreneurial techniques such as the keeping of business records, separation of business finances from personal finances, seeking financial facilities, and professional advice in the management of their enterprises all these affected industrial development negatively in the area of study.

In addition to the above, government efforts to poster industrial growth in the state were fruitless as it was not economically motivated but to satisfy the political interest of those close to sit of power. It was very surprising people in the government who are educated to and working for number of years could make and implement policies that led to wastage of government resources because of personal interest. The Jigawa State 1998 industrial policy should had been done in such a way to set the state on the right wheel to that could serve as good example that could poster industrialization processes in.

Failure of some MSMEs to incorporate proper feasibility studies with regard to infrastructural facilities also impacted negatively on their productivity.

The issues above led to multiple problems in the study area ranging from the closure of

many companies, low supply of goods and services, fall in revenue generation, and increase in the level of unemployment and poverty that forced out many youth to flee to other states for survival.

6.2 Summary

Chapter I of the current study involved the preliminary part of the research work that contained the background of the study, statement of the research problem, meaning and categories of MSMEs, aspects of performance measurement, research objectives, infrastructure types and their effects on MSMEs performance, hypotheses, limitations of the study and definition of terms. Chapter II contained a literature review on the various aspects of the research. Chapter III was methods adapted for this research while chapters IV & V contained a presentation of research findings for data collection and analysis of results.

6.3 Conclusion

This current research study was a mixed method type that involved both “primary/secondary” and “quantitative/qualitative” methods of data collection. Both types of data collected were presented and analyzed accordingly. Results were presented in tabular forms, descriptive statistics, percentages, and averages, and some were analyzed using correlation and ANOVA. It was found that road, electricity, water, and telecommunication significantly affected the operations of MSMEs. In the study area, road and telecommunication did not constitute significant problems to MSMEs’ performance due to supply adequacy. But electricity and water were having higher negative impacts on MSMEs’ performance due to supply inadequacies and higher costs of their provision to tally with industry operations requirements. Many of the MSMEs owners/managers interviewed results obtained for both qualitative and quantitative data showed that electricity and water used to consume higher percentages of the various company revenues for supplementing of the amount required thereby affecting the operations of the MSMEs negatively as well as the profits and growth potentialities of the enterprises.

6.4 Recommendations

The current study recommends that the government of Nigeria and Jigawa State in particular put in place the required install capacity that can adequately provide infrastructural facilities, especially electricity, water, and educational facilities to empower MSMEs. The price charged for these important facilities to the production sector should be made viable to encourage continues investment ensure industrial productivity, growth, and development of the sector.

Government efforts to speed up industrial growth and development should rather be based on economic reasons and not be motivated by political and regional interests. For example, the industrial clustering site should be located in an area that has the availability of required facilities that can enhance the tempo for industrial growth but not establish it where the public resources will get wasted away.

Government and investors should put hand together to establish more processing industries especially agro allied ones to encourage more investment in the area.

A lot of efforts from the government side should be done on the issue of supports to MSMEs development. The facilities provided should reach the actual practicing entrepreneurs and potential investors. Facilities must not be given to politicians for disbursement because they may end up favoring their supporters who do not have investment spirit but only to satisfy needs unrelated to investment.

Industrial subsidies used to motivate continues investment, therefore it should be done wisely to bring in more people to take part in entrepreneurship that may lead to industrialization in the study area.

The practicing entrepreneurs and professionals should be fully engaged in industrial policy formulation and implementation.

Entrepreneurs should be encouraged to obtain higher educational qualifications with an emphasis on entrepreneurship skills in order to make them appreciate the benefit derived from modern. management techniques for their enterprises. It will also make them appreciate the value of research that will make them release information willingness whenever such requests were demanded from them for developmental

purposes.

MSMEs owners should have to realize that company finances should not be made personal as such separate accounts should be kept. Business records were important documents that guide the enterprise management therefore it should be kept and maintained appropriately for enterprise prosperity.

A proper feasibility study should be done before site location and establishment of an industry in order to avoid closure just after a start of a business. These efforts would help minimize the gaps that could exist between the required facilities and actual supply from the public sources as it affected industrial performance.

