

What are the key determinants of an effective business process management in a logistics company and assess how best a strategic business management framework can be developed in order to enhance service excellence: Case study of Tranex Express Nigeria?

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Declaration

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ABSTRACT

The term process management in logistics activities has evolved over the years because the centralization of business process through the application of ERP has enabled firms manage their day-to-day activities seamlessly. Although companies reporting platforms have integrated into their supply chain management the benefits of this process will be linked into service excellence which enables firm to enjoy positive and dynamic process flow. Therefore, to evaluate how firms enjoy this positive and dynamic benefits thesis literature review showcased the essence of enterprise resource planning (ERP) in business process management; other forms of business process (BP) were reviewed some of which are lean and six-sigma, however, research focused more on ERP and how it has been applied in integrating business processes from production to distribution of products through logistics. This study provided a thorough understanding of Tranex Logistics and their ability to achieve their long-term mission and vision; also, their ability to become customer/employee and investor of choice is tested by their ability to sustain their business structure without restricting information flow, partnership working and agility across all logistics activities. Basic elements which have been assessed in this thesis are related to data management and impact of information technology (IT); thesis evaluated **three frameworks of ERP which are visibility, collaboration, and agility**. Finally, thesis examined how business process management has evolved from manual ways of working to centralized system of process management with the aid of software applications/ERP and how business threats are being managed in Tranex Logistics; This thesis will access the role of ERP in logistic business process management in Covid-19 Pandemic which shows that ERP enabled firms to re-strategize during the pandemic and showcased the importance of ERP by demonstrating how it assisted firms in sustaining their process.

To achieve the aims and objectives of this study author coordinated a qualitative research in Tranex Logistics by collating empirical data from among 29 employees:→ subordinate and middle level managers/superordinate some of which are IT manager/finance manager while some of the subordinates are drivers, tracking officers, customer care and workshop repairers; tool applied in data collection are in-depth interviews. Data collected were analysed through the aid of thematic analysis and the core themes derived are: - 1) information flow 2) partnership working 3) agility 4) service excellence and 5) revenue. Various themes were analysed, and investigation enabled researcher develop themes which provided a landmark to the importance of business process management based on data analysed.

The research result outcome showcased the main strategic business management framework which has enhanced Tranex Logistics to incorporate ERP; thus, the effect of business process in Tranex Logistics has enabled them **increase and monitor revenue**; develop strategic business method of partnership working and above all increase information flow across various organization silos through the aid of **artificial intelligence/ERP** they are able to monitor and manage big data analytics and ensure information accuracy across all platforms which has enabled them build accurate **market intelligence** which has facilitated effective customer excellence. This study will enable Tranex Logistics identify areas whereby they can apply ERP to manage their day-to-day activities and it will help them design their business processes to equate value for money spent.

Keywords: business process management, SAP, Six-sigma, lean, information technology (IT), ERP, logistics and information flow.

DEDICATION

I dedicate my thesis to my late father PA Augustine Osagie who wished to always have one of his children become a DR unfortunately, he did not live to witness the end of this degree due to a short and brief illness; I still miss him till date as his words of encouragement served as an inspiration towards authors ability to complete this thesis.

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LIST OF ABBREVIATION

Abbreviation	Full Meaning
AI	Artificial Intelligence
BI	Business Intelligence
BIA	Business Information Analysis
BPM	Business Process Management
BP	Business Process
BPMN	Business process management Network
EXIM	Export and Import
ERP	Enterprise Resource Planning
IoT	Internet of Things
NA	Network Analysis
R&D	Research and Development
RFID	Radio Frequency Identification
WWW	World wide web

Chapter 1: Introduction

1.0: Introduction

The world is gradually becoming a global village whereby goods and services are being sent in one region and arrive in their destination which could be in another region within certain period of time; with the fast aid of technology and fast speed in accessing deliveries logistics firms are able to deliver service excellence and increase profitability. Therefore, the essence of this chapter will be to access how best, firms within logistics and supply chain management of freight are able to maximise daily operations and attain fulfilment within logistics activity in various organizations silos, as some firms are not able to rely on daily manual business process or operations and management. In sections below the essence of BPM (business process management) in firm's operations will be explained and the various business process management framework which aids process flow in an organization will be explained; research will further focus on enterprise resource planning (ERP) because it is the current framework which is being applied by Tranex Logistics.

1.1: Definition of Terminology

Definition of Business Process Management:

The ability of a logistics company to succeed in their daily activities requires an effective business process, which will enable them to achieve clear communication, transparency, visibility, collaboration and agility within their daily activity. Laudon and Traver (2020) depict that the application of an appropriate business process management is the core hub of attaining sustainable business process management. Kim (2017) stated that business process management (BPM) enables organizations resolve issues around lack of transparency in their organizational silo and ensure business continuity. Neihaves et al., (2014) argue that BPM should not be limited to organizational tools and mechanisms used in carrying out daily operations, however, they are of the opinion that organizations BPM should be used strategically to connect an organization silo using technology. Thus, BPM should focus on the use of technology to improve a firm's operation while Fernie and Sparks (2018); Olukpe (2012) and Laudon and Traver (2020) mentioned that BPM ensures business continuity, sustainability and enhances a firm's ability to survive within an industry.

Lui et al., (2014) highlights that BPM should be applied to reduce the gap between business and information technology. To achieve business consistency and establish standardised processes. Therefore, it is vital to maximise the use of technology in daily operation and organization activities to achieve their primary aim of satisfying users and

provide maximum satisfaction to customers. Effective logistics planning will enable companies control distribution of goods and enable them survive competition within the industry (Petersen et al., 2012). Esra (2017) opines that **business** is defined as the carrying out of any transaction, while process is defined as a collection of activities that come together to produce an output based on the input received. Dumas et al., (2018) explained that the term '**management**' involves the controlling of activities, people, and ideas. Therefore, BPM is centred on controlling of transaction through a collection of activities being performed by people/software and business decisions are populated from ideas generated directly or indirectly.

Kim (2017) is of the opinion that business is made successful through some key elements which are billing, inventory, order fulfilment and product development because this element facilitates accountability in an organization. Sundarakani et al., (2012) agrees that **business** revolves around transactions while a **process** is the way the transaction is being conducted and **management** is explained as a control mechanism applied in achieving desired outcome. Therefore, business can be perceived as the ability to carry out a transaction, while process is the means/method/technique/tools through which the business is being carried out and management is perceived as controlling of various input in order to achieve a desired output.

Definition of Logistics and Customer Service Excellence

To effectively understand the impact of BPM within logistics sector it will be useful to explain the term logistics and service excellence because once various terms are understood it will enable author to proceed with highlighting the benefit of service excellence within the logistics industry. Lambeth (2010) depicts that logistics is not limited to transportation of freight but rather that logistics is a framework which is designed in order to ensure that goods and services move effectively and efficiently from point of production to point of delivery/consumption. Fernie and Spark (2018) explains that logistic applies to planning from inception of a product to freight delivery as well as services because goods and services require movement from raw materials to finished goods.

Petersen (2015) notes that logistic facilitates multicommodity framework and aids delivery to the last mile. Service excellences is the ability of an organization to satisfy/manage the expectation of their customer by setting/maintaining certain standards in business. Anderson and Ankerstjerne (2014) states that customer service excellence is obtainable when services delivered to customers are delivered within customer culture, norm/value and satisfaction. Lee et al., (2007) depicts that when delivering services to customers' physical and environmental

factors which can affect, or aid service excellence should be highlighted and planned towards achieving customer satisfaction. Therefore, **logistics** is the ability to design a framework that will enable goods and services move smoothly from point of production to point of delivery. While **service excellence** is the ability to provide quality and standardised assistance to customers which meets customers' expectations.

1.2: The Benefit of Business Process Management

To ensure that customers are provided quality standard of service it will be useful to note that standardization can only be achieved through proper monitoring of all organizational activity. Fernie and Spark (2018) notes that monitoring of organization activity can only be achieved through technology. Laudon and Traver (2020) agree that technology plays an important role in e-commerce and movement of business activity. This will then lead to highlighting some of the main benefits of BPM as it enables proper collaboration in an organization silo; it also facilitates agility and visibility within an organization activity; therefore, the following terms will be elaborated below: -

- **Visibility:** To certify that there is visibility in business, a company will need to ensure that they acquire various technological tools. Niehaves et al., (2014) notes that visibility in business relates to the use of technology to control hardware; software and all organization activity. Therefore, the ability to implement information management through the aid of technology in business will enable various silo to communicate seamlessly and reduce cost of manpower and resources. Visibility in business will enable various unit access to same information which provides specific explanation to whatever has been inputted in the database or software, which can then be accessed by all employees within an organization (Choy et al., 2013). Leuschner and Charvet (2013) in their quantitative research depicts that technology is the main factor responsible for information flow within an organization; they further illustrated this by explaining the impact technology has on customer service excellence and performance as it is perceived that visibility in business will lead to service excellence within an organization. Laudon and Laudon (2018) argue that **visibility serves as a bridge, sight and sense organs** of an organization because through visibility organization silo, are able to provide accountability and view all operation internally and externally daily. Therefore, firms are being encouraged to ensure that there is a link between various organization silo in order to optimise **human and capital** resources in logistic process management; this can be made possible through visibility, as it is perceived to be applied as a tool of communication internally and externally.

- **Collaboration:** relates to partnership working which increases communication and aid transformation in service delivery. Bharadwaj et al., (2013) depicts that once there is accuracy in data an organization will be able to propose how best various task can be completed. Collaboration leads to standardization of processes within an organization, which could also lead to standard decision-making process and standardised organizational governance which enables employee access to company information via their intranet and enables various silo to interact with one another. Niehaves et al., (2014) agrees that it is useful to state that collaboration emphasises the importance of association between various organizational silo and also assist with maintaining relationship/communication with client. This then shows that collaboration aids process improvement, standard operating process, and easy process of data mining. Leuschner et al., (2013) states that business process management relates to improving organization activities by synchronising daily activities into a uniformed process, whereby, various units within an organization can relate seamlessly which will lead to growth and development of their organization/collaborative means of communication.

- **Agility in business process:** Ravesteyn & Versendaal (2007) emphasises that agility in business improves customers experience and reduces inefficiency within various processes. Bubner et al., (2014) opines that agility in business aids delivery to the last mile, that is agility enables companies plan the delivery method by allotting freight of same destination to drivers and reduce CO2 emission by planning freight delivery appropriately. Kim (2017) argue that agility could aid warehouse management and order fulfilment centres could operate smoothly. Ravesteyn & Versendaal (2007) found-out in their paper that agility does not mainly revolve around the use of technology but also requires manpower; business capital and sufficient assets within the business to achieve agile method of working.

Schoen and Hensle (2012) argue that agility revolves around smart production and smart distribution of products to customers which requires frequent planning in business because failing to plan is planning to fail. Lambert and Cooper (2000) depict that change is static in business therefore, organization will have to plan and depict how best to satisfy and meet-up with customer demand and supply. Therefore, agility occurs in business when activities are completed in a specific and timely manner this shows that being agile requires efficiency and forward planning. Benefits of BPM has been noted to three main themes which are visibility collaboration and agility, it will be useful to mention that each of these themes play a major role in a firm's operation and their ability to deliver service excellence is dependent on organization input which are being used to produce sustainable output. Various themes are

significant because they are inter-dependant and when applied properly in an organization, they will be able to survive business competition in their sector.

1.3: Background of the Study

The ability to optimise organizational resources is dependent on an effective business process management therefore, for organizations to succeed they require effective processes to remain provider of choice, employer of choice and consumers of choice in an industry. Thus, organizations that depend on e-commerce, m-commerce, s-commerce within the production sector are aware of the impact of process management within daily business transaction (Dumas et al., 2018).

In logistics, key determinants to ensure service excellence and process functionality are the core silo of an organization these silos are research and development (R&D); Customer relations management; demand management; order fulfilment; manufacturing/warehouse; procurement/supply's; relationship management; product development and reverse logistics because this key silo's ensure smooth movement of daily operations within an organization (Lambert, 2000). This silo needs to be coherent in their reporting, visibility in various silo needs to be granted and value for money should be obtained (Lawal and Ogwu, 2015). Transportation of freight is an essential aspect of logistics, therefore, requires maximum functionality and should be monitored carefully using technology to ensure effective and efficient business process management.

This thesis will evaluate the impact of business process management (BPM) in logistics activities in Nigeria focusing on the key determinant, which is applied in facilitating process management, in order to ensure coherence in data integration and data management, daily operations, information flow and transfer of knowledge in Tranex Logistics; it is essential to highlight that transfer of knowledge is a core hub in organizational activities because it ensures business continuity/sustainability and process management.

1.3.1: Background of Company

Tranex Logistics (2015) explains that they are in 27 states in Nigeria; they have the following brands and sub-divisions in their organization. Tranex Logistics (2020) states that they have a variety of contracts and major clients some of which are logistics services, cold chain/Biopharm services, mailroom management, Tranex Logistics motorcycle, express delivery, haulage services; some of their client's range within e-commerce, oil and gas, education, banking, public service. They further explained that they have expanded their

business with the aid of electronics and door to door delivery of parcel through Tranex Logistics Express and they are the sole distributors of freight and parcel for some major key plays in Nigeria FMCG; they operate mainly in 24 states in Nigeria and their service cut across other states as third-party providers. Their ability to develop a single data platform will enable them oversee all transaction that occurs in all of their businesses and also enable them assess if they have utilised their resources; reduced cost and also win new businesses by diversifying their business model and business strategy to suit other sectors such as (fast moving consumers goods FMCGs, cross boarder freight (by expanding their export and import policy (export and import (EXIM)), and e-commerce (electronic- commerce), global forwarding and freight (Sparks, 2020). Thus, research will focus on how Tranex Logistics perform their daily logistics activities with the aid of various organization silo because this will enable author portray the role of ERP in service delivery; therefore, this means that author will focus on how Tranex Logistics perform their daily operations that is the role of various silo such as finance, HR, operations, information technology and many other silo will be interviewed and transcript will be populated. In 2014 Tranex Logistics became a sole entity of their own and expanded the operations into bulk freight transportation for some small firms (Tranex Logistics, 2019). Ranges of business are e-commerce, oil and gas, education, banking, public service and they focus on delivery of local and international freight both cold-chain and non-cold chain products and third-party warehouse management.

1.4: Rationale for This Study

At present, business process management (BPM) has transformed organizations and plays a crucial role in achieving organizations mission and vision because it has helped to enhance processes and manage daily activities in business (Lui et al., 2016). Zhao (2012) states that BPM in relation to technologies will aid smooth business operations and facilitate service excellence in organizations. In this context, the main rationale behind evaluating the importance of BPM in logistics is based on three main factors; sections below will briefly state thesis rationale below

- Access the role of BPM in logistics: The role of BPM is fast becoming a mainstream in business process management and serves as a key tool in transferring of knowledge; facilitate business sustainability and business continuity (Laudon and Traver, 2020). Therefore, author will explore more on how logistics firms can achieve long term sustainability through effective process mobility.
- Access how businesses through ERP achieve their goals: Business process management (BPM) enables companies achieve their visions and mission in business because it provides them with required data and integrate their business operations to ensure service

excellence is obtained through the use of at least one of BPM framework such as enterprise resource planning (ERP) (Dumais, 2018). Therefore, thesis will focus on ERP has assisted firms in achieving their mission and vision.

- Examine how businesses become provider of choice: Having worked in the logistics sector author became interested in BPM and how it will enable company of choice become provider of choice, employer of choice and investor of choice (Author, 2020).

- Explore how businesses achieve sustainability/continuity (Author, 2020).

- Fourth rationale is to understand how BPM ensures business continuity; reduces inefficiency within various processes and aids organization survive within any sector (with the aid of at least one of the key determinants of BPM which is ERP) (Laudon and Laudon, 2020)

In addition author's personal motivation for conducting this study is linked with author's background in logistics because author previously worked for DHL logistics as a customer service lead and data analyst, this role made author's passion for accessing how best business processes can be developed to achieve seamless flow of information, accurate reporting platforms, problem solving and mainly author can-do attitude towards getting task complete led to author ability to finding out what other logistics company face in relation to BPM. Also, author's inspiration for the chosen topic is due to the global increase in digitalized process management as it led to an increase in turn-around time in processing business operations; author is a full member of the Chartered Institute of Purchasing and Supply Chain (CIPS); Membership Number: 005620372 / M; having received several informative documentation from CIPS as an organization this increased author's inspiration for the chosen topic as it grew more when attending supply chain seminars organized by various supply chain body of knowledge.

1.5: Organization / Industry Background

National Statistics (2018) notes that supply chain industry has experienced growth in all sectors clothing and textile; food chain; cold-chain products and other sectors. World Trade Organization (2018) highlights that by 2020 less developed economy (L.D.E) will participate more in export of merchant as a result of in-depth study of commerce which they can produce in high volume, however, some political factors could serve as risk in achieving such goals. Also, note that in Africa the public sector has a high influence in business activities and other factors such as political; economic; social; technology environment and legal laws affect operations (Somuyiwa, 2011). Spark (2006) depicts that logistic involves the movement of freight from start of production to delivery, which also implies that logistics activities is an end-to-end process activity and as such requires optimum attention to details.

Tranex Logistics (2015) explains that they are located in 27 states in Nigeria and specialise mainly in distribution of freight and manage some fulfilment centres, they have the following brands and sub-divisions: Tranex Logistics parcel express, Tranex Logistics air Freight, Tranex Logistics road freight, trucking and tracking services to other organizations. Tranex Logistics began operations in 2007 as a subsidiary for union bank but in 2014 they became a sole entity of their own and expanded the operations into bulk freight transportation for some small firms (Tranex Logistics, 2019). They further explained that they are associated with some other organizations; therefore, they require BPM in the logistics activities in order to enable them win new businesses; reduce cost and increase revenue. National Statistics (2018) opines that growth has occurred in supply chain and the world trade organization explains that export from less developed countries will increase by 2020, thus, firms should mitigate against any sort of issues that could arise from such growth by exploring and maximising their assets and maximize both human and natural resources. Chartered Institute of Logistics and Transport (CILT) (2018) depicts that freight activities have experienced growth in Nigeria and in Africa as well. Thus, companies are encouraged to ensure that they have the required capacity to survive the demand and supply required from them. Chartered Institute of procurement and Supply (CIPS) (2019) revealed that some major technologies will be introduced within transport sector by 2022 in order to ensure agility and minimise theft, some of these changes will mainly affect digital transformation (accuracy in data) and enterprise resource planning (to enable companies mitigate against uncertainty in business; being volatile; and manage complexity and ambiguity).

Thus, this section has reviewed information from standard professional bodies in logistics which have indicated that this sector/industry has experienced growth and highlighted events which is currently occurring within the logistics industry. This section also reviews latest trends within logistics business and the future of supply chain. Which means that the ability to eradicate ambiguity in business process management could lead to uncertainty in business continuity plan (CIPS, 2019). Therefore, it is important to ensure that any form of ambiguity is addressed once detected; business owners are advised to modify their operations in-line with modern mechanised system of working.

1.6: Statement of the Problems

Transportation of freight is essential; therefore, it is important for freight to be shipped across different locations and it is also essential to maximise journey time (Liu et al., 2013). Thus, the statement of problem in this research are:

- Review the consequences and implication of lack of technology in logistics business process management and assess consequence of technology on service excellence (Laudon and Laudon, 2020)
- Assess the implication of lack of agility, visibility and collaboration in logistics organization activities and relating this implication to their daily operations (Dumas et al., 2018)
- Ascertain factors and challenges that could affect logistics operations and highlight issues involved with not providing sustainable solutions to identified challenges (Frenie and Sparks, 2018)

Firstly, Sue (2015) identified limitation in defining clear processes within an organization because some businesses do not have clear standard operating procedures. James et al., (2014) mentions that in some organization's there is a gap between transport manage systems and freight manage systems which means that when there is a failure in shipment of a product to customer the warehouse/ order fulfilment centres might not be alerted on time of such failures, because such parcels must have been assigned to a third-party logistics company to deliver. What this means is that smart tracking of such freight is necessary in logistics because, failure to track such products could lead to loss of revenue to an organization. Therefore, it is paramount that an organization creates a link between third party transporters and production/warehouse. Also, the ability of an organization to deliver freights on time and safely is paramount within supply chain/logistics (Sparks, 2018). They added that in some cases there has been a trend of missing parcels which have been said to be delivered and not received by customers while in some cases there have been circumstances where freight have not been delivered/not being received by warehouse/fulfilment centres. Thus, to prevent most of these issues from occurring smart tracking is a lasting solution because this will enable logistics firm track all products in transit.

Secondly, Hopkins and Hawking (2018) notes that truck telematics has been deployed within the logistics sector in order to ensure safety of drivers, goods/services and enhancement towards understanding drivers (that is understand drivers' behaviours); lastly ability to understand various geographical locations. However, it is useful to note that smart telematics has not being able to completely eradicate theft by drivers and totally eradicate theft from consumers. Thus, the ability to totally eradicate end-to-end theft within logistics will yield to increase in revenue in an organization which can only be accessed using visibility, collaboration and agile logistics network implementation as this will enable organization silo to relate and monitor all operations.

Thirdly, at present there is limitation in the unilateral flow of information within supply chain sectors, this means that companies do not have a unilateral system whereby they can all retrieve information from same database (Prajogo & Sohal, 2013). This means that the problem around data sharing, and data shredding is still an issue as various organization depend on their individual database. Leuschner and Charvet (2013) suggests that organizations should go into data sharing and data shredding partnership to enable them to trust themselves with various data sharing platforms. Limitations identified within logistics serve as a driving force towards the completion of this dissertation because literatures have not thoroughly provided solutions to identified limitations. Thus, service excellence will not be totally achieved if appropriate solutions are not suggested to resolve issues within this loop as stated in this section.

In addition, the clarity about certain advantages associated with the monitoring of freight from distribution centre to customers outlets needs to be evaluated and shall be further analysed in this thesis. Prajogo and Sohal (2013) discovered that various segments in companies face their own challenges this implies that challenges encountered by business development will not be the same as challenges business solutions will encounter some of these challenges are Information technology (IT) related issues which revolves around process improvement and organization sustainability. Therefore, Leuschner and Charvet (2013) proposes that a well-defined collaborative process should be established to facilitate and optimise resources; reduce cost and increase revenue.

Risk mitigation in operation is core and requires optimal solutions in order to avoid increase in cost (Zheng et al., 2015). Prajogo and Sohal (2013) argue that building a collaborative system within logistics will serve as a mitigating factor in logistics activities. Prajogo and Sohal (2013) identified three main risk in supply chain and they are demand; supply and process risk which aligns to the core hub activities required for logistics activities to be complete this also relates to completing logistics activity cycle, supply of services/goods must have occurred; demand of product/freight would have occurred and processes would have been instated in order to ensure that the cycle is completed with less risk and customers will be fulfilled. Also, organizations can be certain to survive industry competition because they will become a provider or choice and also gain customer loyalty once they have been able to mitigate against process, demand and supply risk. Therefore, in order to enhance Tranex Logistics operation activity; it will be vital to assess the risk in their operations before proposing any solutions.

1.7: Research Questions

Research questions are:

- How does technology solutions impact on logistics activities internally and externally?
- How can agility, collaboration and visibility be obtained in logistics activities and how best can they assist with increase in revenue, and service excellence?
- How has BPM through the aid of ERP encouraged the maximization of assets usage in logistics silo?

1.8: Research Aims and Objectives

1.8.1: Research Aims

This research aims to evaluate the impact of visibility, collaboration, and agility in logistics BPM; explore how business process management can improve operations and ensure transfer of knowledge/sustainability in business using digitalized application; also, the role of technology in organization silo which is applied in optimising operations will be assessed and a framework will be developed for Tranex Logistics.

1.8.2: Research Objectives

Research objectives are: -

- To identify impact of information flow and identify challenges involved with the adoption of BPM in various logistics organizational silos in relation to key ERP elements such as agility; collaboration visibility and assess the impact of information flow.
- To examine the importance of BPM in improved logistics process and benefits of adopting ERP in BPM element in business activity/operations.
- To identify how best technology using ERP can be applied in logistics silo and to recommend a strategic business management framework which will facilitate service excellence in Tranex Logistics Nigeria.

The above objectives have been aligned to correlate with research question and benefits of BPM in supply chain as highlighted in sections above. Objective one will highlight challenges which various organizational silos will encounter while trying to adopt proposed business process management technics, also to highlight issues they will encounter while trying to change their processes within various silos and challenges they still face after adopting ERP

as their business process management tool; research will also assess how this impact on information flow and service excellence in logistics. Objective two will be to highlight how adopting BPM will enable firms achieve their long-term mission and vision. Objective three focuses on how various processes, which have been reviewed, can be applied to achieve value for money; strategic solutions will be provided to either investigate further on how best issues identified can be resolved or proposed solutions discovered will be proposed to their organizations.

In sum, objectives above will highlight how technology aids logistics activity and assess how digitalized operations can enhance business revenue and create business sustainability. It is vital to focus on increase in revenue and reduction in waste and cost because once cost is reduced, and revenue increases organizations will be able to make profit. Therefore, maximization of assets and acquisition of more businesses is important in order to ensure firms sustainability within an industry. Thus, once, a firm is able to sustain their business activities because it is important for them to be able to survive competition within any industry (Zheng, 2015). (Sohal and Praojogo, 2013) states that a firm’s ability to assess the risk in their sector is vital because identification of business risk will enable them to provide certain mitigating factors once such risk occurs in business previously. Furthermore, it is necessary to assess organization risk in order to protect the cost of some high loss within a firm; therefore, some organizational risk will be listed.

1.9: Origin of this Research

Laudon and Traver (2013) found that since 2008 there has been a global increase of mobile commerce; social commerce and e-commerce (electronic commerce) thus, ability to successfully deliver freight which have been bought through various means of commerce is necessary within the society. It will also be interesting to review various challenges faced by organization when they try to improve their business process when freight has been purchased through various means of commerce. Turban et al., (2011) opines that logistics activity has not only increased due to online commerce but online commerce has facilitated the increase of in-store sales of various merchants within all sectors and industries.

National Statistics (2018) also agrees that most industries have witnessed increase in sales due to online merchant sales as illustrated in table 01.1 below:

Category	2016	2017	2018	2019
All retailing	10.4	11.2	12.8	10.6
All food	3.4	3.7	5.0	4.0

All non-food	8.4	8.8	9.2	10
Department stores	9.5	10.1	9.5	7.5
Textile, clothing and footwear stores	10.2	11.6	15.0	17.0
Household goods stores	5.7	5.9	6.9	6.1
Other stores	7.9	7.2	8.0	7.0
Non-store retailing	67.9	69.4	70.0	80.05

Table 2.1: Annual proportion of total sales made online from 2016 to 2019 in %; (Source National Statistics 2020).

Although, the internet has facilitated merchant sales in logistics over the last years it has also created some logistics limitations such as Information technology networking and programme language development (Laudon and Traver, 2013). Therefore, author's main motivation is to access various challenges, which are being faced by organizations since the inception of online merchant and major challenges faced with successful delivery of freight in order to enhance service excellence.

The chosen sector logistics has experienced growth and development over the years because freight activities require logistics from start to finish of their process. Thus, it is vital to understand logistics activities and its external environment. World Trade Organization (2001) depicts that logistics activities have experienced 100% growth in the 21st century, thereby increasing inbound and outbound freight activities. World merchandise trade experienced a growth of 4.7% percent in 2017 as compared to 1.8% growth in 2016, also, export within the least developed countries (LDC) has grown and they plan to increase trade activities by 2020 World Trade Organization (2018). Thus, with the increase in export and inbound trade activities it is paramount for companies to access their ability to survive within their sector and state how best they will be able to achieve their long-term vision and mission statement in order to align with the future of a globalised economy (Chen, 2013). Furthermore, some of the main factors that will enhance the achievement of services excellence within supply chain activities are technology, process improvement; resource optimization; transport infrastructure and service development (Seuring, 2012). The rule of success is based on consistency and development with the aid of BPM firms will be able to excel in logistics as they are able to develop their BP and consistently improve their processes to suit consumers wants and needs.

1.10: Contribution of Research

This study will contribute to the following: -

- Contributes to providing business owners adequate and coherent information around their business activity and assist with providing logistics solutions on the best way(s) they will be able to attain and maintain information flow.
- Research will contribute to providing logistics businesses thorough insight to partnership working and benefits of partnership working in various organization silo.
- Research will contribute to providing ideology of agile working and how it benefits logistics businesses once they become agile.
- Research will contribute towards business sustainability exploring various channels through which firms can sustain their business some of which are customer loyalty, revenue expansion and providing value for more services by consistently delivering service excellence.
- Research will contribute to practice, knowledge/academic and theory
- This study will apply research interpretivism, snowball sampling and other relevant research methodology and methods in providing insight and contribute to the above items.

1.11: Significance of Study

Even though companies have their reporting platforms being integrated into their businesses, very few companies enjoy/maximize the essence/purpose of this reporting platforms as delivery of products is perceived to be the slow end of supply chain; to ensure that this perception is boxed some firms have developed a same day delivery business model with this model delivery of products is now referred to as the front line of supply chain. It is now mandatory to integrate organization reporting platforms into their business process management to enable them to have adequate visibility in their operation process (Chiemeke and Evwiekpaefe, 2011). Therefore, this study is significance is based on the below reasons:

Firstly, BPM enables organizations structure a coherent channel for information flow to all their silo. Bharadwaj, et al., (2013) states BPM facilitates proper flow of information between elements that require data in business because such information can be transferred, thus, data collated in business enables various unit to understand their expected outcome and necessary input which is required from them so as to be able to survive in business and achieve their organizational goals within expected time frame. Therefore, author will review how to develop a coherent structure which, will facilitate flow of information in logistics activities in Nigeria.

In this regard, the second significance of business process management (BPM) in logistics will be data analytics, this will ensure visibility, collaborations and agility in logistics operations. Companies require these three elements in order to run their daily activities smoothly. Visibility in business ensures smooth operations in logistics activities, collaboration ensures all unit receive same information and agility ensures proper value for money in business because it enable various units to deliver quickly when assigned any task.

In summary, the main impact and benefit of these research to customers and stakeholders are:

- Thorough analytics in their businesses will be achieved.
- Coherent information flow within various elements in an organization will be achieved.
- Business sustainability and survivability will also be achieved.

However, there are issues, which have been highlighted that information technology has left some gaps in logistics such as language programming, and technology networking other literatures have noted that there is still a gap in maximization of order fulfilment during peak periods (James et al., 2014). There has been no lay out guide proposing to firms how best to manage logistics activities during peak period. Due to high increase of e-commerce, social commerce and M-commerce (mobile-commerce) organization currently track delivery of freight to customers through smart telematics but has smart telematics resolved all challenges within logistics? Thus, various paragraphs below will highlight pending aspects which smart telematics is yet to provide solutions.

1.12: Structure of Thesis

In this section the entire structure and components of all chapters in this thesis will be reviewed to provide readers with a sense of what to expect in each chapter: -

Chapter One: - will consist of introduction in this section author will explain the importance of this dissertation also highlight research aims and objectives which is centred around process maximization using ERP. Also, the chapter elaborates on research problems, significance of the study and contribution of thesis.

Chapter Two: - will consist of literature review author will summarise literatures around various business process management frameworks which are six-sigma, lean, ERP and any other framework. Next author will focus on ERP framework as it is the only element applied

by Tranex Logistics in managing digitalized business operations. Next section will explain the various elements of ERP which are visibility which explains the use of technology in business improvement and business processes management. Next section will explain the collaboration element which focuses on organization silos and how they facilitate daily operations and increase partnership working and the next section will focus on the agility element which focus on tools that enable/facilitate business sustainability. To achieve these journals and secondary data will be reviewed and populated. Next step research conceptual framework which relates to research objectives and literature reviewed will be populated.

Chapter Three: - Research methodology will be developed; research method will be explicitly stated; sample size survey will be explained; survey report will be provided. Furthermore, chapter three will highlight research philosophy, research approach, research design, research method, data collection method, sampling methods, sample size, data analysis, reliability, validity, design will be conducted, and design procedures will be explained, a brief data analysis will be established questions will be evaluated; ethical issues and research limitations will be established.

Chapter Four: - in this chapter interview report from participants will be mapped into core and sub-themes next step interview transcript will be populated based on interview response; main themes are flow of information in logistics, partnership working, agility, customer/service excellence and revenue management. Interview transcript have been populated based on participants responses during the interview and as such due to heterogeneity method of sampling which means participant response will be translated per-head therefore, transcripts of participants with response have been populated.

Chapter Five: - research findings will be interpreted using interpretivism; thus, research is purely qualitative and research findings will be examined alongside participant response and literature reviewed; research objectives are applied in associating each finding i.e., all three research objectives serve as a baseline in developing research interpretivism explanation as this method of research philosophy is being applied in this study.

Chapter Six: - in this chapter research conclusion, recommendations, contribution to theory, contribution to practice, contribution to knowledge, scope for further research and how limitations of the study have been resolved will be explained.

1.13: Chapter Conclusion

This chapter presents an overview of the thesis and the aim of BPM in logistics; the significance of study has also been explained in this section. Research limitations and research problem have been stated next research questions, aims and objectives of this thesis has been included. In chapter two critical literature review on thesis will be populated, conceptualise in literature, and conceptual framework will be established based on research objectives.

Chapter 2: Literature Review

2.0: Introduction

In this section, author will populate functions and benefit of BPM; followed by a brief history of BPM and the evolution which has occurred will be populated. Next step is to evaluate various BPM frameworks which are enterprise resource planning, six-sigma, lean and many other frameworks. Subsequently, this chapter will focus on ERP framework because it is the only tool applied by Tranex Logistics in performing all logistics activities internally and externally; followed by the identification of the key elements of ERP, specifically this section will focus on the tools and components of ERP which are visibility, collaboration and agility; this chapter will also explore how various tools are being applied in daily operations activities to obtain service excellence. The author will develop a research conceptual framework with the aid of various literature reviewed and framework will be aligned with the research aims and objectives and chapter summary will be provided at the end.

The world is now fast becoming a global village because news now travel fast thus, competition in business is now extremely high. This now makes it the responsibility of an organization to deliver excellence internally and externally by adopting various technology; manpower and other relevant resources which will aid the growth of their operations. Logistics company such as Fedex, notes that by 2032 the logistics industry would have experienced growth and developed in terms of on-time delivery, methods of delivering, management of order fulfilment centres and ensuring excellence simply delivered (Fedex, 2018). Fernie and Spark (2018) depicts that it is important to plan quicker to ensure that organization can survive industry competition and adapt to innovation and transformation strategies which are being implemented by logistics companies.

Prajogo and Sohal (2013) states that it is imperative for firms to understand and answer questions in relation to how best to mitigate supply chain risk in the mist of growth and development within the industry. Thus, the journal went further to identify three major risk firms will have to conquer in the long-term race of their business in order to sustain their company and these risks are supply, process and demand. Supply risk relates to the entire business supply such as supply from third party; manufactures and any form of supply; while process risk relates to a firm ability to merge both internal and external activities in coherence and lastly demand risk is the ability of a firm to satisfy their customers. Zheng et al., (2015) is

of the opinion that a firm's ability to identify all forms of risk and mitigate against those risk will enable them to withstand all forms of business uncertainty.

Growth and development in business is vital however ability to ensure business survival is more paramount in business, thus, business process management (BPM) will enable firms ascertain sustainability because it will enable them to develop standardised processes within their firm some of these processes are demand process, supply process and general processes which will be developed in all aspects and departments of a company (Zheng et al., 2015). Therefore, thesis will focus on how best a firm can sustain their business by applying the appropriate framework of BPM in their silo; the main determinants of BPM which are six-sigma, lean, ERP and many other frameworks will be evaluated and explored however, research will focus on ERP as it is the only tool being applied by Tranex Logistics (Castillo et al., 2017) argue that organizations have not being able to hack the best form of delivery methods in logistics especially in relation to last mile delivery and next day delivery. They emphasised that the use of technology is not the main **solution to sustaining business, but some theories should be applied alongside the use of technology in business.** Castillo et al., (2018) **opines that firms can sustain their business by applying good decision and adopt the appropriate ethic within their supply chain process. Thus, ethic can be explained to mean applying the right work standard and appropriate framework with admittance that firm integrity will be at stake if they fail to deliver professionalism in their operations.**

Therefore, sub-sections below will review how best companies can sustain their business and assess the impact of business process management in logistics activities through the use of technology and digitalized advancement/framework as explored below.

2.1: What is Business Process Management?

Business process management (BPM) can be perceived as the **ability to coherently organise daily internal and external operations and business activity efficiently by maximising time spent** in achieving all task which implies that the ability of a firm to complete each task effectively and efficiently in a lean and profitable standard which will enable them maximize time and other core factors. BPM also entails **coordination of all business activities to ISO 2023 standard and adopting this standard into a firm (CIPS, 2020).** Brocke and Rosemann (2015) **defined BPM as an ambiguous term because various models and elements may differ when applying them in various sectors. They also noted that Adams Smith division of labour theory can be linked into BPM because division of labour can be perceived as organising a process to achieve better outcome which leads to process alignment and achieving a standard operating process.**

Jeston and Nelis (2014) asserts that BPM is used to hold an organization structure together it can also be applied in the governance of an organization. They further explained that BPM will ensure that **business value chain is not disrupted when performing daily operations**. Noel (2008) depicts that BPM is applied in obtaining strategic objective and transformation of an **organization; BPM is ambiguous; therefore, it is important to understand the expected outcome of a process in order** to obtain agreed objectives. They also highlighted some of the benefits of BPM are reduction in cost/increase in revenue, improve leadership, adaptability, flexibility, agility, performing customer behaviour analysis and visibility are the common benefits of adopting BPM in an organization.

Kim (2017) noted that the purpose of BPM is enforcements, therefore, firms are advised to tailor an approach which best fits their expected outcome this implies that firms should adopt a process which is fit for purpose in their unit; BPM has been defined as the establishment of a standard operating process in an organization which will clearly state how things should be done. They further explained that a process can be perceived as **performing certain tasks in order to achieve set objectives; BPM is a collective chain of activities which is applied in achieving value for money in business and also applied in satisfying customers expectation.** This definition states that BPM is applied to assert set business goals with the main aim of satisfying end users both internal and external customers.

The role of BPM has evolved because it now deals with the act of overseeing business activities which enables internal and external stakeholders understand how business activities are being formed and explains how consistent business outcome is being achieved (Dumas et al., 2018). Hammer (2015) agrees that BPM is applied in managing and transforming organizational activities and BPM tools can be referred to as a revolution in business because they have facilitated daily business transaction by ensuring that visibility, collaboration and agility is obtained in operations. They also added that BPM has increased the rate of outsourcing in various units this means that firms can now outsource a certain aspect of their business and also have access to all activities because BPM has developed such business tools. The ability to monitor daily operations, link various units together in business is dependent on BPM because tools which are required in accessing business components are being developed through different business framework (Noel, 2008).

BPM has been perceived to be ambiguous because business process adopted relies on the scope of a firm issues to be resolved and ability to adopt the most appropriate framework. Therefore, certain items which could be involved in achieving BPM are project management, change management, leadership theory, maturity theory and transformation theory; therefore, next section below will explain function/role/benefit of BPM and next section will explain brief history of BPM in order to portray the evolution of BPM and how it has assisted firms achieve set goals and also highlight the evolution experienced over the years.

2.2: Function/Role of Business Process Management

The three main determinate of achieving service excellence are visibility; agility and collaboration in logistics because these elements form the core hub of achieving smooth operations in various organization silos. Zheng et al., (2015) predicted that by 2018 analytical

skill set will be required by businesses in order to enable them satisfy customers expectation. **IBM (2019) predicts that by 2023 firms would have advanced from predicting consumers behaviour to enticing consumers to patronising what is available this implies that most customers will no longer buy products according to their desire or needs but purchase will be made based on being enticed.** Which then implies that logistics activities will soon be controlled once organizations acquire accurate information and their delivery will be more efficient.

Instead of focusing on customers, Laudon and Traver (2018) focuses on how best logistics industries will be able to equip their employees to achieve their long-term vision which could lead to business sustainability. They further, highlighted that through the use of big data analytics firms can achieve visibility, agility and collaboration within their daily transactions. Turban et al., (2011) opines that technology will facilitate smooth logistics activities in the near future because the next decade will **require fast and easy solutions when running their business.** Lusch et al., (2010) notes that logistics activity will advance from one way to a two-way activity because businesses will be able to penetrate the market and customers will also be able to achieve value for money. Based on roles and function of **BPM the following benefits have been developed: -**

- BPM through the application of appropriate framework will enhance business operations.
- Increase productivity and efficiency in internal and external activities.
- Business sustainability can be achieved, as knowledge is visible.
- Customer satisfaction and customer behaviour can be monitored.
- Finally, long-term vision, goals and objectives are feasible through the adoption and adaption of appropriate business framework such as ERP, which is being applied by Tranex Logistics.

Next section below will explain history of BPM; it also will evaluate various BPM framework which are ERP, six-sigma, lean and amongst other frameworks; the section following will evaluate key elements of ERP which are applied in facilitating logistics activities internally and externally this will also enable researcher explore content of ERP.

2.2.1: History of Business Process Management

Jeston and Nelis (2014) notes that Fredrick Taylor and his colleagues were the first set of individuals to develop the term business improvement which aided **most engineering firm's activities**. In 1900 the **Tarloyrist approach to business** improvement gradually went sufficed and was replaced with **the Pull approach** which enabled companies such as Toyota minimise waste in their inventory management. The pull approach was very productive because it increased organization revenue; In 1986 the **pull approach** sufficed and was replaced by **SIX SIGMA this approach** was introduced by Bill Smith in the 1986 when dealing with Motorola a telecommunication company in America; **The six sigma approach is a mathematical approach applied in solving defect in business**; the approach was built as a decentralised working model which could not be applied into some certain industries (Jeston and Nelis, 2014).

Further authors such as (Dumas et al., 2018; Jeston and Nelis, 2018) further explained **that total quality management, ISO and Kaizen concept gave birth to BPM** because firms discovered that there was still a gap to be filled if one or the other concept was adopted therefore, firms developed the term business process management which meant that organizations could select the concept that was fit for purpose in their operations. In 1995, the originators of this approach developed other components into their approach and developed an acronym called **DMAIC** an acronym which stands for Define; Measure; Analyse; Improve and Control which included quality management tools and methods. The **six-sigma business** model gave other organizations such as project management institution and Chartered Institution of Purchasing and Supply Chain Management to develop other business improvement models such as **Lean → Scrum → Visibility → Collaboration → Agile some of this business models are embedded in project management PBOOK-6 (PMO, 2018; CIPS (2018))**. Figure 2.1 below explains the growth of Six-sigma. Over the years BPM has not been recognised in most industries and has been perceived as the key and lifeblood of an organization because processes are being aligned to suit organization standard operations (Dumas et al., 2018). Process management (PM) did not gain recognition until the 20th century when it became necessary for businesses to develop a centralised business globally in various regions; PM came into light because innovation and change became high demand as firms wanted to ensure that the centralised business that they were creating could also become visible this means that all business operations which occurred globally could be monitored through a medium/software (Dumas et al., 2018).

Noel (2008) argue by elaborating on the birth of BPM they explained that businesses became conscious of the fact that they had to monitor their daily revenue, maximise assets, increase profitability and reduce cost. Therefore, there became a need for globalization, standardization, operations excellence and need for stable technology within various business units. Also, they realised the importance of managing their business globally through a standard will enable them to foresee any form of issues that could emerge. **Due to the growing need in firms this gave birth to the term business process management because most firms opined that the** ability to create visibility, agility and ensure various business unit work collaboratively will enable them to achieve their long-term vision. Firms also realised that populating a standard BPM will enable them achieve customer service excellence.

In addition, other business process management models which are centred mainly around information technology are customer relation management software (CRM) and enterprise resource planning software (ERP) which later morphed as the name business process management (BPM) because it incorporated so many aspect on technology into delivering service excellence this means that BPM has incorporated various models such as ERP, CRM, and many other technology based business solutions software (it is also useful to mention the **four aspects of BPM are business, organizing, process and technology**) ; in the 20th Century due to surplus business needs so many firms had to develop other business models which was fit for purpose in their organization, they achieved this by considering the four aspect of BPM; this has made it impossible to develop a central approach to business process management because most governing bodies and firms have developed so many approaches over the years (Dumas et al., 2018; Noel 2008; Jeston and Nelis 2018). Due to surplus business process management models, which have evolved over the years; author will focus on BPM models, which are centrally applicable to supply chain and logistics activities. Having explained briefly the evolution of BPM sections below will highlights some of the main framework and business models, which are required in logistics business in order to achieve effective and efficient BPM in an organization.