Lastly investors should full resources together to established bigger companies that could withstand problems that could lead to their failures after few years of establishments.

6.5 Future Research Scope

The current study employed empirical research methods that are objective. It has also used mixed approaches for data collections. The sample size of the study was 350 enterprises and conducted in Jigawa State of Nigeria. It is hoped that the findings of this current study would open up for future research studies either using the same methodologies or modified ones. The scope of the future research could be expanded to cover a larger area or even a malty-countries study that will cut across cultures and various economies for global benefits.

CHAPTER 7

7.0 Conference, Workshop, and Publications

The following were the conferences, workshops, and publications attended with dates.

7.1 Conferences

1. International Conference on Volatile Consumer Behavior and Marketing; presented a paper titled; The Contributions of MSMEs towards socio-economic development in Nigeria: A Review paper. On 19th April 2019 at Mittal School of Business LPU, Punjab.
2. 19th APG Meeting & International Conference on Sustainable Agriculture, Food Security and Environment; “the Role of Small-Scale Enterprises on Rural Development, Inclusive Growth and Poverty Alleviation: Nigeria and India Perspectives”. At Khalsa Collage Patiala, Punjab from 2nd to 3rd November 2018.
3. “4th International Conference on New Horizons in Science, Engineering, Management and Humanities, Organized by the Department of Civil Engineering, Greater Noida (Dr. A. P. J. ABDUL KALAM Technical University)” 27th March 2020. Titled “The impacts of Infrastructural Development on Industrial Growth and Regional Development in Nigeria”.
4. International Conference On rethinking business designing strategies in the age of disruption. Organizers: Mittal School of Business, Lovely Professional University. “Electricity Supply A Challenge to Industrial Growth And Development In Nigeria: A Case Study of MSMEs In Jigawa State”. Date: 19th December, 2020.

7.2 Journal Publications


1. The Impacts of Infrastructural Development on Industrial Growth and Regional Development in Nigeria. Our Heritage Journal, 22(3), 535-543 UGC CARE ACTIVE (2020). Retrieved from http://ourheritagejournals.com/images/short_pdf/1587122915_G1016.pdf
2. “Socio-economic Development: The Impacts of Micro, Small, and Medium Scale Enterprises in Nigeria”. Sustainable Humanosphere, 16(2) ISSN No 1880-6503, SCOPUS Index, Published Paper ID: B152-2020. website: www.sustainablehumanosphere.com

7.3 Workshop


1. Workshop on Statistical Decision Using SPSS-Organized by Human Resource Development Center. [Under the Aegis of Lovely Professional University, Phagwara (Punjab)]; from 7th to 9th March 2019.

1) It is hereby certified that the information and details presented above are true to the best of my knowledge.

2) The performance and progress of the research work of the candidate is satisfactory.

3)  16th /11/2023

Signature of Supervisor/Co-Supervisor with date

4) 

23th/11/2023 Signature of Scholar with the date.

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ANNEXURE DEPARTMENT OF MARKETING MITTAL BUSINESS SCHOOL
LOVELY PROFESSIONAL UNIVERSITY PUNJAB, INDIA

QUESTIONNAIRE

Dear Respondent.

I am a post graduate student (PhD Management) in the Department of Marketing, Mittal School of Business, Lovely Professional University, Punjab India. Conducting a research work titled **(THE IMPACTS OF INFRASTRUCTURAL FACILITIES ON THE PERFORMANCE OF MICRO, SMALL AND MEDIUM SCALE ENTERPRISES (MSMEs) IN JIGAWA STATE OF NIGERIA.**

The study is purely for academic purpose, your response will contribute a lot towards the success of this study. You are therefore requested to fill up the provided instruments as appropriately as you can.

You are also assured all answers provided will be kept with at most confidentiality and will be used for the purpose of this study.

Thanks.

For any enquiry you can contact the following.

Kani Galadima Muhammad +2348063208313 email-kanigaladimamuhd@gmail.com

DEMOGRAPHIC INFORMATION OF THE RESPONDENTS

Please tick the relevant answer for the following questions.