2.3: Business Process Management Framework/Design

Brocke and Rosemann (2015) explained that BPM framework can be classified into three major categories which are the key components. In business there are key components which are required in enabling process management in organizations; sections below will elaborate on some of these factors which have been streamlined into three core terms they are visibility, collaboration and agility. This will enable author to explain how best business process management is been applied in logistics activities and also populate how other authors perceive these elements; the below section will attempt to explain key units that should be involved in achieving BPM in the entire logistics activity circle; figure 2.1 below (next page) will highlight some of the types of business process management framework:

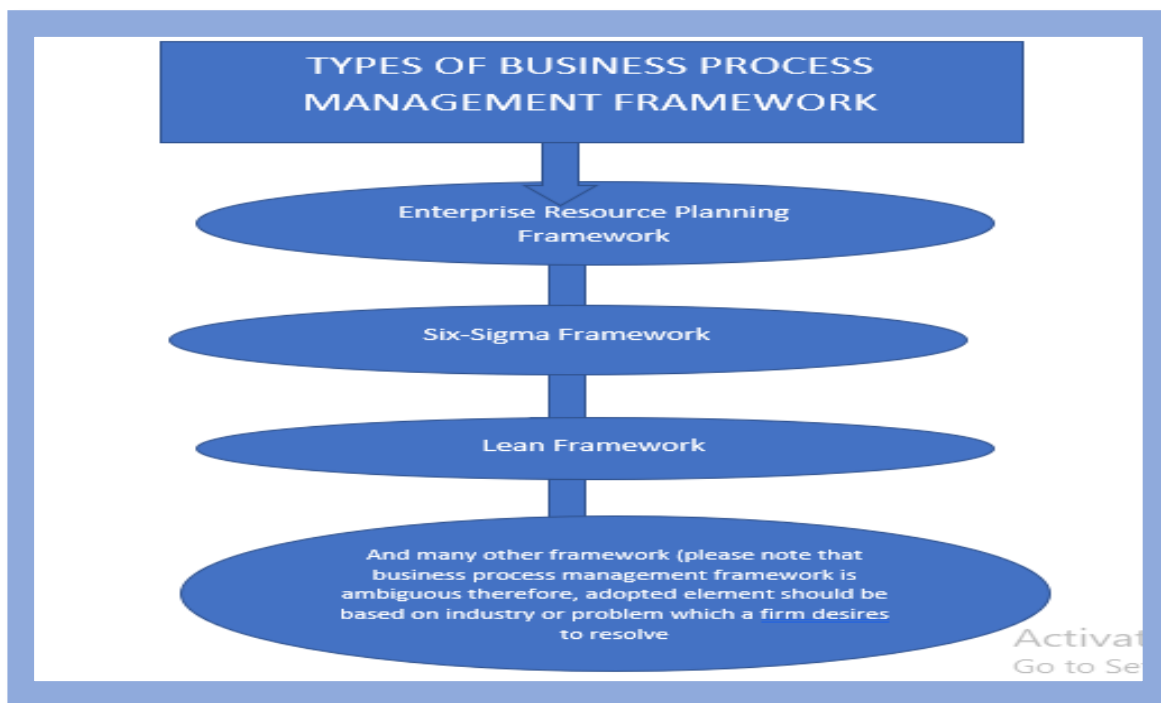


Figure 2.1: Types of Business Process Management Framework Source: (Noel, 2008)

The figure 2.1 listed some of BPM framework, which are being applied in businesses to improve daily operations. It is also important to note that these frameworks are not interchangeable because each framework has its own model which is aimed at achieving a certain task or resolving certain issues in business and they form part of the key determinants when adopting business process management.

2.3 (a): Enterprise Resource Planning Framework

This framework is applied in a business specific or agnostic domain to produce an algorithm that will ensure that there is constant flow of information, this implies that when

BPM is applied in a specific or uncertain procedure with the aim of achieving seamless internal and external operation activities, information flow is applicable to customer relationship management (CRM) software because this algorithm is built to ensure flow of information from all business units (Dumas et al., 2018). They further explained that a domain specific process entails access to **information this means that the main aim of domain specific in business is to ensure that there is constant access to information in all business units; while domain agnostic algorithm is applied when there is uncertainty in business this algorithm is applied to reduce tension, improve processes and provide solutions.**

ERP capacity in business is solidified/modified to enhance business activities such as cash flow, information flow, customer service management, utilization of time management and speed; all of this and more are achieved through the aid of technology business solutions software (such as SAP; Signavio and many more CRM software (Jeston and Nelis, 2018). Kaplan and Norton (2008) **stated that ERP and CRM framework are being developed to suit daily business needs and they identified some business process in most firm as shown in figure 2.2 below:**

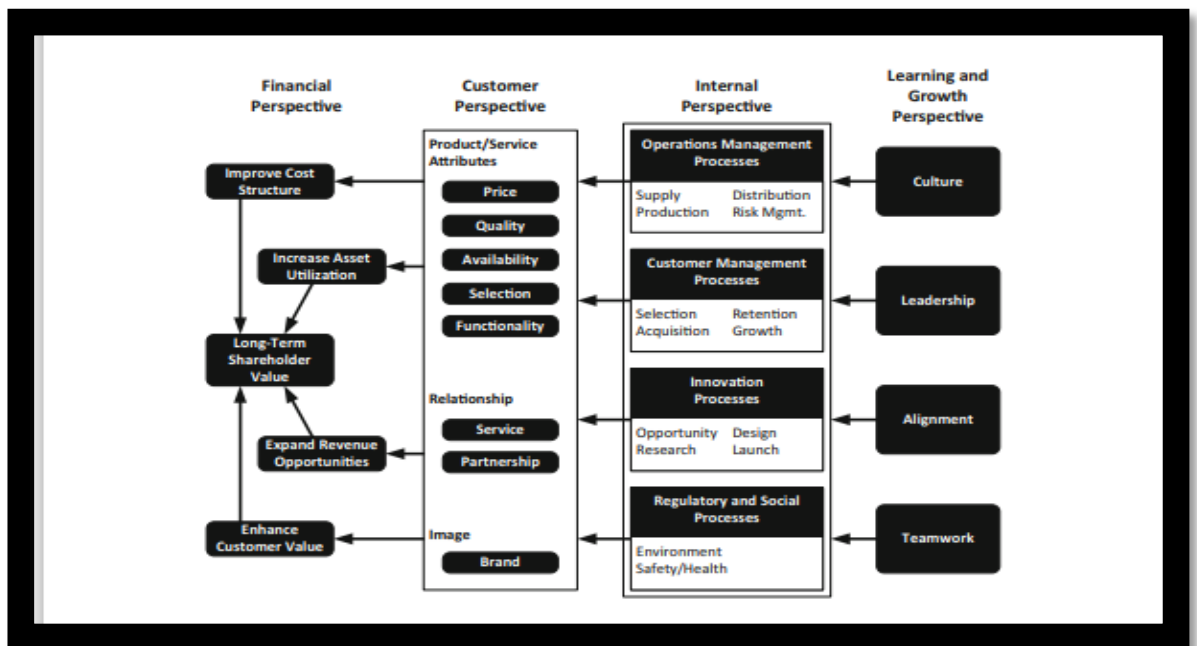


Figure 2.2: Identification of Business Process (Balanced scorecard) (Source: (Kaplan and Norton, 2008)

The above figure 2.2 has identified some processes involved in achieving service and product excellence, therefore, to ensure that daily operations are seamless various ERP software are being developed or built to suit business needs in order to ensure that value for money is attained in the long term (Kaplan and Norton, 2008). They further explained that above figure

2.2 can be referred to a balance scorecard because it represents the business framework of an organization. The ability to identify a business model is not sufficient to sustain the business long term vision therefore, firms can develop ERP framework which will assist in achieving firms balance scorecard attribute (Weske, 2019). **This then leads to the term process selection criteria which is based on some elements such as visibility, agility, feasibility, collaboration/consistency, flexibility, and success rate can be used by assessing time spent, cost, quality and flexibility of a process will aid users assess if model adopted is fit for purpose**, however, **firms are urged to set other standards based on the model adopted, reasons for adopting a certain model and expected outcome** (Dumas et al., 2018). Dumas et al., (2018) challenges and points out that it is important to portray what a process landscape entails in ERP (this is in relation to logistics) and they further noted that SAP is one of the world largest ERP service providers in firms and they have developed the below Business architecture. Figure 3 is contents of a process landscape and figure 2.3 portrays how SAP has been able to adopt the landscape into their business architecture:

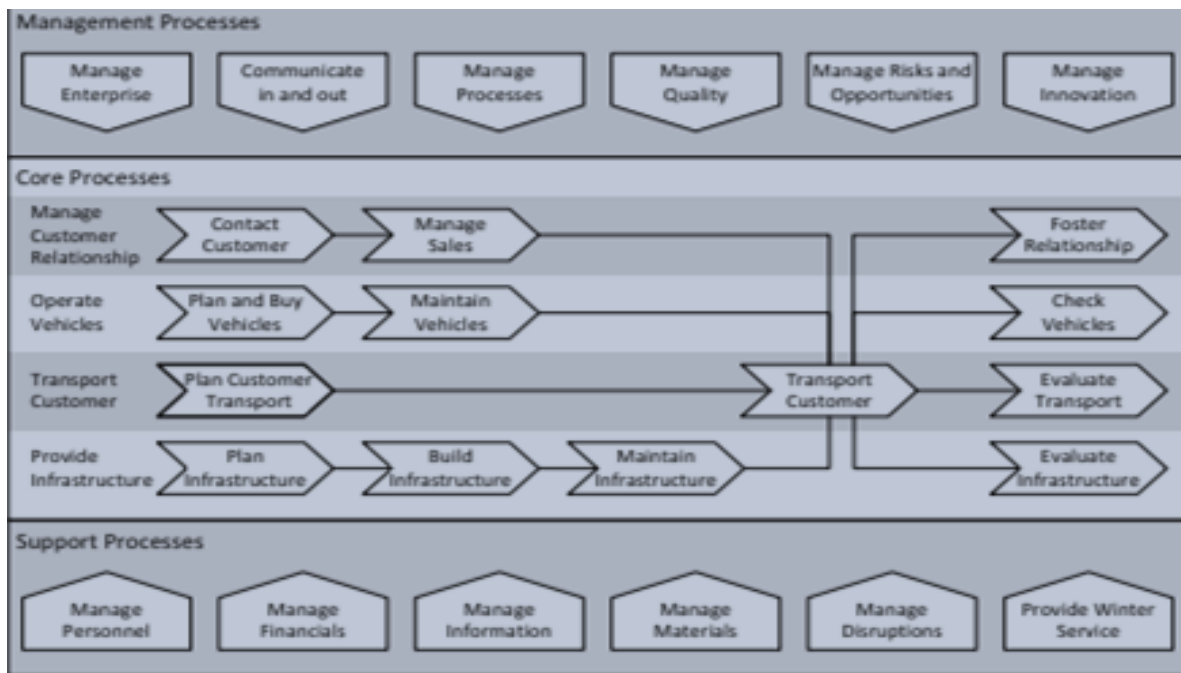


Figure 2.3: SAP landscape Model (Source Dumas et al., 2018)

The above landscape figure 2.3 has been modelled to provide for both enterprise need, customer need, stakeholder need, employee need and long-term business vision in order to attain service excellence. While figure 2.4 below is a sample of SAP business landscape framework:

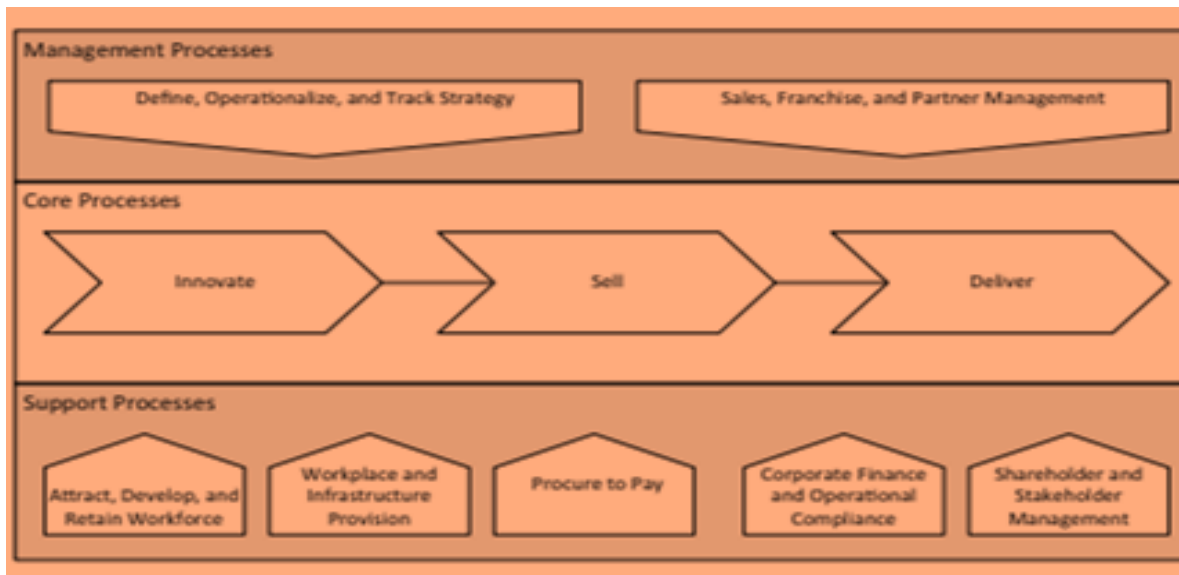


Figure 2.4: SAP landscape Model (Source Dumas et al., 2018)

The above figure 2.4 has been modelled into management, core and support processes, which are recommended for adoption by service providers. The later aspect of this thesis will attempt to explain how the basic process criteria or elements in ERP are being developed and how they function to in order to achieve visibility, collaboration and agility.

2.3 (b): Six-sigma Framework

The main function of six-sigma is to minimise the occurrence of defects in any process because this framework can be applied when there is a defect in operations; also, the framework emphasizes the importance of quality control in production. The main element in six-sigma is an acronym called DMAIC, which stands for as shown in figure 2.5 below:

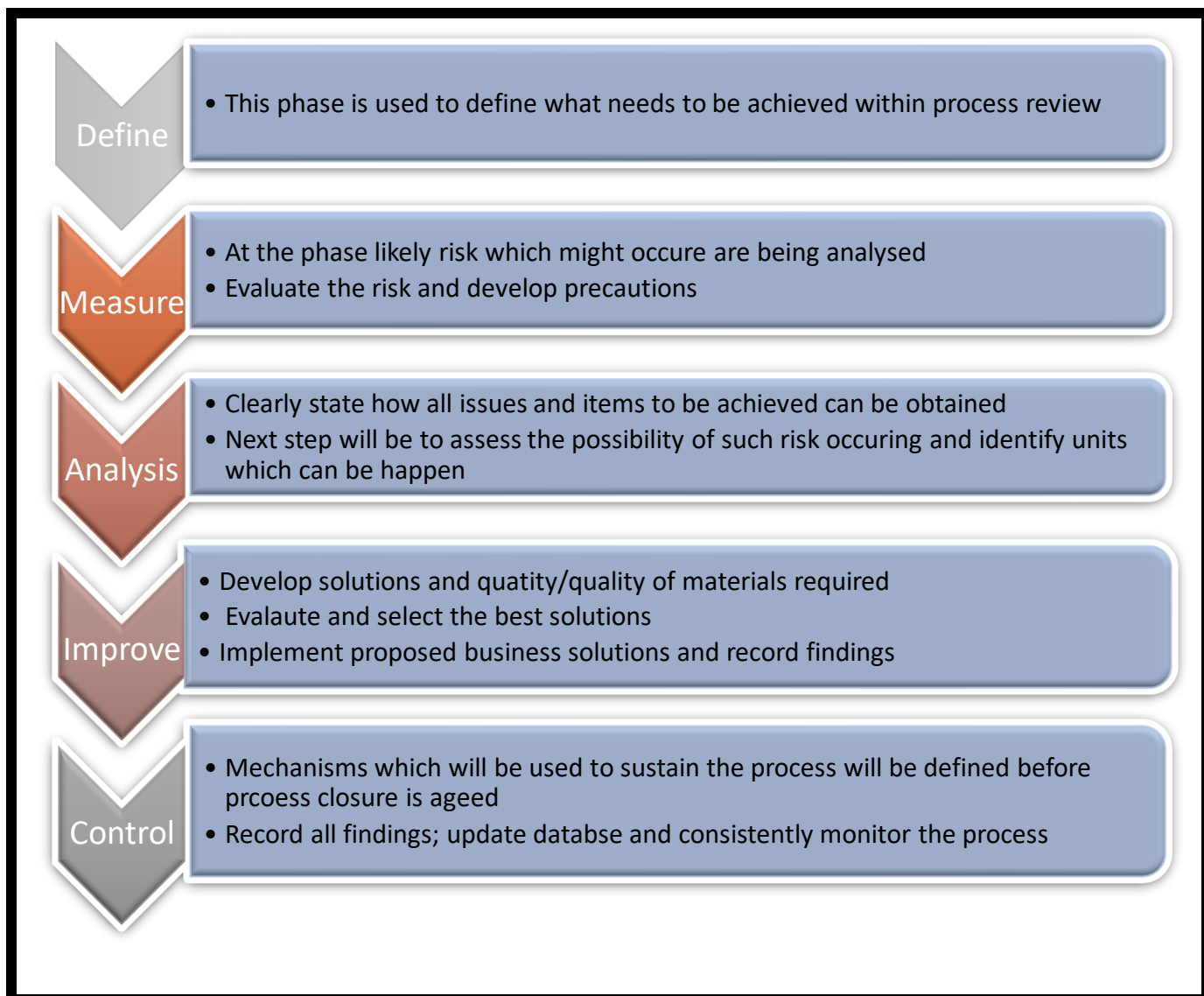


Figure 2.5 Types of Business Process Management Framework Source: (Noel, 2008)

The above figure 2.5 provides a summary on how six-sigma is being implemented in business. Literatures have highlighted that six-sigma is best applied for quality control and applied in automobile and electro related industry because it allows engineers review their applications and assess how best solutions can be implemented and adopted. **Howard. S et al., (2015) argues that six-sigma provides businesses with a tailor guide on how to improve their business process, but this sort of process improvement is more suitable for automobile firms.**

2.3 (C): Lean Framework:

The constant function of lean in business is to identify waste and eradicate waste in processes which implies that the aim of applying lean is to ensure that all forms of waste are eradicated within various processes because the adoption of lean framework is applied to check

for waste which could be waste in any form of resources such as human or process and waste in usage and maximization of assets. Lean approach is designed to ensure that value is added in business also value is added to customers in order to ensure customer service excellence is achieved (Kumar., 2018). Fullerton et al., (2014) suggests that for lean to be successful it has to be applied in a broad business perspective which means that all aspect of such as organization has to be modelled by the key principles of lean; this not displace the fact that lean is targeted at reducing waste.

Dumas et al., (2018) states that the aim of lean is to add value or value not added because aims and objectives were not achieved. They further explained some of the key principles, which are applied in lean framework in business, are please see figure 2.6 below:

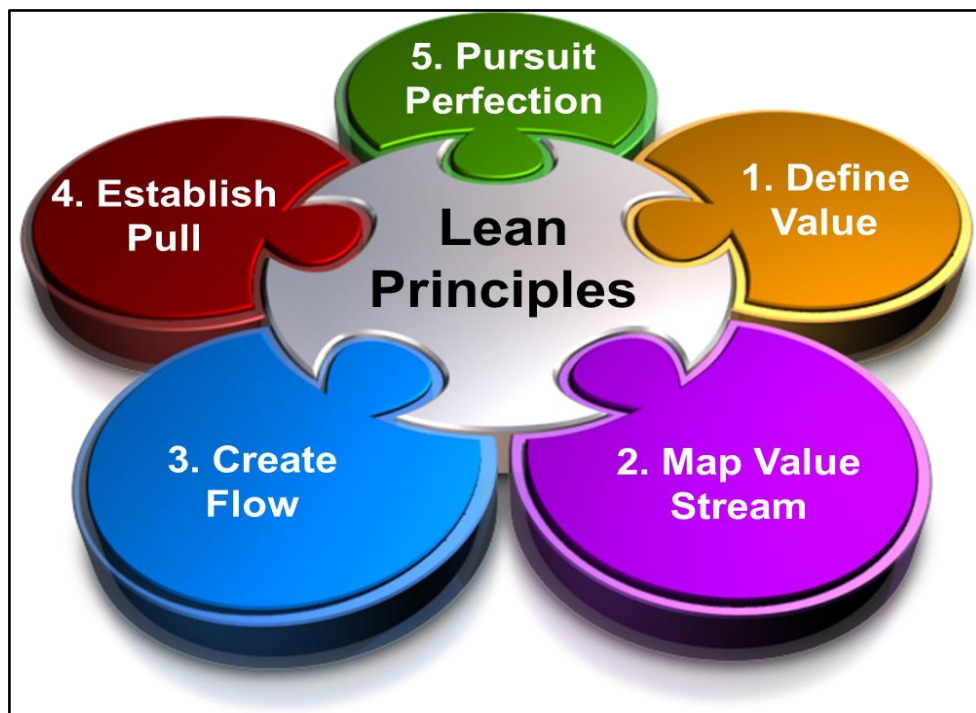


Figure 2.6: Principles of Lean (Source: Fullerton et al., 2014)

The above figure 2.6 has listed the five principles of lean which will be elaborated below:

- **Define Value:** Before adopting a new process, it is vital according to lean model to define the value which will be added to the business and more especially value which will be added to customers; the essence of value definition is to ensure that all elements identified will not incur waste within a process rather value added will be satisfactory to customers and waste will be eliminated from any process (Noel, 2008). Fullerton et al., (2014) points out that value focuses mainly on the problem which is to be resolved for a customer. This implies that value is centred on problem which is to be solved.

- **Map value stream:** The purpose of this element is to ensure all steps involved in process improvement are mapped in order to understand streams that will add value directly or indirectly to products and customers are clearly established to ensure no leakages within a process. Noel (2008) notes that mapping of value streams will not only lead to minimization of leakage but will also ensure that all facilities within production phase will be value orientated. Fullerton et al., (2014) argue that mapping value streams requires firms to map the workflow of their company; this implies that at some stage a firm is required to understand their workflow and work force strength which will be required in achieving expected outcome. Dumas et al., (2018) states that mapping will highlight areas where value is being created and the percentage of values added will also be stated. Mapping also highlights areas whereby value might not be achieved, and mapping will also highlight who will be doing what and at stage various activities should occur will be mapping at this stage; finally, activities which are not value orientated will be eliminated at this stage.

- **Create Flow:** The next phase in lean principle is to create flow within various business units; at this stage it is vital to create cross functional framework for staff in order to ensure that each unit can relate with the others, when necessary, this means that everyone who is meant to have access to duty performed should be able to view them (Dumas et al., 2018). Fullerton et al., (2014) argue that creating a flow requires more than cross functional units relating but should consist of the ability of identifying when their bottleneck with various unit's flow created should be able to detect these issues and provide solutions to them in order to ensure that bottlenecks, process roadblocks and items that might interrupt business flow may be eradicated before moving to the next phase. Tao (2018) challenges and points out that the establishment of a workflow will enhance and guarantee the completion of task with assigned timeframe but the ability to sustain such will require the establishment of a pull system.

- **Establish Pull:** The pull is established to ensure that only necessary task which will be beneficiary to a firm and customers can emerge with each other while any other task which is not required will not be able to exist due to the establishment of pull. Dumas et al., (2018) suggests that a pull system can be established by ensuring items are approved by the required team before any task comes into existence this implies that before initiating an item within a process it must have been approved by the governance team or approval team; this is done to ensure that there are checks and balances within all units. This will also ensure that all resources are applied and invested in appropriate resources.

- Pursuit Perfection:** This last step is important because it involves continuous improvement. It is in this step that firms are reminded about the importance of monitoring of any process. This process ensures that every employee is accountable and consistent control of waste management is required. This will now lead to the identification of areas whereby waste can occur in an organization.

It is also important to note areas where waste can occur in logistics, they are illustrated in figure 2.7 below (please note: This are some of the classifications of waste in process which also differ based on industry).



Figure 2.7: Waste Identification when applying Lean in Logistics (Source: Noel, 2008)

The figure above 2.7 highlights some of the areas where waste can occur in production of goods and services. Fullerton et al., (2014) challenges and points out that lean is applied in process improvement with the aid of four main axis, which should be analysed when applying lean to production process improvement this axis, are illustrated in figure 2.8 below:

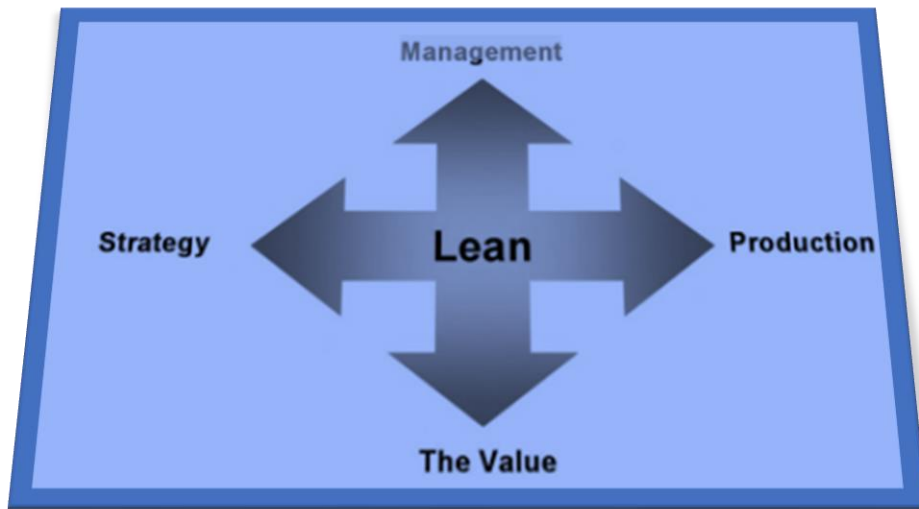


Figure 2.8: Tools applied when thinking Lean in Logistics (Source: Fullerton et al., 2014)

The above figure 2.8 tools highlight that management team need to understand expected outcome next → requires firms to understand the purpose of production → next ensure that value is centred on customer needs and wants → finally develop a strategy will focus on how best lean can be applied with organization process (Fullerton et al., 2014). These tools are applied basically in lean as it aids reduction of time spent in completion of task as management can easily identify items required next production know what's excepted from them and value required is stated and finally strategies are being kept in place to achieve all value items.

The main difference between ERP and lean, six-sigma or many other frameworks is that ERP laid more emphasis on the use of technology, thereby, swallowing most of the functions of lean into the main ERP model. It is also feasible to construct a lean six-sigma framework by ensuring all the approaches of both lean and six-sigma are incorporated into business process management (Dumas et al., 2018).

2.3 (D): Many other frameworks:

This consist of Quality assurance framework, operations management and others, which are related to specific industries (Dumas et al., 2018). They further explained that operations management is applied when trying to control the outer aspect of business this revolves around technical and physical aspect of business management while Quality assurance and quality control framework is designed to focus on creating a process that will monitor the quality of materials applied in production; it is also designed to ensure that quality and safety measures are applied in all aspects of an organization they focus on quality assurance of technical, physical and emotional aspect of business because they ensure product and service delivered are built to deliver excellence to internal, external customers and stakeholders (Noel, 2008)

Operations framework focuses, mainly on physical and technical aspect of business while Quality management focuses mainly on quality of product and quality of service delivered to internal external customers and stakeholders Laudon and Laudon (2020). Jeston and Nelis (2014) argue that BPM is ambiguous therefore, firms will need to first identify the root cause of any challenge before deciding on the exact frameworks which should be adopted. Butt et al., (2019) suggests that assessment is also required in the planning phase of business. Having outlined that BPM facilitates operations, management and strategy in BPM it is also vital to identify the root cause of a challenge before adopting and BPM framework.

In addition, author will elaborate on businesses, which apply BPM to make their processes go green and lean in order to maximise the benefits of adopting BPM. Section above has highlighted various frameworks, which can be adopted by any organization who want to improve their business process. In line with logistics activities there are key elements which are required in daily business activities; this element can fit in either of the frameworks which have been explained in section 2.3 above. A mix of this framework have been developed from various models; these elements will suit an ambiguous logistics process because they can fit into most frameworks such as lean, six-sigma, agile, scrum and ERP/CRM algorithm. To achieve research aims and objectives based on the current BPM element adopted by the case study company Tranex Logistics author will focus on enterprise resource planning (ERP) framework, which is the only tool of BPM applied by Tranex Logistics in operating digitalized process management, thus, sections below will focus on key determinants of ERP framework, how they are being deployed and the role they play in organising daily business operation; this will enable researcher explore components of ERP because it is the only digitalized method

applied by Tranex Logistics logistics in monitoring internal and external activities. Sub-sections below will explain visibility, collaboration and agility elements of ERP contribute to smooth logistics business process activities and examine how it facilitate service excellence.

2.4: Elements of Enterprise Resource Planning Framework Applied in Logistics and Supply Chain Business Process Management

This section will elaborate on the various element of ERP applied in BPM in regards to logistics activities; this will provide author a baseline in explaining how processes in logistics activities are developed to function daily; sections below will also emphasise the importance of various elements in logistics activities and the main aim is to critically evaluate the impact of BPM in logistics and how it has facilitated freight shipment; also below section will clearly explain how consistent business outcome is being achieved in logistics operations. Author will focus on EPR framework because this will enable author to portray how various logistics activities function daily in order to achieve customer service excellence and ensure that there is consistency in flow of information and consistent process pattern because at every stage in operations there is a standard operating process applied through various aids.

In addition, section below will evaluate the three main tools of ERP which are visibility, collaboration and agility; the essence of this is to provide researcher with the ability to understand how various tool enhances service delivery in logistics activities focusing specifically on how these three tools are being applied in logistics and the role they play in producing desired output. Insight into how visibility is been achieved will be explained and software's which facilitate visibility in logistics will be evaluated; next step will be to explain how various organization silo work collaboratively; as research interviews will be conducted based on bottom-up to top-down approach this will provide researcher with clarity on how HR, warehouse, production, customer services and many other silos work collaboratively. Next step will evaluate how agility and risk is being managed in daily operations.

2.4.1: Visibility Element Applied in Logistics BPM

The ability to monitor logistics activity and understand all business activity within various business unit is termed visibility in business. Choi and Kim (2015) depict that the ability to adopt various stimulation-based systems will enable firms achieve and maximise their resources and ensure adequate visibility within their supply chain. They also highlighted that these systems will enable organization detect issues that could arise within their logistics activities also enable them to provide preventative solutions before such issues occur that this

firms will become proactive and not reactive to issues within their departments. Some of these systems could be achieved by building standard infrastructure, effective system-based data capturing systems, could also reduce cost within operation because before any issue manifest, they would have being identified and rectified.

Kim (2017) argue that this system will enable companies reduce journey time and facilitate the maximization of all resources. Waters (2010) opines that accuracy in business is dependent on information flow which means that the ability to access accurate information will enable firms achieve a robust operations system within their day-to-day activities. Thus, the ability to produce accurate reports will enable firms reduce cost and increase their revenue. Sukati et al., (2007) is of the opinion that firms require information flow in various networks within supply chain in other to achieve effective decision making. Thus, information and accurate data will enable firms optimise their networks and enable them produce accurate reports and secure sustainability within their industry. **Some authors refer to visibility in business as creating an alignment in business through information technology.** Brocke and Rosemann (2015) opined that creating alignment in business process requires information technology, they further explained that a gap in business process can occur if required technology is not implemented. They also suggested that ERP can be developed to suit the business process.

Jadhav and Pendse (2015) point out that to enhance information flow within business that technology would be very vital in analysing big data; could be used in enhancing m-commerce; e-commerce; s-commerce and all forms of commerce. This software/platform could enable 30 seconds sales increase through the use of internet of things (IoT) because individuals conveniently purchase goods from the comfort of their homes (Schneider, 2011). They further explained that technology through the assistance of ERP applied in business process management has enhanced sales because users can compare prices which simply means that competitive visibility has emerged in business because individuals no-longer have to depend on in-store prices/rates.

Competitive visibility in logistics has enhanced revenue in business because stores with good prices sell faster than others. Laudon and Trevar (2015) argue that increase in sales does not imply that customer loyalty has increased because some customers keep sourcing for best prices and through the assistance of various ERP platforms customers have several choices. Jadhav and Pendse (2015) asserts that a firm's ability to manage data in their logistics operations is paramount because with the aid of effective analytics firms can dispose of invaluable information and retain vital information. They went on to explain that information

technology management (IMT) plays a crucial role in business visibility and competitive visibility because it will enable users patronise the cheaper vendor. However, it is also necessary to ensure that IMT cost does not consume most of the profit generated and IMT can be implemented through the application of ERP in process management (Lui et al., 2013).

Lewis and Dart (2014) explain that visibility in business process has been feasible through the implementation of ERP in process management (PM) and this has supported logistics firms because with the aid of visibility they will be able to establish fulfilment centres; monitor failed deliveries and they are able to create pick-up centres for customers which enables them to utilise available resources; win more businesses and reduce cost of distribution of consignment to customers. Visser et al., (2014) point out that technology through the application of ERP in BPM has not been able to eradicate failed or missed delivery and control of stolen delivery has not been eradicated totally.

The ability of a firm to identify external business threat will enable them plan ahead of such threats and develop mitigating factors which will enable them to maintain their position within their sector. Some of the threats are on time delivery rating and business turn-around time (Visser et al., 2014). However, various sectors face different challenges this implies that problems encountered in the cold chain sector will be different from oil and gas logistics process, same is applicable to the pharmaceuticals sector because product delivered are different in nature (Visser et al., 2014). Therefore, logistics firms are obligated to assess threats which could affect their business operation and led to lack of customer loyalty and business retainment; this can be achieved through the implementation and designing of ERP in BPM which will address this challenge.

This portrays that visibility in logistics can be achieved through the application of ERP in business process management as it assists with monitoring of internal and external business activity; it is beneficial to customers and firms because through the aid of visibility business competition has risen which has now led to competitive visibility in logistics companies. To provide further knowledge around data accuracy and information accuracy next section will evaluate the purpose of both character in BPM.

2.4.2: Purpose of Data Accuracy and information Accuracy in Logistics BPM

Data is perceived to be a necessity within logistics activity because it serves as the main hub for reporting and ensuring visibility within a process. This implies that without accurate data, companies will not be able to predict and prepare themselves for the future. Weske (2019)

explains that BPM requires accurate data in order to function and facilitate operational and technical monitoring which can be orchestrated into the daily functional activities of an organization. This implies that without data accuracy firms might not be able to predict the future, provide excellence to their customers and understand the needs and demands of their customers. Therefore, ERP will be applied by businesses to assist in monitoring data accuracy in their business process (BP). Lambert and Cooper (2000) depict that data enables organizational silo within a firm assess their current situation and facilitate their access into new businesses because with data they can evaluate the pros and cons of various business units/silo. They further explained that visibility within various organization silo in logistics will enable firms achieve a collaborative process, which will enable them to become more cooperative as they plan towards achieving their long-term vision.

Leuschner, et al., (2013) challenges and points out that once data is accurate, information processed will also be accurate because information is being generated from data gathered through ERP application implemented in BP. Thus, it is important for data to be accurate in order to ensure that information produced will not mislead management when making decisions. Leuschner and Charvet (2013) encouraged organization to apply ERP in their BPM to share business analytic data so that they can deliver business excellence and also deliver product excellence, they further advised firms that digital business processes should be aptly applied by firms because once applied they will be able to produce sufficient and relevant business information. In developing business strategy, it will be useful to adopt digital analytics because relevant business process can be developed and applied when making decision (Bharadwaj, et al., 2013). Firms that fail to improve their data accuracy might fall behind in their industry because information produced will not be accurate and they will not have adequate visibility between various organization silo; this might lead to lack of their ability to meet demand and supply in various silo as some units will not have access to activities in the warehouse/other organizational silo and vice versa; therefore it is vital to design and apply appropriate ERP software in managing logistics business processes.

Data accuracy and information accuracy will enable organization silo activities and operation flow seamlessly because transparency in each silo will enable all dependant activity function properly which means that input and output of each silo will provide access to smooth and visible operation within their operations (Butt, 2018). Information accuracies facilitate supply chain business process activities because it provides an insight into achievement and issues which might occur within the business. Information accuracy also enables firms predict the future and enable them to predict the expected **revenue required to complete production**

circle of their product, meaning , with accurate information a firm can state how much they will be spending on production and evaluate their profit at every stage of production and distribution of goods and services; they further explained that this theories are obtainable through the implementation of appropriate ERP application (Fernie and Spake, 2018). Alvarez and Pereira (2019) argue that logistics business process does not relate only to information accuracy but revolves around decision making because once businesses have adequate sight of all business transactions, they are able to make and take appropriate decisions through adequate monitoring which is made feasible through the implementation of appropriate BPM framework. Shapiro (2013) explains that the implementation of enterprise resource planning (ERP) systems enables firms' control their daily activities in a faster and cheaper transmission, which will enable them fulfil customer satisfaction and produce service excellence.

It is necessary that firms model their process because of the multiple features involved some of which are logistics, economics, corporate strategy, research and development, marketing, finance, production and information management (Shapiro, 2013). Therefore, with the application of ERP in logistics BPM it is paramount for firms to model their organizational structure to suit various multiple disciplines which have been highlighted because this discipline enables firms build a multi, unique and practical infrastructure in logistics management; It is also important to develop a balance between various features and not underestimate one unit for another. CIPS (2019) highlights that through the assistance of the application of appropriate ERP system in BPM standardised market intelligence will strategically evaluate cost and create value for money within logistics activities, therefore, forces/disciplines that will enable an organization to achieve their long term and short-term goals require good market intelligence with the support of quality data they can make good decisions and also manage their organizational risk.

Consequently, in the near future firms will have to synchronise both internal and external activities, however, before they begin this change, they will require an internal process that works well, in order to develop the structure/process they will require information collected from ERP applications. Bharadwaj, et al., (2013) notes that some companies have the ideology and perception that their internal teamwork does not impact on the external aspect of their organization. Alvarez and Pereira (2019) in their report found out that logistics process is complex, therefore, requires consistency in both internal and external information procedure else organization with inconsistent information will not be able to deliver excellence to both their employees and customers. Therefore, lack of accurate information could result to risk in logistics process which can lead to down-time in operations which could result to loss of

revenue in logistics business; thus, to avoid this challenge firms require sustainable processes to be developed and this can be achieved through the application of appropriate BPM system.

Heaney (2013) explains that technology plays a crucial role in visibility of BPM because when customer place their order it is important that such items are available in the warehouse, same is applicable to reverse logistics because whenever an item is being returned it is important for customers to be refunded. Therefore, accurate data will enable various silo to function appropriately. Bichanga and Mwangi (2014) explains further that standardised technology facility will not only increase visibility but will make the process lean and stable. **Lean system indicates that there will be no waste within organization resources because both human and mechanically resources** will be well accounted for this means that operations cost will be reduced alongside reduction in operations activity, while revenue will increase. Next section will review the role of predictive analysis and report population in logistics BPM.

2.4.3: Aim of Predictive Analysis and Report Sourcing in Logistics BPM

Predictive analysis will enable a company to safeguard the current activity for the future because their ability to foresee into the future will enable them to access the needs and desires of their customers and company. Some companies through the means of Internet of Things (IoT) have developed various channels of monitoring end to end freight shipment; his initiative involve the use of 4G LTE cellular and an integrated satellite interaction with implementation of this innovation, technicians can provide accurate information about the movement of freight and also access estimated freight problems which could occur all of which has been accessible through the application of ERP in their BPM (Freight Transport Association (FTA), 2019). Nigerian Maritime Authority (NMA, 2019) notes that they have recently developed on sea shipment monitoring of both freight and cargo carriers because their ability to thoroughly monitor this element will enable them produce accurate reports and also develop on-time analytic. Thus, producing credible reports which will enable them to predict the number of ships received monthly and also produce analysis when there is a drop-in revenue which will enable them state why they have experienced a decline in revenue. With this new facility they will be able to detect an increase in assets and justify why such assets have been purchased, they will also be able to monitor growth within certain industries by applying the appropriate ERP system.

Laudon and Traver (2018) explains that ERP enables an organization to generate big data analytics which enables firms produce analytic reports which enable them monitor

customer behaviour and depict what consumers desire. They further emphasised that big data analytics has increased social bonds, social commerce (S-commerce), electronic commerce (e-commerce) and other forms of business has grown over the years because organizations can now predict consumers behaviour and also analyse big data in order to ensure customer's needs are met, they added that implementation of appropriate ERP assist in developing various bonds. Turban et al., (2011) is of the opinion that substantial reporting platforms facilities connects different browsers together which increases sales which leads to visibility in transaction activity within logistics and supply chain activities.

Thus, with the aid of such innovation reports around freight can be generated which in turn indicates that product flow will not be destructed. Also, firm now understand consumer needs through the application of ERP in IoT because they can provide a report stating the expected and estimate amount of a product that could be sold weekly (CIPS, 2017). ERP also assists manufacturing BPM because production team/silo applies such predictive reports into their proposed manufacturing estimate to avoid under and over production of certain products which could expire easily (Lambert, 2000). Shapiro (2013) found out that firms can model their logistics activities by practicing first in first out (FIFO) and last in last out (LIFO) because they can predict all logistics activity and expected output when managing warehouses or fulfilment centres.

CIPS (2019) asserts that with the use of ERP in collecting intelligent data firms will be able to produce substantial reports which will enable them to forward plan all organizational activities, also, they can build a stronger position in decision making and risk management. Ability to mitigate risk and manage risk will enable firms reduce the loss of resources and reduce any form of excess expenditure. Thus, building a wild scope of the impact of risk management in logistic activity will enable author to understand the role of visibility in managing risk. When aiming to produce predictive analytical reports firms also need to consider gathering market intelligence of their industry as well as managing risk. Therefore, subsections below will review the impact of market intelligence in logistics and assess the role of visibility in risk managements. Some organizations often encounter certain challenges when sourcing for predictive reports because business sustainability and continuity is vital and should be built based on substantial information because those information enables them to plan the future of their organization. Therefore, lack of sufficient information will be unfavourable to achieving sustainable business continuity (Lewis and Dart, 2014). Next section will explore the role of ERP in risk.

2.4.4: The Role of ERP in Risk Management

It is also vital for an organization to have adequate information in order to adequately gather appropriate market intelligence information within their area of business. Hammer (2015) defines risk as elements or items that can affect business process, engagement, or daily activity completion; some items that pose as a threat to business are also referred to as risk. Logistics as a component involves risk, therefore, the ability of a firm to curb risk will enable them to achieve long term business vision; one of the main elements which is applied in managing risk in logistics activities is to ensure that through ERP application in business visibility is present in various business processes because organization's need to ensure that all their daily operations is being managed by technology in order to enforce visible transaction.

Therefore, subsection below will evaluate the impact of visibility on logistics market intelligence to assert that BPM through the application of ERP reduces risk, provide value for money services and ensure customer's needs are provided as at when requested/needed.

2.4.5: The Role of Visibility and Business Intelligence in Logistics Activity

With the aid of visibility within organizational silos firms can understand the Niche of their industry and also depict the needs of consumers. CIPS (2019) asserts that market intelligence is used to gather information which is relevant to a company within their sector. Xu and Kaye (1995) depict that market intelligence focuses on immediate environment factors that could affect a firm's activity either internal or external business process activity. In order to have adequate information about their sector firms will require accurate data, thus this implies that they will need to develop a business process framework which will be the basic means of filtering data in order to understand the activities of their industry and also develop an insight into the needs to their customers. Therefore, in order to collate intelligent data in business process through ERP an organization will require adequate visibility of common trends within their sector/industry.

The below figure 2.9 highlights some factors that should be considered when gathering intelligent data: -



Figure 2.9: Market Intelligence and Logistics Activities. Source: (CIPS, 2020)

CIPS (2020) further explains that figure 2.9 above illustrates that market intelligence plays a crucial role in logistics activities because it facilitates **sales; provides customer data;** can be applied when managing sales force and controls distribution activities. Consequently, satisfying customer's needs is the main aim of any organization therefore, **customer advisory panel** are established in order to detect the wants and needs of customers and market intelligent data serve as their main guide. **Suppliers** also form a part of this chain because goods and services supplied has to be in accordance with requirement raised by retailers and distributors. However, the ability of a firm to **source data from the internet** will enable them to maximize human resources and also produce their goods in-line with the **government rules and regulations** all of this is made feasible through the application of ERP in their business process management; **sales force** also plays a crucial role because what they advertise to consumers will also aid in increasing sales.

In addition, it will be essential to mention that **corporate strategy department** build their approach to satisfying customers through information gathered from market intelligence findings through the application of ERP in business process (Shapiro, 2013). Xu and Kaye (1995) notes that **top management** require business intelligence when considering their organization long-term vision. Information gathered is examined then filtered and once filtered they are applied in decision making of their organization; therefore, data processing comprises of a chain of data which are being processed and then integrated to build realistic information in business processes. Lie et al., (2013) argue that environmental factors that could affect decisions of an organization should also be considered when dealing with business intelligence and collating system-based information. **Therefore, the application of appropriate ERP systems will enhance a firm's ability in securing accurate market intelligence.**

Rather than viewing business intelligence (BI) as information gathering, Watson and Waxson (2012) opines that BI in BPM can be denoted as how data is gathered in and gathered out which means how data is being collated and applied into logistics activities. IBM (2019) adds and explains that BI provides understandable answers to questions because BI is used for planning, business forecast, business modelling and decision optimization of BP through the assistance of ERP as illustrated in figure 2.10 and 2.11 below:

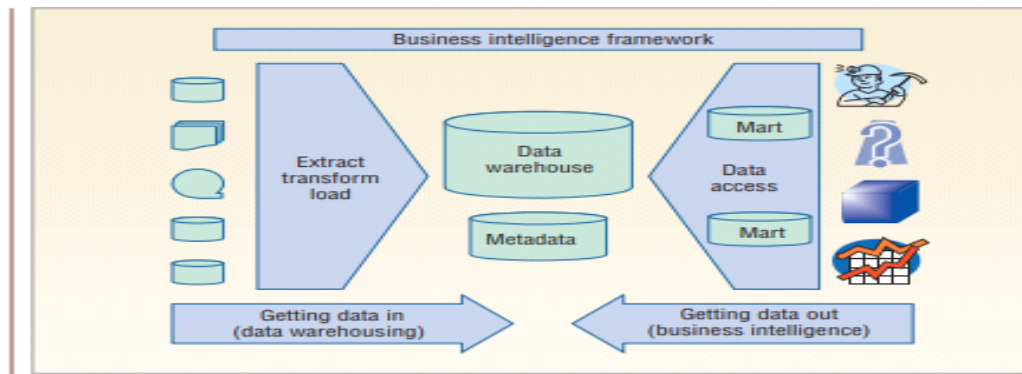


Figure 2.10: Business Intelligence Framework. Source: (Watson and Waxson, 2012)

Watson and Waxson (2012) highlights that through ERP BI can also lead to cost maximization because with the aid of predictive analysis companies can build cost effective business framework. Figure 2.11 below prostrates some of the benefits of BI:

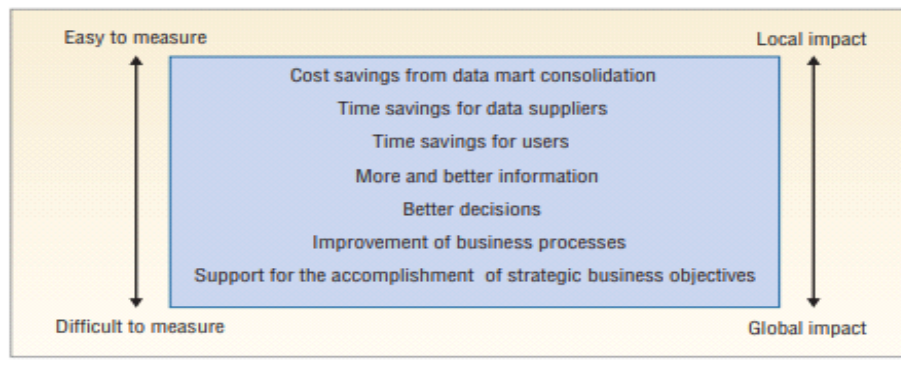


Figure 2.11 Benefit of Business Intelligence. Source: (Watson and Waxson, 2012)

The benefit of BI in business process through ERP can be easy to measure or difficult to measure; they could also have basic impact, local impact or global impact on an organization which has been noted in figure 2.11 above. Organizations that adopt BI in their business process models tend to benefit from cost effective process; time management within their business activity; eloquent and accurate information; efficient and effective decision are made; improved business process and long-term business vision are achieved (Watson and Waxson, 2012).

Therefore, firms are encouraged to adopt appropriate ERP BI models in their business activity in order to ascertain that they can obtain visibility within their operations. Once visibility is achieved, they will be able to set their priorities based on consumers' needs and wants and increase their chances of sustaining their firm within any industry.

Subsequently, global impact of ERP in BI is evident when there is an expansion and growth in asset and net worth of an organization. It is important for firms to know how to analyse data and virtualise data because their ability to analyse will enable them to adopt proper segmentation of their resources and depict areas where resources should be channelled in their business process (Zheng et al., 2015). In addition, data mining will enable firms evolve above and beyond their imagination because they will be able to manage their data segmentation process and also extract useful and credible data from raw data source. Sallam et al., (2011) argue that firms can **develop dashboards and score cards** when implementing BI within their business process management, these dashboards can serve as intuitive ERP tools for monitoring daily activities, these tools can also be used to explore analytic characteristics. Some ERP programs have been designed to produce reports around customer relationship management; data mining in logistics activity; competitive intelligence; cloud computing; trade secret; risk management; and a lot more decision-making reports have been processed and produced through data mining (Chaudhuri et al., 2011 and Turban et al., 2011). Although BI has increased awareness of trade secret in business process management through ERP some of its main impact can be linked with increase in long tail marketing; increase in promotion of sales and marketing; visibility; transformation in business ethics and increase in organization revenue.

The essence of ERP in BI is overwhelming because it has improved the possibility of accountability in business; growth in business; organizational focus; visibility and their ability to connect with their employees and customers. In business once visibility is obtained it is easy to enforce accountability in every section of operations because employees are conscious of how they perform their daily task because they are aware that all their activities can be tracked and traced, also employees apply caution because all activities can be tracked and traced. Therefore, section below will focus on the impact and essence of business intelligence in logistics activities and how it enhances visibility in logistics process management.

2.4.5.1: Components of ERP Application which Impact Business Intelligence in Logistics BPM

In this section researcher intends to highlight some key elements which assist ERP applications to function coherently in logistics BPM. In collecting business Intelligence, advanced and unique data are required in organization management because they provide insights to competitions that occur within an industry. Through the application of appropriate ERP BI also serves as a directive tool for firms in logistics because they can apply BI&A (Business Intelligence and Analytics) as a tool which is used to extract, convert and integrate information gathered into processes which creates visibility within business silos (Davenport, 2006). The impact of BI in logistics are several but only the main core pointers/components will be explained in section below they are:

- **Big Data Analytics:** Cervellon et al., (2015) explains that big data analytics has impacted positively to organizational activities because with the aid of big data companies can now monitor consumers behaviour and customers can now compare prices easily. However, big data has benefitted companies more than consumers because they tend to spend more in logistics and data management. Thus, firms can predict the number of freight parcel they can expect from their customer monthly or weekly, which implies that they provide the expected number of assets to complete such duty. With the aid of big data, logistics companies can predict the number of freights that would be transported within a business circle and provide the required manpower to complete such task (Bharadwaj, et al., 2013). They have also been able to save and generate a lot of monies through the application of big data analytics in logistics because organizations now utilise their resources and deliver safely with less cost in their operations activities; data can be obtained through the application of appropriate ERP design.

It is vital to note that through the application of ERP big data analytics has served as a source of working smart, in other words, it has helped firms in setting specific; measurable; achievable; reliable and time conscious goals. Thus, with their ability to analyse big data it implies that visibility in logistic has been obtained because without visibility in transaction activities, firms will not be able to work smart. Through ERP systems big data analytics has also enabled hospitals, social commerce (S-commerce); mobile commerce (M-commerce); electronic commerce (E-commerce); banks work smart because most of this firms rely on data to achieve their daily goals in their area of specialization (Cairns, 2005). Thus, logistics operations will become more reliable because accurate data can be produced without any form of ambiguity. Ambiguity in business can lead to bad decisions and rough transactions, therefore, it is suitable for businesses to function with less ambiguity. Laudon and Trever (2020) argue that web analytics is not only required by commerce and hospitals, but organizational silo requires web analytics in order to achieve visibility, information flow and data accuracy;

therefore, to benefit from this application, businesses require the application of appropriate ERP tool in their business silo to aid visibility in logistics big data business processes.

- **Network Analytics:** this element is applied in BPM when integrating various information technology (IT) tools together. Network analysis (NA) is very essential when introducing BIA into an organization because they serve as the main channels through which various networks are being deployed with an organization in some cases without proper installation of NA business visibility might not be achieved because NA is the main tool which connects various analytic tools in ERP software applications (IBM, 2018). Network Analytics can also be referred to as the life wire of various database/ score cards/data warehouse because most of these applications are dependent on strong and reliable network installation. NA consists of some main components which are link mining and detecting community clashes within a network, these components form a vital role in NA because link mining is used to detects when there is a node within a network which might affect end users or products delivery while in transit to manufactures or in transit to internal and external users Laudon and Laudon (2020).

Consequently, it is evident that network analytics forms a core hub in ERP as it facilitates visibility within logistics operations/business process because failure to successfully install a network could lead to down time in logistics activities and could affect user's ability to deliver a seamless day to day activity within their various organization silo. When detecting a community in network analysis the main tool required is algorithm, however, it is useful to mention that other techniques have been deployed in place of algorithm in ERP systems/software (National research, 2010). Laudon and Laudon (2018) insist that dashboards and score cards are essential elements in ERP business process management and could be used in assessing success achieved within various organization processes because they are used in producing reports.

- **Business Analytics: aids BPM because this principle is applied when converting business data to actual facts and reports.** Consumers and investors have benefited from business analytic reports because they can now decide where to invest their wealth. BA also, involves users and applications because applications are used in assessing business analytics information through the aid of ERP framework (Kim, 2017). Cairns (2005) opines that BA forms a strong component when analysing data because it is the main tool applied in decision making around resources and assets. BA leads to information accuracy in business because proper data leads to quality information; Chen (2012) explains that BP require

information accuracy as it enables firms generate accurate reports which have been used to make business decisions, information analysis enables firms predict the foreseeable future within any industry. Also, with BA artificial intelligence industries can practice on the spot decision making within their process because BA makes such decision easy to make due to facts/information's which have been generated from their ERP software application. Laudon and Traver (2020) argue that BA does not only facilitate information accuracy, but BA also aids easy decision making in firms because firm's activities is managed through the aid of ERP business analytics software and information will flow seamlessly within various units and such information's are accurate; In some instance/cases logistics companies are able to plan multiple routes through the aid of ERP business analytics software application. Business analytics enhances information flow/accuracy, business decision/business sustainability and multiple business tactics are being generated; therefore, to benefit from this, application businesses require the application of appropriate ERP tool in their business silo to aid visibility in logistics business processes.

- **Web Analytics:** aids business process management because it is applicable to internet of things IoT merchant movement, and it allows activities to flow seamlessly. The web plays a crucial role in sustaining visibility through web-based analysis. Brocke et al., (2010) stated that the web is connected to hyperlinks which enables customers to search and track their delivery. This process also facilitates the ability to locate various items on the intranet. Thus, web-based analytics is important when engaging with multiple users; various web-based interface have their responsibility in ensuring that there is visibility in logistics some of them are HTML this platform is used when developing a website; SQL is used when trying to query activities in a software; Java script is applied when trying to obtain data display, this platforms will be explained in a wider perceptive in order to enable users understand how visibility and agility is achieved through the aid of this platforms in logistics while trying to maintain customer excellence delivery (IBM, 2019); therefore, to benefit from this application businesses require the application of appropriate ERP tool in their business silo to aid visibility in logistics business processes.

Russom (2011) summaries that business intelligence and analytics BI&A represents data science in business because it forms business intelligent data that are gathered through the use of various data science platforms, applications and networks. **Some vendors such as SAP, Oracle, Linux and IBM** already offer most of this analytic tool to their clients; in order to assess how best business continuity and sustainability can be achieved; sections below will focus on the impact and essence of collaboration and agility in logistics activities. The essence

of applying various BI&A application in business is to enable an organization to thoroughly understand how best they can function and manage their business process by applying various business information analytic tool and finally simply deliver excellence to their customers without incurring additional cost; maximise their assets and also win new businesses which will lead to growth within logistics business and in any sector in which they function. Therefore, to obtain this information businesses require the application of appropriate ERP tool in their business silo to aid visibility in business processes.

Consequently, business information analytics (BI&A) through the aid of ERP software plays a crucial role in achieving visibility in business and makes provision for ensuring seamless business activity is achieved in various scope of business, however, in order to develop a business framework, it is important to explain how agility and collaboration facilitate business operations. Furthermore, as portrayed in figure 2.1, in order to sustain a business, various business processes (BP) will have to be well equipped because they serve as a link between the business and their customers also, they are noted to be the core hub of every organization operation/activity channel (Lambert, 2001). Please see below figure 2.12 some organization business processes to be managed:

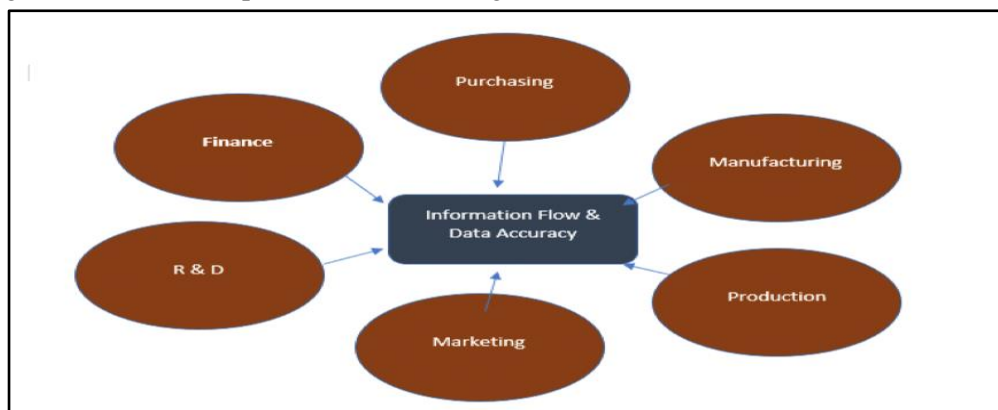


Figure 2.12 Processes within Business: (Laudon and Laudon, 2014)

As illustrated in figure 2.12 **purchasing, manufacturing, production, marketing, finance, research and development R & D** silo require absolute and adequate visibility in order to obtain accuracy in data generated and seamless information flow in various units. All of these processes are linked into various organization's silo such as demand and supply, customer relation, customer service management, manufacturing, procurement, product development, commerce and reverse logistics/returns. Thus, the role of business analytics in various BP listed above will be explained below:

- **Role of BI&A and network analytics and how they enable business function on a day-to-day basis:** Sukati et al. (2007) explains that network analytics enables

all business unit to stay connected to all IT applications in business. Therefore, through the aid of network analysis all business unit and process stay connected, this means that warehouse, production, return and all other silos are able to function coherently through the use of network analysis in ERP software implemented.

- The role of big data analytics in BP is essential because big data analytics enables various silos function coherently and also creates visibility within business process because with data thoroughly analysed warehouse production can be maximised and also human resources required for completing task can also be determined before every production process begins (Jadhav and Pendse, 2015). Sukati et al., (2007) argues that consistent and accurate data facilitates decision making within an organization. Thus, various silo communicates more seamlessly because of their ability to process and understand how each unit's functions and data produced from business process is understood for example, data produced by customers services can be used by finance and other silo when computing monthly business figures and can also be applied when forecasting production and sales volume in logistics. Therefore, to benefit from this application, businesses require the application of appropriate ERP tool in their business silo to aid visibility in logistics business processes.

- The role of web analytics in BP reflects in all silos and has enhanced research and developme(R&D) ability to understand the current situation of an industry thus, they are able to develop an agile marketing strategy (Sukati et al., 2007)

Sections below will elaborate more on how best ambiguity in business can be reduced through the application of major information technology theories and also through other resources such as human resources, natural resources and PESTLE factors.

2.5: Role of Collaboration Element in ERP BPM

This section will mainly focus on the role of business process management in some organization silo and their role in logistics activities will also be highlighted; also, the importance of collaborative/partnership working will be explained. Having achieved visibility in logistics it is important to ensure that various silos work collaboratively and are willing to integrate various channels of their business and share their vision and understanding as well as collaborating with both internal and external factors within logistics process. The ability to build a standard structure will create assurance within business units and facilitate their ability to assess inter organization relations between customers and suppliers as well as assess the relationship between human resources and employees with other business process (Boone et al., 2017).

Larson and Rogers (2000) emphasise the importance of logistics as having the ability to deliver freight safely to customers within stipulated time frame and attain error free delivery or reverse logistics. Lambert (2000) opines that logistics involves providing value to end-users and customers at a much-reduced cost and maximum profit. Thus, in logistics it is necessary to satisfy end users and also make profit. Kim (2017) explains that for collaboration to exist in logistics all parties involved must be responsive and agree on certain parameters to be adopted. Once certain business process parameters have been agreed it is the duty of all parties involved to establish such criteria manifest, therefore, certain elements such as technology solutions will be implemented into processes and they will require technology in order to function appropriately (Prajogo and Olhager, 2011). Choy et al., (2013) depicts that information platforms which allows sharing of data among various silos will facilitate a more collaborative system of work pattern in business process management.

Boone et al., (2017) conducted a quantitative analysis more like empirical research and the paper emphasised that for collaboration to be effective and efficient various units/ organizational silo will need to agree on certain terms when implementing a collaborative system of business. They further explained that internal and external collaboration will positively influence logistics input and output, the paper also raised concerns over lack of working relationship among business units and explained that with the aid of technology such concerns can be managed. Leuschner and Charvet (2013) conducted a study which also emphasised the need for collaboration among various business processes. Seyder-Asan, (2013) opines that market orientation will also influence the sort of method an organization will adopt when trying to increase flow of information within their business in order to ensure that they are able to deliver excellence to their customers and also maintain their industry standard.

Therefore, establishing a reporting platform which will be used in monitoring business activities will increase the chances of enforcing collaboration in business and ensure sustainable processes. Lui et al (2013) explains that for collaboration to exist in logistics there has to be mutual understanding and similar vision which will be shared by all parties/units involved. Organization will require certain data sets and platforms in order to work collaboratively all silos will have access to the same platforms and reporting systems. Choi and Kim (2014) argue that some organizations have not developed sustainable processes and still organise their business with their traditional approach and ancient pattern of business process organization which might not be effective and efficient enough to compete with the current methodology which is being applied by some firms. Thus, the lack of a unified business approach of solving

business process management issues could lead to a fragmental approach of business which might not be able to sustain industry competition.

Subsequently in some cases, the lack of end-to-end customers and business flow of information could amount to a deficiency in client relationship (Morali & Searcy, 2013). Therefore, it is the responsibility of various organizational silo to work collaboratively in order to ensure that end-to-end customer relationship can be sustained and also build an effective and compactable internal business process. In this regard it is the responsibility of firms to develop internal and external compactable process management systems through ERP which will facilitate daily business operations and sustainable business process management both internal and external processes. Next section of this study will highlight some organization silo.

2.5.1: Role of ERP in Organization silo Collaborative Method of Operations

- **Human Resources:** can facilitate collaboration in their process by consolidating and optimising basic HR processes using business process management network (BPMN) companies are able to make quick and better sense of organization-wide personnel interactions and create appropriate workflow standard and process. A sample of work-flow management in Tranex Logistics will be illustrated in figure 2.13 below:

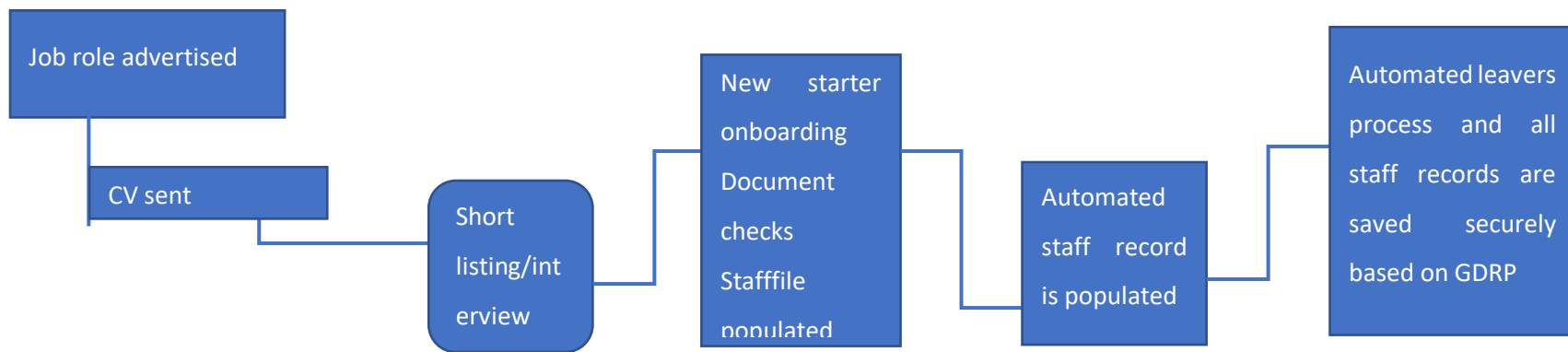


Figure 2.13: Sample of automated workflow management (IBM, 2019)

As shown in the above figure 2.13 HR system of employment is being monitored by an automated system/ERP from publication of advert to new starter resume their job therefore, the traditional method of employment has been replaced with a process as show in the workflow chart above whereby job advertisement is being performed through digitalized program.

There is a limitation to this process because various journals have not been able to identify best practice which should be adopted in an employment process; data management of employees has strict measures which organizations adhered to such strict rules should be applied into all HR processes so as to ensure standard operating procedure within organizational process (Shan, 2018). Achieving service excellence is an essential factor which is applicable to sustaining communication in human resource as a department because being able to serve both internal and external customers will enable HR achieve service excellence when dealing with staff, effective business process in HR will ensure collaboration and visibility is sustained in daily business operations; which is obtainable through the assistance of ERP which assist HR in employing staff who have the can do attitude and ability to get task right especially with driving of goods; the significance of monitoring staff attitude can also be made digitalized through the use of ERP.

- **Business Solutions:** Abdel-baset et al., (2018) states that stability in business revolves around ERP and sufficient planning of resources which also depend on the application of appropriate BPM framework. Stergiou et al., (2018) opines that stability in business does not revolve mainly on planning of resources but the ability of a firm to utilise their assets in achieving their missions will assist them in developing business solutions; this means that firms should not focus only on planning, but they should ensure that the appropriate resources are channelled to the required sector in business such as adequate number of resources should be apportioned appropriately. Business solutions focus on solving organization problems by ensuring that organization assets and resources are channelled towards the appropriate units. In logistics business solutions plays a vital role in ensuring customer excellence is achieved because if the appropriate solution is not applied into various organization silos the aftermath of such could lead to drop in revenue and inability to sustain firms long and short such term mission and vision; thus, applying the appropriate framework will ensure that silo processes are managed adequately without lack and service excellence can be delivered. Laudon and Traver (2020) argue that business solutions does not only provide answers in business; but they provide solutions which will enhance business process activity and individuals working in this section are involved when making certain business decisions. They also work collaboratively with research and development when installing new business initiatives some of which are the use of web fleet management which enables individual view the exact position of a truck and other televised means of monitoring assets are applied through the aid of digitalized program; thus, through the aid of ERP they are able to manifest and implement all business solutions in business processes.

- **Research and Development (R&D):** The role of R&D is vital because through the application of ERP research facilitates coordinate organization improvement. Through the application of ERP research has led to the development of so many businesses; due to research the logistics sector has experienced growth; development and speed. Shan (2018) explains that through the use of ERP research has facilitated daily organization activities and also enabled firms monitor all aspect of their business. Stergiou (2018) agrees that research has not only led to growth in business but has also reduced ambiguity in organization activities. Jackson and Schuler (1985) in an empirical study explained that ambiguity and conflict has led so many companies into deficit yearly therefore, a firm's ability to reduce these two metaphors will enable them deliver service excellence to customers. Gul et al., (2017) conducted an exploratory study which explained that supply chain product development is linked with supply chain responsiveness to product requirement in other words goods and services are produced based on needs of consumers which is being assessed through suitable BPM framework such as ERP. Thus, research through the application of ERP is being centred to explore needs of consumers then business solutions which can satisfy these needs are being implemented into existence.

Choi et al., (2015) challenge and point out that supply chain depends on consumers and suppliers to work collaboratively in order to develop strategic measures within business operations, they further explained that innovation and development become feasible when both tools are applied before business decisions are made. Thus, for development and fast-paced logistics activities to occur in business consumers wants and needs will have to be reviewed in collaboration with business operations in order to ensure that business decisions are made in alignment with consumers' needs and wants. Thus, this implies that there are two basic tools which are important in business expansion, these tools are innovation and development because in order to satisfy customers' needs and wants organizations/firms will require innovation and continuous development of their service and products delivered, this will in turn ensure that service excellence is being achieved.

The next phase will be to elaborate on how R&D through the aid of ERP has simplified logistics activities which has now led to improved services such as reverse logistics and increased efficiency in logistics management. Lei et al., (2014) explained that through the aid of R&D some organization silos are now able to modernise their ways of working and tailor productions to meet demand and supply of products. R&D has facilitated logistics activities by introducing new and simplified methods of completing logistics activities some of which are effective and efficient delivery to last mile; due to effective last mile delivery cost of despatch

is now relatively affordable when purchasing products online (Fernie and Sparks, 2012). They further highlighted that R&D has reduced down time to market delivery of products; culture of distribution and international sourcing of products has changed in the 21st century because firms now have the ability and technology to source and produce raw materials within turnaround time.

Waters (2010) depicts changes and development in supply chain has increased positively through the aid of ERP some of these developments include the use of electronic point of sale, electronic despatch system, electronic data inter-change; these systems have enhanced logistics activities and led to a more efficient customer response service delivery. Mckinnon (2015) opines that logistics activities in the 21st century has experienced more innovation and development due to the use of collaborative planning, forecasting and replenishment. The impact of R&D has made logistics sector function more collaboratively and increased speed in various organization silo to work collaboratively daily.

Ramanathan (2014) argue that through the aid of ERP research and development has led to an increase in transformation and innovation within logistics activities some of this are last mile delivery; Go-green initiatives (CO2 emission control); maximization assets usage; the application of some of these initiatives have enabled logistics firms deliver service excellence. The role of knowledge in logistics activities enabled firms develop standardised reporting platforms which is being used to monitor organization activities are being used to monitor productions whereby the rule of First-in and First-out has been applied in supply chain activities (Lei et al., 2016). This business model has facilitated the eradication of surplus inventory within supply chain and logistics which has also led to improved customer satisfaction because goods and services are now distributed based on order received first in which are dispatched first-out based on inventory utilization.

Chase (2013) challenge and highlights that some of the developments which has been achieved during covid-19 pandemic is due to shifts in business focus around designing sales platforms and aligning business process management to avoid cyber-attack and enhanced cyber security has been implemented; this has been done through the aid of general control regulatory policies (**GCR**) and **biometric information privacy act (BIPA)**. Thus, through the aid of research and development firms within the supply chain sector have been able to change their partner; model of business to suit evolving business requirement and needs of consumers and application of appropriate ERP software plays a vital role in R and D as it enables R &D to interact with another organization silo.

- Demand Management:** in order to ascertain that production and demand are at an equilibrium organization ensure that they are well informed about product availability and speed of product to market, so as to be able to meet-up with demand and supply this implies, they ensure that they meet-up with product speed to market for them to be able to attain customers satisfaction (Golgeci et al., 2018). IBM (2018) explains that organizations require a collaborative business operation within their production sector because business sustainability is dependent on revenue therefore, ERP enables firms to plan their production process to align with required technology to attain customer excellence and customer satisfaction. Thus, having the appropriate ERP software will assist firms with producing products which will satisfy customers demand this makes it mandatory for various silos to work collaboratively to ensure that there is an equilibrium in demand and supply.

IBM (2018) depicts that demand forecasting is an essential part in logistics because once firms are able to predict demand, they are able to produce sufficient goods which will lead to increased revenue; there are different aspects in demand managed; they further explained that ERP serves as the main tool in managing demand and forecasting. Thus, the ability to merge all supply chain activities will yield collaboration within logistics activities through the application of approved ERP application (Kim, 2015).

Through the aid of ERP demand and forecasting are being linked together in supply chain as they are crucial factors that aid easy manufacturing and stockage of products. Chase (2013) highlights the importance of aligning demand and forecast in business because of the effect and impact Covid-19 had on some firms; they were able to demonstrate this impact by preparing organization to shift their business platforms online within some sectors such as logistics. This became profitable because businesses where able to utilise stock and produce products based on forecast and delivery of goods/services in logistics experienced seamless flow due to the impact of ERP which has been applied in business process management. To elaborate on how demand aids distribution of consumers product figure 2.14 below will illustrate how material products are transformed into finished goods:

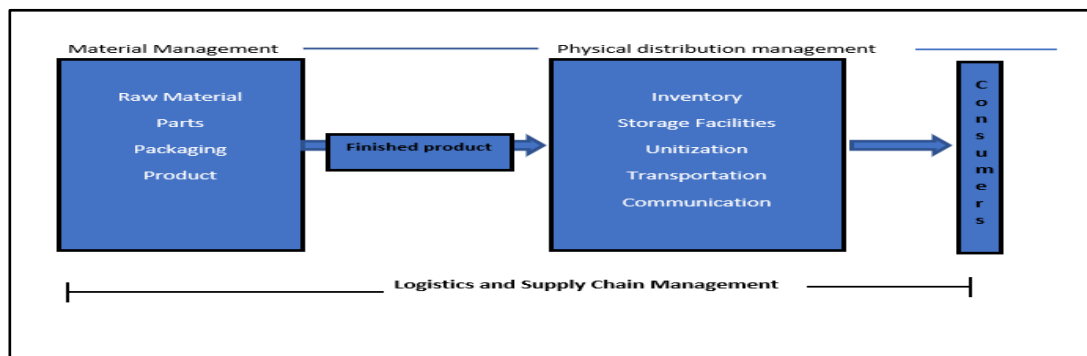


Figure 2.14: Demand Chain Overview (Laudon and Traver, 2020)

The above figure 2.14 highlights how raw materials are processed into finished products; this figure also shows how products are unitised, transported and communicated to consumers. The long-term mission, vision, objective, focus and aims of an organization is to ensure that they become investor of choice, provider of choice and employer of choice to individuals; they focus on these three objectives to enhance their presence within their industry. Sparks (2000) depicts that the ability of an organization to reduce cost and maximise resources will increase their chances of sustaining competition within the logistics and supply chain sector because these elements are responsible for consistency in business. They further mentioned that firms will not be able to achieve their desired output without the application of approved BPM framework.

Fernie and Sparks (2018) notes that the logistics mix are inventory, storage facility, unitization and packaging, transportation and communication; they further explained that this mix are essential in logistics because various component facilitates customers excellence. Inventory keeping is important in logistics because it serves the main factory for accountability because without inventory kept proper firms will not be able to estimate total cost from total sales. Thus, storage and packing of products will enable firms ensure that adequate product facility is in place. Transportation and communication mix are essential because they are the main streams in ensuring goods and service are delivered to customers and when required they create channels of receiving feedback from customers; therefore, the application of suitable ERP digitalized package will enhance BPM.

- **Manufacturing and Warehouse:** Through the aid of ERP software application firms now have an oversight of products within their supply chain business process. Adams et al., (2019) performed an empirical analysis research which enabled them to understand that the ability to maximise the entire manufacturing process effectively and efficiently will lead to long term product control within the supply chain because manufacturers can oversee all products this will enable them to know when and when not to manufacture products. Adams et al., (2019) also highlights that the use of labels will enable manufacturers control the goods in their warehouse because under-production can lead to delay in delivery of products to service users. Therefore, it is mandatory for all silos to work collaboratively to ensure that product and information can flow seamlessly between all business silos. Bichanga (2014) states that in order to ensure collaboration, speed and data accuracy in warehouse and production process firms should source for autonomous mobile robots (AMR) when performing their daily operations because these robots have been programmed to work ten times faster and smarter than humans. Thus, with the aid of robot's firms can produce sustainable number of

products which will enable them to attain their set target on demand, supply and sustain excellence in service delivered to clients; this portrays the role of ERP in warehouse business process management as it aids collaboration and partnership working across all silos.

Choi and Kim (2015) opines that the ability to securely produce goods will lead to sustainable business process management in supply chain; over the years various systems have been deployed in warehouse management, these measures have facilitated production, some of these measures which have been adopted in ensuring that production and warehouse management collaborate with other silos are mobile industrial robots which are used to ensure fast and smart production of goods electro mechanical package system have been deployed over years, this software enables individuals select the appropriate items required for production, warehouse control software which are easy to use, flexible and scalable to satisfy target users; this machines are compactable and easy to use manually (manual handling machines). This shows that the configuration of appropriate ERP in logistics BPM will enable firms configure processes which will suit the purpose and needs of warehouse staff and are also connected to the internet of things which enables all silos within a firm function coherently; thus, through the introduction of most of this applications individuals working in various units are able to plan, assess and execute day to day operations satisfactorily because they have access to standard and bilateral information.

- **Procurement and Supply:** CIPS (2020) explains that supply and procurement is the central hub of logistics activities as daily transactions in logistics require supply chain and vice versa. IBM (2020) argue that it is logical to blend both supply and procurement logistics and blend procurement in supply chain management as both items aim at serving customer fulfilment. The alignment of business through procurement and supply chain depends on improved process management software and coherence in daily operations. This summarises that supply, and procurement are key tools in logistics management; therefore, the application of appropriate ERP application is vital as it enhances BPM.

- **Business Finance Account Payable and Receivable:** Through the application of ERP in finance business process firms now have the ability to track and trace all financial statement and detect when they have a deficit in their balance sheets. Schoen and Hensle (2012) depicts that through the aid of collaboration in businesses organizations can easily detect when they are not generating adequate revenue. Subsequently, account payable is held reasonable for payment of third- and fourth-party logistics service providers; over the years some firms have been exploited by third- and fourth-party service providers. To ensure that revenue generated

is not totally engulfed by service providers account payable have adopted various economic theories to ensure that their firms do not operate in deficit. Kannan and Hongshuang, (2018) argue that collaboration through the application of ERP in logistic operations will ensure that firms adopt the appropriate economic profit sharing and decision-making theories, they further explained some of these theories which are maturity theory; this model of business involves taking into consideration consumers behaviour before business decisions are made; decision theory involves taking nature into consideration before business decisions are made. **General equilibrium theory involves** trade and production of goods while mechanism theory differs from all other theory because it examines the consequence against action taken in business (Kannan and Hongshuang, 2018).

Thus, applying the appropriate ERP application will facilitate economic and financial sustainability in business silo; adopting a suitable theory will enable finance to detect if they are running at a loss or profit, this will also provide business financial analyst a range of business initiatives when expanding both regionally and national level. Account payable and account receivable pay a crucial role when modelling a business because the theory they adopt will affect flow of revenue within business operations because of lack of adequate finance will affect production, R&D, transport and many more business units. The ability of finance department to work in coefficients will enable logistics activity and business operations survive within any industry because supply chain is an essential part in business and requires unionism when business theories are adopted; this will ensure that they work collaboratively, cost effectively and resource utilization can also be assessed.

Fernie and Sparks (2018) elaborates on the essence of accountability which is to ensure that there is visibility and collaboration within every silo in logistics; they further noted that the five 'logistics mix' is also an essential aspect in supply chain because this mix each have their role and the mix are shown in figure 2.15, they are inventory, storage facility, transportation, unitization and packaging and communication. Since the initiation of logistics mix it has become paramount for account team to ensure that operations and activities that occur are all accounted/ monitored through ERP software and customer excellence is not deprived.

- **Operations:** refers to daily business activities; the act of completing a task from start to finish to ensure smooth transition of daily business activities is known as operations. Chopra et al., (2013) depicts those operations in logistics aligns, design and manage process to ensure assets and materials are effectively and efficiently utilized in business; they further added that operations activity is being monitored through ERP which is being adopted

in BPM. Lee (2002) notes that the ability to align business strategies will yield assets maximization and reduce product uncertainty in operations. It is important for firms to manage business activity applying top to bottom or bottom-up to top- approach this will reduce business uncertainty and increase assets maximization in operations process and led to proper management of operations.

Deveraj et al., (2007) in quantitative research were able to demonstrate the ability of integrating business process in operations will in turn impact general performance because lack of coordination can lead to high wastage which will in turn affect delivery of excellence to customers. Therefore, the application of ERP will assist firms adequately in managing day to day business activity; this will lead to smooth flow of business operations from raw material warehouse management → inventory → production → workshop and maintenance → fulfilment or distribution centre → down to delivery will be monitored and assets within various units will be maximised and also facilitate even distribution of business resources; this shows how businesses work collaboratively in managing various silo. Running a successful business is dependent on each unit playing its own role; it is also vital to correlate business process to unite each operation unit and needs because failure can easily emerge if this character does not understand their expected output. Through the aid of ERP operations activity can easily be made coherent because its major players can be internally sourced unlike other key units in supply chain.

- **Transport System Management:** ERP software play a major role in enhancing collaboration in transport manage systems application (Fernie and Sparks, 2018). Therefore, perception of consumers in relation to speed of delivery has changed because they now belief that they can want and have a product delivered to them almost immediately. This now makes it necessary for retails to enhance their transport manage systems (TMS). World trade (2014) states that product delivery is perceived to be the frontline of supply chain as it has evolved from being the slow and sleepy sector to active and agile sector; transport has experienced changes because of the vast use of 3PL (Third Party Logistics Transport Systems) which have been used to respond to both internal and external delivery. Transportation of freight is important in logistics activity because it is the hub of business in supply chain; freight is being transported to distribution centres, key distributors, internal and foreign trade activities are also fast growing as businesses realise that globalization of products will enable them to grow their chain of business faster. World trade (2015) explains that without ERP there is no logistics, there is no supply chain as busines collaboration is built based on ERP application; tangible and intangible products delivery to customers is not feasible without transport BPM.

Sundarakani et al., (2012) explains that transportation of freight has evolved into necessity over the years because the ability to control distribution of products relies on good ERP transport system; the ability to ensure that products get to the last mile relies on the stability or flow of goods and services within a process. Lambert (2000) depicts that transport is not only the core hub in supply chain, but it should be perceived as the central process unit within logistics because of its role in ensuring that process flow of productions is not limited but has proven to be effective and effective over the years. Fernie and Sparks (2018) highlights some of the new trends which have evolved in freight movement they are classified as the new world of transportation these changes are cold supply chain, delivery to last mile, same day delivery, on-time delivery, improvement in turn-around time of delivery to fulfilment centres and distribution to key distributors which have been sustained through the application of ERP in BPM.

Having listed the some of the innovations, which have occurred in transportation of freight some authors are of the perception that there are key issues which are yet to be defined within movement of freight and the role of ERP in resolving this issue in BPM has not been defined. Fernie and Spark (2018) opines that movement of freight has some underlining issues such as damages, loss and missed delivery which have not been clarified by businesses which raises questions around how best growing issues of theft and missed delivery be minimised to ensure business sustainability, profit maximization, assets maximization and winning of new businesses by third party logistics companies can be sustained. It will be profitable to firms if there is more clarity from primary and secondary documents on how best this issue can be minimised through the application of ERP. Lie at al., (2016) explains that firms should assess and determine how best this issue can be sorted from contracts managed systems because when an organization is about to begin a new business the business development and solutions team should state this item in their contract. Shan at el., (2017) argue that it will be best managed if there is a centralised guideline from government and governing bodies stating how this issue can be managed. It is evident that transportation of freight is the core hub in supply chain, therefore, there should be set rules which businesses should incorporate into their standard operating procedures and the role of ERP should be clarified.

Sundarakani (2012) highlighted that shipping cost of products is a major challenge and concern to online shoppers because products are being shipped from other countries. They further explained that some states have addressed this issue by outlining laws and order in their constitution to protect interstate and foreign trade. Toliver et al., (2014) explains that the ability

to sustain customer loyalty is the difficult aspect involved interstate production of goods and services because the volume of goods purchased cannot be estimated into a certain variable therefore leading to the requirement of steady production and manufacturing of products to ensure goods ordered online can be delivered. Thus, the importance of applying ERP in transportation is a necessity because the ability to sustain customer loyalty also relies on the application of ERP in monitoring transportation cost and delivery of goods and services to customers.

Secondly, they also elaborated on the importance of safe delivery of products to customers which most affects cold chain products which will need to be delivered in certain temperature to avoid spoilage or contamination of certain goods. The ability to sustain such products is linked to effective transportation and adequate warehouse/storage facility to be developed from their BPM through the use of ERP various silos will work collaboratively with transportation team in ensuring products are delivered safely.

Visser et al., (2014) notes that internal and external transportation of freight is dependent on certain factors such as the world wide web, omni and multi-channel of business, order penetration point, fulfilment centres and just in time delivery. This, factors have been perceived as factors which could lead to down-time of accurate turn around-time in transportation. The ability to adequately manage the frontline of a business will ensure that all parties are able to benefit from revenue generated. Turban et al., (2011) argue that electronic commerce (e-commerce) mobile commerce (m-commerce) and all sorts of online commerce will increase pressure on transport manage systems because they are classified as the front line of a business because transportation of products is the core hub in supply chain therefore failure to deliver freight in good condition could decrease business sustainability and loss of contract for organizations who practice third party transport manage systems.

Therefore, the ability to safely deliver freights will increase customer loyalty to a certain brand and could also lead to increase in revenue because customers are assured that their products will be delivered to them safely and securely. This also, leads to developing good brand customer service system because ability to communicate steady and effectively with customers will guarantee them that their products will be delivered safely; the role of customer service is to ensure that clients are rest assured that their products will be delivered to them within proposed timeline, or they will be refunded when products are not delivered.

The ability to sustain supply chain activity will also depict that growth will be achieved in business. It is necessary that goods are delivered on time and delivered in good conditions which means that the application of digitalized BPM is required through the application of ERP processes will be monitored. Lewis and Dart (2014) highlight that key business units are required in ensuring that excellence is simply delivered and some of these units work collaboratively in freight transportation some of these units are operations excellence, warehouse and fulfilment centre team, production, health and safety, fleet controllers, tracking, information technology, finance, workshop/repairs of trucks, drivers, customer service, business development and business solutions will ensure the appropriate number of assets is distributed accordingly. All of this units will have to design a centralised ERP system of working to achieve a common goal which customer satisfaction and service excellence. If these units develop a systematic approach to business and fail to incorporate adequate ERP systems in transportation to ensure safety of products, then all the chain of activities performed will not yield revenue if products cannot be delivered. Visser et al., (2014) argue that goods delivered should be linked back to handling of products from warehouse to transportation as this enhances process management and collaboration; they also highlighted that training of employees will also decrease breakages and wastage within supply chain process. Lewis (2019) opines those incentives should be used in encouraging drivers when goods are delivered in good condition this will guarantee long term service among drivers within in an organization.

Involvement of various business units as listed above (in this section of transportation) will assist in developing an adequate business process management system which will ensure that all units work together collaboratively. These units can be linked to Tranex Logistics business process because the ability of Tranex Logistics to sustain their business will be dependent on the functionality of all business units because transportation of freight in good condition will enable the front line of their business generate revenue. Collaboration is linked to the ability of ERP networking firm silo together and establishing a central processing unit which means creating a substantial business framework which will enable Tranex Logistics sustain being a provider of choice, employer of choice and an investor of choice; provider of choice as a leading logistics company in Nigeria means that Tranex Logistics has been able to sustain their business over a certain period of years.

- **Information Technology (IT):** is referred to as the core hub in business process management because through the application of ERP (IT) facilitates the smooth operations of daily activities in all organization processes through the aid of software's packages; world wide web; data science; web development and web designs. Shan (2018)

explains the effect of enterprise resource planning (ERP) software in business such that sage, **intergra**, **xero**, **signavio**, **kewii**, IBM and many more this ERP software have enabled firms produce data which is being applied in making organization decisions; with the aid of information technology firms they have facilitated decision making in firms; enabled firms monitor consumers behaviour; predict production forecast also developed business solutions which has aided service excellence (Laudon and Traver, 2013).

All units within firms work collaboratively ranging from HR to staff records and finance to payment of third-party suppliers and information technology which is the engine and can also be referred to as the core hub of logistics activities. Section above demonstrates that collaboration in supply chain facilitates cost reduction and improves performance within logistics processes which aids service excellence. Sections above also portrays the ability of firms to develop their business process management will enable them achieve service excellence.

CIPS (2021) explain that the role of information technology has gone beyond mapping of computers into track and trace; hacking malware and phishing; these elements are monitored regularly through the use of governance risk and compliance (GRC) policies which enables technicians detect early when there is a problem within the process. It is important to track both front end and back end because this are the instrument which are being managed by domain controller who are the systems controllers which create username and identity to internal and external customers. Jelassi (2000) explains that information technology has not been able to completely eradicate customer uncertainty and as case study which was reviewed; they further explained that there are side effects of information technology which could lead to customer dissatisfaction and decrease in brand loyalty, which means that the number of returning customers might decrease in future if these uncertainties are not addressed. Bharadwaj, et al., (2013) notes some of this uncertainty as reverse logistics because clients are not certain that products returned will reach their final warehouse or key distributor outlet. Another, uncertainty which information technology has not resolved is the issue of cold chain and pharmaceutical products which are meant to be shipped in a certain condition have not been resolved by information technology because some products arrive their final destination and might not be in a healthy condition; this could in turn lead to down time in delivery of product in some situations such products are being delivered to customers.

Koopman and Seymour (2020) argue and point out how Information and technology connects various business unit to work collaboratively they stated that there are control servers

which are used to manage online and in-store shopping and delivery of products to customers which aids seamless delivery process for clients, and they also use this medium to control fulfilment centres and distribution of products to the last mile. Laudon and Traver (2021) argue that information technology has aided the growth of control of products in warehouse and in fulfilment centres as well as increasing business connectivity through software localization. They also opined that information technology has enabled all channels of commerce to grow seamlessly through the aid of the world wide web(www) which controls most business activities internally and externally. Through the aid of www sales have increased because customers can now login to a business web site and purchase their products and also fit their clothing online without visiting the stores and through the application of ERP businesses are able to maintain consistency in their method of working collaboratively in business process management (Dumas, 2018). Due to the current necessity for partnership working organizations now have a systematic and collaborative business process which enables them to manage their electronic commerce sales proficiently and this also assisted business during the 2019/2020 pandemic (Laudon and Laudon, 2020).

Supply chain and logistics industry have experienced certain evolution over the years through the application of ERP because firms have been able to maximise profit and increase sales in business, maximise production; they have also increased their turn-around time in delivery of product. Liu et al., (2013) insist that information technology through the application in ERP in BPM has led to the increase of e-commerce, m-commerce, social commerce and many more areas in commerce this has been attainable through the aid of information flow within various unit of businesses; all units have been able to supply same and accurate information to various departments because all platforms have been centralised to provide same services across regions, this presently occurs in some firms and not all firms have this strategy.

Through the application of ERP Information technology has increased sales in products in supply chain; IT has also enabled firms manage their stocks because they now have better televised systems such as RFID Radio Frequency Identification this software is used in manage first-in and first-out of products in the warehouse; through this medium firms have been able to reduce wastage of product in the warehouse because products which are due to be shipped first are picked up immediately, alongside all items are being monitored on a centralised and mechanised software (Prajogo & Sohal, 2013); they further assessed the impact of data sharing within logistics activity because information technology has increased the flow of information of all business activities through a centralised or decentralised business process management.