I. General Information

Date----- Local Government-----

Village/Ward----- Senatorial District-----

1.1 Sex: Male Female

1.2 Age: 18-25 26-35 36-45 46 and above

1.3 Education:

Islamic Education Primary Secondary Higher Education

1.4 Nature of business category? Micro Small Medium

1.5 Enterprise years of business experience?

Enterprise business experience	1-5 years	6-10 years	11-15 years	16 and above

Under this section, economic infrastructure facilities were considered. The section was represented on a seven-point Likert-Scale. The variables included water supply, roads/transport, and electricity supply and telecommunication services. The items contained in the instrument were intended to assess the level of impacts of infrastructural facilities on MSMEs performance in the study area. The outcomes are expected to show the level of relationship between the variables under study. The options were classified into Much Very low (MVL-1); Very Low (VL-2); Low (L-3); Moderate (M-4); High (H-5); Very High (VH-6); Much Very High (MVH-7). You are therefore expected to select the correct number by circling the alternative you choose.

(a) ROAD AND TRANSPORT

S/N	VARIABLES	OPTIONS						
		MVL	VL	L	M	H	VH	MVH
	How can you assess the level of impact of road access and condition of roads as currently provided by government on your company operation activities on the following?							
1	Employee turnover.	1	2	3	4	5	6	7
2	Customer satisfaction.	1	2	3	4	5	6	7
3	Employee satisfaction.	1	2	3	4	5	6	7
4	Process innovation.	1	2	3	4	5	6	7
5	Product innovation.	1	2	3	4	5	6	7
6	Product quality.	1	2	3	4	5	6	7
7	Service quality.	1	2	3	4	5	6	7
8	Return on investment.	1	2	3	4	5	6	7
9	Sales growth.	1	2	3	4	5	6	7
10	Market share.	1	2	3	4	5	6	7

(b) ELECTRICITY

S/N	VARIABLES	MLV	LV	L	M	H	VH	MVH
	How can you assess the level of impact of electricity supply/voltage capacity as currently provided by government on your company operation activities on the following?							
11.	Employee turnover.	1	2	3	4	5	6	7
12.	Customer satisfaction.	1	2	3	4	5	6	7
13.	Employee satisfaction.	1	2	3	4	5	6	7
14.	Process innovation.	1	2	3	4	5	6	7
15.	Product innovation.	1	2	3	4	5	6	7

16.	Product quality.	1	2	3	4	5	6	7
17.	Service quality.	1	2	3	4	5	6	7
18.	Return on investment.	1	2	3	4	5	6	7
19.	Sales growth.	1	2	3	4	5	6	7
20.	Market share.	1	2	3	4	5	6	7

(c) WATER

S/N	VARIABLES How can you assess the level of impact of water supply as currently provided by government on your company operation activities on the following?	OPTIONS						
		MVL	VL	L	M	H	VH	MVH
21	Employee turnover	1	2	3	4	5	6	7
22	Customer satisfaction	1	2	3	4	5	6	7
23	Employee satisfaction	1	2	3	4	5	6	7
24	Process innovation	1	2	3	4	5	6	7
25	Product innovation	1	2	3	4	5	6	7
26	Product quality	1	2	3	4	5	6	7
27	Service quality	1	2	3	4	5	6	7
28	Return on investment	1	2	3	4	5	6	7
29	Sales growth	1	2	3	4	5	6	7
30	Market share	1	2	3	4	5	6	7

(d) TELECOMMUNICATION

S/N	VARIABLES How can you assess the level of impact of telecommunication services on your company operation activities on the following?	OPTIONS						
		MVL	VL	L	M	H	VH	MVH
31	Employee turnover	1	2	3	4	5	6	7
32	Customer satisfaction	1	2	3	4	5	6	7
33	Employee satisfaction	1	2	3	4	5	6	7
34	Process innovation	1	2	3	4	5	6	7
35	Product innovation	1	2	3	4	5	6	7
36	Product quality	1	2	3	4	5	6	7
37	Service quality	1	2	3	4	5	6	7
38	Return on investment	1	2	3	4	5	6	7
39	Sales growth	1	2	3	4	5	6	7
40	Market share	1	2	3	4	5	6	7

The experts' details who contributed immensely towards the successful compilation of this research work.

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