Over the years some organizations have lost their company shares due to cyber-attack and other forms of business hacking. Kim (2017) in an empirical research explained how best firms can utilise information technology in supply chain and logistics activities they also warned that firms will need to apply caution when performing transactions online both internal and external activities will need to be monitored rigorously because they cited an example of how firms lost huge amount of money especially on black Friday whereby the traffic on their web site is beyond control and products are been diverted to wrong addresses leading to products being delivered to wrong purchase addresses. These are some of the side effects of information technology in freight activity. Once a firm's software has been tampered with the side effect cannot be measured because there are no fractions in measuring the root cause of the problem because this programmes that control their network are designed and will function according to the language in which they have been written. Some firms in the past have experienced downsides of apply information technology to control their day-to-day activity because some damages might not be realised not until customers raise a ticket that their products have not being delivered (Laudon and Laudon, 2020). This issue of social security in logistics and securing freight transportation can impact heavily on the frontline which is the delivery of freight which will be made to the wrong consumer or an inappropriate address. In the long run this could lead to owners of businesses retracting their contracts from a certain service provider.

Having critically reviewed the effect and impact of information technology next step will be to assess how best business process management can be sustained through the use of information technology that is what are the major steps that should be included in a business risk plan when adopting various system packages into their process. Laudon and Traver (2020) depicts that ERP through information technology can only work consistently if accurate auditing and cyber security is being applied within various business units as collaborative method of working is of essence. Bharadwaj, et al., (2013) is of the opinion that governance policies which will consistently monitor various control units which have been established will lead to reduction in hacking and cyber-attacks. They further noted that business collaboration is of essence in delivering service excellence therefore accountability and proper governance should be implemented in all ERP business units because failure to achieve this can cause delay in business transaction and loss in revenue.

The benefit of information technology through the application of ERP has assisted in developing a huge collaborative business empire is significant because it has automated most business management processes, increased visibility and also sustained business management centralization of process control mechanism; IT has also facilitated data management and the

development of business intelligence data which is applied when taking decisions or understanding consumers behaviour (Janvier-James, 2013). The role of information technology links into business intelligence, big data analytics, process improvement, business transformation, transport management systems development, revenue and cost control, asset maximization and building sustainable business models that will enable firms achieve their long-term vision (Janvier-James, 2013).

- **Role of ERP in Customer Service and Relationship Management (CSR)-**

Relationship management in business can be sustained by delivering service excellence to all customers. Pymont et al., (2010) emphasised that building good customer relation will sustain customer loyalty to firms; they further noted that understanding the marketing mix (MM) of certain products will enable a firm move from one stage to the order in business because they will be able to identify strategies which will be implemented into their business; the main purpose of identifying marketing mix (MM) is to develop business initiatives which will be applied when promoting brands and sustaining brand presence in business

Mayer et al., (2014) explains that it is important to understand sort of products that are available in an industry/sector before producing an additional brand; they further encouraged companies to improve on service offered. Thus, business process management is essential when selecting a product that will be sold to end users because the ability to develop a process that will allow a commodity to be distributed equally will facilitate the awareness of such product (Huang and Sarigullo, 2014). Product segmentation can be associated with process management efficiency because the ability to identify appropriate target audience might lead to high volume of sales and this is being monitored through the application of ERP. Thus, the role of business process management will be to ensure CRSM is effective and efficient in assessing customers that will require certain products, see below further evaluation of MM in ERP business process management.

- **Price:** This is one of the components that enables businesses achieve dominance within certain sectors, thus, the ability to relate the price of a product to end users appropriately will ensure business continuity and process sustainability (Huang and Sarigullo, 2014). When reviewing the price of a product in logistics this price relates to the price of freight rate from one distance to another this is when firms apply various organization resources to achieve competitive price ratio. In line with the case study, Tranex Logistics is a firm that has presence in logistics and warehouse management they also practice third party warehouse and production for other firms. Thus, price of service provided, or freight rate charged will be

considered therefore, they will have to be strategic when charging their clients. Same is applicable when dealing with single service users this means that walk-in customers can obtain information because businesses require the application of appropriate ERP application in their business silo to aid collaborative system of working.

Martin (2009) conducted qualitative research which noted that the price of a product is as essential as the quality of a product because the ability to produce goods and services which have value for money spent will ensure that consumers and service users will patronise such products continuously. Therefore, continuity in business is sustainable once brand owners are able to understand the needs and wants to consumers and service users; understanding users' needs will enable them produce products that will be acceptable; this will also enable a firm to assess if their price is sustainable when matched alongside values for money or price to quality, this four factors are the major determinants which will be applied when considering price tag on a product.

Smith (2003) is of the opinion that there are certain issues to be considered before placing a price on a product because this issue will enable business owners elate their brand. Therefore, it is evident that good customer service relation management is dependent on the price of a product because users will be more relaxed when patronising a brand because they are of the perception that main issues such as product intangibility and sustainability would have been evaluated by firms.

- **Place:** through the application of ERP businesses can relate logistics brand within the right environment this will enable a firm to maximise their profit and sustain such a product in their sector. Smith (2003) explains that the aim of selling a product in the right place is to ensure accessibility and quality of service delivery can be achieved when in a sector to obtain this information businesses requires the application of appropriate ERP tool in their business silo to aid collaborative system of working. Martin (2009) is of the opinion that place should not be limited to product accessibility and tangibility but should comprise of people within that area as businesses have to assess place by the people who live within a region making sure that the people who reside there actually require such products; failing to acknowledge that people require this product making such item available in that place will lead to drop in revenue and failure to excel. Smith (2003) emphasise the importance of affordability and standard of living when placing a product in a region because if users cannot afford such products based on their standard of living such a product will be limited, therefore to achieve all of this features ERP is being applied in BPM to assert that businesses framework

implemented meets the needs of customers in their environment and monitoring of environment is also facilitated through the application of ERP in BPM. Neza (2011) argue that the internet of things has limited the role of place in the marketing mix because items can be purchased online and can be despatch to users from fulfilment centres or distribution centre (DC). They also noted that key distributors have limited the role of place, therefore the role of ERP is to collect information from intranet.

- **Promotion:** Smith (2003) explains that promotion of a product relates to customer cost convenience and communication these factors integrate into the four major Ps product, price, place and promotion. Kim (2017) explains that scarcity of a service affects promotion that is when promoting a product or service business owners should ensure that such products and services are not scarce, and they easily procured to obtain this information businesses requires the application of appropriate ERP tool in their business silo to aid collaborative system of working.

Smith (2003) highlighted that the four Ps resolve issues with customers by ensuring that the appropriate product or service is provided, Price ensures that product cost assigned is sustainable to price = cost; Place is related to convenience of accessing a product or service; promotion relates to the ability of a firm to communicate their product and services to users. Therefore, business process management will be developed in triangulation to ensure that all these factors are correlated within a business unit; next step will be to assess that customer service excellence is achieved within Tranex Logistics activities with the aid of four Ps and also build a strong brand presence within the sector. Usman et al., (2012) explains that marketing mix has been rebranded over the years to suit eight different components these components as shown in figure 2.15 are the seven Ps in market and the addendum are called the extended marketing mix and they are:

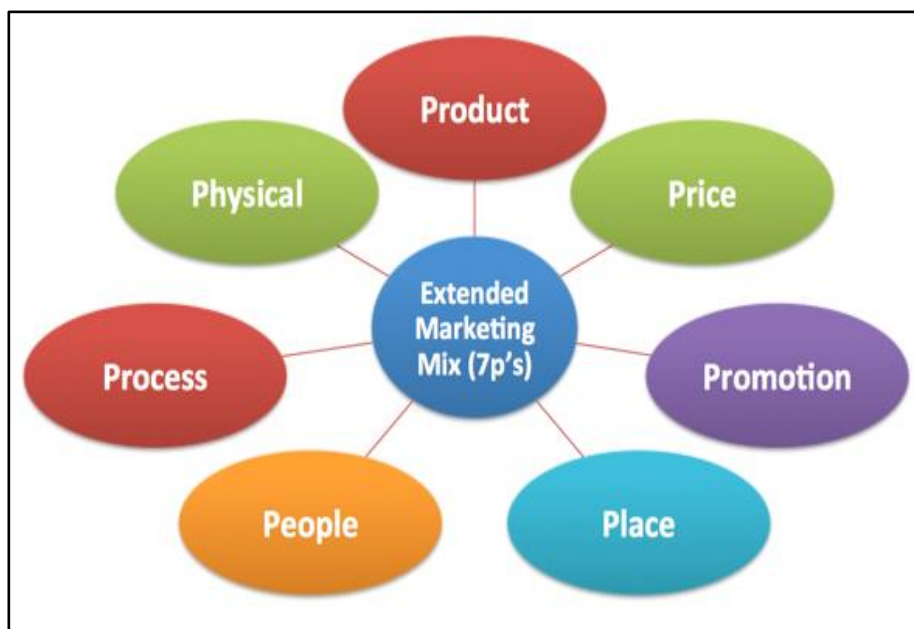


Figure 2.15 Seven Ps in Marketing (CIPS, 2019)

The four Ps in marketing have extended to seven because of the necessity in achieving customer satisfaction and seamless business process management in business; the addendum are people, process and physical. Eneizan et al. (2018) conducted empirical research which highlighted that non-financial component within the marketing mix (MM) are more likely to increase the performance of a firm these non-financial components are process, place and physical this elements do not require finances but they go a long way in defining the sustainability of a business.

- **The Impact of Marketing Mix and Product Orientation in ERP**

It is crucial to evaluate the impact of marketing mix and product orientation because in business the ability to evaluate this the ability to balance both factors will enable business development team to assess all relevant business political, economic, social, technology, environment and legal [PESTLE] factors. PESTLE is an acronym which is used in investigating possible factors which could reduce profit and customers satisfaction. Once these factors have been identified it is important to assess if there are any risk which could affect a business owner. Finally marketing mix is vital as it enables businesses monitor the niche in the market and monitor customers behaviour as this will impact on service excellence.

Huang and Sarigollu (2014) conducted an empirical study which compared brand awareness and product outcome side by side, the study also compared brand equity; brand awareness and marketing mix all together. The results of the study show cased that product orientation/product awareness is important but the ability to ensure that equity is applied in all aspect of marketing mix is very important. They further explained that the survey results highlight the importance of merging marketing mix and product orientation together in other to achieve customer satisfaction and business equality. Thus, the likeliness of moving customer relations and service excellence to another level is not just dependant on promotion of a product but the ability of business owners to apply all the marketing mix when relating to customers because this factor goes a long way in asserting self-actualization in business. Maslow hierarchy

(1900) points out that the highest levels of fulfilment in humans is self-actualization as its top of the ladder thus, it is important for an organization to achieve self-actualization within their sector.

This signifies that marketing mix has a high impact when trying to achieve fulfilment in service and customer excellence because the ability of a firm to measure success in all aspects of business is dependant of PESTLE acronym (political, economic, social, technology, legal and environment) the political elements are related to interest of stakeholders; economic element relates to financials and revenue circulation in business; social elements consist of culture, values and norms of internal/external users and employees; technology element relates to internal and external technology applied, legal elements relates to laws, rules and regulations established internal and externally i.e. laws that firms need to abide by and staff need to abide by therefore it is important that each set understand what is expected from them and environment factors relate to climate, weather, geographical location and series of nature elements that can impact and affect a business. The ability to understand the PESTLE analysis and incorporate this analysis into their business will ensure that they strive and excel in any industry. Product orientation is related to understanding political, economic, social, technology, legal and environmental factors that could affect a business. This impact will also determine if a business will be able to achieve customer satisfaction and service excellence, therefore, to obtain this information businesses requires the application of appropriate ERP tool in their business silo to aid collaborative system of working.

Marketing mix also impacts on transportation and delivery of goods/freights because some items may stay longer in the warehouse due to lack of patronage from consumers (Gorman, 2017). They also, explained that failure to understand the marketing mix of a product could affect sales and profit margin in business because there is a possibility of not making profit if the appropriate business relation skills is not applied. In an attempt to achieve success in business firms have realised that customer relation affects customers behaviour, Therefore, to obtain this information businesses requires the application of appropriate ERP tool in their business silo to aid collaborative system of working (Gorman, 2017).

Having reviewed the perception of authors on marketing mix and its relationship with customer excellence it all links to adopting an appropriate marketing mix which will lead to a sustainable business and also enable businesses satisfy customer service relation management (CSRSM). It signifies that marketing mix (MM) enhances business process management because MM considers growth, development and long-term vision of business; major players in the

logistics industry are of the opinion that three elements will enable their business to excel such (Tranex Logistics, 2020). Management of MM is feasible through the application of digitalized technology; also, customer excellence is obtainable once consumer behaviour is adequately monitored this will enable various silo's work more collaboratively.

2.5.2: The Impact of Collaboration in Business Process Management

In a bid to achieve collaboration in logistics business; there are some measures which could be adopted for the improvement of business process and implement certain strategies in their daily activities performed and some of these strategies are in illustrated figure 2.16 below:



Figure 2.16: Strategies applied in building collaboration (CIPS, 2020)

Some firms have adopted the above measures in figure 2.16 in order to enable them achieve service excellence in their business process management strategy; the aim of developing this strategy is to ensure that measures implemented will fit into their long-term vision. These elements will enable firms work in harmony and also ensure that their teamwork is shared; lessons learnt will enable them support and assist each other as they strive to exchange knowledge through various ERP software. The final stage is to ensure that each employee is motivated, inspired and there is trust within all organization sector as they strive to acquire collaboration within their organization.

2.6: Role of Agility Element in ERP

The role of Software in creating agility in logistics cannot be achieved without the aid of some certain software which are being deployed by organizations to create an agile process. Track and Trace in logistics is very essential and thus should be the core and main hub of logistics companies because without agility they will not be able to deliver customers excellence in their daily operations and business activities. There are key agile methodology in

project management they are scrum, team and testing the methodology which have been applied in business. To relate agility with logistics author will focus on key elements which enhances agility in logistics activities; this element will consist of some of scrum agile elements and agile supply chain management element which are virtual integration, process alignment, network based and market sensitivity (Council of logistics, 2019). Agility in logistics focus in developing a synchronised system of enterprise from start of production to distribution of goods and services to customers, above section has focused on some aspects, latter section within the agility elements will focus on track and trace and main elements that enhance excellence delivery directly with customers.

2.6.1: The Role of Information Technology in Achieving Agile Logistics Process

To organise daily task in logistics is dependent on IT because most operations are performed through a centralised processing unit so as to ensure that all activities are visible, collaborative and agile (Lewis and Dart, 2014). Some of the enabling factors of logistics are supplies, information and connectivity; the ability to effectively run a firm is dependent on these factors. Therefore, working in smaller units requires track and trace this will enable firms focus on business needs and agility can be obtained in various business units. Companies are faced with so many challenges and are volatile in nature therefore the ability to preserve is of essence. Collin and Lorenzin, (2006) explains that the ability to remain market sensitive and respond to customers demand will enable firms remain competitive within the logistics sector. Gorman (2017) argue that user's satisfaction is important and the best way to achieve this is the ability to monitor, track and trace all logistics activity. Information technology has enabled firms track parcels, track corresponds and ensure that there is agility is being executed. In order to highlight how firm's, achieve agility in logistics please see the below figure 2.17:

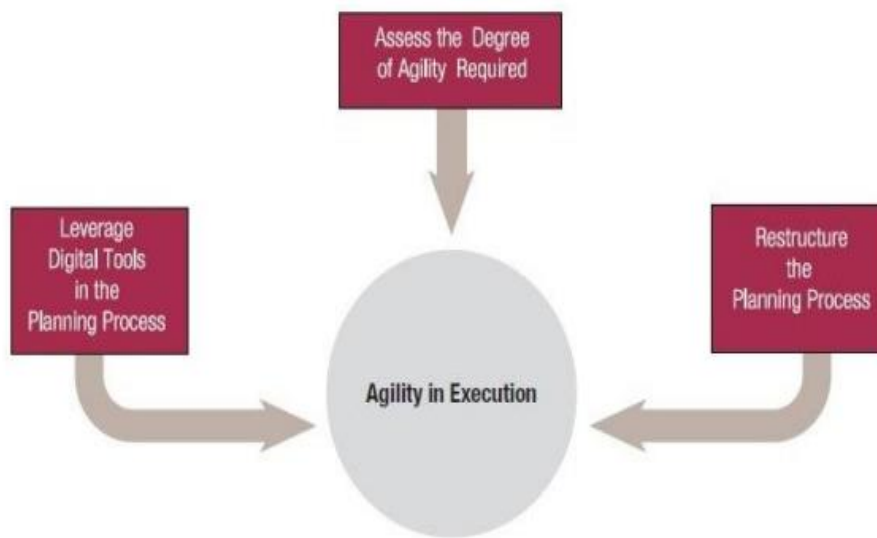


Figure 2.17 Execution of agility in Logistics (Schoen and Hensle, 2014)

The above figure 15 states how agility should be developed within a firm; they further explained that agility should be built into planning and forecasting phase, operation and execution phase (Schoen and Hensle, 2014).

- **Role of ERP in Agile Logistics and Predictive Analysis**

Predictive analysis has aided the growth of delivery to the last mile; this has also aided the ability of firms to predict risk within their business model because these elements enables firms learn from their previous experience; predictive analysis will enable firms avoid occurrence of incident twice in a roll however, if such occurs track and trace element will enable them identify the root cause of such problems; next step will be to adopt the appropriate ERP system application in BP. A.T. Kearney and WHU-Otto (2015) conducted a study which depicts that the use of digitalized systems can improve big data analytics and also improve customer service relationship/reverse logistics. Tao (2018) agrees that a digitalized process of business will gradually lead to paperless system of working in an organization because customers will not need to worry about their orders being left pending on ERP application which is being adopted.

- **Role of ERP in Enhancing Agile Planning and Forecasting**

White et al., (2005) states that failing to plan is like planning to fail, therefore in business the ability to plan ahead will enable superordinate estimate expected revenue within a

year end calendar; the purpose of planning and forecasting is to ensure that all aspect of business is being taught through before certain decisions and act are being performed. In this phase there are certain actions which are required from all levels of management and non-management teams agree on decision made. Collin and Lorenzin (2006) argue that planning can be defined as a preparatory or anticipatory stage in business before formal and agreed decisions are being implemented therefore, to obtain this information businesses requires the application of appropriate ERP tool in their business silo to aid agile system of working.

- **Role of ERP in Agile Track and Trace**

Through track and trace users are held accountable when they execute any action or activity because when there is an issue’s ability to trace the occurrence or start point is now applicable in logistics. Parcel track and trace method is also available because late delivery, missed delivery, wrong delivery and many sorts of incident which can occur in logistics can now be tracked and trace which has now increased user’s confidence with firms (Sparks, 2013). Somuyiwa et al. (2011) conducted an investigation which highlighted how agile response facilitates supply chain operations activity; figure 2.18 below illustrates how agile technology has aided agile response in logistics

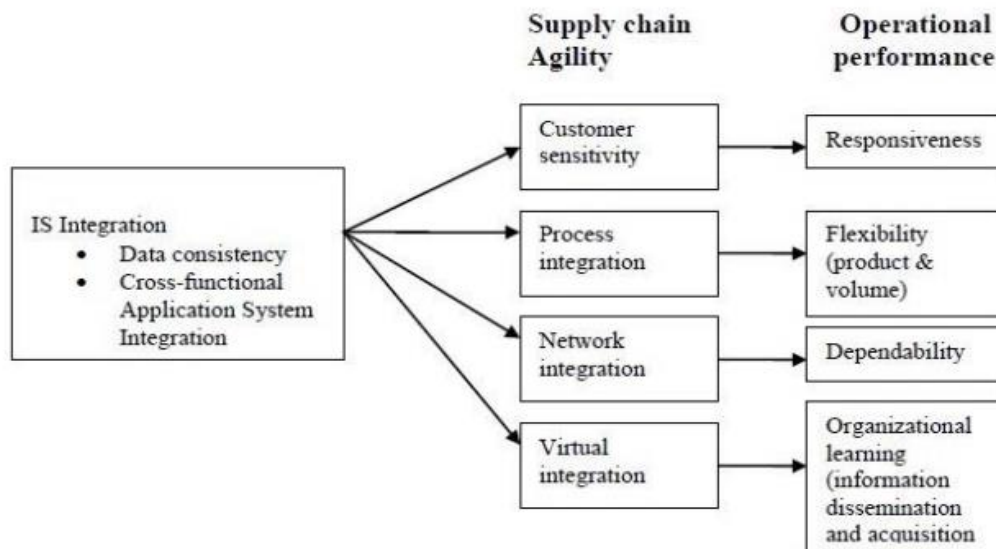


Figure 2.18: Impact of agile technology on logistics (Somuyiwa et al., 2011)

The above figure 2.18 illustrates how agile logistics and supply chain functions coherently through the aid of technology. The above also simplifies work patten of firms when

linked with reverse logistics items returned to firms can be tracked, traced and money paid can be refunded. Therefore, to obtain this information businesses requires the application of appropriate ERP tool in their business silo to aid agile system of working; the ability to track and trace fleet management, warehouse activities, asset and all operations within logistics enables firms acquire insight into revenue and loss.

2.6.2: Application of IT Infrastructure in Agile Logistics BPM

This section will holistically explain the role of each IT application in daily logistics operations in order to provide a coherent view of daily operations activities and how they are being achieved. Some of the applications and operating systems which will be evaluated in this section are: - HTML; SPSS; Telematics; SQL; C#; JAVA Script; Oracle and Python. This software are: - the brain behind daily agility achievement in logistics and has improved supply chain and logistics turn-around time (TAT) (Laudon and Traver,2018). Thus, application development is important because it facilitate business operations and also enables firms monitor trade (Morganti et al., 2014). Program development is vital in logistics management because programs create a pathway for transmission of data; information; coordination of business activities and on-time delivery which shows that ERP enhances the application of information technology in sustaining agility across all business silos.

2.7: The Importance of Risk Mitigation in Logistics BPM

Shan (2008) defined risk as a set of events that create impediment impact in business or process management. They also could lead to uncertain events which could have positive or negative impact on business objectives. Abdel-Basset et al., (2018) insist that risk in business or logistics activities do not always lead to negative impacts but they could expose a firm to discover certain aspects of their business which had not been discovered previously. Therefore, risk do not always pose as a threat but rather firms should see risk as an eye opener to a certain aspect of their business which they had not discovered and should perceive risk as threats that can lead to positive or negative impact in business. Thus, it is important to assess the impact of risk in logistics operations and evaluate risk which could arise in business and also clearly state how best risk can be mitigated before occurrence. Sohal and Prajogo (2013) notes three types of risk which are supply, process, and demand. Supply risk relates to the entire business supply such as supply from third party; manufactures and any form of supply; while process risk relates to a firm ability to merge both internal and external activities in coherence and lastly demand risk is the ability of a firm to satisfy their customers

2.8: Challenges Affecting Adoption of ERP in Logistics Business Process Management

- **Process Coordination:** PMBoK (2020) asserts that every business transformation requires management specifically to tailoring the desired change into reality. Therefore, the ability to manage transformation stages will ensure adequacy in BPM.
- **Leadership/Management:** the sort of leadership theory applied in an organization will either positively or negatively affect a business as try to adopt ERP in their BPM; therefore leadership/management in an organization should place the interest of their vision first and endeavour to get their priorities on a scale of preference. Method which will be applied in achieving coherence in leadership will have to be defined because top-up to bottom-down or bottom-down to top-up approach can be applied in a firm when trying to apply any form of leadership approach in their process orientation (Waters, 2010).
- **Innovation and Change management:** ability to manage staff expectation when adopting ERP as their BPM will enable a firm to succeed because most staff are of the perception that reinventing the wheel in an organization will either change their work pattern or imply that they might lose their job (Kotter and Schlesinger,2008). Therefore, it is important for project managers and leaders in a firm to sense the fear of their staff and explore various

change elements. Koopman and Seymour (2020) depicts that it is important to realise that a new process cannot exist without the commitment of the staff because they will be the main custodian of the process therefore key elements such as organization culture, leadership and change management will need to be fully committed to satisfying staff expectation and also used in managing staff expectation.

- **Embedding, Development and Implementation (EDI) Phase:** This phase requires consistency in making employees adopt ERP in their BPM, adapt to the new process, develop better and efficient method of working and implement systems that function. Noel (2018) recognises the importance of EDI in process sustainability therefore they have encouraged businesses to practice and adopt best fit solutions.

2.8.1 Assess the Role of ERP Elements in Covid-19

In general, the role of ERP in BPM has played out in Covid-19 as most companies had to function mainly through the assistance of their process being reliable, flexible, and visible. According to Zhao et al. (2021) in their empirical study on team-based gamification of online classes highlights that in order to encourage engagement this study shows that ERP has increased learning outcome; this relates to logistics as it reflects that ERP enabling notification in learning this can also be transferred into staff/employee learning and training process. Obrenovic et al. (2020) explains how firms were able to re-strategize during the pandemic and showcased the importance of ERP by demonstrating how it assisted firm in sustaining their process; they further explained through their ERP contemporary case-study more techniques which enterprises can adopt during crisis. This study emphasized on the importance of integrating the intranet and various online social media communication tools into daily operations as they perceive that through this medium firms will be able to access first-hand information i.e., unfiltered news about what users is going through. Also, stated that through a stable management theory, appropriate chaos and complexity theory firms, should be able to populate a plan which will facilitate pandemic phase and recovery phase such as improvising their method of operations to suit the current needs of consumers which means that some firms such as breweries and alcoholic production firms converted their resources into producing hand sanitizers while food productions companies improvised resources into home delivery which meant that consumers could receive goods and services at their door-step; also some automobile firms diverted their assets into producing medical equipment's because this items became necessity; thus the role of management theory in pandemic is very complex and should be applied strategically. Through the aid of ERP firms have been able to understand consumers

behavior therefore leading most firms to collating data which enables them provide services that suit final consumers; the application of ERP in BPM facilitated management ability in gathering business intelligence data due to high level of visibility, partnership working and agile planning they will able to deliver value for money service in the pandemic because they were able to focus on the needs to final consumers.

CIPS (2020) has been able to state some key ERP tools which has aided logistics activities during the Pandemic and opine that these tools should be made available in daily operations as this will enable firms prepare for unforeseen circumstances. They also urged firms to develop business continuity plans for crisis such as the pandemic and suggest that this plans such be flexible within supply chain as they will serve to an end and not a definite end. They also encouraged firms to improve efficiency through digital solutions. They further added that digital solutions will facilitate supply chain rethink especially in their plan to reduce just in time products. Thus, this shows that a disaster plan should be flexible in order to enable them to tailor their resources into provision of goods and services required during a pandemic, in addition the application of ERP in digitalised solutions will assist in easing tension and increase forecast and delivery.

Based on the above this section has been able to show how ERP enhanced learning and training during covid-19, it has also explained through a contemporary study that firms should integrate online social media communication into their daily operations as this will enable firms access unfiltered information; also developed some theory which will enable them logically to move into recovery as an organization. They also stated that management ability to improvise and facilitate their ability to delivering service excellence during the pandemic because through the aid of ERP firms where able to study consumers needs and wants which enabled them understand consumers behaviour, know when to divert certain resources into certain goods and services because big data analysis enabled them to understand the needs of their final consumers and diversion of resources into producing required items. This also enabled logistics firms divert their fleets/assets to delivering service excellence and ability to meet demand and supply/distribution of products seamlessly.

2.9: Gap in Literature Review

The functions of BPM have not been exhausted by firms because most recent pandemic covid-19 will leave a lasting impact on organizations who failed to explore the adoption of informative and unified business process into their daily activities. They further explained that

most firms will have to review their standard operating processes to assert flexibility and coherence.

CIPS (2020) explains that most business process management which have been adopted by organizations **have not been monitored thoroughly this implies that once a process has been adopted and implemented in an organization most units** would assess that process mainly after six months or after year and then conclude that the process is working or not working. They fail to recheck BP adopted periodically, firms are being encouraged to review on time if BPM adopted are functional and has delivered services required.

PMBOK (2016) reports points out that most firms fail to assess why a project or process has failed. They further explained that there are numerous reasons why processes fail, therefore, it makes it difficult to assert, provide actual root cause analysis for all business process management failure. Terry (2018) **states that literatures have not addressed why processes fail; they are also of the opinion that the root cause of all problems are different because the cause of failure in the logistics industry might differ from automobile and pharmaceutical industry.**

Although there are various literatures which have specified various BPM models and how best to apply any process. This depicts that there is a gap in literatures which provides resolutions to all processes because literatures have not explained which process should be applied in a certain firm. **Exploratory literatures in the automobile sector have explained that Six Sigma can be adopted but they failed to explain to firms the side effects associated with the adoption of this process. Volume, Cost and Cause (VCC)** of process failure is large and should and reasons associated with process failure should be investigated to create reassurance among sector operators that issues may arise but readily solutions to such problems are available and accessible (Dumas et al., 2018; Howard et al., 2015).

Stace and Dunphy (1996) warned that business units should be mindful of the hiding behind the shadow or claim that the have applied various business management models in their businesses which could not or did not create any change in their process. This now portrays the fact that there is a gap in literature which does not clearly **outlines how to measure success after adopting business process management. Most literatures have left this in the hands of an organization to develop parameters** or yardstick which can be applied in measuring the effect BPM has made in after adoption; some organizations over the years have failed to include this in their after-project closure or new process has been adopted.

Mckinnon et al., (2015) states that firms should apply the following metrics when evaluating their business process management this metrics are application of key performance indicators (KPI), stimulation, establishing queries in processes **and analysis those queries and stimulation tools. This metrics which has been suggested have not been specific because firms are meant to establish their KPIs and many other metrics which have been suggested; thus, there is a gap in asserting the exact metrics which should be applied. This gap could have been caused due to the ambiguity of BPM. In addition,** Prajogo & Sohal, (2013) identified a gap in unilateral flow of information/data whereby firm's will be able to trust each other with high level of business data, however, they have failed to state the sort of data which should be shared across organization silo's and how such data will be shared/shredded.

Having reviewed gaps stated by literatures above the author will highlight the extant/ present gap experienced by logistics firms however, the most dominant of all gaps is around tools for measuring success of BPM tool adopted because most literatures have not agreed on how best success can be measured and why BPM tools/framework fail after adoption. While the most fundamental gap which required immediate solution is for researchers to state clearly how success can be measured that is what tools/standard operating procedure should firms apply in measuring success after the adoption of BPM framework.

2.10: Literature Review Summary

Having explained the various types of elements involved in achieving business process management in logistics it is paramount that the main aim of each of this element is to achieve process management in order to **ensure cost saving, transformation and long term vision of a business can be attained this are some of the benefits of BPM**; in all the aim is to drive the goal of a firm in a feasible direction and ensure that long and short business mission statement can be attained within a specified period.

2.11: Empirical Study

This study aims has been conducted as empirical research which will evaluate the effect of business process management on Tranex Logistics company activities and analyse some of the challenges which the company currently faces. Data was gathered from subordinate/middle level staff andsuperordinate staff; date collected focused on evaluating if BPM has increased productivity or aided in transforming organization daily transaction and activities, accessed the impact of ERP partnership working, collaboration and enhanced agility. Next step will be to

assess the role technology solutions plays in enhancing business activities from sourcing of materials, production, and distribution.

To provide a more elaborate perception of BPM author will first populate a conceptual framework which will provide a brief overview on BPM and its effect in achieving customer excellence.

2.12: Theoretical Approaches to BPM

Theory approach will be used to explain business management principles and areas which require management will be listed in this section; for BPM to excel there are three main aspects that require process management they are operations, system support and management (Noel, 2008). It is also noted that theories have been established to enable organizations not miss-out any step-in process management implementation as these theories serve as a guide to businesses (Dumas et al., 2018). These three areas of management require some basic elements to function properly, and they are listed in sections below: -

2.12.1: BPM System Architecture/ Lifecycle of Business Process Management

System architecture revolves around process mapping as businesses are made to believe that failing to plan is planning to fail; process mapping is a key element in each process management phase as mapping provides firms with an inside into system theory, operations, and management (IBM, 2020). They further noted that business architecture is vital as they serve as steps required pre- adoption and post-adoption of BPM, this business life cycle also assist firms in modelling their business life cycle the steps are as shown in figure 2.19 below: -

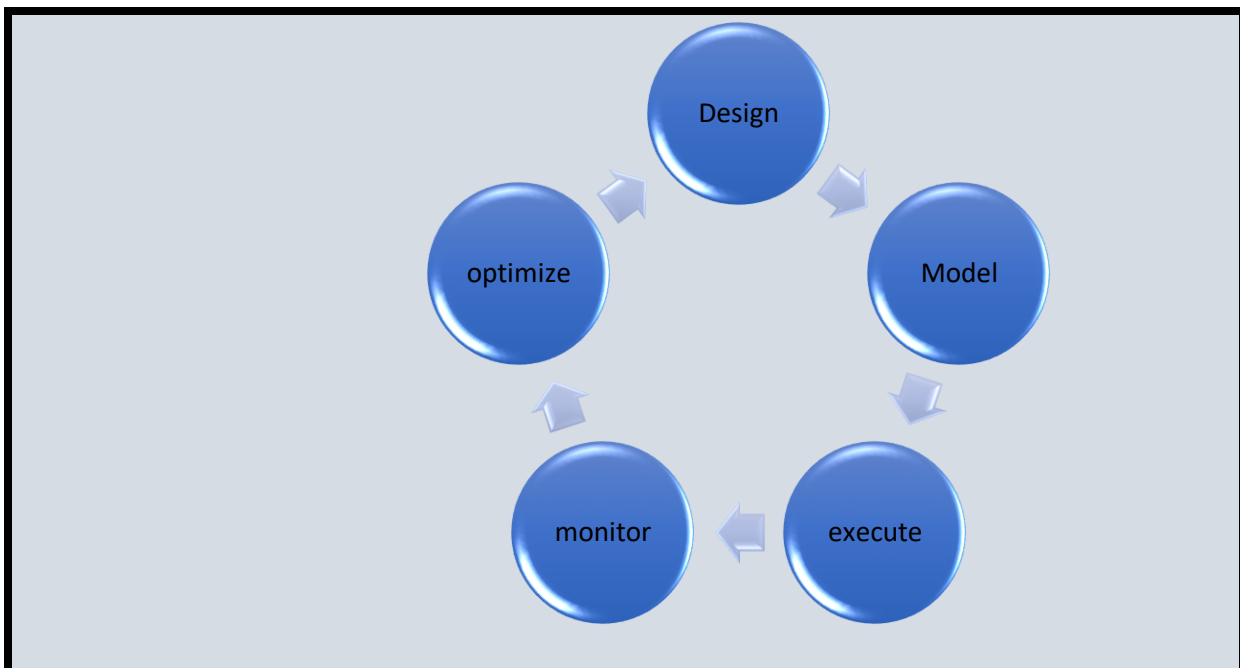


Figure 2.19: IBM business architecture (Source: IBM, 2018)

The above figure 2.19 state that business will need to design their business process next step will be to develop a business model that will suit each silo and execute the changes. After execution phase the next step will be to monitor changes which have been implemented and optimise all resources applied in daily activities. Koopman and Seymour (2020) illustrated some of the factors that limit the adoption of BPM as noted in figure 2.20 below:

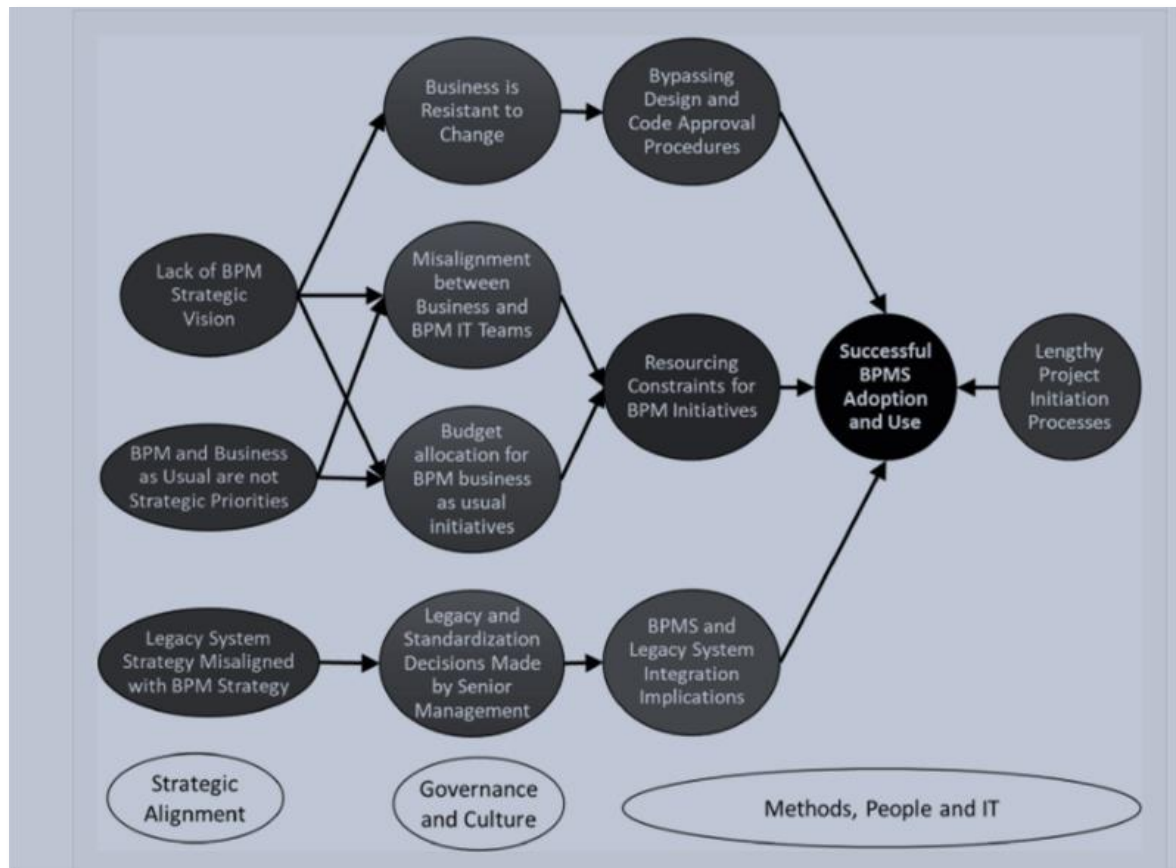


Figure 2.20: Challenges negatively impacting adoption of BPM (Koopman and Seymour, 2020)

The above figure 2.20 highlights that there are various factors which affect the adoption of BPM some of which are lack of strategy, vision, budget/revenue, people, information technology governance and culture; they further explained that information technology java and C# language denotes that users are not willing to use this platform because they might not be able to understand this term.

2.12.2: Supply Chain (SC) Theory

SC is referred to as the totality of production, which specifies from purchasing to distribution of services and freight work devoted to satisfying customers in regard to products

purchased. Ageron et al., (2012) warns that sustainable supply chain is achievable if the following factors are well considered when developing businesses models and they are: - eco-design, clean function, cost and revenue plan and structure in purchase, transportation and remanufacturing process. Taticchi (2013) opines that supply chain theory should tackle more ecology issues and not focus on cost and revenue mainly. Grant et al., (2013) argue that it is the responsibility of SC theory to provide and state key elements that will yield to process optimization, accountability, productivity, and waste reduction as these elements form a major role in logistics activity. The purpose of supply chain theory is centred around process optimization in ensuring key elements and channels which will elate process improvement are being optimised.

2.12.3: BPM Maturity Model Theory

Maturity model has been designed to serve as a guide to business owners so that they do not miss any step-in adopting BPM. Maturity models are applied when assessing current situation, they provide improvement initiatives and develop process control measures (Bruin et al., 2005). Ahlemann et al. (2005) opines that quality and methods applied in process implementation require thorough assessment. (Bruin et al., 2005) depicts that maturity model in BPM should be configurable to suit the needs and wants of internal and external users; they further specified that understanding the needs and wants of users facilitates the development of BPM configuration because processes are developed based on users' needs and wants. Rosemann and vom Brocke, (2010) state that maturity model controls two main aspect in process management and they are **process maturity and BPM process maturity model** they noted that the **earlier is general** and the **latter is more specific to an organization** as they depict that both concessions will allow process flow seamlessly. Pöppelbuß and Röglinger (2011) argue that maturity model serves as a check list in process improvement because items which require priority are listed and incorporated into process implementation. Dumas et al., (2018) challenges and points out that BPM/ERP maturity model should be developed around some key factors which is shown in figure 2.21 below because the factors determine the success which will be attained before and after implementing processes:



Figure 2.21: BPM Maturity Model (Source: Dumas et al., 2018)

The above figure 2.21 notes key factors which will enable a process function effectively and efficiently section 2.4 titled Elements of ERP in BPM will elaborate more on various items that represent BPM maturity model. The model asserts the following: -

Strategic Alignment: - this element provides organization with a framework explaining how they intend to achieve their goals. Pöppelbuß and Röglinger, (2011) explains that strategic alignment provides detailed information and justifies why certain designs will be implemented in ERP process configuration.

Governance: - the role of governance is to ensure all rules and regulation both internal and external are being applied in process management especially during inception and conclusion phase it is necessary that items which can pose as risk are being deliberated upon in the early stage of every phase. Bruin et al., (2005) asserts that maturity model assists with depleting elements into hierarchy in process structure development this will in turn facilitate regulation of policies in an organization. The essence of regulation of policies is to ensure that all ERP BPM policies are drafted in accordance with government and organization policies.

Methods: - The purpose of method is to ensure all applications and software to be adopted in business process are developed to suit and resolve issues identified and easy process flow. Ahlemann et al. (2005) explain through a META model that the method for data collection, method of data analysis and composites of rejuvenating reassurance in maturity model applies to method of flexibility/adaptability, benchmarking applicability; in relation to ERP in process management.

Information technology: - the role of technology is occurring after methods because technology is developed based on technique identified. Dumas et al., (2018) emphasis the essence of technology in maturity model as the core hub of business flexibility as they assist with daily internal and external transactions.

People: - it is important that people who will be working in an organization are made to understand the importance and purpose of processes which are been implemented because they serve as the main frame in achieving desired output. The people need to buy into the vision; it is important to mention that people here are internal and external users. Dumas et al., (2018) stress that models designed must be accessible and comprehensible for internal and external users.

Culture: - is designed as a way of life therefore culture and lifestyle of users will be kept into consideration of process improvement and actualization. Rosemann and vom Brocke (2010) identified that business decisions are made in accordance with culture and norms of a community which products will be implemented.

These are key elements considered in developing process review adjustment, this standard serves as a key model in ensuring key business process function properly and they should be considered before and after initiating a new process. Having reviewed various theory around process management in ERP the first factor to note is related to design and execution phase in BPM should be monitored thoroughly; second factor relates to application of BPM this should be performed in concession to indicate that it should be more specific to issues which are to be addressed in general or restricted to BPM and the third factor are elements which should be taken into consideration before the adoption and adaptation of BPM.

2.13: Conceptual Framework

Noel (2008) explains that organizations implement various BPM framework in order to ensure seamless day to day operations both internally and externally. Therefore, for an organization to effectively deliver service excellence they need to assert that they have the capability to satisfy consumers' needs and wants; they also need to ensure that promise made is promised kept. (Plunket, 2009) agrees that BPM increases business efficiency and they further noted that BPM enables businesses to be flexible, maximise all resources and increase business responsiveness. The below framework has been developed based on three research objectives and literature which has been segmented into visibility, collaboration and agility these three terms have simplified the essence of BPM in logistics activities; figure 2.22 (in the next page) depicts how organizations operate daily through the aid of technology which has led to flow of information among various organization units, improved means of transportation (seamless delivery to last mile) and asset/fleet maximization below elaborates more author conceptual framework:

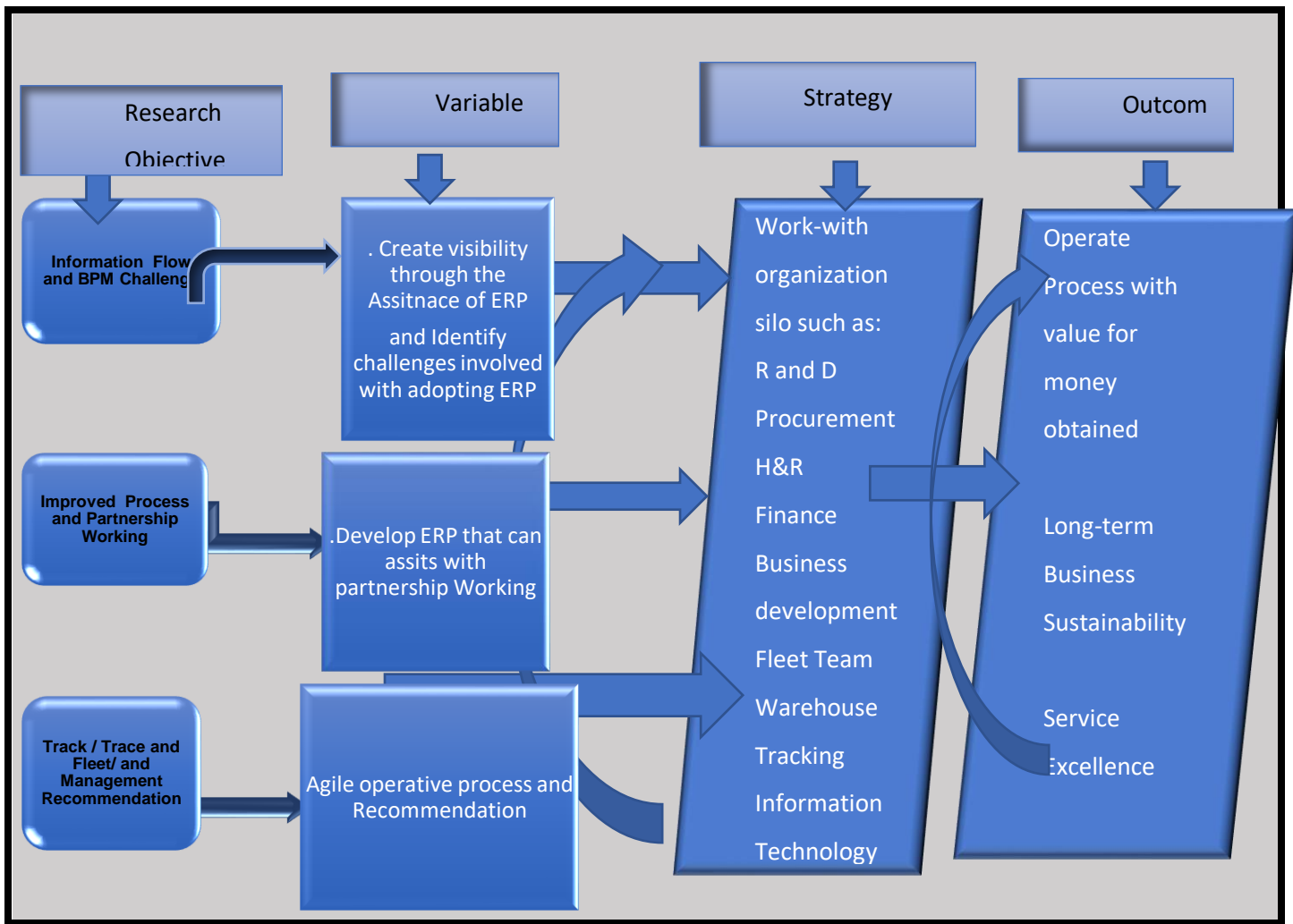


Figure 2.22: Conceptual Framework (Author, 2020)

Some of the major authors which have been applied in developing authors conceptual framework are: [(Laudon and Traver (2018); Frenie and Sparks (2018); Dumas et al., (2018), (Choy et al., 2013); Leuschner et al., (2013); in order to explain how figure 2.22 was developed through the application of literatures author will segment literatures into five main aspects because literatures which have been applied in this thesis are divided into core areas of visibility, collaboration, agility, customer service excellence and logistics; this aspects makes this thesis unique in literatures as authors have their area of specialization below figure 2.23 will highlight some keep journals:-

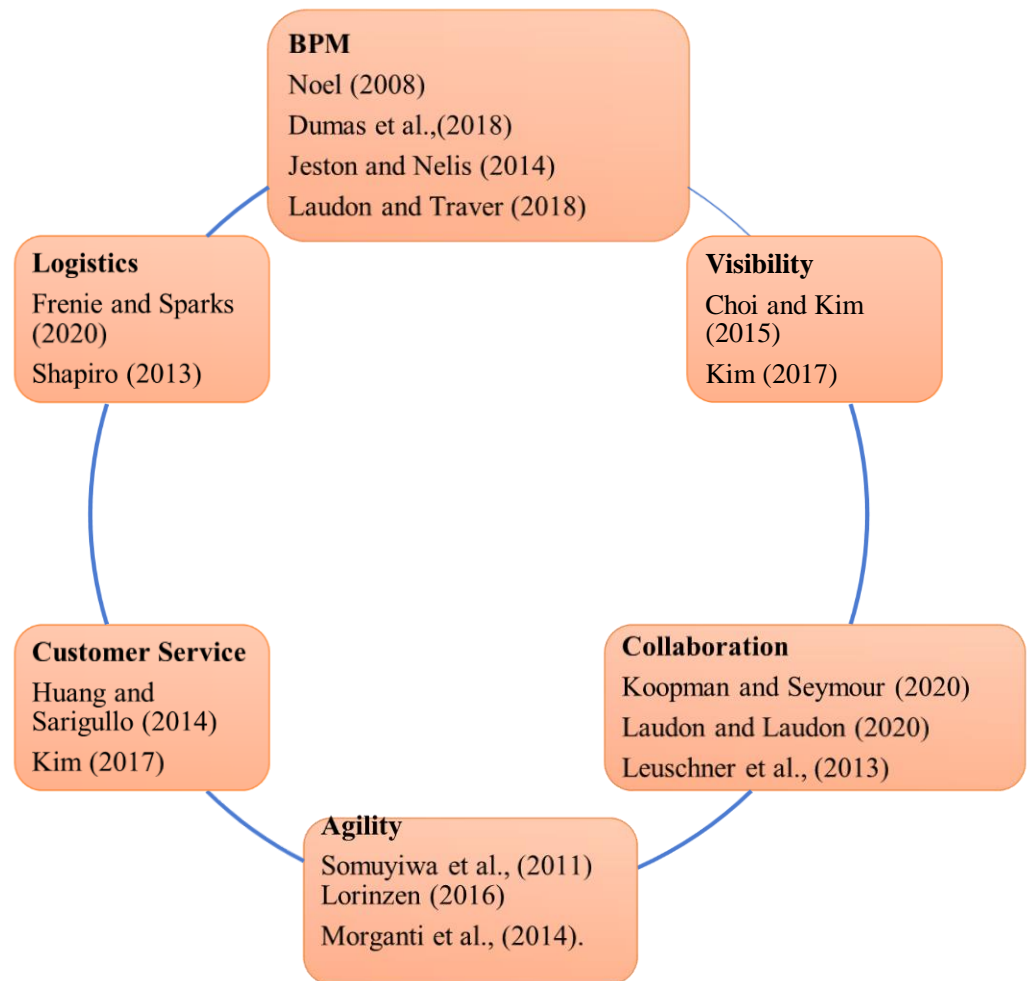


Figure 2.23: Literatures applied in developing Conceptual Framework (Author, 2020)

Thus, above figure 2.23 has elaborated on literatures which have been applied; also note that various works has been aligned into core area of specialization; this portrays works which have been applied in developing the conceptual framework in figure 2.21 and figure 2.23 has been added in order to provide further justification for the theoretical/conceptual contribution for the thesis. it is important to understand the purpose of each section of the conceptual framework; thus diagram one aims to address objective one of this research, which are information flow and to identify challenges in adopting ERP as BPM, framework two address objective two which assesses the impact of BPM and framework three address objective three which is centred on improved ways of working; Also, section below will elaborate more on literatures which were applied in developing thesis conceptual framework and the role of each item will be linked into research aims and objectives.

2.13.1: Flow of Information and Challenges Faced with Adopting BPM

In a bid to ensure that there is visibility among various business silos firms have been able to create inter-organization information and data system whereby the flow of information filters across each unit/silo through the application of ERP; this has also led to a simultaneous development in business enterprise system and increased accuracy in electronic data interchange internally and externally (White et al., 2002). Laudon and Traver (2018) states that the application of ERP benefits firm's visibility in business to be the development around delivery of products, communication and transaction visibility; the use of the ERP through the IoT has enabled point of sales and operating systems IOS has led to significant increase in sells and business growth because their is information accuracy and adequate visibility in various organization silo. Without the use of ERP in monitoring delivery services will not affect visibility in operations, and this will impact service excellence because various ERP software play their role in ensuring order fulfilment is achieved. In this regard it is feasible to note that creating channels for information flow has served as an artery for e-commerce and other form of commerce through the provision of global trade. This has assisted with developing efficient logistics information system.

Leuschner et al., (2013) reports that through the implementation of ERP organizations will benefit more from accurate information flow because they will be able to satisfy their quest to deliver service excellence to customer through data accuracy. They further explained that the ability to assert accurate data will enable firms share information with clients and facilitate

The effect of big data analytics in supply chain has been positive over the years because firms now understand the shopping habits of their customers that way production of goods are predictive and more precise (Seuring, 2012). Seuring (2012) further emphasised the importance of information flow this time they explained that information flow can be referred to as the live wire of an organization which implies that once there is an hindrance within the main elements or transmitters of information flow such a firm might loss its live which implies running into a loss in business while data accuracy is referred to as the hub channel in business.

Since the advent of modern logistics firms have not been starved of visibility of their operations both internal and external activities this is due to modern technology which now aids freight ship to be visible through the application of sophisticated technology apparatus even though there are still some challenges the benefits are more inclusive in nature (Choy et al., 2013). Various business units have also experienced information flow that is from bottom-up to top-down (super ordinate and subordinate) elements in various silos have been able to

perform transparent daily transactions (Prajogo and Sohal (2013). Through the aid of various ERP software platforms there is more synergy in transport policies and data policy because information governance and ISO have provided business guidelines to firms and when they default this can be easily detected (CIPS, 2020). Also, through the implementation of ERP in BPM decision making in business is feasible because data collated are being analysed assessed and required actions are being implemented through the aid of business process management (Bubner et al., 2014); they further explained that information flow aids effective and efficient communication, flow of business decisions made and employment monitoring however, it is important to note that if there is no visibility it will not be easy to achieve all of the above. Challenges which organizations face are related to employee resistance to change, financial and technical ability to sustain business process management (Bruin and Dolece, 2014) If these challenges are not addressed there is the possibility of not sustaining BPM.

Kotter and Schlesinger (2008) argue that some other factors such as fear, genuine concern from staff might make them resist change and fear of loss of jobs might not allow them to accept the use of ERP/digitalized business process management application. The challenges faced by firms when trying to adopt digitalized BPM are due to some factors such as culture, governance, and resistance to change elements.

2.13.2: Improved Logistics and Partnership way of Working

In retrospect logistics activities have developed from the early stage of day to day face transaction to transactions such as e-commerce, m-commerce, and fulfilment/distribution centre form of logistics (Choy et al., 2013); the environment in which managers operate now is different in comparison to the past, method of product sourcing and assembling or raw material has advanced over the years because end to end process of manufacturing and transporting finished product has developed and evolved due to the implementation of ERP in monitoring business processes. Further to this development contemporary style of production has been eradicated because the new and improved method of transportation has enhanced collaboration from warehouse activity to production and to end user. This is visible through the method of ERP BPM framework which has been adopted by firms. Craig (2010) explains that the importance and criticality of logistics in everyday business transaction has evolved beyond Just in time (JIT) delivery and now ensures that damaged products and missed delivery can be tracked and traced.

This method of business now considers warehouse operations, customer service participation in ensuring clients is happy with serviced delivered. Other units such as human resources, business solutions, R&D, operations, workshop and other business units all have a role to play in BPM because businesses have now adopted a higher standard of division of labour (Craig, 2010). All of this factor depicts that through the implementation of ERP partnership method of working will enhance service excellence facilitating firms when achieving their long-term vision. Laudon and Laudon (2018) emphasis that organization business process is a collection of activities coupled together to yield product or service.

There are some certain (technology tools and equipment ERP) which have facilitated logistics and supply chain operations some of this items represent new and improved logistics method of operation they are: Radio frequency identification (RFID) scanners, GPS trackers, vendor management inventory software's (VMI), collaborative planning, forecasting, and replenishment (CPFR) they are all referred to enterprise resource planning tools (ERP); this tools have assisted firm BPM, assist firms meet-up with shipment, produce sustainable products, implement sustainable distribution tactics (Tseng et al., 2011). Business innovation has enabled firms ensure thorough collaborative system of working can be achieved, through this medium firms are being able to provide an heterogenous system of production, service delivery and unified/centralised process of operation across various organization silo. In a bid to embed process standardization firms are able to reduce cost, increase client base, win new businesses and maximise their assets due to improved logistics method of working. Thus, improved transportation integration in supply chain has led to optimization of economic resources in firms because they can now ensure that delivery to the last mile is properly planned this has enabled them to be flexible with delivery service excellence. Through the adoption of various supply chain techniques firms can now reduce cost and optimise service level efficiently; this can be seen thoroughly through fleet and vehicle optimization.

2.13.3: Track and Trace/Fleet/Asset and Research Management Recommendation

The ability to maximise fleet control facilities track and trace of products in logistics will facilitate asset maximization because all units will work accurately towards service delivery due to monitor systems being implement (Choy et al., 2013). Thus, the ability to reduce manual system of waybill and proof of delivery has made track and trace of delivery more feasible. Therefore, the use sophisticated IT software and cryptography has enabled firms generate tracking information; track and trace of vehicle is feasible through the aid of GPRS because trucks which are being used to ship cargo/freight can be traced and tracked go the point

of delivery when there is a failed or missed delivery this can be predetermined through the application of ERP in business process.

Through the aid of track and trace firms are able to easily detect if a shipment has been transported through own fleet or third-party fleet. The immense change which agility has made to the management of fleet is enamoured because logistics management can be related closely to maximization of assets because this will enable firms assert that value for money is achieved in daily business operations. Plunkett (2009) explains some of the benefit of asset management in logistics which has led to replenishment of products flexibility, active reverse logistics because failed delivery can be returned to the warehouse, adequate planning and forecasting in warehouse and various supply chain units. Organizations leverage on visibility framework to gain access to monitoring and engaging with clients internally and externally, therefore, to obtain this information businesses requires the application of appropriate ERP tool in their business silo to aid agile system of working. Agile element of BPM ensures that organizations plan → design → develop new ways of working → test if new ways of working are reliable → release and receive feedback from both internal and external stakeholders. The process appears overwhelming but the ability to ensure adequate track and trace system of fleet and asset management facilitates the use of third-party supply chain management because of contemporary and large skill businesses require an agile process of working. Business recommendation will be evaluated in chapter five and six.

2.14: Chapter Summary

The aim of this thesis is to evaluate the impact of visibility, collaboration, and agility in logistics BPM; explore how business process management can improve operations and ensure transfer of knowledge/sustainability in business using digitalized application; also, the role technology plays in organization silo in optimising operations will be assessed and develop a framework for Tranex Logistics. Therefore, author had to understand the history of BPM which began in 1900 the **Taylorist approach** to business and the moved to the **Pull approach** of business next was the division of labour and finally six sigma approach which is a mathematical approach was invented along side other approaches such as Lean, agile, ERP, CRM, quality assurance/assessment and other method of managing BP were developed. In order to understand how Tranex Logistics perform their daily operation through the aid of ERP and also highlighting that ERP is their only method of BPM; author focused on the key elements of ERP which are visibility, collaboration/partnership working and agility in logistics; thesis

further explained the role of various elements stating that visibility ensures that all business transactions can be seen by all and in real time because these transactions are being performed through software applications applied into both back and front end of business activities to ensure that all items are being accounted; also ; in order to make this thesis applicable to recent times the role which visibility has played during covid-19 was highlighted and its impact to service delivery was briefly explained in this thesis. In reviewing the term collaboration in this section author has been able to portray how element of collaboration functions by assessing the role of information technology, demand and supply, how customer services achieve service excellence, reverse logistics, procurement and many other silos in logistics has been reviewed; thus, collaboration emphasise the importance of partnership working in organization silo this element further depicts that for businesses to grow they will require to work together. Finally, the role of agility in logistics BPM has been assessed and risk which could occur if organization management fail to be proactive in regard to itemizing risk mitigation factors this can lead to down-time in operations, therefore, risk management has also been highlighted.

Issues arising from various logistics activities have been mentioned and a number of typologies/theoretical approach arose with the main ones being system architecture which emphasis on the importance of planning and forecasting in early stage of BPM development, supply chain theory this theory emphasised the essence of business continuity in SP and the ability of organization to drive change by applying best fit method of BPM, and BPM maturity model theory. Architectural /lifecycle of BPM this theory is made to design, model, execute, monitor and optimize these model is built to ensure process stability is maintained within organization structure as some users are of the opinion that ERP applications should be aligned into providing sustainability; therefore the ability to design and model applications to suit users requirement will enable such firms monitor and optimize their BPM as end to end guide are being provided to all software users. What is most relevant in an organization is their ability to transcend being provider of choice as employer of choice as this has not been experienced within the logistics sector especially, which has been due to very visible setbacks firms face such as political, economic, social, technology, environmental and law/internal and external rules and regulations which might not be best fit this might also affect adoption and adaptability. To mitigate against some of these factors this can be resolved internally by stakeholders ensuring rules and regulations made are to suit end users in relation to external rules and regulations organization need to ensure that all policies are tailored to the specifications of laws. It is also useful to note that ERP will not suffice if firms do not review policies and process to align with external and internal factors rules and regulations of logistics; this will enable them to develop seamless BPM.

In this section author has been able to segment chapter two into the aims of research by what is the problem, approach which will be applied in solving the challenge and expected outcome should be discussed. Research will assess how business process management has improved innovation in logistics business in Nigeria; the aim of this thesis is to explore the key determinants of BMP and assess the role of various framework in BPM majorly focusing on ERP as this is the only tool being applied by Tranex Logistics in monitoring their daily activities, also research will evaluate the challenges road networks face when they are being applied to supply services in order to achieve excellence in supply chain industry and the impact on customers satisfaction/revenue growth will be explained in sections below; therefore next chapter three will state methodology which has been applied in this study.

Chapter 3: Research Methodology and Methods

3.0: Introduction

In this section author will explain how best research data will be collated then processed to form a substantive element in this thesis; author will explore relevant research methods and explain how they will be tailored to suit the aims and objective of this thesis. This chapter will provide germane insight into various research methods some of which are research philosophy, design and data collection method, once this has been explained author will explicitly tailor research methodology. First step will be to hypothetically explain the purpose of this research, research philosophy and research approach once various methodology have been explained author will then state which best suit the research elements. The purpose of this is to enable research methodology to synchronize with the main aims and objective of this thesis. Second step is to theoretically note various types of research methods and explain the method which will be adopted by author and why author has decided to adopt such methods. Some of the key elements in research methods are participants, measures, research design, procedures, sample size and data analysis.

3.1: Research Purpose

At present business process management (BPM) has transformed organization mission and vision because it has helped to enhance processes and manage daily activities in business (Lui et al., 2016). Zhao (2012) states that BPM in relation to technologies will aid smooth business operations and facilitate service excellence in an organization. In this context, main research purpose will be to assess and evaluate the importance of BPM in logistics activities this will be accessed through the aid of examining the impact or ERP in logistics BPM framework. In order, to assess this impact author has simplified this through the aid of literature by holistically reviewing the different frameworks in business process management they are Six-sigma, Lean and Enterprise resource planning (ERP) framework. This provided an applied dogma to BPM which is to state clear means whereby business processes can be simplified to ensure that businesses and their operations align in daily operations both internally and external. Thus, this elaborates on authors' research aim which is to state clearly how business operations can be performed seamlessly and coherently.

3.2: Research Philosophy (RP)

There are different types of philosophy in research they are positivism, subjective, realism, interpretivism, objectivism, pragmatism, functionalist, interpretive, radical humanist and radical structuralist (Saunders, 2009). Collins and Hussey (2003) explain that knowledge acquired in the course of research is developed through the use of research philosophy. Bryman and Bell, (2016) agrees that research philosophy enables author provide answers to certain issues or provide new knowledge around a certain issue; this can be linked with a new issue in Britain which is Brexit; any study performed in this area will be positivism research philosophy because such issue has never existed before now; they further explained that interpretivism philosophy is when an author develops own knowledge in a research and pragmatism is a combination of both interpretivism and positivism this means that an author is being pragmatic/logical.

Lewis et al., (2007) depict that the ability to apply thoughtful measures in research make the philosophy fit for purpose while Bryman and Bell (2016) argue that what matters the most in research is when a researcher can defend, develop, and associate their ideology/view to choices which are available to desired research outcome. Research philosophy means thinking and author being able to populate an articulate view in research will enable such thesis develop outcomes which can be aligned with literature review and research aims and objective.

Saunders (2009) with the use of an onions explains that's their different types of philosophy in research they are positivism, subjective, realism, interpretivism, objectivism, pragmatism, pragmatism, functionalist, interpretive, radical humanist and radical structuralist; each of these philosophy are best applied depending on research strategy, research approach and research technique applied. Author will be adopting the inductive approach, the case study strategy, and research technique will primary data collection which is qualitative research. Having considered all of these factors the best philosophy that will suit this thesis is the interpretivism philosophy.

Further classification has been populated by Denzin and Lincoln (2000) they segregated the following philosophy positivism, subjective, realism, interpretivism, objectivism, pragmatism, pragmatism, functionalist, interpretive, radical humanist and radical structuralist research philosophy into three main category they are epistemology, ontology and axiology see figure 3.1 below (in the next page):

Research philosophies' disposition	Philosophies	Definitions
<i>Epistemology:</i> The theory of knowledge or 'resources' which is concerned with the nature and scope of knowledge	Positivism	Deals with observable world reality and phenomena which can be measured using objective and/or statistical methods (Easterby <i>et al.</i> , 1991).
	Realism	Works with objects which have a high degree of independence and related to scientific research (Bhaskar, 1989)
	Interpretivism	Interpretivism supports logical empiricism with the assumption that facts can be gotten through a process that gradually increases confirmation of the phenomenon under study (Easton, 2002). Saunders <i>et al.</i> (2007) posited that post-positivism is applicable to research conducted in the field of business management.
<i>Ontology:</i> Concerned with studying of the existing nature of reality and being.	Objectivism	Deals with the realities of social existence. (Denzin and Lincoln, 2008).
	Subjectivism	Refers to social phenomena created from various perceptions arising from the consequences of social behaviour (Ittelson, 1973).
	Pragmatism	It is a proposition that can only be said to be true if it is practically viable, accepted and can prove its validity through testing (Saunders <i>et al.</i> , 2007).
<i>Axiology:</i> Concerned with studying of the judgments value.	Functionalist	This is concerned with rational explanations and provision of possible solutions for the specific phenomena under study (Saunders <i>et al.</i> , 2007).
	Interpretive	Refers to the manner by which people understand their environment in general (Saunders <i>et al.</i> , 2007).
	Radical Humanist	This concerns the subjective input of social actors within an organization (Saunders <i>et al.</i> , 2007).
	Radical Structuralism	Deals with understanding structural patterns within organizations by adopting objective inputs (Saunders <i>et al.</i> , 2007).

Figure 3.1: Research Philosophies (adapted from Crotty 1998; Denzin and Lincoln, 2000)

Each of these elements are being classified into the three; Having reviewed the above the interpretivism philosophy is ideal in this study of business process management because it will enable author align study with research finding and author will be able to interpret the social world of business process management in logistics; the ability to incorporate all research tools coherently enables researcher to understand and develop each section of research methods; sections below will provide detailed explanation on research methodology and research methods.

3.2.1 Justification for Adopting Research Interpretivism

The proposed research philosophy will enable this study best aligns with the interpretivism philosophy. The study aims to investigate how BPM facilitate business process management in Tranex Logistics Nigeria, especially as it affects essential service business process management associated with service excellence. To achieve this a gradual investigation

into how ERP provides visibility/flow of information, partnership working/collaboration, agility, service excellence and revenue its applicability and purpose to BPM. The assumptions applied in this study matches interpretivism views as they focus on recognition of external and internal factors, which shape and determine the level of adoption and acceptance of transformation and change in organization process. As such, the focus of the research aligns with five pivotal items and knowledge of Tranex Logistics organization on what BPM can enable them to achieve through the use of ERP. Although interpretivism philosophy has been criticised by experts that it can be subjected to the researcher's biases, which undermine the trustworthiness of the data, and there is an absence of a universally agreed doctrine (Silverman, 2008). However, interpretivism philosophy is able to generate an in-depth data which increases its trustworthiness and allows for honest presentation. According to Merton (1995), interpretivism is relevant to contemporary social research, which includes business and management sciences field; this research falls within the scope of business and management.

Perry and Gronhaug (2001) and Black (2006) applied interpretivism to investigate organization forward plan and major challenges. Hammersley (2013) depict that interpretivism plays a vital role in explaining views and objectives of humans as a single statement can be interpreted and understood differently. Saunders et al., (2018) highlights that interpretivism is vital to business and management of social sciences. Black (2006) made use of the interpretivism in the study of organisations and their complex phenomena. This shows that interpretivism is essential to investigating challenges faced by firms and assist in exploring and interpreting human views. Mason (2002) who argue that interpretivism assist in explaining individual perceptions and understanding to perceived reality and probabilities in service providing industry and social environment developing countries like Nigeria. Since research objectives are centred around impact of BPM on process management and understanding the benefit of ERP in logistics silo interpretivism will facilitate author ability to portray interview participants views around how BPM through the use of ERP has benefited their operations and problems listed by interview participants can also be treated by recommending solutions based on experience and literature reviewed. The specific objectives of this research are in consonance with the tenets of interpretivism philosophy, problem-oriented, recognises the existence of multiple realities and is applicable to qualitative research. The objectives were generated with the goal of the general assumptions, that is the subject of the research and a breakdown of its applicability to different aspects of the research objectives and how they interact and affect one another, which is the primary focus of the research.

3.3: Research Approach

Research approach is perceived to the theoretical aspect when conducting a thesis; an approach could be theoretical and explicit in research design in some cases this could be otherwise but its best to always make the process explicit in nature. In most research the findings, recommendation and conclusion are always explicit in nature. When conducting academic research there are two main types of approach, they are deductive and inductive theory, which requires testing (Saunders, 2019). The deductive approach relates mainly to testing variables in order to exact that such components are reliable and compatible this process is mainly adopted by scientific approach of research; while inductive theory/approach means that existing cases will be reviewed in order to exact issues which could have or are occurring next step will be to develop findings and recommend solutions which will enable such matters not to resurface (Novikov and Novikov, 2013).

Creswell (2014) portrayed an encompassing explanation about inductive theory they explained that this theory relies on findings gathered over the course of research this means that recommendations and solutions are produced through data gathered. Saunders et al., (2007) opines that inductive theory does not require the aid of existing theories because they are not based on facts and figures, but they relate to finding and proposing recommendation in research. Collins and Hussey (2003) explain that inductive theory emphasis on qualitative data ability to understand the research context, no rigid structure but explicit explanation and reasons why recommendations have provided will also be included.

Creswell (2007) notes that the inductive processing of data consist of gathering variables which are then investigated to populate a sample study, this form of data collection are tautological and might not be truth conveying because they have been collated based on human perception mainly, therefore, this indicates that the end results are probabilities and not certainties, there is no assumption or rule applied in this area of study.

Collins and Hussey (2003) explain that deductive theory is applicable to scientific based research because there is a structure and laid down rules and regulations for data collection and data explanation must be performed through quantitative data method Wilson (2010) notes that deductive theory relates to hypothesis, structured and sufficient size sampling; this element facilitates the ability of testing hypothesis. In sum deductive approach/theory is based on facts and generalized hypothesis.

3.3.1: Justification for Adopting Inductive Research Approach

Having reviewed various types of research approach author will adopt the inductive approach because this research is a case study and this approach enhances primary method of interrogation, therefore recommendations and findings can be explicitly noted after data collection has been concluded; this approach will enable researcher to explore all means of discussion by setting up interviews and interrogate/ conduct in-depth interviews among superordinate and subordinate group of employees. The positive effect of this theory is most feasible when conducting a qualitative method of research because interview discussions will enable participants to be relaxed since results will be collated in anonymity. Also, due to the scarcity of sources, inductive approach is preferred as it would allow for the use of open-ended questions for an in-depth study which is process oriented. It also allows for the use of narrative description and constant comparison of the data.

Saunders (2018) explains that inductive approach provides flexibility, allows room for open ended questions and it gives access for alternative discussions.

3.4: Research Strategies

Strategy in research vary they could be used for exploratory; descriptive and explanatory research (Saunders, 2009). The different types of strategy are as explained below:

Experiment:

This strategy applies more to sciences research; however, this could also be applied to psychology. This strategy is used to compare changes in variables (Hakim, 2000). However, this strategy is best used in exploratory and explanatory research. This strategy is not feasible for any business case because it is used to compare variables for example employees cannot be asked to experience redundancy due to work ethics therefore experiment cannot be held, therefore this strategy is suitable for deductive approach and quantitative method of research.

Survey:

This strategy is aligned to deductive approach theory, survey is usually used to ask answer such as what; how; who and where questions. Survey is applied to descriptive and exploratory research because they can be used to collate large data especially quantitative data, survey can also be used to compare variables.

Case Study:

This strategy is applied as an empirical investigation within real life situations, it can also be used to answer the how, what, where and why question. However, this strategy is mostly applied to exploratory and explanatory research; this is why data collection process may vary methods such as interviews, observations, questionnaires, semi-structure interviews in order to achieve a triangulation within multiple data source (Yin, 2003). Case study strategy can also be applied to two main dimensions: Single study vs multiple study and Holistic study vs embedded study. A single case study represents a critical case study, because it provides researcher with the ability to observe and analyse cases and it defines the actual situation. While multiple case study is used to analyse if findings from a first case is applicable to similar cases. Yin (2003) argue that the multiple case study is better than the single case study because it requires less justification. Holistic case study strategy is applicable when a researcher is an employee in an organization being studied; therefore, this study becomes holistic. While embedded strategy is applicable when a researcher studies sub-unit in an organization.

Case study is relevant because it enables researchers to maximise usage of background information when computing data and interpreting data. Case study aligns with descriptive design and interpretivism philosophy when applied in qualitative research method and enables researcher build synergy, data triangulation (between primary and secondary data), investigator triangulation, theory triangulation and methodology triangulation; thus, case study strategy will enable author develop triangulation.

Action research:

This strategy focuses on purpose of research. This implies that a researcher is concerned about resolutions in reference to organizational issues. Strategy also focuses on transfer of knowledge (Saunders, 2019).

Grounded theory:

This regarded as a theory building strategy, which is best suitable for inductive approach. This strategy develops theories from a series of data collected and analysed (Saunders, 2009). Collins and Hussey (2013) argue that this theory is most likely to ignore literature already reviewed on existing issues. Therefore, this strategy is built on theories and series of data collection and this method suits qualitative method of research, descriptive design and inductive approach.

Ethnography:

This strategy is related more with anthropology; main aim is to describe social world in relation to human biology and human society/physiological. Once a researcher applies this strategy, such a study will require details of each phenomenal that occurs (Bryman and Bell 2016).

Archival research:

This strategy uses documents and administrative evidence to produce data. Bryman and Bell (2017) states archival strategy also uses recent and historical documents to produce data. This strategy is based on the past and changes that have occurred in an organization within a certain period. However, main concern is data limitation; because once a researcher has limited access to data then such study will not produce a cohesive report.

Thus, for the purpose of this research author will apply the single case study strategy as per discussions and definitions of various strategy above; this study will be fit for purpose in relation to this study.

3.4.1: Relevance of adopting Case Study

The key point taken into consideration for the use of case study methodology for this study is that selections for the study was not random due to the peculiarities/ambiguity of BPM businesses being a niche business in Nigeria, it was however as impartial as possible. According to researchers such as Eisenhardt (1989), Stake (1995), Gillham (2001), Merriam (2009) and Bartlett and Vavrus (2017), case study is suitable when investigating complex and contemporary phenomena in its natural context as is applicable to this study. According to Stake (1995), a case study is guided by interests in specific individual cases in order to acquire in-depth understanding of a phenomenon. Case study methodology also aligns with descriptive design and interpretivism philosophy with dependence on qualitative research method which will be looked at next. For this research, the works of Stake (1995) and Merriam (2009) are most relevant due to the recognition of the flexibility of the research process and insistence on the subject of the research. Case study aligns with descriptive design and interpretivism philosophy when applied in qualitative research method. Stake (1995) and Merriam (2009) recognition of the flexibility of insistence on the subject of the research methodology. Case study is relevant because it enables researchers to maximise usage of background information when computing data and interpreting data. Case study aligns with descriptive design and interpretivism philosophy when applied in qualitative research method and enables researcher build synergy, data triangulation (between primary and secondary data), investigator

triangulation, theory triangulation and methodology triangulation; thus, case study strategy will enable author develop triangulation (Creswell, 2014).

3.5: Research Design/Choice

The purpose of research design is to facilitate and understand various types of research methods, which are applicable in research; thus, once various types of designs have been exploited it is the duty of the author/authors to decide which design will work best (Bryman and Bell, 2016). Therefore, in this section, the various types of research design will be explained, and author will adopt the one that best suits the case study approach. Research design is essentially a framework that guides the researcher on how to collect and collate data in order to find answers to research questions. Easterby-Smith, Thorpe and Lowe (1991) stated that research design alludes to the overall structure of a given research, which includes the process of data collection and interpretation of the data. Creswell (2014) pointed out that the type of study is premised on the research design some of which he identified as experimental, descriptive and correlational, among others. Descriptive design research is used when describing that the characteristics of a phenomenon is paramount to the study (Shields and Rangarajan, 2013).

Descriptive research relies on the use of instrumentation for measurement of data and observation of the phenomena being studied (Borg & Gall, 1989). Its strongest premise is based on the belief that phenomena can be studied, solved and improved upon through observation and analysis. It is useful when there is sparse information on the phenomena to be studied but can produce a wide variety of data that can be analysed. It also lends itself to both qualitative and quantitative methods. **Correlational research design** is used to measure the relationship between two variables with no influence from any extraneous variable. It speaks to the degree to which two variables influence each other (Creswell, 2014). It is used to determine if there is a positive, negative or zero correlation. A positive correlation occurs when two variables change together in the same direction while negative correlation occurs when the variables change in opposite directions. Zero correlation is when the two variables have no relationship (McLeod, 2018). **Experimental research design** is used to investigate the causal relationship between a control group and experimental group. There is a high degree of control over the experiments.

The research design, which will be applied in this study, is descriptive as it aligns with the exploratory study, which will explore the phenomenon, which will be studied. Ethridge

(2004) defined descriptive design as an attempt to identify and describe, while shedding more light on a phenomenon. Descriptive study is effective when analysing non-quantifiable phenomenon and allows for the observation of the intended phenomenon without undue interference in its natural setting. Therefore, descriptive design will be adopted. Descriptive design will suit this study because logistics activities are fast expanding and will be classified as the hub of distribution of services to the last mile in Nigeria the use of ERP is still not at its peak as most business owners are not aware of the benefit of digitalized monitoring; therefore, descriptive design enable researcher to conduct an in-depth investigation because the process address the various social aspects of the study (Denscombe, 2010). In Research design (RD) there are distension when analysing the qualitative and quantitative concept of data collection because each concept has a specific method and approach to when and how they are being applied; it is also useful to note that in RD both methods of design can be adopted when analysing data when this occurs the method is now referred to as mixed method of research (Uwe, 2018). RD is a simplistic method of explaining plans for data collection and procedure by which data collected will be populated in research.

3.6: Research Method (RM)

The purpose of research method is that it provides researchers a planned and clear guide on how each section of data collection and interpretation will be completed; RM can also be referred to as a sub-set of research methodology because it focus mainly on how data will be collated and interpreted while research methodology is the whole section in totality because it explains how each item will be collated from start to finish (Bryman, 2012). In this section author will explain various research methods and argue why a certain method will be best fit in this research.

There are essentially two broad types of research methods. They are the qualitative and the quantitative methods. This distinction helps in understanding the process through which data is collected from the field. However, there is a third method which is the mixed method approach which combines both qualitative and quantitative research methods to generate more expansive data that can be applied to content and statistical analysis. This research uses the qualitative research method. As noted by Creswell (2014) qualitative research methods are encapsulated within the interpretivism philosophy as they attempt to describe and present ways to understand phenomena as it concerns the social world. It places emphasis on words, pictures, and symbols, to describe situations and this allows for an in-depth and immersed study rather than the quantitative method which is numbers based and impersonal and takes little cognizance

of social actors which have an influence on social phenomena (Easterby-Smith et al., 1991). Qualitative research method provides flexibility and richer context, which gives room for broader interpretations and can lead to better understanding of complex phenomena. The combination of the social entities being studied with the social actors allows for exchange of views and positions, which can lead to rational and objective conclusions (Uwe, 2018). Qualitative research method is attractive for its ability to collect large volume of specific and relevant data, which allows for in-depth analysis and keeps the research focused on the important aspects of the study. As noted by Creswell (2014) qualitative research gives a deeper understanding of the social world. Mason (2002) however pointed out that following laid down procedures is vital when conducting qualitative research so as not to undermine the flexibility and contextual benefits inherent in the method as digressions may ensue due to the influence of social actors as gotten from the respondents whose opinions are vital to understanding.

Qualitative research is accommodated across four basic theories; grounded theory, ethnography, phenomenology and case study. Grounded theory is used to generate theories from observing social phenomenon while ethnography studies the behaviour of people. Phenomenology refers to the way social actors understand social entities, while case study combines a select group social actors and entities in order to get an in-depth understanding of a specific social phenomenon.

This research uses a descriptive design, which matches with interpretivism philosophy as this addresses the issue of social actors having significant impact on social phenomenon.. Creswell (2007) notes that data collected for the research should be done in such a way that it is coherent and meaningful and is able to bring forth valid meta-inferences which can then either be merged. Author will focus more on the qualitative method of research because this method will be applied in this study. Therefore, in section below author will elaborate on the significance of qualitative method and how this method facilitates data collection process of this study.

3.6.1: Components and Rational for Qualitative Research

Qualitative research is a technique which is applied in research when aim of research is to source for the root cause of a specific item, which is the main technique, applied when a single focus is to be achieved (Uwe, 2018). Bryman and Bell (2016) opines that qualitative method of research is ambiguous; they further explained that this method of research is ambiguous because it allows researchers to explain their opinions and the opinion of their participants will be the main source of conclusion, therefore, researchers recommendation is made based on information gathered from participants. This approach enables researchers seek

opinion and there are non-science based theory applicable in this study; this research method is flexible and creates an ability to identify issues during the course of study makes the application more profitable because this can be associated with behaviour, occurrence and events that occur within the study (Uwe, 2018).

3.6.2: Tools of Qualitative Research Method

The main tools, which are applied in this study, are in-depth interviews and thematic analysis. The ability to understand the issues and problems which participants try to convey makes this method or research an interpretive approach because the ability to explain people's views is involved in this study. Uwe (2018) explains that qualitative method also makes it possible to embrace conceptual influences of participant. See below detailed explanation for each tool:

- **In-depth interview:**

This form of interview is referred to as a one-to-one form of interview because the researcher personally coordinates the interview with all participants; this form of data collection method is normally coordinated through the aid of an interview guide which should be agreed prior to an interview between coordinator and participants Uwe (2018). The interview questions are set in line with the aims and objectives of research; also researchers ensure that interview questions align with research questions in order to gain insight this process is coordinated through the aid of semi-structured interview guide which enable the researcher to ask open ended questions and interview setting is not formalized; therefore open ended questions which will prompt participants to respond will be asked because closed ended questions are developed in order to end a conversation whereby creating an unpleasant atmosphere as answers are not required which tends to make interviewee appear unprofessional (Creswell., 2014). They further explained that the aim of scheduling the interview in this structure is to enable interviewee and respondent make connection and avoid any form of tension during the interview section also the emic perception or a respondent can be easily collated during interview.

It is suggested that an in-depth interview should be applied when researchers are trying to inquire about issues, individual experience about specific issues; they further suggested this method of data collection can be applied when researchers aim at understanding of decisions are made, when it is required to understand people's belief and their perception are to be tested, when it is required to assess why certain behaviours are inherited/occur often and most importantly when context surrounding people's lives are to be understood and when accessing

in-depth information about sensitive issues all of this scenarios will require an in-depth interview in order to assess the root cause of any issues.

The next step will be to develop an interview guide in order to develop the appropriate questions and avoid deviating from the purpose these questions will take the form of Can, What, Who, Do and such as are their certain practices which aligns with the aim of study. Finally, it is important to ensure that these questions are open ended in nature this will allow respondent to express themselves suitably, maintain a tempo, establish good rapport and close the interview between the interviewee and respondent in a calm manner.

- **Focus groups discussions:**

This tool is recognised as qualitative tool of data collection in research because it is also a primary tool used for collecting data; this tool is usual conducted between a group of six to eight pre-selected respondent/participants in order to create a warm and friendly atmosphere for all participant (Uwe, 2018). Saunders (2018) notes that this form of data collection is usually coordinated or facilitated by an experienced moderator, the role of the moderate is to ensure that all participants have the opportunity to era their opinion based on the topic which is being discussed. They further noted that such discussion should last for about 60 to 90 minutes so as to keep the tempo and communication flow seamlessly. Researchers have to be very careful to avoid issues such as an instance whereby a researcher raises a question about a certain issues and someone else counters such a statement it is the responsibility of the interviewer or moderator to ensure that conflicts does not arise in the forum; it is the important to ensure that the all participants are made to feel comfortable and appreciated.

Focus group is a more in-depth form of data collection because it provides more justification to opinions raised because there are instances whereby issues are raised → ideas are shared → recommended solutions are being justified or validated or such an issue raised will be justified as to why such an item is an issue. This form of discussion provides led way to interviewer because the probability of justifying issues is higher in comparison to in-depth interviews (Bryman, 2016). Uwe (2018) notes that this form of data collection is more appropriate when collating a community opinion, norms or value.

The next step will be to assess when best to apply focus group discussion, this method can be applied in an explanatory, exploratory or evaluative research. This research method can serve as a contextual form of explanation in a quantitative research when there is evident form of justification (Creswell, 2014). Bryman and Bell (2016) explains that this form of study can

also be applied in a situation whereby topics need to be explored, programme evaluation and intervention, diversity and identification of norms and beliefs and applied when seeking a communal clarity, however, this process lacks confidentiality. It's important to break the ice at the opening of discussion to break the ice among participants.

- **Observation:**

This method or research enables researchers to systematically monitor and record people actions and reactions, this method is also used to understand what people talk, do and say mainly to understand their cultural behaviour (Bryman and Bell, 2017).Saunders (2009) explains that during an observation multiple task are involved because observation involves listening, watching, recording and questioning of participants all of these activities are conducted with the aid of being guided by research question, aims and objective of research are considered when establishing this question.

3.6.2.1: Justification for Method of Data Collection

Having reviewed these methods of data collection author will apply semi-structure and in-depth interviews this method is suitable for case study strategy of research, and it will enable participant to feel relaxed to express their opinion when being interviewed. Using the in depth interview the researcher can ask some follow up questions to probe for additional information and still circle back to the research question (Vogt, Brown and Isaac, 2003). With this, it is very easy to identify very valuable findings from the research. In addition to the above, the interviewer can establish a rapport with the interviewee, which will make them more comfortable leading to more insightful responses, which adds to the quality of information received. Also using in-depth interview, the researcher will only need very few participants to extract very useful and relevant insights required for this research.

3.7: Types of Data

There are two main types of data they are primary and secondary data, the first is the primary data this form of data is collated directly by researchers in order to fixate their study (Saunders, 2009); Primary data collection is performed through the following tools they are in-depth semi-structured and structured interview; informal interviews; observation, focus group, visuals, content analysis and history/biography. The second form of data are secondary they include the use of journals (journal which will be related to this journals can be found in the literature review section of this thesis, next form of secondary data are the use of institutions and recognised bodies which govern and formulate rules and regulations within a certain sector

in relation to this study bodies that will be related are ; journals of business, social and management studies; journal of purchasing; supply chain body of knowledge, International Journal of Purchasing and official statics; survey and questionnaires and experiments. In line with the above forms of data collection author will apply the primary tool of data this tool will enable author achieve desired outcome of study because the ability to collate data first hand will ensure that root cause analysis and content analysis of any issues identified during this study can be examined and reliable recommendation can suggested.

3.8: The Method of Data Collection

This section will explain how author will collect research primary and secondary data

3.8.1: Primary Data

This can be collected through the use of questionnaires; interview and focus groups. However, for the purpose of this research author will adopt the in-depth semi-structured interview, which will be based on the nature of research problem whereby, problems addressed will focus on how business process management will facilitate operations activities in logistics Company. And challenges faced by organization. Interview will be carried out within the two main ordinate in an organization they are senior level managers such as the business unit level managers; senior level managers and lower level employees. Senior level managers will include logistics manager, business development, finance, R&D, business solutions, operations excellence, information technology (IT), business development, middle level will consist of field staff, subordinate to operations manager, assistant managers of various department while lower-level employees will include drivers to understand their current operations, some employees from finance team. Interviewees are selected based on below:

- Experience and knowledge of logistics and supply chain.
- Expertise in logistics and supply chain sector
- Accessibility.

Interviews will be conducted through digitalized method of communication such as secure televised networks.

3.8.2: Secondary Data

Secondary data include journals, business reports and peer journals in relation to logistics and business process management will be reviewed. Components of secondary data are: (secondary data such as CIPS Chartered Institute of Purchasing and Supply Chain; Business journals such as Journal of management studies; international Journal of Purchasing; International Journal of Purchasing and official statics; Content analysis; and experiment. The

method of secondary data adopted in the research is the use of journals business reports and content analysis.

3.8.3: Data Collection Process

The process of data collection started by seeking ethical approval from University of Wales Trinity Saint David (UWTSD). Author contacted Tranex logistics Human resource department via email with my intention to use the organisation and the purpose of this study with my ethical approval from university. The human resources manager scheduled a zoom meeting where we talked about my research, and I explain my objectives which he agreed to. Researcher requested the class of employees' author will be requiring interviewing. The questionnaires were sent out to participants with consent form. The emails were then sent out to prospective participants. Those who showed interest were contacted again to choose their preferred method of interviewing. Due to the Covid 19 pandemic, no face-to-face contact was made with participants to mitigate the potential risk to the researcher and participants; the options for interview were zoom, email, and WhatsApp call. Participants responded with their preferences and author followed up with questionnaires. For those interviewed via zoom and WhatsApp, interview lasted between 40-60 minutes, in cases where the interview was deviating from the research questions the researcher directed subtly back on track. Since it is a semi structured interview some additional open-ended questions were asked to enable the researcher to get a deeper understanding with respect to the study. This in line with Vogt, Brown and Isaac (2003) that we ask more question in semi structured interview to stimulate more reflective thinking from interviewees. For interviews conducted via email, the researcher asked more questions via email to understand clearly the points been made. All the interview answers were transcribed and analysed accordingly 9 interviews participants via WhatsApp's and 20 participants had their interview via zoom but at different timeslot.

3.9: Data Analysis

Some of the famous tools for qualitative data analysis are: -

- **Content analysis:** this system of data collection is suitable for both qualitative and quantitative method of research as it enables researchers count instances of code (Saunders, 2018). This method of analysis can be applied in analysing visuals, videos and pictures and it determines how word patterns are placed.
- **Thematic Analysis:** Saunders (2018) explains that this system of analysis requires author to systematically code all data, organise codes; then codes are being organised based on similarities, structure/hierarchy and sub themes are generated. This method of analysis is best suited for descriptive research design. Braun and Clarke (2006) argue that thematic

analysis should be regarded as the foundational method for analysing qualitative data as it makes available the core skills for conducting other qualitative data analysis.

For, this study author will be applying the thematic data analysis because this method of analysis will enable author code data then distribute them into sub-themes. Thematic analysis can be used across various epistemologies and research questions. Thematic analysis is very easy to learn as it's a straightforward process to use with it providing valid findings (King, 2004). A rigorous thematic analysis can produce an insightful and trustworthy research which is what this study is intended to do (Braun and Clarke, 2006). This method also helps the researcher to summarise a large data set, helping to produce a well organised final report

3.9.1 Qualitative Data Analysis

There are various analytic strategies steps in qualitative analysis these steps are: thematic analysis and content analysis. Saunders (2016) explains that coding is applied associating ideas that are the process of interpreting data collated is referred to as coding. They further explained that this data is then sort into themes. Then various themes are then explained, the process of building block concepts is then referred to as content analysis of data. Non-numerical data collated will be analysed using the steps above next will be to explain thematic analysis and previous research topic related to this study will also be analysed (Bryman and Bell, 2017). Thus, author has selected thematic technique because it suits the in-depth semi-structured interview of data collection. Thus, author will apply the thematic data analysis method through the application of various stages below:

Stage one: Creation of Themes

At the stage, research themes will be created based on research questions next semi-structured interviews will be created and participant's response will be categorised into themes based on significance to this study. Bryman and Bell (2018) notes that research themes should be linked to research questions and research objectives. Saunders (2018) agrees that for themes to be populated there must be a link between research questions and research objectives as they form and serve as the baseline in generating research themes. To achieve this each research question will be in a written format and further questions will be asked in areas where applicable.

Stage Two: Mapping of Themes

Creswell (2014) pointed out that prevention of lapses in vital after interviews have been conducted therefore, interview responses are being linked into themes based on their relevance

to themes which have been populated. Saunders (2018) warns that looping, repetition and lapses of data can be prevented by ensuring transcripts are developed through this three-format open, axial and selective process. First researcher needs to ensure that various transcript are created and segmented, next axis from various responses would have been developed as interview sections proceed and lastly selective process of transcript will assist in eradicating duplicates, this will be applied by researcher.

Stage Three: Analysing of Mapped Themes

At this stage, the interpretivism method of research philosophy will be applied by analysing participants' responses which have been placed into themes. Various participant responses will be segmented. This means that before the database is created, the structure of the tables where the data is inputted had been well thought out and defined. As is expected from exploratory research of this nature, there is always the possibility that the researcher would need to try out a variety or combination of methods or outputs. This is critical so as to avoid overlooking data that may be important to the research findings but has been ignored because it was not properly processed and as such could not be efficiently analysed (Linneberg and Korsgaard, 2019). Next identify common themes which were derived from various questions answers derived from participants where plotted and coded through a thematic map; Next step common themes identified are coded on various dash boards where focused upon and further aim to understand why employees provided this answer was further investigated to ensure participants were being unbiased.

Stage four: Final preposition

This will be derived based on research questions, objectives, interpreting data from the semi-structured interviews.

3.10: Data Sampling

There are two types of sampling method they are probability and non-probability sampling; therefore considering authors research framework, non-probability sampling will be more effective in this research because it will enable author focus on a certain audience within the organization, which is being reviewed (Linneberg and Korsgaard, 2019). There are two main sampling techniques they are probability and non-probability sampling as explained below: -

Probability sampling:

This method of sampling is also known as random sampling because it permits every element in data collection to be applied in analysis and enables all items in data collection to have equal and same opportunity in sampling (Saunders, 2019); they further explained the various types of probability random sampling they are systematic random sampling, stratified types of sampling, cluster sampling, multi-stage sampling and area sampling; this methods will not be further elaborated because author has not applied this method of sampling.

Nonprobability sampling:

This method of sampling depicts that opinions collected during data population should be included in sampling but individuals opinion which will be applied into final analysis and findings are not known specifically individuals who will be selected from population sampled are not known (Linneberg and Korsgaard, 2019); they further added that researchers apply this method of sampling in studies which it is impossible to draw random probability sampling which can be as a result of time constrain and cost. Bryman and Bell (2017) explain that nonprobability sampling requires a larger population and participants have unequal chances of being selected in final data analysis; this method of data sampling requires authors to examine a range of audience and this method is best for non-scientific study; they also mentioned some types of nonprobability sampling are quota, accidental, judgemental or purposive, expert, snowball and modal instant sampling. Thus, author will adopt nonprobability sampling because it will be suitable for the purpose of this research and will enable author focus on a certain scale of interview participants; however, all data sampling method require that participants demographics are reasonable because male and female participants are of sustainable audience/number.

This study will apply the non-probability sampling and session below will elaborate on various types and why they are being applied to this study.

3.10.1: Types of Non- Probability Sampling and Justification of Sampling Strategies Adopted

The various types of non-probability sampling are: -

- **Quota Sampling:**

This method of sample requires researcher to collect sample from quotas and samples are collated based on some of this characteristic they are sex, race and population of interest (Saunders, 2019). They added that quota sample is conducted at the door of the researcher and any individual seen during the process is being sampled until the desired quota is reached, quota sampling is set into two places they are proportionate and non-proportionate sampling. In proportionate sampling is conducted in range of percentage, which is mainly selected through

gender, the major challenge of this method of sampling is its necessity to agree on the exact feature or percentage of quota on which sample collected is based upon these features/purposes are age, sex, religion, education and gender. While non-proportionate sampling method requires restriction of minimum sample size from each category or unit, this method of sampling is not interested in matching sample size, but it focuses on participants that will be able to contribute to the chosen subject of discussion but is interested in representing small groups of samples (Uwe, 2002).

- **Accidental Sampling:**

This is commonly applied by marketers, promoters or newspaper and they are interested in reading sampling population feedback and share some similarities and dissimilarities as accidental sampling (Saunders, 2019).

- **Judgmental or purposive sampling:**

As the name implies is developed based on the ideology or judgement of participants; sample size is focused on participants with same opinion and are willing to share this opinion (Saunders, 2019).

- **Expert Sampling:**

This method of sampling seeks for known experts or expert in main area of study to be the only participant in data collection and they also provide validity or confirmation to another approach or selection; information is collected from groups of respondent or individuals (Bryman and Bell, 2017).

- **Snowball Sampling:**

This method of sampling is designed for researchers who have little knowledge about the area of their study; it is also designed through networking. This method of sampling is useful for communication, decision making and in-diffusion of knowledge thesis (Saunders 2019); however (Bryman and Bell, 2017) warns that the limitation of this method is that the choice of sample is based on the choice of participants which then requires researcher to diffuse information collected and is difficult to apply when sample size grows larger.

- **Heterogeneity Sampling:**

This method of sampling is applied when views and opinion of participants will be translated per-head (Saunders, 2019).

- **Modal Instant Sampling:**

This method of sampling is applied based on the frequent occurrence of a case or typical case. it also used in conducting formal public informal polls and typical voter (Saunders, 2019).

Sampling Method Adopted: -

Patton (1990) highlighted that the richness of a study relies in diversity of information collected. In these regards current study will apply:

- **Heterogeneity Sampling:** this method of sampling requires that participants are selected based on their day-to-day activity and views of participant will be transcribed per-head i.e. since there are 29 participants 29 transcripts will be populated.
- **Snowball Sampling:** will be applied based on previous experience and easy decision-making process and sample size will remain moderate.
- **Proportionate and non-proportionate quota sampling** will be combined because this method requires employee's gender and role to be considered.

These sampling has been gathered in order to portray a rich and diverse study (Uwe, 2002). Based on these three factors sample size for this research will be explained in the below section:

3.11: Sample size

Bryman and Bell (2017) depicts that the number of participants in an interview play a major role in research therefore, researchers need to ensure they capture participants from various age groups, job role and gender is of essence in research this criteria should serve as a guide to researchers; number of interview participants should conform based on the criteria of age, gender role and this should be tailored in-line with the case which is to be accessed. Since author will be adopting the case study approach and method of data collection will be, qualitative these criteria will serve as a guide in this research. Selecting a target population is vital as respondents have to be aligned and match the phenomenon under study so as to allow for generalisations. Case study requires a different sampling process because as noted by Strauss and Corbin (1990), the research sample cannot be gotten earlier as the sampling process develops in the course of the research, which is why quantitative methods may be inadequate for this study.

3.11.1 Justification of Sample size

In this regard, the sample size of 29 participants was selected from Tranex Logistics employees for semi-structured interviews in which the participants were senior managers and subordinate group section to enable interviewee and interviewers interact freely. Researcher ended up with 29 people because saturation stage was quickly reached and further respondents were not required as the responses had become repetitive and of no additional value to the study.

Snowball Sampling: researcher will apply snowball due to previous work experience and careful and easy decision-making process.

Heterogeneity Sampling: - will be applied so that views of participants can be transcribed per-head.

Proportionate and non-proportionate quota sampling: this involves gender of participants, job role and Job title in Tranex Logistics will be considered.

3.11.1.1 Overview of In-depth/semi-structured Interview Participant Sample Size

An empirical analysis among twenty-nine employees 15 from among senior management team they as shown in table 3.1 below:

Senior Management Team:

Role	Job Title	Location	Number of Participants	Gender
Information Technology	IT manager	All regions	1	1 Male
Contract Managers	For oil and gas, banking, e-commerce and education	North, south, east and west	4	2females and 2 males

Fleet Controller and site manager	For oil and gas, banking, e-commerce, public device and education	North, south, east and west	4	1 female and 3 males
Workshop lead	For oil and gas, banking, e-commerce and education	North, south, east and west	1	1 male
Finance	For oil and gas, banking, e-commerce and education	North, south, east and west	2	2 females
Administrative manager/ HR	For oil and gas, banking, e-commerce and education	North, south, east and west	1	1 female
lead for call center & Customers service	For oil and gas, banking, e-commerce and education	North, south, east and west	1	1 female
Warehouse manager	For oil and gas, banking, e-commerce and education	North, south, east and west	1	1 male
		Total	15	7 females and 8 males

Table 3.1 Superordinate Data collection participants (Author, 2020)

IT manager is very important to this thesis because all cloud computing activities are being managed by the information technology team; operations excellences manager asserts that quality and control measures required in all aspects of business operations are followed to the core; operations manager (from various regions north, south, east and west, account managers for various). The reason why these participants have been chosen is because they run the cooperate affairs of their organization and are fully involved with day-to-day decision made

and based on sampling method applied. The above table 3.1 shows the number of subordinate these participants have been chosen because they play a vital role in relation to delivering day-to-day business operation requirement and they will be able to explain how the bottom-down of the organization reacts; the bottom up and top-down approach in data collection will assist in providing a range of interview participant perception of Tranex Logistics business process management. Bryman and Bell (2016) noted that it is important to collect a moderate range of opinions and demographics when applying snowball, heterogeneity and proportionate and non-proportionate quota sample of research because it creates a balance. Therefore, 15 superordinate has been selected and 14 subordinates which consist of drivers, motor-mate, workshop repairers, warehouse operative, customer service operators (call centre agents) and site admin as shown in table 3.2 below:

Role	Job Title	Location	Participants	Gender
Drivers and drivers assistant/motor mate	Drivers for trucks, buses, motor bikes and mini vans	North, south, east and west	4	4 males
Work-shop repairers	Work-shop repairers	North, south, east and west	3	3 males
warehouse Junior Management	Motor boys (drivers assistant)	North, south, east and west	2	1 female 1 male
Site admin	For oil and gas, banking, e-commerce	North, south, east and west	1	1 female

	and education			
Tracking Team Member	For oil and gas, banking, e-commerce and education	North, south, east and west	2	1 female 1 male
Customer centre operators		North, south, east and west	2	2 females
		Total	14	5 females and 9 males

Table 3.2 Subordinate Data collection participants (Author, 2020)

All data collected through an empirical method of interview from 29 employees' common themes will be derived through the aid of manual data analysis this method enabled author to identify common themes which were derived from various questions answers derived from participants where plotted and coded through a thematic map. Next step common themes identified where coded on various dash boards and more common occurrence will be populated and deliberated upon and further aim to understand why employees provided this answer was further investigated to ensure participants were being unbiased.

3.12: Trustworthiness of the Research

The essence of trustworthiness is to ensure that researcher have the reliable resources to accomplish and achieve the aims and objectives of their research. Knight (2002) emphasis that it is vital for a researcher to be assertive about their resources and all components combined in completing their research. They further noted that qualitative research requires sustainability because the ability to replicate exact case study findings in an assertive content will enable researcher to achieve their aims and objective of their research; once this has been achieved it becomes evident that the credibility of research will be accurate and therefore leading to

reliability, sustainability and adequate decision. Research methodology includes data gathering, data analysis, data explanation and recommendation; having provided an authenticated process it is still the duty of the researcher to ensure that steps required in obtaining various stages of research are authenticated and reliable which then makes the researcher methodology effective and efficient, this also makes the process exceedingly reliable and suitable (Bryman and Bell, 2016).

Stiles (1993) argue there are more items to be considered when opting to use qualitative methodology of research these items have been centralised into two main standards, they are good practice and trust worthiness of standard applied. The ability to utilise good practice will enhance the credibility of research process which will enable researcher assert if the process has been effective, efficient, reliable and followed through all the expected ethics in research. They further stressed the importance for researcher to ensure that the process applied in collecting data is pinned in accordance to good practice; the ability to process research methodology in accordance to good practice and best approach facilitates data collection process to be reliable. The next is trust worthiness and the authentication of standard applied; once this can be assessed then it will enable researcher assert that recommendation and conclusion have been derived from a trust-worthy source.

Bryman and Bell (2017) emphasis, the importance of data collection stability in research they opined that data stability and consistency will enable researcher to develop empirical analysis which will lead to the outcome of their research, the consistency can be obtained through the aid of journals, primary and secondary data collection. They further noted that interpretation of data will yield to through research recommendation, thus, data interpretation will be based on evident analysis. In order, to ensure that research methodology is trustworthy there are four factors which should be considered by a researcher in qualitative research these factors **are accessibility, credibility, transferability, dependability, validity and reliability.**

3.13: Accessibility and Credibility

According to Bloomberg and Volpe (2018) there is a step-by-step road map required in completing a qualitative research, this step makes it easy and **accessible for researchers to stay within the context of research.** They further explained that these steps serve as a guide which ensures that researchers perform credible and accessible thesis which in turn becomes coherent when read or analysed. Lincoln and Guba (1985) observed that empirical gatherings in research form a part of thesis which means that data gathered require analysis and

recommendation. Uwe (2002) **explains that credibility deals with the external factors of a research this means that for research to be credible all external materials, sources and methods applied in conducting such study will be performed in a credible manner.** Mason (2002) **agrees that what makes research credible is the means to which data is being collected and interpreted.** Bloomberg and Volpe (2018) **depict that credibility relates to internal validity.**

Relating this observation to author topic which is based on business process management in order to achieve accessibility and credibility in this research author will apply the case study research strategy because this strategy is related to real life situation This will assist author explore issues within this organization (Tranex Logistics logistics) and also highlight some or all the initiative Tranex Logistics has been able to embed into their daily freight transaction; the case study approach will provide first hand interview with users both at the lower, subordinate and superordinate level of the Tranex Logistics. In addition, the research will evaluate the impact of business process management in Tranex Logistics; author will achieve this by conducting interviews and ensure that all accepts of research, which is related to the main aims and objectives, of research can be obtainable when data collected are interpreted; without failing to recognise the importance of customer excellence is simply delivered with methods adopted in performing daily freight activities. Before interview are conducted all rights and ethical forms which are required to be completed would have been administered next step will be to agree interview dates with all participants via various channels of correspondence such as email, calls, Microsoft teams and other televised means of communication.

Having reviewed the process of data gathering in accordance with accessibility and credibility the proposed process to be adopted will enable author to ensure that interview data collected can be interpreted in by applying a credible standard and ensure that all relevant information are made accessible.

3.14: Transferability

Merriam (1998); Punch (2005) noted that transferability can be termed qualitative when research context is not generalised but are aligned in relation to sustainable factors in such thesis. Uwe (2018) **argue that transferability connects with external validity.** Bloomberg and Volpe (2018) explain that transferability deepens into **external validity by ensuring purposeful sampling is conducted with thick description and detailed information is being exhumed.** Edward, Barbara and Steve (1993) and some early 19th

century authors had earlier highlighted that there are certain factors which impact on qualitative research some of this are social, observation and responses collated from participants could have a huge impact on the transferability of research. Denscombe (1998) noted that it is often not realistic to collate data from all **participants due to constraints such as financial, sample size this could be excess or insufficient and many other factors**. In this research author will focus on the impact of BPM on customer excellence the transferability could relate to difference in customer expectation in order to provide them with service excellence that is the demand of one customer is different from the order therefore items required in determining service excellence will differ. In sum a detailed information should be provided in research and sample size will remain moderate so that information collected can be exhumed.

3.15: Dependability

Bloomberg and Volpe (2018) opine **that dependability in research refers to reliability because the ability to rely on information generate an audit trail, develop triangulation and assert consistent peer review examination**. Uwe (2018) point out that **the ability to populate and replicate same context will yield to dependability in research because detailed examination and explanation will serve as a guide to researchers**. Dependability is tied to reliability because the ability to increase the range and scope of research and also ensure that there are no conflicts, but each unit synchronises with the next; once this has been consistent that dependability can emerge (Bryman and Bell, 2016). The essence to develop dependability is to secure that all factors involved in research are reliable, therefore author will ensure that sources applied in this thesis are dependable and they can be triangulated with secondary data where applicable and where secondary has not specified will be highlighted as a gap in literature.

3.16: Confirmability

Bryman and Bell (2017) **explain that confirmability in research relates to authors ability to assert that all journals and forms of data collection method and strategy adopted in research are performed in accordance with research guide**. Bloomberg and Volpe (2018) depict that confirmability revolves mainly around objectivity that is author ability to be firm when populating research information. **They further explained that confirmability is being able to be objective in populating audit trail, triangulate and referencing journals/reflexivity**. Lincoln and Guba (2003) argue that attaining complete confirmability in research is not attainable especially in qualitative research because researcher depends on participants for data collection, however, they assert that journals and other materials applied

in research can be confirmed. In order to attain research conformity author will collect data based on research guide and will be firm when populating information.

3.17: Validity

Research validity is the ability of ensuring that all research interpretation, test and result especially questionnaires collated, and results obtained from participants can be uncoherent at times which may lead to an unmeasured scale, thus, the ability to ensure that issues as such are well planned towards (Bloomberg and Volpe, 2018). Steve (1993) explained that validity in research is the total data collated which is then populated based on method of data analysis adopted in research however, authors are encouraged to apply data analysis guidelines thoroughly when in their process of drawing a triangulation. Uwe (2018) suggests that research validity is essential because it ensures that data attained are thoroughly measured.

Therefore, triangulation of primary and secondary data will be validated to assert that all information provided are in accordance with core themes and sub-themes which have been generated through information provided by interview participant information; also, to attain research validity data will be coded and mapped into themes. The main method of data analysis is purely qualitative author will focus on appropriate measures of data collection by ensuring that interview participants provide unbiased feedback and data will be mapped unbiased and triangulated with secondary data because thematic will be applied in data analysis; also, author will assess how Tranex Logistics company of case study apply BPM through the use of ERP in creating value for money services.

3.18: Reliability

Reliability in research is often misunderstood with conformity as most researcher think that these two terms are similar, however, this is not the case as conformity relates strictly to standardization in research method related to secondary/primary data applied. While reliability is referred to as the **authenticity, dependability, and sincerity** of research; in reference to qualitative research reliability ensures that authenticity, dependability and sincerity will assist authors prevent bias and repeat replication Bryman and Bell (2016). Crescent (2013) explains that reliability ensures that unbiased methods of data quality should be applied in research which means that interview procedure should be unbiased and no discrimination among participants. They further mentioned that data analyses, data collection and mapping should be error free/ consistent when triangulated. Based on this thesis which is qualitative researcher will ensure that research is not biased, no discrimination on participants, data confidentiality is practiced.

Steve (1993) notes that in qualitative research interview/data collection process it is important to focus upon facts by noting facts from top, middle and subordinate's managers when collating interviews; thus, for the purpose of this thesis author will assert that information gathered during pre and post data collection process are kept confidential and facts are sourced unbiased. Uwe (2018) explains that authors in a qualitative research need to ensure that repetition is avoided among participants and once this occurs this will serve as a sign that responses are now same and interview sessions can be discontinued also when there is an observation that two participants clash authors are advised to segregate them into different sessions.

Uwe (2018) explains that in a qualitative research author is allowed to test for reliability and validity by conducting survey's which ensures participants are aware that inconsistent responses which can affect data analysis will not be included in research transcript. Thus, participants responses will be mapped, and most common terms are beached marked to ensure that there is no falsification. In this thesis validity and reliability is applied by ensuring data will be gathered from both superordinate/middle level managers and subordinate's emphasis of this measures will be applied and minimized by triangulating data analysis findings with secondary data in research, archive document which are related to case study in qualitative research. Therefore, this study will ensure that all theory stated above will be applied and interview attendees will remain anonymous and research findings will be triangulated with secondary data.

3.17: Ethical Issues

Ethics has been approved by the University before contacting the participants, ethical considerations are important as they prevent against unpleasant research practices (Stake, 1995). The copy of approval will be showed to participant before the commencement of research. This will inform the respondents of the objectives of the research which is strictly for academic purposes and that the names of the organization and respondents will be kept confidential. Bryman and Bell (2017) suggest that before participants are being approached first step is to ensure that a research ethics has been approved by the university. Once this is achieved this will facilitate data collection process and ensure that researchers can avoid experiencing ethical issues; that being explained author reference from journals what an ethic issue means. **Ethical issue is termed as items that can cause any form of disagreement in research; thus, ethic form serves as a form of guide which list what can occur during data gathering process. One of which can steer-up disagreement is confidentiality because it is vital to assert all forms of confidentiality this means that author should have identified**

participants confidentiality before data is being interpreted this will minimise any form of conflict this means that matters arising can be resolved before final data findings are being distributed (Bloomberg and Volpe, 2018).

Uwe (2018) argue that confidentiality relates to matters which interview participants do not wish to be publicised they further urged research to populate a comprehensive list of all items before proceeding with data collection process. Not all research processes are same however, a qualitative method research has same standard in thesis. Some of the ethical duties of confidentiality are unauthorised access should not be granted to unauthorised officials, protection of information, this are some functions of confidentiality. **It will also be vital to observe information technology ethics in this research because this research is IT related some ethics have been defined by the information technology governing body. Ethical approval has also been received from the university of Trinity Saint David panel.**

3.18: Research Limitations

The ability of a researcher to work within their project scope will enable them perceive forms of limitations that could obstruct their thesis (Bryman and Bell, 2017). In relation to business process management and service excellence, it is vital to identify key limitations some of which are geographical, availability of interview participant, coordination of subordinates such as drivers, workshop repairs (technicians) and availability of fleet controls will pose as constraint to this research.

Next step will be for author to evaluate these limitations and propose plans on how best various limitations and constraints can be averted; in relation to geography plan will be to ensure that travelling from site to site can be planned and agreed ahead of interview; availability of interviewees can be managed by ensuring that interview date and time is agreed before any session and when attendees fail to attend meeting can be rescheduled based on attendees availability.

3.19: Recap of Chapter

Author has stated that data collection will be qualitative and research strategy which has been applied is the case study approach. The inductive research approach will be adopted in this research because this approach is suitable for non-scientific method of research. This section also states that main method of data collection will be achieved via conducting of semi-structure/in-depth interviews between all level of employee. This chapter has stated various methodology that will be applied in research and how author will apply those methods have also been highlighted. In-depth explanation of interview will be conducted via zoom and other

secured televised machinery such as Whatsapp will be applied. Data collected will be analysed through the thematic approach this will enable author to provide participant response in core and sub themes.

Author further, explained various elements which research should entail these elements are trustworthiness, confirmability, transferability and research ethic; author explained the importance of applying this element in research and how author plans to apply them was explained.

In summary, interpretivism method of research philosophy will be applied because this method will enable author to align the view of participants into final research findings next is the application of inductive approach which is suitable for qualitative method of research because it is non-scientific/technical. Research strategy applied is the case study; research design/choice is qualitative and tool for data collection is interview and data analysis tool is thematic which enables author to elaborate on participants view which will be classified into core themes.

Chapter 4: Data Analysis and Presentation

4.0: Preamble

This chapter will showcase the analytical aspect of this research that is in this chapter data collected will be analyzed and evaluated the main aim of this chapter is to holistically present the view of interview participant and ensure that data collection portrays the aims and objective of research. The sublime aspect of this chapter is that Tranex Logistics as a firm will be able to foresee how their staff access their level of organization; this will be related to service excellence. The importance of business process management (BPM) and how it has enhanced service excellence in logistics will be evaluated; more importantly, the extent of excellence achieved in Tranex Logistics will be analysed. This chapter will be divided into various sub-sections each section will lean towards achieving the main aim and objective of research which is to assess the importance/role of ERP in BPM of Tranex Logistics and how this has increased service excellence in Tranex logistics, first sub-section will collate the views and perception of superordinate and subordinate/middle level on the operation and activity of transportation of freight. final ideology established are:

Core Terms	Sub-categories	Facts
Information flow in logistics/Visibility	<ul style="list-style-type: none"> - Means of transportation and increase in technology usage (merits and demerits) -Inconsistency of standardization and knowledge - Sustainability of the RFID concept and dependence on technology 	<ul style="list-style-type: none"> -Growth in warehouse fulfilment operations and mobilization -Ambiguity in standardization and segmentation of activity process - Lack of manual tracking
Partnership working/ Collaboration BPM	<ul style="list-style-type: none"> - Flow of Information and Insufficient knowledge of components parts of a logistics activities - Merit and demerit of continuous improvement, transformation, and ability to manage change -Sustainability of brand loyalty 	<ul style="list-style-type: none"> - This will lead to identification of when want and how best various tasks can be completed - Change in process management might affect employee's confidence - Long term or short-term loyalty

Agility and Infrastructure development in BPM	-Lack of basic infrastructure such as power supply/ high tariffs, good road/transportation, and turn-around time -sustainability of ICT infrastructure	- Fleet management and lead to high tariffs of goods and services sold to consumers - Will increase doubt in service users
Customer Satisfaction/Service Excellence	- Building brand confidence	- Source for alternative products and ways of working that will yield value for more
Revenue	-Business Sustainability	-Winning new business -Identify areas that require funds and expenditure

Table 4.1: Core and sub-categories; phenomena for analysis (Author, 2020)

The above table has been generated through the aid of figure 2.2 titled: *‘Identification of Business Process (Balanced scorecard)’*; some elements from various literature reviewed have also been included in the above table.

4.1: The Thematic Analysis Approach and Rational for Adopting Thematic

Saunders (2011) depicts that the thematic approach is applied when participant’s responses are going to be coded and then transformed into theme. Bryman and Bell (2016) explain that this approach will enable interviewee to systematically develop key/core terms that will be applied in explaining research/interview findings. Thus, the thematic approach of data collection and analysis will enable author to select the main and core terms from interview, next step will be to analyze this data by extracting the similarities obtained from participants perception. Bryman and Bell (2016) notes that this approach enables researchers convert participants responds into themes; once theme have been collected author will be able to classify and analyze participants response.

Author will apply the inductive approach and five core themes have been selected based on research aims and objectives which are: to examine the benefits of BPM in logistics, understand challenges faced by logistics organization and assess how best agility/collaboration and visibility has enhanced or reduced such challenges and finally examine the role of technology in service excellence. Therefore, four core areas (they are visibility, collaboration, agility and customer service) these terms have been developed prior to now they will be linked

into interview participants idea and perception around Tranex Logistics business process management and how they have been able to assert service excellence in their logistics operations. In order to ensure that employees of Tranex Logistics are fully involved in this study interview sessions were conducted among superordinate's and subordinates of Tranex Logistics express; a total of twenty-nine employees were interviewed this means that participants had to be prepped through the ethically procedure and confidentiality agreements were signed which clearly states that information gathered about Tranex Logistics will not be sent to their market competitors.

Based on table 4.1 and the balance score card in figure 2.1: some of the key themes generated are visibility, collaboration, agility, service excellence, technology, revenue, cost reduction, brand loyalty, business sustainability, provider of choice, investor of choice, employer of choice, track and trace, hacking of software, fleet management, process improvement, freight theft, ambiguous process, quality and control, big data analytics and information flow. There are two levels of participants upper and lower-level staff; the aim is understanding the perception of employees and assess how BPM has made their daily business operations more feasible. As portrayed in figure 4.1 author will adopt five main steps to data analysis, the data collection from participants, data categorization in this step author will examine data collected through and categories them into themes, data explanation will involve author reviewing themes generated, data insight means definition of data collected and finally standardization because author will critically evaluate and write about findings.

Further items to note before sharing main themes:

The authors target audience for superordinate and subordinate for interviews was aligned to ethics approval as proposed by author to the ethics committee. Compliance from superordinate was at 100% and subordinate was at 100% although author had to work with their time frame. Participant demographic are 13 female and 16 males have been interviewed and increase in male participant is due to workshops repairers all males. Some participants are neither here nor there when answering interview questions therefore, there are no transcripts to be populated after interview and their opinion has not been included in this study since heterogeneity sampling has been applied. It should be noted that Tranex Logistics recently introduced telematics (ERP software) in July 2019; training planned for staff in March 2020 were cancelled due to social distancing restrictions in respect of Covid 19 pandemic. Therefore, some employees are of the perception that the impact of the new ERP software has not been felt across all sites.

The purpose of adopting themes is because they are easy to identify and clear because themes are explicable interpretation, they have been divided into core themes and adopted

themes were developed based on interview feedback. During the course of all interviews author provided participants with key terminology in accordance with the aim, purpose and objective of research; these aided authors use of themes and codes. The core themes have been generated in accordance with facts from information gathered and based on direction of participants when asked questions, flow of discussion and also through the aid of literature reviewed. There have been 29 participants across all sites of Tranex Logistics; the subordinates remain the highest referring unit because they encompass the senior and middle level management team and other higher-level data was collected over a period of two months interview prolonged due to delayed closures and protest in Nigeria (interview was held between October to January 2021 and this was completed through secure televised means of communication), see themes in table 4.2 below:

S/N	Core Theme	Definitions	Codes	Interview Held	Key Words
			Adopted Themes	Yes	
	Information Flow in logistics	The ability to ensure all logistics activities can be seen by all and each silo receives same information	Information Management Technology (IMT)		General business analysis, on-time reporting, company intranet
			Artificial Intelligence (AI)		Computer highlighting issues to users
			Business centralization		
			Automated process		Notification when processes need to reviewed
			Software		All business processes are being managed by different applications
			Big Data Analytics		Production of data
			Data Accuracy and Information Accuracy		Demurrage, track and trace, revenue and expenditure
			Network, business and Web Analytics		Online transaction, tracking of parcel, missed

					delivery, stolen delivery
				Strategy	Spot hire, limited liability,
				Reporting Platforms	Commerce management (E-commerce, M-commerce,)
				Market Intelligence	Information sourcing and building connections for business sustainability, competition
2	Partnership Working	Ensure all silo work in coherence by supporting each other unilaterally	Information sharing	Yes	All units/ silos share have access to live reports
			Easy Stock Count		Identification of FIFO, identification of LIFO products in warehouses
			Data filters to all silo eg HR		Centralised data system in process which is linking HR to other departments
			R and D develop ideas through information		R & D is a necessity which is beginning to expand

			received and analysed		
			Market Niche		
			Focus, connect and Growth		Ability to connect with users then apply lessons learnt into business growth
			Investment of choice		Increase in business partners; increase in stake holders, market shares
			Provider of choice		Returning customers
			Employer of choice		Employee opinion survey; long term service awards
			Easy decision-making process		Decision making is based on data analysis; quick and easy process review
3	Agility	The ability to ensure thorough track and trace in fleet management and freight management	Track and Trace	Yes	. Ensure all business activities are tracked and traced . This will also enable firm trace

					items which might have been delivered to a wrong location
				Fleet Management	customers complain that there is delay in their delivery caused by poor infrastructure and security; cost analysis and warehouse analysis because target was not met
				Theft	When the amount of item does not tally with waybill; delivery notes are not signed at the KD outlet; in relation to bottle item delivery
4	Customer /Service Excellence	The rate at which contracts management is being processed and measurement of brand loyal	Long term contract agreement		Customer service review meetings with KD; review meeting held at service level agreement;
			Service Excellence		Most customers are impressed at the standard of Tranex Logistics; safe

					delivery happy customers; the expression exhibited by customer; the fulfilment they express
			Returning customers	Yes	Most customers always return back to use our services; some clients have been with us for long term; partnership working with clients outside Nigeria has been impressive and led to massive expansion
			Appreciation		Recommendation made by users; good reviews
			Strategy and planning		Complimentary services and long term vision
5	Revenue		Cost Management	Yes	Review of expenses, overhead cost,
			Winning new businesses		Business expansion, delivery to new customer location

		Fleet and Asset Maximization	Buying new assets, motor bikes
		Cost Cutting	Review and approval of all cost, tender wavers, stages of approval
		Turn-around Time (TAT)	Drivers travel time, late delivery,
		Drivers incentive	Increase in drivers incentive, payment to compliant drivers
		Demurrage	Monies paid for overstay in customers location (KD)
		Contract management	Business development team, business solutions,
		Spot Hire	24 hours availability of product and asset
		Workshop repairs	Cost of spare parts, down time in workshop due to repair, daily visit to workshop

Table 4.2 Themes and Codes for Analysis (Author, 2020)

The above themes in figure 4.2 have been selected based on participants review and perception in regard to enterprise resource planning.

4.2: Data Interpretation from Empirical Study

This section presents the five core/main themes which were derived from data collection each of them have been classified into sub-themes because the main elements in various themes have been developed which will be further explained based on participants responses.

Items to except from various themes:

The first of the five cores is associated with visibility in business process management the theme has been titled information flow here participants identified the main elements which ensure all business activities can be transparent in order to ensure that various business silos have foresight of each of their activities; they also identified areas that require enhancement these areas have also been highlighted in the sub-themes this means that both merit and demerit elements have been identified.

Next core theme is associated with collaboration theme titled partnership working identified relates to how all business silos relates with one another and also links-in external elements such as customers fulfilment and sustainability of brand loyalty; finally, this has been related to how business process management has been attained in achieving daily business mission. Next theme is agility in business process relates to long term business vision because through the aid of agility firms have been able to attain agility by working more effectively and efficiently.

Customer service management is the fourth theme this relates to how Tranex Logistics has applied technology in attaining customer fulfilment and demerit and merit of the current ERP software's have been identified which enabled researched identify core norms, vales of Tranex Logistics and assessing brand loyalty in all levels of business as small medium enterprise (SME) customers and mega level customers.

Finally, revenue plays a crucial role in business sustainability and long-term assurance; therefore, the focus is to understand how business maximizes profits and strategies applied in cost reduction. Junior level team members expanded more on expenditure while SMT's explained how return on investment aided business sustainability.

4.2: Themes Identified

Interview sessions were held in semi structured interview forum among senior management team members and subordinates in order to ensure staff could speak freely without being worried about how their line managers perceive their statement. Interview sessions were held in via zoom and WhatsApp (9 participants on WhatsApp and 20 participants via zoom but at different timeslot). This theme was generated based on interview session related to technology, flow of participants and literature review. As mentioned in chapter three that interview questions have already been aligned in accordance with research aims and objectives therefore, the flow and synchronization of interview aided research process.

4.2.1.1: Information Flow in logistics

This theme relates to the ability to ensure all logistics activities can be seen by all; also, it is vital to ensure that each silo receives same information in real time this will in turn enhance visibility across all logistics activities. Some of the superordinate team members especially the information technology (IT) management team specified the following:

IT1: ‘through the aid of information technology freight activities have been seamless as some key elements such as IOT internet of Things has aided various forms of commerce such as e-commerce, m-commerce, fulfillment center shipments have aided big data analysis’; artificial intelligence has enabled transformation and change management and transition phrase work in coherence. Like some units have experienced increase in data accuracy others have been able to populate automated reports and smooth centralized system of managing internal and external clients has been developed in Tranex Logistics operations. All of this have been made possible through the impact of information technology and software application in logistics activities.

The information technology manager produced insight into how the application of software has better managed information flow in Tranex Logistics I activities which has in turn lead to an effective and efficient business process management; according to him most logistics operations have now become seamless, centralized because management of internal and external activities is more centralized and visible, automated reports are now being populated, data accuracy and big data analytics have become more explicit. I can say categorically from experience that benefits listed explains why BPM is resourceful to organization activity management. Therefore, author decided to understand other silos perception regarding information flow, and this is what customer service manager had to say: The (CSM1) noted that the main changes which information technology has impacted upon are information flow are:

CSM 1: 'I am so elated to mention about the gravity and quick response system in business because reporting platforms has facilitated generation of data through the aid of technology. This has really made presentation to contract managers very easy internally and externally because I am able to sight when target is made and reasons why targets are not met'. I will like to further explain that since we started using mix-telematic and skygistics in Tranex Logistics information gathering has moved effectively which makes it possible to analyze data. I then asked how information flow has led to business reports being utilized. Then the two contract managers (CM) spoke deeply about information flow and how it has increased strategy development please see statement below:

CM1 and CM2 stated that: 'I sincerely will like to express myself that since the application of mix-telematics in operations business intelligence has increased because reports strategy has improved. Also, I have been able to introduce the use of spot hire in some contracts. This ideology came into feasibility when some track and trace officers populated a report showing truck usage down time. 'He further explained that as soon as reports were received, I came up with a business plan through the assistance of business intelligence gathered on all fleets waiting in a certain area; next fleets are deployed as spot hire to small business enterprises. Once a round trip or shuttle trip had been completed and notification was received by the main contract that they were ready such fleets/drivers were instructed to proceed to their main loading area'.

CM3 and CM4 mentioned that: 'there have been some challenges with the spot hire process but through the aid of software applications the research and development team and business solutions team populate accurate time estimated for delivery of fleets in diversion have been more accurate thereby reducing down time'. CM4 added that 'through the aid of web analysis finance team are able to populate monthly accrual before month end billing and production of data has been more precise'. In this regards the fleet controllers (FC) expressed gratitude to the information technology manager for deploying software that have made business operations explicit and data production more precise.

Next, the author wanted to understand more around market intelligence, data accuracy and important/impact of information accuracy in business from the eyes of a FC; so next was the turn of the fleet managers they focused more on highlighting the benefits and concerns of information flow in in detailed to data and market intelligence:

FC1 said: 'I would like to note that I have concerns about missed and stolen deliveries which have not been totally eradicated from the process. I agree that flow of information and data accuracy has increased because clients do not dispute demurrage reports when presented to them by customer service team needs to be able to work effectively with reports populated

in regard to stolen and missed delivery. Through this process there is a connection between fleet managers and customers services this has been achievable purely through the aid of information flow. Which has highlighted the impact of data accuracy’.

FC2 said: ‘through the aid of information flow and accuracy I have been able to deduct repair and maintenance of fleet from total revenue made; which has enabled me sort by fleet number when I have a fleet number I can track the full history of my assets because total amount spent on repair, fuel, delay in transit is then subtracted from total revenue generated per fleet; this enables me document the total amount or revenue generated per driver, per truck and business’.

FC3 and FC4 added: ‘don’t forget to mention that through this report generated customer service team and tracking team are able to trace driver’s behaviors/performance and drivers are now sent to HR for disciplinary actions. But HR need to action training and disciplinary actions on drivers with high volume of damages so that other drivers realize the implication of missed delivery. The high spread of market intelligence is linked to technology application in businesses.

Fleet controller’s respondent seemed to be reaping the benefit of information flow because they have linked it to revenue, fleet management, building connection with various department, information sourcing and online traction management. Although their concerns related mostly with HR. Therefore, author decided to focus on other items which can be associated with information flow; The concern fleet managers mentioned had been related to lack of training and disciplinary actions not immediately actioned by HR. based on concern raised HR was able to provide the below explanation:

Ad1/HR manager highlighted that: I understand the importance of training and discipline but the main challenge I face is recruitment of new drivers if I discipline all my drivers who will drive the fleets? I am not disputing the importance of discipline of drivers but recruitment and checks of driver’s documentation is a process which information flow and visibility has not been able to address. Because I still rely on external third-party providers to check the driver’s documentation and wait for guarantors to respond to my email before I employ any driver; the entire recruitment process is still work in progress because it is not automated especially when I have to chase external respondent, I appreciate the impact of artificial intelligence in day to day operations either ways because it makes payment of employees smooth and easy to handle.

Ad1/HR 1 manager seems to opine that there is requirement to link HR processes into various software application; hopefully they will be able to delivery explicit services to clients.

Author was able to observe that all managers addressed various issues, but they were very professional in answering interview questions especially questions related to management of staff and customers data. Thus, researcher had to collate the opinion of subordinate in relation to information flow across various silos. The aim of gathering their perception is to ensure thorough investigation was completed because senior management team appeared to be genuinely concerned about profit and loss.

Next in line was the Finance manager (FM) whom I asked of her perception of information flow, this is her response from FM1:

‘I would like to state that daily business operations are key therefore the ability for data accuracy will guarantee proper waybills/manifest being generated correctly this means that delivery of shuttle and outbound services are billed correctly once information generated is accurate. She also stated that security of customer product is particularly important although goods in transit (GIT) are being insured. The finance manager focused mainly on security, billing, and proper documentation of items on waybills/manifest; noting that once all information captured are accurate billing process to clients will be less stressful and monies billed will be accurate.

Having listen to various department leads in regard to how information flow through the aid of information technology has increased performance in their teams and organization author perceives those operations and daily transaction have become more visible through the aid of technology. Also, their business process has become lean as fewer manual works are being performed, it will also be useful to mention that some participants agreed with most opinions.

Subordinate perception about information flow:

The in-depth semi structure interview sessions with the junior team were remarkably interesting and insightful because they run the day today business operations and they also spoke openly.

The Driver’s (D) had this to say about information flow:

D1 and D2 stated that: Through the aid of technology, they we are able to calculate their drivers and moto-mate incentive, but I have a problem with BPM with the use of ERP because I cannot work in some areas such as air freight movement such as the airport

D3 driver noted that: I enjoy using my phone as a luxury because I have access in and out of the international airport due to my job. my phone is set-up as a minicomputer whereby I

am able to track and trace cargo shipment and arrival time although I don't have to do anything the item automatically pop-up on my phone

Another driver D4 stated: I don't like the idea of technology being linked with information flow because tracking team can quickly access my location especially when I make a journey outside the agreed route they start calling me; not as if I am doing anything bad ooh I can decide to change my route because of traffic.

'I AM really concerned about on time delivery of personal information such as delay of loading report although the tracking team/fleet managers will normally call me when I stay too long in an outlet.

Next team of subordinate to share their opinion are the tracking team TT1

TT1 and TT2 state: 'If most drivers where technology inclined, they will be able to source for more information themselves in regard to delay in customer outlet. That's why some few enlightened drivers are sent to major location whereby the use of technology is essential such as the airport; but some of these drivers are high performance with outbound trips.

Then I asked if they had offered to train the drivers

Tracking officer two (TT2) responded 'the issue is that the drivers are always in transit and due to incentives, they rather be seen delivering than attending any forms of training' because they are aware that they cannot be easily replaced as some drivers go on very long-distance outbound trips.

Tracking officer one (TT1) noted that: I am satisfied with information flow because I am able to use technology to create reports, manage turnaround time, trace missing or failed delivery, and also assist staff in tracking freight' '

To valid the impact of technology both respondent drivers and tracking team opine that technology simplifies their day-to-day activities, however, some drivers appear not to be fully satisfied because they fill as though they are being watched.

Next in line are the three workshop repairers (WR) they opined the following below:

WR1 state: 'I certainly will say that workshop experience has since improved since the adoption of skygistics because items and trucks in workshop can be traced.

WR2 and WR3 stated: 'I like my job but the stressful aspect of it is that they have deployed a business process model whereby downtime is being charged to the workshop team

and I think this is not realistic because some delays are not manmade. Don't quote me wrong the flow of information and visibility is good but the business model of charges to workshop is not realistic.

WR3, I think this should be revisited, reviewed and benchmarked to other criteria, because this issue occurs with own fleet and not third-party transporters. I have not really felt the impact of information technology because it does not assist me in fixing fleets as the company opines that purchasing of robots to repair assets is not cost effective, although the software takes stock and counts the numbers of days. If they want to cut cost, they should review their overhead cost

The workshop team testified to information flow, revenue and tracing of all activities and workshop inventory in their process, but they still have a concern about charges which they presently incur.

I then asked a question about job security and this is what the Site admin had to say: The ST1 provided a simple response 'I like the way my work onsite can be done from a different location although we used to have several site administrators located in various regions however since the adoption of cloud computing my number of staff has reduced because site work and administrative duty can now be performed in through a single point of access'.

The site admin agrees that information flow through the aid of business process management software is great but concerns about job loss was raised

Warehouse junior manager WJM1 stated 'my job runs smoothly because business process management has improved as all units and silos have full visibility of their day-to-day activities'.

Warehouse Junior manager WJM2 states that 'warehouse activities are being controlled by RFID scanners; FIFO and LIFO freight is flagged automatically. 'I like the use of technology because it counts units processed and produced this really is useful to Tranex Logistics pharmaceutical and cold chain products because of spoilage. All warehouse respondent shared similar opinion because warehouse operations are very similar in nature.

The next on the list is the customer center operators who elaborated on how technology aids their day-to-day activities from their perception the below were collated:

CCO1: I am very elected because technology enables me source for customer information very easily especially third-party deliveries; I am also able to generate freight rate automatedly. The above provides explicable ideology of business process management which depicts that information flow plays a crucial role in BPM because it allows all silo to interact

and creates absolute information sharing as highlighted by the information technology manager and other silos did agree that their business partner has and turn-around time in business has evolved in a positive way. Next will be to assess how silo work in alignment to coordinate partnership working what other measures is applied into business operations. The overall analysis shows that information flow has been made possible because there is visibility within organization silo because what happens from point A is visible therefore various silo are able to perform independently and do not have to wait for information because information flow seamlessly across the organization. But some concerns such as job loss, automated facing of fleet and training of drivers is still an issue.

4.2.1.2: Partnership working in logistics

This aspect of business deals with collaboration in business because it demonstrates how BPM impact on partnership working (PW); this also relates to all organization silo activity from production to distribution of product and also assess how transformation and change affects business activity; This section will elaborate on business collaborate in distribution of goods and services.

First author wanted to understand the role of information technology in partnership working (collaboration).

The information technology manager had this to say IT1:

‘I am very proud of the positive transformation and change which has occurred in logistics partner of PW this change is evident from information sharing across all silos ranging from bottom-up to top-down approach of business which has enabled IT identify market niche; with the aid of IT I am able to focus on the need of external and internal users of my service, then connect to users and customers on different platforms linking this platforms to business decisions where and when required’. I would also like to inform you that R & D has improved that is research and development has really improved because I keep sourcing for fast and reliable ways of working.

Author wanted to understand other silo role in partnership working this is what the warehouse manager had this to say WM1:

WM1 has really enhanced service delivery through various means some of which I have observed are stock count-: this activity has really been easy since the development of business process management the transformation and change enjoyed is that staff can easily identify products which need to be shipped quickly and inform packaging team and production team of items that need replenishment. Having processed the above author wanted to

understand more around business sustainability that is long term vision management and return on investment and this was explained by the finance managers.

FM2 explained that PW supports warehouse activity, workshop activity and even float management in finance. Tranex Logistics hopes to become the leading logistics company in shares and keeping an open market/open account system will enable Tranex Logistics become investment of choice the positive involved in open book accounting is that the process is transparent to investors, when employees fed-back to their friends how seamless the process is this will enable Tranex Logistics become employer of choice and also provider of choice when more customers return for contract renewal.

The overall analysis of the above depicts that warehouse management has transformed through BPM and use of technology has even made it better as organization silos have full knowledge of their activities, they are able to plan ahead. It is also interesting to notice that finance module of business sustainability is through open book system of account. Now author perceives that this system of business sustainability might not be sustainable in the long term however, through the aid of BPM their clients are able to have visibility of their activities. In addition, research and development have also aided warehousing.

Subordinate perception about partnership working: The call center operator 2 (CCO2) had this to say:

Through PW coordinating my team activity has been a lot seamless as I can easily view reports and I have a single platform that provides business overview which enables me to provide suitable answers to queries raised by clients especially when there is a delay in shipment. The overall analysis of this theme sums up the importance of PW as it serves and enables all silos provide answers to queries which have been raised by clients, staff and stakeholders. PW is vital because it does allow time management. But there are still concerns around open book system of accounting.

4.2.1.3: Agility

The purpose of working agile is to ensure that all organization activities are well coordinated and performed in an effective and efficient process; it is also to ensure that there is thorough track and trace within logistics activity from start to finish of every task. Track and trace revolve around monitoring, reporting, analyzing, data accuracy and anything that has to do with information within logistics will need to be tracked and traced (Lie et al., 2013). For an organization to be considered to as practicing agile working in logistics this will also reflect in their practice of Go green (reduction of Co2 emission) as this forms a part of this change which will illustrate their ability to reduce Co2 emission from freight shipment /movement also proves that they are being agile to protecting the present environment for the future (Ramteernar 2014).

Author began by asking how superordinate in Tranex Logistics ensure that they are being agile, and this is what some of the managers have to say first information technology IT1 had this to say: ‘Agility in business requires me to fix all items to align with organization vision, so to achieve this I ensure all aspect that require IT support do not lack this. From track and trace of all fleet to track and trace of parcels to the last mile; I also ensure door to port freight are traceable.

Then I asked how often they encounter missing products and how do they resolve issues like this, fleet controller:

FC2 ‘had this to say: the current situation of the organization enables the team track parcels and freight to the last mile they are also able to measure success by the number of products which are successfully delivered the ability to successful track this enables the firm assess when there are any issues within their operations. This does not mean goods do get missing, but the situation is a lot better now’.

‘The main challenge with theft is that drivers do not want to admit they are aware therefore they do not like the idea of tracking of parcels, tracking of fleets and many forms of track and trace process is being avoided by some staff; this are some of the challenges I face when trying to work agile’.

Then I asked what happens when the devices fail and what causes the delay in delivery:

FC3 responded that the manual means of tracking is also available and this is coordinated based on the sort of shipment, time of shipment and location A to location B is applied when trying to track a freight. However, it is in very rear extreme cases whereby track and trace will not work automated; the automated process is a lot earlier because products are traced via waybill number, tracking devise such as RFID number etc. also note that must tracking devices are solar powered therefore this makes it very uneasy for drivers to disconnect them from reporting to the server.

In regard to delay in customer delivery the main issues are the lack of good infrastructure and lack of some basic amenities. When I say infrastructure, I mean good roads, security and a lot more. In recent time our drivers no longer move within certain hours as the potholes on the road might led to freight damage. This is not the only challenge we face as a team the problem of security has increased so drivers travel within minimal hours on the road which affects TAT.

Then I asked how agility improves cost and this is what the Finance Manager FM2 had to say:

FM2 'I am able to manage fleet and ensure that this is done in an agile way because when an accrual is not meant I am independently able to detect why because the BPM process is agile and are interlinked. In finance time is of essence therefore, all down time spent are being explained by customer services and administrative team thereby providing finance the link to reduction in freight shipment which provides explanation to why target is not met. The work does not stop there; finance team populates this information and strategies as to how best to improve and ensure agility is achieved are being bench marked by the contract managers all of this are performed in accordance with the contract service level agreement therefore the contract managers are involved in the process. Sustaining agility in business operations is key therefore, all silos play their role in accordance with key performance indicators and monthly performance indicators'.

The notion perceived from the superordinate is as below:

Business sustainability relies on all silos playing their role also the ability to be proactive will yield positive mark in business in relation to reduction of theft and risk assessment before commencing any contract.

Subordinate perception about Agility:

The main contributors to this item were: - site administrator, warehouse junior management, and tracking officers.

I asked a question and wanted to understand if the subordinates agree that the process of track and trace of delivery has been effective, and this is what the site administrator (SA1) had to say:

SA1 I will like to reiterate BPM has reduced jobs but has made the process agile because I can track and trace all operations this enables me support the team from my location and I am able to provide report to the firm as to how freight has been shipped and also engage with clients who have queries as to why they are not able to receive their freight. I serve as an integral part between workshop and fleet controllers.

This has made track and trace very visible as I SA1 is able to respond to quires raised by clients.

The tracking team officers were interested in the same question as above and they had this to say:

TT 1: I ensure fleet management is well coordinated by making sure all fleet position is monitored per second; thus when there is any form of fleet in Tranex Logistics the third STEP is to install a tracking devise which is used in monitoring the asset. When a new business is own the tracking, team is very agile and ensure that the exact customer location is mapped correctly this is done is order to avoid wrong source of information.

TT2 added that mapping of location on the tracker enables the team to view all fleet activities. I am very proactive and work within proximity once a new business is own the process therefore one of the steps is to map all locations and next step is understand the service level agreement (SLA). Agility involves thorough understanding of business this will enable my team plan properly as failing to plan is planning to fail.

The software is also applied in paying drivers their incentive based on target met, which most drivers really kick against this has continuously posed as a threat in this organization. I now wonder if payment of incentive should be done using software. The ability of firms to track and trace their freight enables them assert product safety within BPM; also, mapping places a very important role in working agile. The overall analysis of this theme shows that adopting an agile process in business requires firm to act more proactive to all issues this will enable them to resolve any form of challenge before they occur, or best fit solutions are sort after when there is any problem within freight and operations management. Agility revolves around developing proactive system of business which will easy fleet management, track and trace and populate theft control measures in an organization. The challenges faced with adopting BPM has also been highlighted here as FC noted that adopting of new process is always a problem as some staff do not want to welcome this change reasons why will be evaluated in research findings.

Another interesting item is around how they map customers outlet and map street's various locations in other to be able to manage their fleet effectively possess that they are being proactive in business process management. Risk management is of essence when populating agile process of business management because the ability of producing agile solutions means that Tranex Logistics is managing risk ahead of occurrence. But the downside still revolves around theft as proposed manual method of tracking might not be 100% effective.

4.2.1.4: Customer /Service Excellence

The essence of customer service is to assert that excellence is simply delivered in operations to both internal and external customers (Lei et al., 2013). Service excellence will highlight service management and customer loyalty to their brand. Next interviewer, asked various silos how business process management facilities service excellence:

Customer service/call center lead had this to say:

CS1 said this: I ensure that I monitor freight delivery to in-bound and out-bound service users that way when there is any form of complaint or compliment, I work in-line with operation excellence to enact that such a complain does not occur in future and teams required to take action are well informed. If it's a compliment it is recognized and applauded. When a certain complain keeps occurring it is taken up and best solutions are provided based on management advise and best fit solution. By adopting this method, I have been able to serve customers and maintain brand standard. They also ensure that appreciation and strategic plaining are key; what they do is produce monthly reports to clients and hold a monthly meeting explaining to them how their business has been able to ensure that we fully meet target and when there is any problem such as low turn-over what I do is to explain to client's strategies which have been kept in place to improve service excellence. With the aid of business process management and ERP systems they can monitor customer's experience.

CS1 I can link all market platforms into various business units as social media now plays a role in business it is important that IT finds a way to develop business process to filter into all platforms. In my role through to deliver customer excellence I have device a means of linking information to support service excellence and ensure that excellence is simply delivered to users.

The fleet controller FC3 manager quickly joined in and added this:

I will like to add that this method of filtering information has enabled me to build a strong form of partnership working across customers because I am able to build a network communication with customers and also enhance service delivery.

The next in line is the contract manager CM2 who had this to say:

'Through the aid of BPM I have IT assisted in building a business process that has aided in building brand loyalty between customers and Tranex Logistics this is in line with the long term vision of being provider of choice, investor of choice and employer of choice so my role enables me to propose service terms which reflect that I am considering the interest of their organization and that I am willing to ensure that excellence is delivered and not only profit making is recognized'.

CM1 added 'through brand loyalty I have seen firms refer their sister company to Tranex Logistics this is because we have created a platform which enables them keep an eye on their business directly. Therefore, business strategy is built based on long term vision'.

Subordinate

Author wanted a clear perception of subordinate and asked them some questions and the most interesting in line with customer service satisfaction came from the drivers who had this to say: -

D1 ‘I can say that customer excellence has been delivered because I have customers whom I keep dispatching products to for over five years. I now relate with them properly and they even go as far as always recommending me for employee of the month because of the way I present their products and the passion I have when I am on their site’.

The Customer center operator CCO2 had this to say:

‘Through the aid of adequate process management, I collect feedback around service delivery is collated and fed back to management team, who then make decisions which are populated to suit customers and service delivery. Doubt this would have been possible and in quick turnaround. I can sight an example of a customer outlet which the tracking team perceived had issues with space once freight is being delivered the tracker offices alert me and I follow-up with the customer to ensure that there is space in their outlet, and this has enabled them to reduce their demurrage. I am certain that more customers will keep returning to Tranex Logistics because we always consider their interest’.

Finally, CCO1 had this to say:

‘I support customer service by building an interface across all of their platforms; also, I ensure that they have all the tools required to perform their task. The means and method applied in supporting them is large and very flexible so that they can deliver excellence in their day-to-day activity some of these tools are easy means of communication, transfer of data, easy method of data analysis, data accuracy is established, and on-time reporting platforms have been developed’.

The overall analysis from this theme shows that customer excellence is obtainable if employees can follow-up on pending matters through various systems.

4.2.1.5: Revenue

The reality remain that business cannot function without revenue (Smith 2003); therefore, in business revenue provides business sustainability in the long-term vision of a business. The opinion of the senior management team around revenue generation was fierce as they linked revenue to all logistics activities from visibility to collaboration to agility and go green which involves reduction of CO2 emission in the environment; they linked most of these

criteria to business process improvement and transformation and change. The team of senior managers portrayed revenue as the core hub of logistics activities; sessions below depict response received from interview: The interviewer asked the information technology (IT) manager how technology has facilitated revenue this is what he had to say:

‘I am pleased to inform you that over the years with the aid of technology the use of flue consuming assets has reduced because some assets are solar energy and enabled to protect the present environment for the future and this fleets have been cost effective since they are solar powered. However, the organization has not agreed to power all assets with this method’. The above response denotes that Tranex Logistics is considering their return on investment if they have to invest in solar powered fleets; although it is perceived that they are currently making profit due to the response of their IT manager, the hesitance of the organization is still to be queried.

Next, author asked the finance managers their perception around revenue:

FM1 had this to say, ‘I personally agree that technology has supported our daily processes because the number of staff required in the finance team has reduced due to the support IT has provided the finance processes and daily operations; the aspect of accrual is being managed with the aid of Oracle software I can see what is being shipped and where they are shipped too’. I have been able to reduce cost; also cost cutting has been experienced in all silos which I am elated about because asset usage is being maximized this is why I have been able to buy new asset which I deploy to new businesses won.

FM2: ‘focused mainly on solar energy fleet system which has been deployed to some aspect of the business; I feel that Tranex Logistics is not yet prepared for such change because the previous fleets acquired have not yielded their return on investment therefore, this idea should be kept on hold until account reflects return on investment; the monitoring is currently being managed by ERP software application called oracle’.

The FM1 and FM2 were able to establish that business activity is currently being managed through the aid of a software call; FM1 expressed gratitude to the current framework for being able to reduce the number of staff required to complete their task; FM1 added that they can monitor their assets and are able to denote when an asset has not produced return on investment made. It appears that the finance team will under-perform if they must perform their duties manually.

Next the contract managers CM in their interview session had this to say about revenue:

CM1 shared this: 'I really wonder how business will survive without revenue because it forms a huge aspect of logistics activities; day to day operations relies on cash flow to run daily operations in Tranex Logistics revenue generated is being circulated into other businesses; thus, second contract manager added that it is the responsibility of the contract manager to source for new contract as the signify business expansion.

CM2 States: 'I really like meeting new clients and winning new business because it is certain that the business is expanding and sustainable. Without winning of new contracts and sustaining all contracts to ensure customer return else revenue will drop and Tranex Logistics will not be able to achieve contract management and business sustainability; however, this will not be obtainable if various silo activity is not performed seamlessly; due to seamless operation flow this has increased the chances of business sustainability.

CM2 highlights that without sustaining current businesses and winning new businesses Tranex Logistics might not be able to sustain their business; also, business sustainability has been possible because various silo performs business operations seamlessly and activities are being monitored.

Contract Manager 3 and 4: had this to say:

CM3/CM4 Shared this: 'We focus on fleet maximization by working closely with operations team because failure to assert the continuous utilization of fleet will lead to loss in revenue that is why I ensure I am either making money from demurrage or freight rate.

I got inquisitive and wanted to understand how they incorporate demurrage into their charges, and this is what CM4 had to say:

CM4 said: 'when I prepare a business solution with business development team, I ensure that items such as demurrage is not forgotten in client contract because they enable me make revenue at all circles in some contracts and not all contracts because some contracts are agreed as spot hire; the term spot hire is applied to on-the-go delivery to clients. The work does not end with signing of a contract but the ability to monitor, track and trace all demurrage is a task on its know, that is why ERP framework is being adopted with the aid of skygistics and mix-telematics I am able to monitor demurrage cost and ensure all cost are being charged accurately. Information flow and data accuracy plays a key determinate in charging of demurrage.

CM3 said: There are different types of means of generating revenue what I do is assess the scope of the business. When it has to do with a warehouse the contract is designed to

incorporate maybe a 50/50 cost in damages incurred in a warehouse that is why when product get damaged or spoiled this is termed tolerance level; this term is essential in contract agreement because it enables businesses to share loss and damages cost which are within the agreed tolerance level.

There are other means in making revenue when there is a loss, damage, breakage, in freight shipment the drivers are charged a certain percentage of tolerance level I agree with clients this percentage is agreed to ensure that Tranex Logistics does not bear the burden of all losses incurred in damages. When we deliver to clients in organizations tolerance level is applied in some of our businesses even when we deliver as third party, I ensure that tolerance is applied so when drivers steal, or products get missing and damaged this are the measures applied or kept in place to ascertain loss and damage is shared.

This gives me as a contract manager a breather because I am certain that we can close the gap. The only challenge is that in some cases I have to prove that damage incurred is within tolerance and the only way to achieve this is through the aid of applying the right software which will be used in monitoring business activities. You might wonder why insurance cannot bear the cost this implies increase in premium so it's better to work with tolerance level in a contract agreement, however when there is an accident I this has nothing to do with the clients, but I will deal directly with insurance and my manifest/waybill serves as a proof of total number of shipments.

Thus, the contract manager has highlighted that to complete his task it all boils down to the ability to monitor tolerance with the appropriate framework this will facilitate customer excellence because when clients are able to trust the quality of reports received, they will query the report less thus applying the appropriate business process management software will guarantee payment of charges billed. Organization still depends on ERP software to produce accurate information in order to enable them claim back from insurance company. This goes a long way to proof that adopting the appropriate framework goes a long way in business process sustainability. He added that revenue generation relies on data accuracy which also relies on ERP software generating the appropriate business solutions and analysis.

Tranex Logistics (2020) states that they have a variety of contracts and major clients some of which are logistics services, cold chain/Biopharm services, mailroom management, Tranex Logistics motorcycle, express delivery, haulage services; some of their client's range within e-commerce, oil and gas, education, banking, public service. The overall analysis from this theme shows that logistics firms are able to generate data accuracy and business analysis is flexible as all transactions are well accounted for and process stability aids

The warehouse managers WM 1 agreed and said:

WM1 said: I agree with the theories explained and I would like to tell you that my revenue generation theory is based on volume of production and the ability to meet target which are categorized into: - far exceed target, fully meet or below target; these targets terms are scheduled based on service level agreement (SLA); I am adding this information because this are the main item related with warehouse management. The tons produced and ability to meet turn-around time and other items determined revenue generated from warehouse agreement. I get the opportunity to review the revenue aspect of any contract to ensure that solution provided by business solutions team is deliverable.

In regard, to warehouse and revenue generated I am convinced that once I can work in-line with FIFO and LIFO which means first in first out or last in first out product category I am certain that as third-party warehouse managers I will not incur cost on myself.

Subordinate perception about Revenue:

When the Interviewer asked the drivers about revenue, they had this to say:

D1: 'I am more concerned about my incentives because when I make an outbound trip and the organization is able to meet their target on far exceed, I receive a certain percentage of bonus/incentive, but the problem is that I get charged for losses, damages or theft product. I am contributing to revenue by meeting target, but my bonus might not get paid if my damages exceed the tolerance level'.

Author got interested and wanted to understand what D1 meant by not getting paid; this is what D2 had to say:

'As drivers you will not get your bonus if you damage too many products on your way to a customer outlet; there is a certain percentage of loss permitted due to considerations such as bad roads, traffic, and high incident which are beyond drivers' control'.

The question which now boils in my heart as an author is how best Tranex Logistics tracks this damage based on response received from drivers. Most subordinate where not fascinated to discuss about revenue because they assumed, they had a perception that once they are able to supply goods and services with agreed turnaround time, they had increased revenue.

The tracking team had this to say:

TT1 officer said: I contribute to revenue generated because I ensure freight are shipped safely and securely with the aid of ERP, I am able to monitor all shipment, and this has really improved our business process management.

Then I got inquisitive and asked if they have ever had a full truck load missing or parcel missing; TT2 responded:

TT2 said: I have experienced such but with the aid of soundtrack and trace software I was able to locate the truck and goods were retrieved securely.

The workshop repair WR1 had this to say about revenue:

WR1: I ensure cost of spare parts are reviewed and best product with affordable prices are sourced for; that is how the workshop team contributes to revenue by cutting cost and saving on products bought. I source for the best product, but I ensure that I source for it with the best price and ensure they will be suitable and motorable with our ERP software.

WR2 said: I reduce fleet down-time in the workshop so fleets can go about making money; the more fleets the more revenue so turnaround time in repairs and less delays of assets increases revenue. By doing this the business has process and statics of trucks which are being repaired are kept accurately with the aid of ERP; this has also facilitated the business process management in the work efficiently.

This session of interview was interesting as most subordinate share how they contribute to revenue; from the above interviewer is able to relate the importance of ERP in managing daily business processes. Secondly, the application of ERP in reducing cost has also reflected in the above whereby workshop repairer WR2 and WR1 gave insight to how they manage their processes with ERP and also ensure that there is no loss but value for money. They further implied that to get value for money spent they will have to monitor all activities, and this can be achieved through the aid of technology they are also able to reduce cost and maximize the use of their assets/fleet in delivering service excellence to customers by avoiding delay in service process.

The business framework applied in process management determines the ability of a firm to sustain their business; thus, the application of ERP has enabled Tranex Logistics build the key determinates in their operations because they are able to develop strategic business ideas which will enable them to protect the current state of their organization to a better tomorrow. The overall responses show that revenue and information flow are two key areas employees are most interested.

4.3: Chapter Summary

This chapter has provided analysis based on the response from total of twenty nine participants fifteen (15) superordinate and fourteen subordinate (14), a total of twenty five of

participant provided responses to interview question titled information flow; four participants provided responses to partnership way of working; seven participant provided response to agile working; five participant provided response to customer service excellence and a total of twelve participant provided response to revenue from their response it shows that flow of information and revenue areas of interest. Also note that core themes have been developed based of feedback from participant. First section is response received information flow then partnership working, agility, customer service and revenue.

Chapter 5: Discussions on Findings

5.0: Preamble

This chapter will elaborate on research findings which will be linked to the aims and objective of this thesis; the ability to correlate this will enable author link findings to relevant literature related to logistics and business process management; in chapter three author stated that the interpretivism philosophy is best fit for purpose because it will enable researcher explain data analyses in coherence to research findings. The research was conducted within the logistics sector with the aim to assess how BPM has facilitated business operations; the exceptional, interesting and phenomenal aspect of this research is that this study has been able to highlight areas whereby Tranex Logistics actively reduced freight and operation cost through the application of an effective business process; also research has been able to assess areas which will enable Tranex Logistics perform activities which are value for money oriented which depicts that revenue plays a crucial role in business sustainability; finally this thesis will be able to assert that BPM can lead to organizational growth and development; business sustainability and can enable an organization become a provider of choice within their sector. In this thesis author set out to investigate three major objectives which are the role/importance of BPM in logistics, challenges faced when adopting BPM and assess if technology has facilitated business activities and also ascertain some other factors which can pose as a threat in logistics some of these factors are political, environment, social, technology, legal and many other elements. Finally, researcher fascinating finding around the role of revenue in business will be thoroughly discussed in sections below because this will be included into the role and aim of BPM in business.

To provide insight into research finding author will like to reiterate a little on how research data was collected/analyzed. Empirical data was collected through the application of bottom-up to top- down approach this means that the subordinate represent the bottom-up because they are able to identify the key aspect of business operations because they are actively involved in running day to day activities while the top-down have been represented by the superordinate because as they are more interested in making business decisions they will be able to provide insights as to how business process flows within Tranex Logistics company. To achieve this structured interview was conducted among twenty-nine employees of which 15 represent the superordinate and 14 participants represent subordinate group.

To achieve the purpose of this chapter which revolves mainly around research findings author will build an interlink between literature review (secondary data), participants view, aim/objective of thesis and significance of this study will be developed; a synergy and

triangulation will be built across all items in arriving at research findings. The exceptional aspect of this research can be identified in the exploratory nature which builds a synergy between social background of business process and links this to the social world of business process management in logistics; being able to build this link will enable researcher seamlessly to arrive at research findings. Coding of core themes and adopted themes provides insight into the social environmental and organization management of Tranex Logistics and also explains business process management. The exceptional contribution of this research is that it will enable Tranex Logistics identify areas whereby they can apply ERP to manage their day-to-day activities and it will help them design their business processes to equate value for money spent; this will be explained through the aid of a business process management framework which will be designed in chapter six, the focus of the framework will be to interlink processes by addressing issues which have been listed by interview participants. The purpose of building this bridge is to ensure all aspect of BPM have been reviewed and research aim, and objectives are being tailored into all frameworks.

5.0: Objective One: To identify Impact of information flow and identify challenges involved with the adoption of BPM in various logistics organizational silos in relation to key ERP elements such as agility; collaboration visibility and assess the impact of information flow:

The aim of this objective is to highlight challenges which various organizational silos will encounter while trying to adopt proposed business process management technics, also to highlight issues they will encounter while trying to change their processes within various silos and challenges they still face after adopting ERP as their business process management tool; research will also assess how this impact on information flow and service excellence in logistics. This objective aims to also, identify the challenges faced by logistics companies in relation to transportation of freight and evaluate the impact of this challenges on their business and day-to-day operation; the use of literature will be applied in assessing this objective.

The impact of information flow in logistics activity plays an essential role in accomplishing daily logistics task as it enables customer satisfaction (Zhang et al., 2005). Giangreco and Peccei (2007) opines that information flow leads to integration in logistics activity and departments cooperation in long term organization vision; they further explained that the flow of information leads to communication and interdepartmental interaction with positive increase in composite multi-dimension process management. This means that various managers can interrelate and share their views independently and business decisions can be developed.

This relates to participant CM4 response in relation to information flow:

CM4 added that 'through the aid of web analysis finance team are able to populate monthly accrual before month end billing and production of data has been more precise. The above states affirm that flow of information from one department to another has been more precise and financial billings are being processed seamlessly; this recognition from teams shows that ERP applied in business process management has provided a multi-dimension in process management. Liu et al., (2013) notes that information flow has great impact on business performance because lack of information might lead to down time in service delivery, impact production, however, proper flow of information will lead to increase in production and positive impact on operation performance. Leuschner and Charvet (2013) agrees that information flow facilitates operation process but also enables on time delivery of information.

This relates to participant CS1 response:

CS1: I am very elected because technology enables me source for customer information very easily especially third-party deliveries; I am also able to generate freight rate automated. Some organizations have applied various BPM framework in managing all business operations and day-to-day activity their ability to adopt suitable BPM model has enabled them to engage in fleet maximization, information flow and many other benefits however, there are some challenges faced by logistics companies when adopting a model. Floyd and Lane (2000) stated that they conducted an empirical research on BPM which has facilitated sufficient cash flow but there are still some challenge their organization faced when adopting BPM and after the application of BPM in their organization some staff were resistant to change because they were afraid that jobs will be lost; they further explained that other staff feared that they will not be able to adapt to using the new software or adapt to the changes BPM will bring to their organization. Kim (2017) agrees that some employees resist the adoption of BPM because they tend to fear that their jobs are no longer secure because this new method of working might make them become less relevant within their organization. They further noted that some employees are not being resistant to change but fear that they might not be able to cope with the new method of working. Thus, this means that some employees are not being resistant to change but fear that they might not be able to cope with the new method of working while others are being resistant because they fear that they might become irrelevant, and the new machines will easily replace their job roles.

This relates to the case of Tranex Logistics that adopted ERP business management framework in managing their operations not withstanding they have experienced similar challenges and ST1 highlighted that some staff did lose their jobs as stated below:

The ST1 provided a simple response 'I like the way my work onsite can be done from a different location although we used to have several site administrators located in various regions however since the adoption of cloud computing my number of staff has reduced because site work and administrative duty can now be performed in through a single point of access'. This shows that staff are resistant to change because they fear that their jobs are no longer secure; SA1 admits that improved BPM through the aid of ERP which ensures that they enjoy visibility in business as all admin duties can be performed from one location but the came at a cost of three other employee's loss of job. Another challenge raised is about ability to adapt to change this are some of the concerns raised by Tranex Logistics D1 and D2:

But I have a problem with BPM because I cannot work in some areas such as air freight movement such as the airport. Smith (2003) highlighted a challenge around independent working as some employees are used to completing task at their own time therefore, they fear that the adoption of ERP software will mean that they are being micro-managed; also, this means that they will have to complete task within expected timeframe. Zhang et al., (2005) conducted empirical research which was theoretical, and this research highlighted that some employees become autonomous and thus the feeling of being watched makes them feel very uncomfortable. Leu et al., (2017) agrees that some organizations do not have adequate means of controlling of watching their staff.

Based on research interview on how visibility has aided BPM thrive in Tranex Logistics D4 was very worried that they no longer can make decisions as to what route they can ride as shown below:

I don't like the idea of technology being linked with information flow because tracking team can quickly access my location especially when I make a journey outside the agreed route, they start calling me; not as if I am doing anything bad ooh or I can decide to change my route because of traffic. Landon and Laudon (2014) opine that some challenges still exist after the implementation of ERP which is been applied to make business process management more efficient and effective. They noted that some problems limit the business operations as some employees fail to adapt to the new process organizations find a way of sustaining the business by applying other strategies. Lui et al., (2016) agrees that some challenges mean that business might experience limitations in operations. Hultman (1995) adds that it is important for change implementers to sense when there is resistance to change by employees and diagnose the cause behind the resistance; this will assist firms in planning ahead; it is also important to understand the state of mind of individuals before implementing change in business process. This can be seen as from TT1 response during interview section that due to challenge faced they now have found a way by avoiding some drivers from visiting centre clients due to the use of usage of ERP. The challenge with usage of ERP software encountered by some drivers has limited the

area which they are being sent to this has been highlighted by TT1 and TT2 who confirm that there has been some limitation due to usage of software; seen TT1 and TT2 below:

TT1 and TT2 state: 'If most drivers were technology inclined, they will be able to source for more information themselves in regard to delay in customer outlet. That's why some few enlightened drivers are sent to major location whereby the use of technology is essential such as the airport; but some of these drivers are high performance with outbound trips. The limitation experienced now implies that business activities will not run at a pace in which it is expected to function as some drivers will not be sent to all locations however, this does not mean that these drivers are not delivering their duties but what it means is that the business will not be as flexible as it should as some drivers are better-off doing long haulage delivery. While some of the drivers cannot function as outbound drivers, according to Kotter and Schlesinger, (2008) such drivers should be sent for training based on change management and continuous improvement

Kegan & Lahey (2001) notes that some employees resist change due to clear psychological dynamic which means that employees show concern due to genuine competing commitment issues as they are so used to seeing things in a way and facing this change, they tend to sense this change as rival. Change in a business process can be perceived to be ubiquitous thus the ability to identify and provide support when adopting automated business process management will enable adaption phase of change.

Floyd and Lane (2000) suggest that understanding the format of transition phenomena can assist employees in understanding the purpose for change; they further suggested that organizations should try and understand the theory of transition phenomena which means that firms will gradually implement the change when employee understand the purpose of change. Smith (2003) argue that time could be of essence thus, some firms might not have the patience of to wait for various silos to accept the change therefore they noted that there is no clear solution to managing employee's resistance to change but training and communication can assist. Kotter and Schlesinger (2008) suggested that there are strategies which can be applied when dealing with employee resistance to change some of which have been listed in figure 5.1 below:

Approach	Commonly used in situations	Advantages	Drawbacks
Education + communication	Where there is a lack of information or inaccurate information and analysis.	Once persuaded, people will often help with the implementation of the change.	Can be very time consuming if lots of people are involved.
Participation + involvement	Where the initiators do not have all the information they need to design the change, and where others have considerable power to resist.	People who participate will be committed to implementing change, and any relevant information they have will be integrated into the change plan.	Can be very time consuming if participators design an inappropriate change.
Facilitation + support	Where people are resisting because of adjustment problems.	No other approach works as well with adjustment problems.	Can be time consuming, expensive, and still fail.
Negotiation + agreement	Where someone or some group will clearly lose out in a change, and where that group has considerable power to resist.	Sometimes it is a relatively easy way to avoid major resistance.	Can be too expensive in many cases if it alerts others to negotiate for compliance.
Manipulation + co-optation	Where other tactics will not work or are too expensive.	It can be a relatively quick and inexpensive solution to resistance problems.	Can lead to future problems if people feel manipulated.
Explicit + implicit coercion	Where speed is essential, and the change initiators possess considerable power.	It is speedy and can overcome any kind of resistance.	Can be risky if it leaves people mad at the initiators.

Figure 5.1: Methods of dealing with resistance to change (Kotter and Schlesinger, 2008)

The above figure 1 suggests how organization silo can manage change and they have noted that education and communication will enable staff build their confidence they have also suggested that employees should be involved in the process of change. Koopman and Seymour (2020) elaborated on the necessity of aligning business process strategy into organization structure, governance and workflow which will eventually aid BPM work system.

Second challenge being faced by firms before or after adopting a standardised BPM through the aid of ERP in finance this implies that the ability of a firm to finance and continually finance transformation adopted or not abandoning the process due to lack of funds (Dumas et al., 2018). Laudon and Trever (2020) agree that finance facilitates process transformation and sustainability therefore finance team should be able to estimate cost.

This relates to participant FM2 response as to return on investment being achieved before new fleets can be purchased:

I feel that Tranex Logistics is not yet prepared for such change because the previous fleets acquired have not yielded their return on investment therefore, this idea should be kept

on hold until account reflects return on investment; the monitoring is currently being managed by ERP software application called oracle.

FM2 states that their organization might not be prepared for such change because return on investment from current assets have not been attained, therefore if the change had occurred the probability of completing the transformation might not be feasible.

The third challenge some organization face in business logistics business process management is the ability to sustain the tool of process management adopted. This means that one aspect is to adopt ERP in a business to manage business processes and the ability to sustain the implementation poses as a threat to the business due to some key factors such as finance, adaptation, organization long/short term vision, reinventing the wheel and change of client base (Dumas et al., 2013). The ability to plan ahead of such challenge is the suitable way to finding a resolution, however, this challenge has not been evidenced by participant therefore author will propose some recommendation for this challenge.

The fourth challenge is around meeting demand and supply as there is a constant change in consumer wants and needs therefore firms will have to keep updating their digitalized ERP software to meet-up with demand and supply; this can also impact technology software which will be applied in managing the business. This is being mentioned by a participant that customers location and other geographical needs change therefore, firm will need to re-map an area more than once which means that delivery officers will have to familiarize themselves with new standard operation procedure and many other forms of change on delivery documentation; also government laws change this also impacts on firms method of operations as they will need to develop their BPM to suit the current standard being set by the law.

5.1 Objective Two: To examine the importance of BPM in Improved logistics process and benefits of adopting ERP BPM element in business activity/operations:

In this section importance and benefits associated with applying various BPM will be evaluated in alignment with ERP as BPM tool used in Tranex Logistics. The key determinant of ERP tool are visibility, collaboration, and agility in business process. Leuschner (2013) reports that some organizations stand the opportunity to gain more than others when ERP is being aligned into their business process; they further explained that firms also gain data accuracy, big data analytics, centralised reporting and many more benefits. Laudon and Laudon (2014) states that management of firms require digitalization in various process management stages because this will enable firm achieve partnership working and obtain visible transaction performed daily.

The first importance of BPM is that it improves visibility in logistics activity; this benefits firms because operations activity is performed in a seamless manner which then leads to coherence in operation, information and data accuracy is achieved within business operation (Turban et al., 2011). Laudon and Traver (2018) depicts that business technology is important in growth and development of an organization because it aids time management in operations, decision making, business intelligence and big data analysis. This relates to the case of Tranex Logistics that adopted ERP business management framework in managing their business process as highlighted by FM1 that business decision and business intelligence using dashboards and other reporting platforms:

“FM1 I would like to state that daily business operations is key therefore the ability for data accuracy will guarantee proper waybills/manifest being generated correctly that is delivery of shuttle and outbound services are billed correctly once information generated is accurate. She also stated that security of customer product is particularly important although goods in transit (GIT) are being insured”. FM focused mainly on security, billing, and proper documentation of items on waybills/manifest; noting that once all information captured are accurate billing process to clients will be less stressful and monies billed will be accurate. This statement asserts that through the aid of ERP Tranex Logistics is able to see all transactions and balance sheets are being processed within logical and expected time frame.

Second importance of BPM is that it assesses business sustainability and this benefits firms because they are able to propose long term business sustainability plan. Cervellon et al., (2015) explains that big data analytics has benefited firms because they are able to view daily transactions due to increased visibility. Koopman and Seymour (2020) argue that IT business system integration facilitates business sustainability because these integrations enable firms to achieve long term operations goals; Kim (2017) opine that BPM benefits from business sustainability because more forms of commerce have emerged some of which are social commerce (s-commerce), mobile commerce (m-commerce) and other forms of electronic commerce (e-commerce). Laudon and Trever (2020) highlight other factors which enhances business sustainability are network analytics, web analytics and business analytics. BPM benefits businesses in assessing their sustainability model; factors which aid this process are various forms of commerce, system integration and various business analytics model. This relates to the case of Tranex Logistics that adopted ERP business management framework in managing their operations and have applied similar business sustainability models and CM2 stated below.

CM2 I really like meeting new clients and winning new business because it is certain that the business is expanding and sustainable. Without winning of new contracts and sustaining

all contracts to ensure customer return else revenue will drop and Tranex Logistics will not be able to achieve contract management and business sustainability; however, this will not be obtainable if various silo activity is not performed seamlessly; due to seamless operation flow this has increased the chances of business sustainability.

CM2 highlights that without sustaining current businesses and winning new businesses Tranex Logistics might not be able to sustain their business; also, business sustainability has been possible because various silo performs business operations seamlessly and activities are being monitored. Therefore, the ability to win new businesses and sustain all other contract is dependent on seamless operation flow which is being facilitated through commerce, business decision made and various analytics such as web analytics, business analytics and networking.

Third importance of BPM is that it facilitates partnership working within firms and this benefits firms because they can develop collaborative operation process management through ERP and the benefit from this is that employees are able to coordinate daily internal and external task. Chen et al., (2014) states that BPM increases partnership working among organization silo and aids firms in controlling environmental factors which could affect their business activities. Golgeci et al., (2018) depicts that demand and supply is an essential factor to partnership working this factor leads to all aspects of firm into various silos such as R and D, HR, design and development, customer management, production and many other silos rely on each other to achieve their goals. Morali & Searcy (2013) argue that lack of collaboration could lead to deficiency in visibility, agility, and customer relationship management. Therefore, collaboration is the core hub of a firm because it ensures that there is no deficiency in operations and aids partnership working across all silos.

This relates to the case of Tranex Logistics that adopted ERP business management framework in managing partnership working and FM2 highlighted that PW aids smooth operations as stated below:

PW supports warehouse activity, workshop activity and even float management in finance. Tranex Logistics hopes to become the leading logistics company in shares and keeping and open market/open account system will enable Tranex Logistics become investment of choice the positive involved in open book accounting is that the process is transparent to investors, when employees fed-back to their friends how seamless the process is this will enable Tranex Logistics become employer of choice an also provider of choice when more customers return for contract renewal. The above reveals how PW supports daily operations internally and externally this shows that BPM through the aid of ERP has increased the ability of firms to work coherently and also develop an algorithm that aids the process.

Fourth importance of BPM is that it leads to proactive logistics process and this benefits logistics activity as it leads to agile operative system using ERP. Also, proactive logistics process benefits process management because logistics activity and planners are proactive to assert internal and external risk through the aid of ERP application risk that can affect users are being identified. This ensures services excellence because firms. Sohal and Praojogo, (2013) states that a firm's ability to adopting ERP will enable them to be proactive in their process management and this will enable them assess risk which could lead to down-time; in logistics it is vital to assess risk because identification of risk factors ensures smooth operations. Zheng et al., (2015) opine that proactiveness in logistics is achievable through functional business process development. White et al., (2015) argue that proactive logistics is obtainable but the ability to ensure track and trace in logistics will evidence proactiveness. Therefore, the ability of a firm adoption of ERP will benefit their business process in being proactive and enhance track and trace.

This relates to the case of Tranex Logistics explaining their experience with agility; this was highlighted by FC2 that business risk assessment and track/trace has improved as stated below:

'The current situation of the organization enables the team track parcels and freight to the last mile they are also able to measure success by the number of products which are successfully delivered the ability to successful track this enables the firm assess when there are any issues within their operations. This does not mean goods do get missing, but the situation is a lot better now'. This shows that with the aid and assistance of ERP their firm has been able work more efficiently because they are able to track and trace all silo activities internally and externally.

Fifth importance of BPM is that it enhances decision, and this benefits firm's decision-making BPM enhances business decision made using database which enhances customer relationship management and ensures service excellence. Laudon and Laudon (2014) states that data query is obtainable as firms perform transaction through a digitalized database system; this process enables them monitor sales trend and analysis of trends are applied in making business decisions. Cervellon et al., (2015) agrees that data analysis benefitted business performance and enabled firms develop multi channels of business and data management. Fernie and Grants (2019) demonstrated that quick response and service efficiency leads to better decision making in business because silo are quick to responding to users internally and externally therefore decision made is rapid as items which needs to be understood have been addressed. They further stated that through the assistance of ERP firms are able to exploit long tail logistics, e/m/s commerce and manage their CSR. McKinnon (2015) emphasised that decision making leads to

efficient customer response and adequate collaboration, planning, forecasting and replenishment in logistics can be ascertained. Thus, decision making in logistics has been more efficient with the initiation of ERP in applied in managing business process and this has also led to quick response within organization silo/quick response to customers queries which has enabled service excellence.

This relates to the case of Tranex Logistics that adopted ERP business management framework in managing their customers services such as feedbacks, complain, monitoring of returning customers and brand loyalty; this has been mentioned by CS1 as stated below:

‘I ensure that I monitor freight delivery to in-bound and out-bound service users that way when there is any form of complaint or compliment, I work in-line with operation excellence to enact that such a complain does not occur in future and teams required to take action are well informed. If it’s a compliment it is recognized and applauded. When a certain complain keeps occurring it is taken up and best solutions are provided based on management advise and best fit solution. By adopting this method, I have been able to serve customers and maintain brand standard’. ‘I also ensure that appreciation and strategic plaining are key; what I do is produce monthly reports to clients and I hold a monthly meeting explaining to them how their business has been able to ensure that we fully meet target and when there is any problem such as low turn-over what I do is to explain to client’s strategies which have been kept in place to improve service excellence. With the aid of business process management and ERP systems I am able to monitor customer’s experience.’

This relates to the case of Tranex Logistics that adopted ERP business management framework in managing their customers services such as feedbacks, complain, monitoring of returning customers and brand loyalty; this has been mentioned by CT1 as stated below:

CT1, I support customer service by building an interface across all their platforms; also, I ensure that they have all the tools required to perform their task. The means and method applied in supporting them is large and very flexible so that they can deliver excellence in their day-to-day activity some of these tools are easy means of communication, transfer of data, easy method of data analysis, data accuracy is established, and on-time reporting platforms have been developed. The above shows how firm survive daily service management through the aid of ERP; they are able to build an interface between customer excellence and operations fulfilment.

Sixth importance of BPM through using ERP aids agility, cost monitoring, track and trace of expenditure and revenue, which benefit logistics company as they can assess service provided and assess profit or loss yield. BPM is important because its benefits businesses in

assessing if value for money services have been offered to customers and stakeholders are able to monitor firm's activity in totality. Laudon and Traver (2020) report that some businesses and sectors are yet to gain from the many benefits of ERP in BPM while others are benefiting from ERP as they can vivaciously determine their profit or loss within a calendar year in business, populate reports and increase process stability across all silos through process agility. Koopman and Seymour (2020) conducted an empirical study which depicts that the work system approach deals with adoption and adaptation to access information employees will need to adopt and adapt to the process; they further explained that agile BP through the aid of ERP enables firms to monitor financial services in line with regulatory bodies asserting that services delivered is incorporated into governing rules and regulations of various institutions. This shows that BPM is being aligned to governing bodies rules and regulations to reduce financial crisis and any other form of issues which could occur in business. Some organizations struggle to achieve the type of agility they propose at the beginning of their process this could be due to lack of project management, under estimation in relation to revenue, lack of track and trace facility, lack of holistic adaption and adoption policies to internal and external users; some organizations fail to assess the root cause of their problems before proposing various forms of agility and risk management measures in their process.

These factors can be seen as Tranex Logistics manage accruals/revenue and try to establish training policies to suit the adoption and adaption process through ERP as seen below from IT and:

IT said: I am pleased to inform you that over the years with the aid of technology the use of flue consuming assets has reduced because some assets are solar energy and enabled in order to protect the present environment for the future and this fleets have been cost effective since they are solar powered. However, the organization has not agreed to power all assets with this method.

TT1 said: I contribute to revenue generated because I ensure freight are shipped safely and securely with the aid of ERP I am able to monitor all shipment and this has really improved our business process management. The act of monitoring revenue and expenditure is laid down by firms to enable them track and trace organization profit or loss therefore the ability to sustain this process is dependant around agility, cost monitoring and track/trace of revenue/expenditure. Thus, once all these items have been measured firms are able to propose risk mitigating factors which can be applied within BPM. Firms, ability to apply the appropriate BPM through the aid of ERP relies on some key factors such as data management, decision making process and management of key functional organizational silo such as manufacturing and production, sales, finance, and human/resources (Laudon and Laudon, 2018). Fernie and Sparks (2019) sees that there is a possibility for ERP to become the main source or element for

interacting in logistics activity which means that firms will need to apply various technology-based software's in monitoring their business activity to assert seamless operations internally and externally. Koopman and Seymour (2020) highlights that the adoption of BPM is not the main solution but the ability of a firm to create a work system unit which involves articulate process/activity and working system technology in circulation of information is highly relevant in BPM as it facilitates strategic alignment in governance and culture, budget, people and the use of information technology.

5.2: Objective Three: To identify how best technology using ERP can be applied in logistics silo and to recommend a strategic business management framework which will facilitate service excellence in Tranex Logistics Nigeria.

First identification is that technology can be applied through ERP to monitor sales record, technology can also be applied in management of warehouse facility in logistics as freight shipment are stored in warehouses, technology through the aid of ERP can be applied by HR in monitoring employee behaviour and change management. The next silo identified are customer service using technology to trace missing parcel and delay in freight shipment. Lawall et al., (2015) management of employees is very important, and the ability perform daily task is reliant on ERP as an automated algorithm enables HR officers manage staff rota, payment, deduction and many other activities are being performed through the aid of ERP as most organization silo rely on HR to populate capacity report, sickness and annual leaves. Petersen et al., (2015) identified that systematic mapping and software facility aids seamless operations in management as HR and other organization silo are able to apply this algorithm in business process management. Roles and responsibility are being managed coherently due to the aid of ERP as firms have visibility in silo operations. The next silo identified is warehouse management/reverse logistics as products shipped are being despatched from third party warehouse facility or owned facility of a firm. Therefore, it is the responsibility of a logistics coordinator to assert that warehouse operations are performed in a secured fashion. Dumas et al., (2018) identified that warehouse and fulfilment centre efficiency is incorporated into ERP as most transactions are digitalized for easy access to items which should be shipped out first and enable identification of items which are last-in and should be last-out. Laudon and Traver (2020) describes how ERP builds a business process strategic balance in warehouse management as freight shipment is developed through an algorithm warehouse manager can develop a centralised and decentralised operations framework which function interdependently. They further explained that business procedure and system information is developed based on data and information which depicts inputs and output required to meet operation target and revenue target. Therefore, the assertiveness of warehousing is based on digitalized system of

business process functionality because the ratio of warehouse efficiency is dependant of data accuracy; this is evident as firms need to know the amount of freight to be shipped and the order at which freight need to deliver all these components are based on data accuracy. Prajogo and Sohal (2013) highlights that data sharing and shredding is a set-back in data sharing across organizations; they further encouraged firms to go into visible partnerships.

This is seen in Tranex Logistics activity as stated by workshop repair team:

WR1: I ensure cost of spare-parts are reviewed and best product with affordable prices are sourced for; this shows how the workshop team contributes to revenue by cutting cost and saving on products bought. I source for the best product, but I ensure that I source for it with the best price and ensure they will be suitable and motorable with our ERP software. The above illustrates that business operations survive through the aid of digitalized process management and basic operation mechanism is vivaciously developed.

Second evaluation is around the running of day-to-day logistics activity internally and externally; internally relates to purchase of raw material to distribution of product and external is related to customer management. Fernie and Spark (2018) state that logistics has benefited from various software applications in their daily operation as this tool has provided and served as a means to interdepartmental integration. Pragojo et al., (2007) explains that there are certain elements that make logistics process active these elements are people, leadership management and R&D they play a vital role in enhancing the use of technology increases innovation, performance and differentiation strategy.

The last evaluation relates to the use of technology through ERP and how it increases chances of business sustainability because firms can monitor, track and trace all activities; they are also able to obtain their daily recommendation and business process decision making process with accuracy and substance. However, literatures have been silent around safety of freight from external theft which are not drivers related as the geographical terrain in Nigeria is not excellently safe for freight drivers, thus, managers have suggested and implemented restricted driving hours for drivers due to issues of potholes and road robbery.

5.3: Chapter Summary

In this chapter research findings have been discussed and various findings have been associated with research objectives. The first aspect focused on objective one which evaluated that role of information sharing and challenges firm face when trying to adopt ERP as their BPM software; in this section the impact of information flow show cased that through the aid

of ERP firms are able to organise daily activities in a seamless manner, they are also enable firm to attain their goals in a more effective and efficient process. Next challenges faced by firms before and after implementing ERP was evaluated and it was noted that staff fear loss of job and resistance to change is another issue as some staff might not be willing to change their way or method of working. The next objectives enabled author to explain the benefits of ERP in managing BPM and this has been quantified into visibility, business sustainability, proactive logistics, enhancement in making business decisions, customer loyalty and revenue assurance. Five unique research overall empirical findings have been gathered based on interview sessions held with participants and literature review with the aim of building a synergy and triangulation please see below: -

A) ERP has indulged staff in training and development so that they will be able to adopt and adapt to BP changes; these trainings are organized to assist staff in delivering service excellence and adapt to process improvement (as stated during interview session); and as mentioned by change management criteria in section 5.1

B) ERP has enabled logistics firm monitor and calculate driver's incentives (stated during interview session); this aligns with the fact that ERP is applied in reporting as stated in literature.

C) Through ERP firms can monitor demurrage and retrieve money back from contract owners (as stated during interview session); also relates to visibility as stated in literature.

D) There is no absolute solution towards data sharing and data shredding among logistics organizations thus, suggests that businesses should go into official data sharing and data shredding partnerships (Prajogo & Sohal, 2013).

E) Restricted driving hours have been adopted due to external cases of freight robbery/high-way robbery, potholes and safety of drivers (as stated during the interview).

This section also evaluated how ERP functions in organization silo this showed that firms have used ERP to monitor daily transactions, day to day operations and multidimensional control is being implemented. Further recommendation as to how Tranex Logistics can implement ERP into their silo was also highlighted by author based on data collected during interview sessions with participants.

Chapter 6: Conclusion and Recommendation

6.0: Preamble

This thesis is exceptional because it has been devised to review the various determinants of business process management which are six-sigma, lean, enterprise resource planning (ERP) software's and many other BPM frameworks such as quality assurance and quality assessment framework. This research focused upon ERP because it is the only framework being applied by Tranex Logistics in managing their digitalized operations internally and externally daily. Research explored various elements of ERP based on three main elements they are visibility, collaboration and agility, the components, roles, functions and duty of each element has been explained and research asserts that each element plays a vital role in logistics without some of these components such as network, web and without various method of business analysis visibility cannot be evident in business. Each of these elements do not share conflicting interest as each element is dependent to the other but they require each element to perform its role and duty to achieve logistics long term vision.

It is obvious that these elements do not conflict because the key role of visibility is applying analytics to business, collaboration ensures that partnership working is achieved within business silo and agility ensure that there is adequate planning/track and trace in logistics, and this also emphasise that customer satisfaction and revenue plays a crucial role in agile logistics as businesses require funds to pursue their goals and objectives. Through the application of journals and response received from interview participants the aim of this research has been achieved as literature reviewed explains how firms benefit from the implementation of ERP software in their organization; participant response also depicts that ERP has enhanced flow of information across silo; the aim to explore how BP improves business process activity has been reviewed as literatures depicts that through ERP firm is able to monitor sales and assess growth and stability in logistics sector. Transfer of knowledge has been evidenced as participants and literature review lists how ERP is applied in gathering business intelligence and how the world wide web (www) has increased business visibility. Business sustainability is feasible because organizations can monitor expenditure and revenue generated through the application of digitalized software; the role of technology is seen as it enables firm optimise operations this is evident as consumers wants and needs are being monitored in order to suit production and service delivery; this activity are made visible due to the implementation of visibility, collaboration/partnership working and agile logistics operations.

The nature of logistics activity in Nigeria is peculiar because logistics activity in Nigeria is developed around some PESTLE factors which are political, economic, social, technology, legal and environment factors that might promote or affect logistics operations however research focused on some of these factors. Therefore, research objectives focused on the following:

1. To identify Impact of information flow and identify challenges involved with the adoption of BPM in various logistics organizational silos in relation to key ERP elements such as agility; collaboration visibility and assess the impact of information flow.
2. To examine the importance of BPM in Improved logistics process and benefits of adopting ERP BPM element in business activity/operations.
3. To identify how best technology using ERP can be applied in logistics silo and to recommend a strategic business management framework which will facilitate service excellence in Tranex Logistics Nigeria?

The research objectives provided author the ability to focus on the impact of ERP in BPM, identify benefits and importance of ERP and Identify how organization silo in Tranex Logistics operations are performed through the aid of ERP in their BPM. The research methodology applied in thesis provided a platform of ideology and enhanced author ability in achieving research objectives. The case study strategy applied aligned into Tranex Logistics operations and data collated from participants interview (qualitative) is being analysed through the aid of Interpretivism as it enabled author access various levels of users' knowledge and experience into research objective which facilitated research analysis process and provided a spark to this thesis because it provided more understanding to how ERP as a key determinate in BPM enhance daily operations internally and externally. Research contribution is determined to serve as a base for reference and find solutions and suggestions to some of the key issues identified in process sustainability as process management can be initiated and possibly not sustained as some factors such as revenue and organization vision might serve as a challenge to adoption and adaption of process sustainability. The difference between adoption and adaption of BPM is ambiguous as some organizations adopt change and many do not adapt to the change.

In this chapter a comprehensive conclusion explaining how research has been performed will be explained; In developing various sections of this research from chapters one to six it is important to note that author has been able to provide questions to some variables which are what, why and how that is what is to be achieved, why are they being considered in this research and how does author intend to achieve such item. The conclusion of thesis sucks in all elements which are applied in thesis and provides insight as to why they have been

adopted; also elaboration on research conclusion and key determinants which have been applied in research will be explained; next section suggestions and recommendations related to ERP adoption and adaptation in BPM will be explained and focus on business process algorithm and portray how best coherence in process can be sustained in Tranex Logistics and other logistics activity; based on research analysis recommendation will be populated. Next section will be contribution to theory, practice and knowledge this section will be populated based on perception from literature and perception of knowledge acquired during the cause of research will be explained in each section. Next step will be to discuss scope for further research and limitations which might serve as a delay in achieving further research items will be highlight by author and limitations which author experienced during the cause of this research will be noted and a final thesis summary highlighting the key process indicators of BPM and the importance of firm's adoption and adaptation will be explained.

6.1: Conclusion

The conclusion of this thesis will be made based on the core themes derived from research which relates to research objectives; author will be applying themes because it will enable author to elaborate on some of the merits and challenges superordinate and subordinate experience as they perform their daily duties in logistics. The first core theme is flow of information in logistics which notes that businesses require accurate information in order to manage their daily activities because lack of accurate information or proper flow of information can lead to lack of insight to artificial intelligence as data/information gathered might not be accurate and this might distort decision made (Laudon and Landon, 2014).

The second core theme is partnership working: - Leuschner and Charvet (2013) in their qualitative paper noted that company performance relies on integration of organization silo working in coherence to obtain maximum oversight of daily operations. As argued by Leuschner, et al., (2013) that some firms are yet to fully actualise and experience the benefit of partnership working because they do not have the facility to coordinate the process. As one of the participants mentioned that they are enjoying their daily task as they have access to information which enables them to make quick business decisions. Another participant noted that warehouse management is now seamless as business operations can be augmented easily. This portrays that firms and superordinate have full oversight of daily performance because they can liaise with various silo and understand the needs and wants of their business. Turban et al., (2011) opine that internet of things and other software aid smooth partnership working internally and externally.

Lewis and Dart (2014) highlight that logistics and retail movement of freight has grown over the years therefore firms need to continue to improve their process to meet the current need and wants as customer satisfaction is of essence in process improvement. The ability of a firm building a work pattern that facilitate partnership working enables them meet demand and supply of freight and services which also facilitates easier decision-making process and links all silo together; partnership working impacts business as it impacts silo trust development, inspiration, trust is built, ideas are shared, silo support each other by assisting in achieving teamwork and sharing in their success story. The third core theme is agility; the essence of agile working is a necessity in process management as firms require substantial time to plan, track and trace, monitor fleet management. Collin and Lorenzin, (2006) depicts that market competition occurs in different sector therefore, ability to sustain market position and increase agile logistics process management. The fourth core theme is customer/service excellence; this theme emphasises the essence of brand standardization and customer loyalty. Huang and Sarigullo (2014) highlights that customer loyalty to a brand facilitates customer loyalty and the ability to create service fulfilment ensures return of customer. Mayer et al., (2014) argue that product availability and stability in prices facilitates customer loyalty to brand and products. This is evident when a participant noted that ability to resolve customer queries and provide satisfactory answers has enabled customers remain loyal and this is achievable because staff have access to all information through ERP and are able to populate reports and assert data accuracy.

The next core theme is revenue; as it facilitates business growth, development and business sustainability rely solely on revenue stability i.e. increase in profit generated is being applied in running day to day activities. Lewis and Dart (2014) highlight that revenue has made positive impact in logistics as global freight forwarding and ERP software agitate the process of revenue generation i.e. items can be shipped through a seamless process as payment can be made online and businesses are able to track and trace all items. Laudon and Traver (2020) depicts that revenue is the core hub of businesses and ability to identify steady means of generating revenue will lead to business sustainability. Choi and Kim (2015) highlight that it is also important to manage organization cost as revenue and cost will need to meet at equilibrium. Cost management; cost reduction, business expansion and asset maximization support revenue sustainability.

As examined by earlier literatures that BPM is being incorporated through the aid of ERP to obtain information flow, partnership working, agile process management, customer excellence and revenue allocation can be managed more effectively and efficiently. These systems also ensure day to day business process flows internally and externally because

information sharing is being processed more promptly, section below will conclude on research objectives interpretivism items highlighted.

This study has met its aim which is to evaluate the impact of visibility, collaboration, and agility in logistics BPM; from journals and responses received from interview participants shows that through the aid of ERP logistics activities in Tranex Logistics have been visible, partnership working has grown among organization silos and track and trace of business operations internally and externally is more evident as interrelation and engagement across all platforms can be traced. This study has explored how business process management can improve operations and ensure transfer of knowledge/sustainability in business using digitalized application; through the application of ERP as a determinant in BPM Tranex Logistics has been able to transfer knowledge due to trace and track systems and information flowing across organization silos through the implementation of business analytics, business intelligent software, big data analytics, network analytics and ; also the role technology plays in organization silos enables optimising operations will be assessed and a framework will be developed for Tranex Logistics; it is feasible that through the application of digitalized operations firms are able to gather business intelligence and provide improved logistics operation through the application of technology; **also BPM through the application of ERP enhanced business and logistics activity in the time of Covid-19 as organizations where provided first-hand information on customer's needs, (). This shows that ERP has been applied in mobilizing production and distribution of goods and services within the supply chain industry.**

6.1: Conclusions on Research Objectives Findings

This thesis has three main objectives; this section will base conclusions around each objective the first is:

- To identify Impact of information flow and identify challenges involved with the adoption of BPM in various logistics organizational silos in relation to key ERP elements such as agility; collaboration visibility and assess the impact of information flow.

Based on participant response from interview and ability to identify the impact of information flow and assess challenges faced by firms when trying to adopt BPM it is indicative from semi-structure interview that ERP impacts on services response and leads to interaction among organization silos because firms are able to liaise more coherently and also facilitate various organization silo activity. Second impact highlighted is long-term decision-making process is simplified, based on participant response it shows that making decisions and stages of decision-making process in logistics as managers have access to accurate information flow

and on time reporting facilitate the process of information gathering and information sharing within firm's decision made. The next impact is related to completion of daily task which can be achieved seamlessly as participants noted that manual systems of working was not cost efficient as more time and resources are spent on human resources however, the use of software enables business daily operation occur effectively and departments interaction internally and externally are more coordinated as business operations are digitalized and free flow of information facilitates billing, cost minimalization and encourage inter-silo relationship; also turn-around time in logistics has increased as firms are able to identify delays and provide contingency plan. Prajogo et al., (2007) conducted an empirical study which highlights that data management and technology software ensures that research development, product and process innovation moderates digitalized innovation in process management.

Leuschner and Charvet (2013) agrees that information flow facilitates operation process but also enables on time delivery of information. Fernie and Sparks (2019) found that ERP being applied as a BPM tool in logistics enables firms manage relationship and ensure consistent and efficient response to query raised in logistics. They further explained that this process of operation has created adequate means of managing change and managing challenge in logistics. Prajogo & Sohal, (2013) argued that there is currently a constrain in unilateral flow of information within the supply chain sectors (that is companies do not have a unilateral system whereby they can all retrieve information from same database as there is no unilateral flow of information across all firms because data sharing and data shedding is still an issue as various organization depend on their individual database in their firm. Sue (2015) depicts that information flow benefits firms however, there are issues around data collation when digitalized system and software do not function i.e. when there is a breakdown in digital logistics how do firms perform their daily task.

Prajogo et al., (2007) conducted an empirical study which highlights that the ability to develop a process relies on ERP. Prajogo and Sohal (2013) found that some challenges faced when trying to adopt BPM in firm is that some software are developed to suit a certain need in logistics such as the application of total quality management software will focus on quality-of-service delivery and will not dive into functionality and performance management. Fernie and Sparks (2019) warn that changes and challenges surrounding logistics activity relates to the changes in consumers' needs and wants therefore it is the role of logistics companies to adopt new means and methods of satisfying the current consumer need. Furthermore, they noted that consumers need change constantly i.e. the need of a consumer is not static; therefore, to achieve brand standardization firms need to develop digitalized method of monitoring this change and create a digitalized method of business process management. The challenge they face relies

within their firm as some staff are not able to adapt to the consistent change in process management however, the implementation of digitalized process management becomes mandatory as an organization strives to become an investor of choice, provide of choice and employer of choice they need to consider all factors before adopting any change as each of these factors form as a guide to process improvement and management of transformation and change.

Training is being provided to staff and importance of adapting to change is being communicated to employees. This is evident as a participant mentioned that they are not sent to some certain location for despatch as they are required to use ERP; some participant mentioned that they feel as though they are being monitored as they despatch products to customers because they are not allowed to make any form of change in freight shipment. Thus, the ability of a firm to train employees to understanding the purpose of changes made in organization silo is a necessity in order to satisfy customer needs, wants and remain customer of choice they need to focus on monitoring constantly consumers demand and develop means of delivering freight. The second challenge is around employee resistance to change and best this can be handled as explained above firms process rota therefore employees method of working or performing daily operations will be twisted to meet the current market need while some employees might resist the change and understand the benefit of the change; other employees might resist the change because they do not want to change their method of working therefore ability of a firm applying the appropriate method of change management will facilitate the process of transition. The third challenge is process sustainability and ability to maintain the proposed BPM tool being applied in business, i.e., employees might adopt the change but their ability to adapt to the change and work in coherence in long term will determine business consistency and process consistency. Dumas et al., (2018) warns that the challenge around adaption is that there is no standard means to measure if an organization has successful adapt's to change in their BPM by using ERP as most firms develop their own means of measuring success. The fourth challenge is around constant change in PESTLE acronym meaning political, economic, social, technology, legal and environment; these factors serve as the key element in developing BPM therefore, the ability of a firm to assert the appropriate approach will enhance business sustainability (Laudon and Traver, 2020).

Having populated recommendation, it portray a clear link that information flow assist with process maximization as better and best fit business decisions can be made.

- To examine the importance of BPM in Improved logistics process and benefits of adopting ERP BPM element in business activity/operations

Through the aid of ERP businesses have been able to plan for their future as falling to plan is planning to fail because firms will not be able to predict what products and services they require in planning and consistency in delivering service excellence. Frenie and Sparks (2018) depicts that BPM has improved logistics activities as some firms are able to apply predictive analysis in assessing consumers behaviour. Due to visibility in operations R&D are able to work more efficiently and other silos are benefiting from quick turnaround. Through the aid of data consistency firms are able to plan and assess business decisions that can improve visibility and enhance daily operations (Dumas et al., 2018). Collaboration within systems and silo are well organized because firms are able to predict the next activity and also lessons learnt are being shared among silos i.e. when there is a failure within a process all silos are able to track the root cause of the problem and lessons learnt are shared and process of resolving such issues are being discussed. In terms of agility ERP has aided agile operations and this has benefited firms in planning ahead of risk and any occurrence can be tracked and trace as firms have the ability to predict the future and lessons learnt are being shared across silo i.e. when risk or disaster occurs in one silo lessons learnt are being adopted in future operations and other silos are able to sight issues and also grand foresight into business process are being populated from lessons learnt. The ability to work agile benefits firm silo as risk and lesson learnt are being monitored and these create foresight into their vision and mission which is being linked to agile logistics (Bhaskar, 2018). In, regard to customer service excellence and revenue the ability to sustain business operations internally and externally reside with these elements as firms are obliged to build customer service experience which serves as an asset to brand loyalty and business sustainability as they can predict consumers behaviour, want and need (Jeston and Nelis, 2014). The ability to assess business sustainability and predict future expectation from customers and stakeholders relies on a firm's ability to coherently adopt and adapt the appropriate BPM software into their process.

Prajogo and Sohal (2013) found that there is possibility of firms not being able to get it right first time when developing an improved logistics process while other firms might lack the ability to highlight and exhaust the entire benefit of ERP i.e they might not apply the entire function of an ERP system in a firm or even measure success achieved after adopting ERP as their BPM tool. Fernie and Sparks (2019) warns that some firms might not be utilising their adopted ERP software as they might not be able to assess the importance of applying ERP in some of their organization silo. Laudon and Traver (2020) warns that for businesses to continue to enjoy the benefit of ERP in their BPM they will need to ensure that there is consistency in systems application and consistency in business improvement and transformation plans because these elements serve as a baseline in an organization process development. The function of BPM is dependent on organization ability to identify key areas where they need to apply BPM,

also note that roles and responsibility in logistics is not standard and the ambiguity of this issue is large therefore, literatures have not provided a guide or baseline on how to assert areas on where ERP is required in logistics as various firms set their key performance indicators differently. BPM benefits all areas of silo and provides process management assurance in operations although not all firms exhaust the entire benefit of the ERP software applied in their process management, therefore once appropriate BPM enterprise resource planning tool is adopted firms need to ensure that they exhaust the benefit of tool applied.

- To identify how best technology using ERP can be applied in logistics silo and to recommend a strategic business management framework which will facilitate service excellence in Tranex Logistics Nigeria: -

Objectives above has reviewed how technology is applied in organization silo and highlight how ERP functions enhances track and trace systems as it assists firms to eradicate theft completely in logistics process. Figure 6.1 below titled' Proposed ERP Business process management strategy and Insight for Tranex Logistics' provides strategic business insight for Tranex Logistics: -

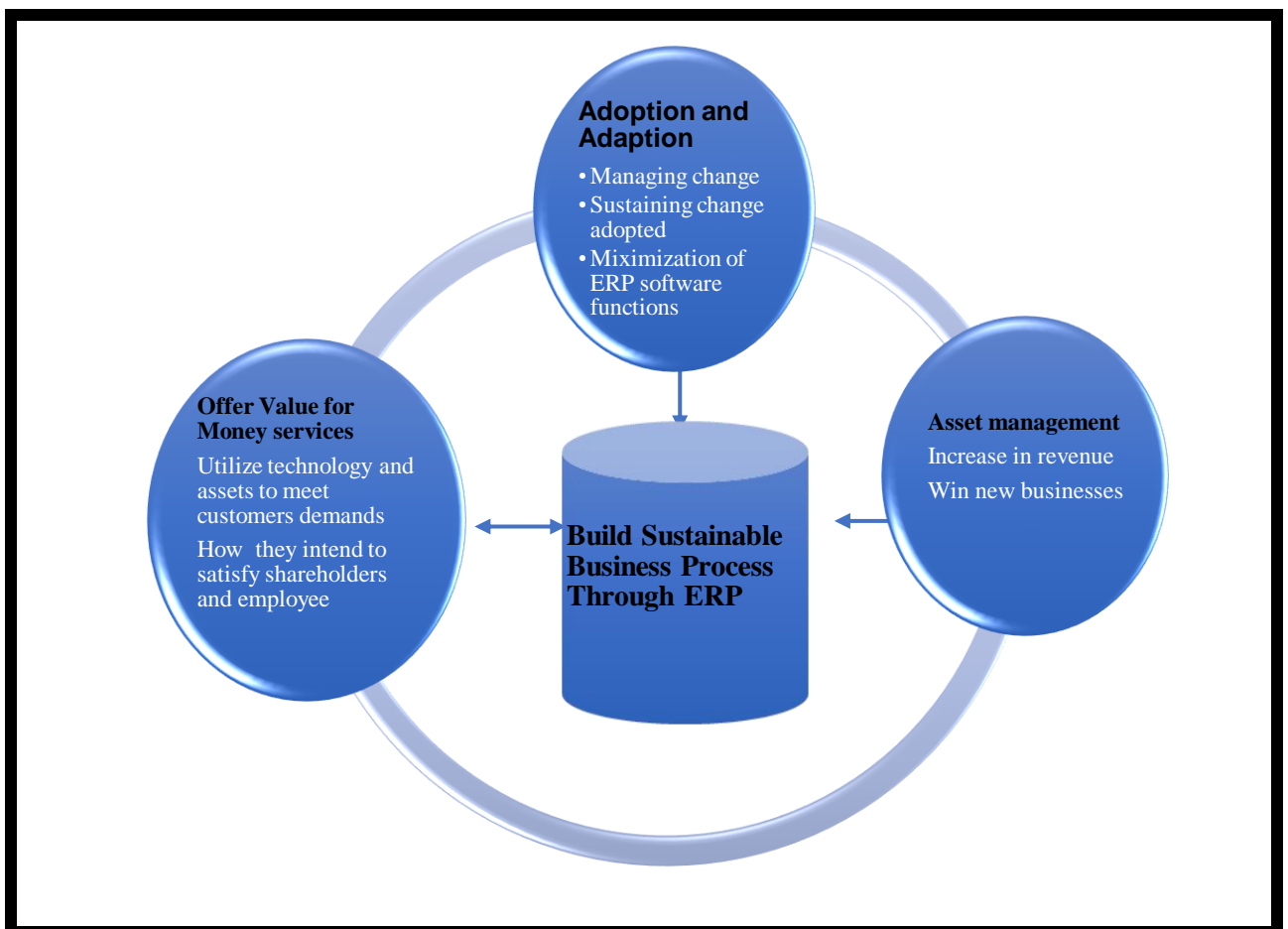


Figure 6.1: Proposed ERP Business process management strategy and Insight for Tranex Logistics (Author, 2021)

Author refers to the above figure 6.1 titled '*Proposed ERP Business process management strategy and Insight for Tranex Logistics*' as the cylinder visual for developing Tranex Logistics main ERP/BPM strategy and their ability to expand both business and client base revolves around their ability to understand consumer's behaviour. Thus, management require thorough understanding on best fit measures which can be applied in achieving their long-term goals, vision, and mission as a business. Therefore, author developed figure 6.1 'titled '*Proposed ERP Business process management strategy and Insight for Tranex Logistics*, by associating key ERP elements to Tranex Logistics customers/ brand loyalty, financials, BPM, transformation, innovation, and growth. This has been obtainable after listening to participant merits and demerits of current ERP model which monitors their business activity in operations.

In concluding this section author will reflect around BPM in Tranex Logistics as it resides around adoption and adaption, business asset management and offer services which are value for money oriented to achieve and build sustainable business process through the aid of ERP. Subsequent sections will further explain how proposed business insight and strategy aligns to their organizational growth by providing recommendations to some issues, merit and demerits identified during interview section and research findings.

6.2: Recommendation

In this section author will provide recommendations to some of the challenges mentioned in all core themes and items highlighted in research objectives because this will enable author thoroughly to build a triangulation to cover all items which require recommendation.

In relation to flow of information the main issue highlighted by research participant is the use of software; as some participants cannot adapt to change therefore training and other forms of change management techniques can be applied next, relates to the use of robotics in fixing fleets as this will lead to less down-time in workshop but this still leads to concerns in job loss as highlighted by a participant that number of site admin has reduced as admin can be monitored centrally through digitalized applications; it is useful to note that consumers wants and needs will continue to evolve therefore, process management will be designed to suit their needs and wants so that continuous transformation and change systems will enhance service excellence and business sustainability. The second theme partnership working main issue identified which was mentioned by participants is around open book accounting this issue can be resolved by account managers adopting other methods of accounting such as closed book

accounting; tolerance level of business accounting module; firms should adopt a module of accounting which suits terms and conditions in their service level agreement (SLA). The term flow of information relates to the first theme information flow, partnership working, agile, customer/service excellence and revenue because information flow coordinates business operation in daily operations this serves as breach/link to all themes as various themes also rely on flow of information in completing their task.

Recommendation to impact of information flow on logistics BPM is summed into three elements the first element relates to concerns around unilateral flow of information within logistics sector; before establishing a unilateral database system it will be profitable to review the merits and demerits of populating such process flow of information merit and demerits will involve internal and external factors such as industry competition and consumers some firms will not be able to perform at some certain limit if they all share flow of information this could lead to unhealthy loss while the merit of flow of information can lead to reduction in cost and logistics industry will easily predict users wants and needs. The second recommendation is relating to manual ways of working this should be served as a contingency plan in process management should in case digitalized systems/software fail to work and the third relates to how query raised are being managed.

In relation to agility and issue highlighted by research participant is around drivers not admitting that they are aware of theft especially when tracking device highlights that stock has gone missing as drivers are aware that this might led to lack of drivers incentive; proposed recommendation is that parcels and freight should be sealed and should be opened upon arrival to their final destination for truck load freight also when there is theft an unbiased investigation can be performed by security team to access if drivers are not a victim of freight shipped not properly loaded from pick-up point or misunderstanding at dispatch location second issue noted is payment of drivers incentive through automated software this is seen as a threat to drivers as they are paid incentives based on the numbers of trips completed monthly therefore other measures of calculating drivers incentives can be adopted such as lack of loss or damages i.e. drivers who do not have any theft or missing products receive higher incentives and theft of damaged goods are deducted from there finalized trip rounds; This should also be communicated clearly to drivers so they don't feel that the process is biased. The issue mentioned by participant in relation to customer service excellence is that process sustainability in regard to track and trace systems might not be sustained, as some tracking equipment might not function in some geographical locations in some cases.

Due to issues mentioned during interview around revenue in regard to the use of solar fleet and defending of demurrage with clients, in regard to changing fleets to solar energy fleet firm need to assess that they will be able to sustain the process and monies spent in older fleets have been recovered; next is demurrage cost this can be tracked and traced thoroughly to avoid any form of argument when reports are being sent to clients. Challenges noted can be summed into four areas they are:- management of adoption and adaption, management of long term process sustainability, management of employee resistance to change and management of business PESTLE acronym (political, economic, social, technology, legal and environment) the political elements are related to interest of stakeholders; economic element relates to financials and revenue circulation in business; social elements consist of culture, values and norms of internal/external users and employees; technology element relates to internal and external technology applied, legal elements relates to laws, rules and regulations established internal and externally i.e. laws that firms need to abide by and staff need to abide by therefore it is important that each set understand what is expected from them and environment factors relate to climate, weather, geographical location and series of nature elements that can impact and affect a business. These recommendations have been proposed based on literature reviewed also based on key issues noted in participant interview after being linked with various research objectives.

The next recommendation relates around how they benefit from BPM especially through the means of information flow and partnership working. The first recommendation will focus on how firms measure success after adoption and adaption of BPM specifically around issues that occur after adopting ERP in their BPM; this relates to the how they are able to identify that BPM framework which has been adopted is working effectively and efficiently; firms are blinded by the benefit they enjoy after adopting BPM frameworks that they fail to assess if framework adopted is working effectively and efficiently to measure success firms do not need to rely mainly on benefits achieved by assessing KPI's and PI's what they can do is holding staff responsible for reaching milestones after process implementation. **In addition, they can invite auditors to audit their process based on performance, service delivery, target, revenue, customer satisfaction, loss/damages, task completion timing and turn-around time in logistics.** Second is about how they exhaust the benefit of ERP tools which they have adopted specifically this relates to maximization of software, tools and services which have been implemented; this item depicts that some firms are not enjoying/maximising the full capacity of their ERP software which they have adopted therefore, it is essential that before adopting any BPM framework firms first ask some certain questions which are what are the current problems they are facing, what ERP tool will be able to provide solutions to all current problems and assess the impact on service delivery and business operation this process can be

simplified into what, why and how; which means what is the problem, why are they have such a problem and how can the problem be resolved which means applying the best business solution framework.

The next recommendation is around ensuring consistency in systems application, consistency in business improvement/transformation plans and value for money service is being delivered as these elements are determinant to effective BPM. To obtain consistency in all items listed it is vital for businesses to ensure that they set goals and objectives that aligns to their operations once this is achieved long term business consistency in application and other aspect is obtainable as staff are aware about elements which will occur as they adapt to their firms standard of operations, also they are aware that business operations must be performed in a unique and fashionable format once employees are built to understand that service consistency is key they will always work around such expectations as they are aware that there is zero tolerance towards laxity and lack of efficiency. It is useful to mention that recommendations have been proposed based on literature reviewed also based on key issues noted in participant interview after being linked with various research objectives; in order to provide an elaborate recommendation, the next section will provide recommendation relating to technology.

The Final recommendation in regard to technology will be around building strategies that will enable Tranex Logistics function in all their silos through adoption and adaptation of ERP element adopted in their business process management as this serves as a key determinant in delivery services excellence. The second recommendation also relates to strategy development on how best to manage assets in each silo to increase revenue and deduce depreciation in their silo specifically issues with vendor management and third-party suppliers will facilitate Tranex Logistics ability to asset management and last recommendation is around development of strategy which revolves around providing value for money services that will enhance process sustainability and consistency in service delivered.

Regarding developing a framework this has been developed in chapter six section 6.5.1 and the main recommendation regarding that figure is consistency and standardization i.e. Tranex Logistics should endeavour to have a standard means of delivering services in various organization silo and also to adopt process improvement strategies that will benefit internal and external users. To summarise this section author will suggest that Tranex Logistics will maintain success by measurement of achievement attained before and after adopting ERP specifically Tranex Logistics will have to measure success and develop key performance indicators which will be applied in calculating if success has been attained, it is important to

mention that some benefits cannot be quantified in measurement but they can be measured based on positive impact and effect they make in daily business operations.

It is evident that various recommendations align to research objectives as each theme cannot function without the aid and support of the next theme; core themes play a role in each phase of logistics activity therefore, no core theme can function independently of the other specifically in delivering service excellence in all firm operations. Another significant item is that firms will need to assess their BPM and ensure that appropriate ERP software is being applied in their BPM as ERP systems are built to suit the needs and requirements of various organization silos. By doing this firms would have considered how ERP applied will affect information flow, partnership working, agile logistics, customer service excellence and revenue; the aim is to assert that business sustainability is guaranteed and value for money services are delivered to shareholders, customers and employees which also guarantees their ability to sustain market competition. Another aspect Tranex Logistics needs to consider is the ability of ERP to protect drivers from external robbery/highway robbery however managers have noted that this issue is being managed through the provision of restricted driving hours.

6.2.1: Key recommendation to Tranex Logistics Relating to Logistics in Nigeria

In this section author will summarize recommendations made to logistics as research aims at the key determinants of logistics. This recommendation will be developed based on the key determinants of ERP elements as they serve as the core-hub to managing BPM and they are assessment of adequate visibility in logistics operations: -

The first recommendation to Tranex Logistics is around their ability to assess and evaluate their level of digitalized business process management and ensure that all the elements of ERP are remotely and internally connected/developed to providing/achieving required and appropriate information across all business processes.

Secondly Tranex Logistics as an organization will ensure that they implement appropriate ERP software in their BPM to ensure that all their silos are well interconnected in delivering services to ensure that their transparency at all levels of operations as this will facilitate partnership working, minimize waste and increase revenue.

Lastly, they should develop an agile operation because agility in business process management through the implementation of ERP will enable track and trace and increase predictive business analysis.

This research aims to identify the key determinants to BPM and having reviewed this through the ERP framework it is visible that the core elements of ERP are visibility, collaboration, and agility in logistics BPM; which assist firm to explore how business process management can be best developed to suit service excellence and revenue growth.

6.3: Contribution to Theory

Brown and Eisenhardt (1997) states that theoretical contributions to case studies is necessary for explored studies this are complementary to traditional research. Contribution to theory will be divided into four segments and will be aligned to theoretical models designed by literatures; also designed to align to Tranex Logistics operations internally and externally.

The first contribution is the examination of the role of BPM architecture life cycle during and after the implementation phase of ERP this relates to the perspective of BPM system architecture/ Lifecycle. This theory depicts that there are various stages required pre and post implementation of BPM in an organization. This theory dictates that management must first design a business framework which they intend to adopt; also, management and stakeholders must ensure that model designed will address the issues and shortcomings faced within a silo and integrate into an organization central business vision (Dumas et al., 2018). The essence of understanding business ideology/model is vital within business architecture because at this stage businesses begin to actualize and execute all ideas which they have imagined (IBM, 2018). They further explained that business will need to monitor their executions and ensure it achieves their goals and objective. Therefore, Tranex Logistics will need to ensure that the current ERP software which they have deployed in monitoring their business activities suits their organization vision and management is able to concession wastage within daily business routine.

The second contribution relates to supply chain (SC) theory, and this relates to the perspective of SC in logistics management. This theory depicts that SC relates to the entire logistics activity the theory further noted that sustainable SC is perceived as eco-design, clean function, cost and revenue plan and structure in purchase, transportation and remanufacturing process (Ageron, 2012). Awasthi et al., (2010) highlights that SC should not be limited to but extended to oversee process optimization, accountability, productivity, and waste reduction, to achieve this quality within an organization such as Tranex Logistics they would have deployed and designed their ERP software to serve as a one stop shop which can resolve all items listed; so in theory Tranex Logistics can achieve this qualities and even more once they have been incorporated within their SC process software which will serve as their management tools.

The third contribution relates to maturity theory based on the perspective of BPM maturity model; this theory depilates the adoption of BPM into six basic segments they are strategic alignment, governance, method, information technology, people, and culture; the model suggests that management and stakeholders should consider each of this element when developing process management (Rosemann and Vom Brocke, 2010). In essence this theory relates to internal and external factors which serve as a tool in achieving success in process deployment.

The fourth contribution to theory relates to challenges and risk faced by firms when adopting ERP which serves as the main engine and control tool in their business silo and this relates to perspectives in literature reviewed. Some literatures such as (Cartwright & Zander, 1960; Katz & Kahn, 1951; Likert, 1961, 1967) opine that the style of leadership adopted in an organization can pose as a challenge in process growth and development. The second challenge is innovation and change management this item is crucial towards process development as failure to identify fears of employees can lead to the sabotage of change in business, therefore before proceeding with change it is vital to communicate purpose and reasons why management has decided to adopt change (Kotter and Schlesinger,2008).

6.4: Contribution to Practice

This section will contribute to research findings and will be developed based on participant response; therefore, this serves as a baseline for developing practical ideology which will enhance the growth of BPM through the usage of ERP and additional findings is being elaborated. The first insight is around visibility in BP as this element contributes to providing business owners adequate and coherent information around their business activity; through the aid of software applications daily business activities are now made visible as they occur prior to the era of BPM due to lack of various frameworks some businesses have collapsed. As noted in this thesis business sustainability and continuity will be obtainable once various organization silo can envisage the needs and wants of customers more accurately.

The second insight to research practice is around collaboration/partnership working as these forms a unique aspect of BPM because it contributes to firm's functionality, thus, if there is lack of communication and interaction; this insight elaborates that being able to communicate leads to efficient decision making and quick response in logistics silo. It also explains the importance of communication and interaction in business because this is the basic function of collaboration as this will aid various silos to share lessons learnt among themselves. The key

prospect which collaboration brings to business are conformity, standardization and interaction these elements precede over business assurance and delivery.

Third insight is around essence of agile logistics as it allows track/trace, risk assessment and provision of risk mitigation control. Agility also enables businesses propose risk mitigation control elements easily because future occurrence can be monitored, risk mitigation solutions can be applied as control mechanisms in firm's daily operations. Agility contributes to fast and easy transaction process sustainability because vigorous and manual method of track and trace have been substituted with software solutions.

The fourth insight is the essence of service excellence and its impact on revenue because failure in services will lead to disbalance in customers loyalty to brand and business continuity might not exist as businesses might become unsustainable due to irrational business framework in all aspect of organization silos.

6.4.1: Recommend a business framework for Tranex Logistics

Framework will reside around key logistics elements which are visibility, collaboration, agility, customer service excellence and revenue in achieving business sustainability. The below Figure 6.2 will depict a suitable business framework for Tranex Logistics based on research findings:

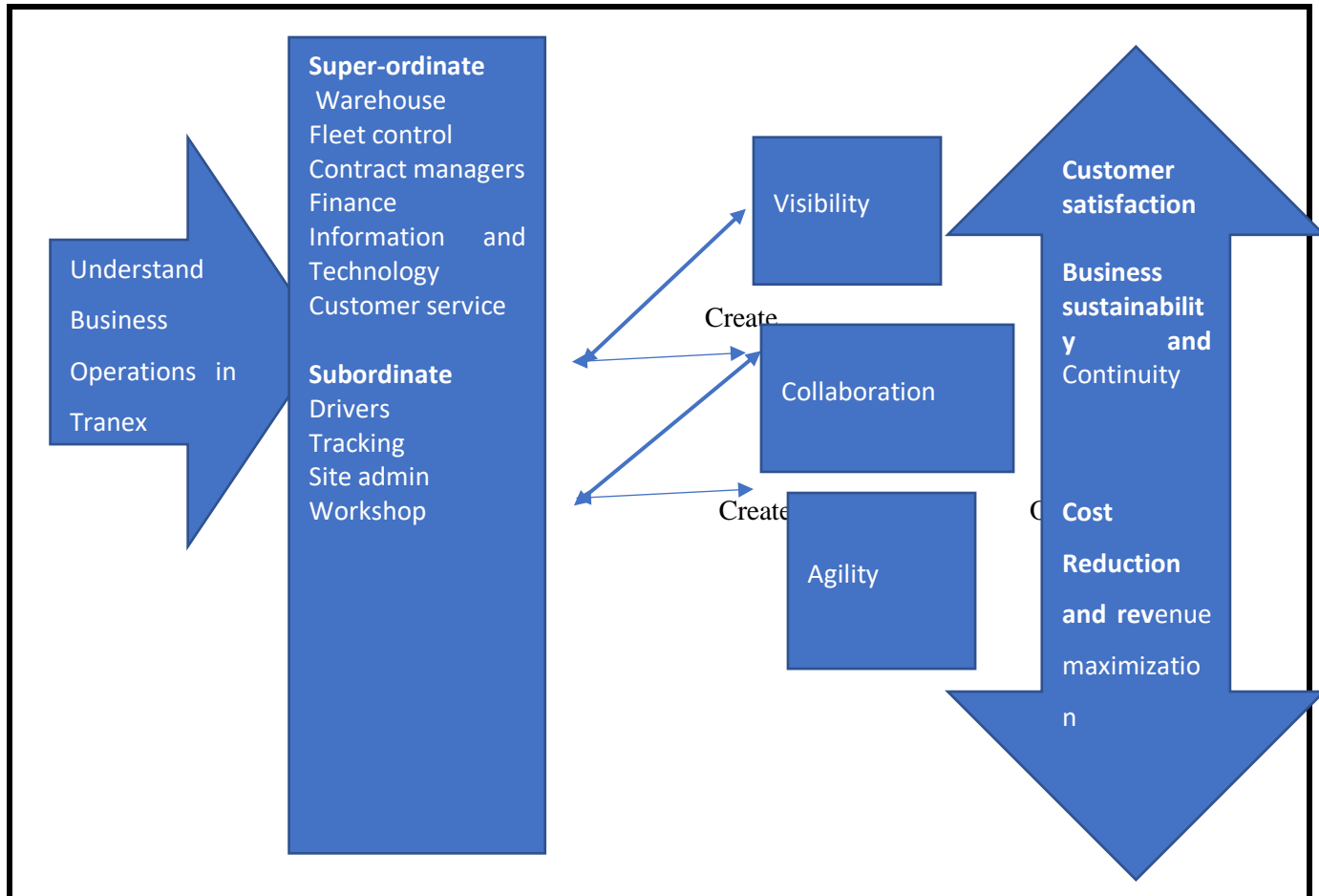


Figure 6.2 Proposed Business Framework (Author, 2021)

The above figure 6.2 has proposed how Tranex Logistics can ensure that ERP software deployed serve and benefit internal and external users. The proposed framework has been designed in alignment to Tranex Logistics BPM and proposed framework serves as an interlink between organization silo the aim of the framework is to assess how Tranex Logistics will be able to ensure all their logistics process is always interlink next step is to ensure that once all silo are interlinked and can communicate it is vital to ensure that there is visibility, collaboration and agility within all silo activity. The last slide depicts that once there is communication and interaction within business processes Tranex Logistics will be able to provide their customers

with customer satisfaction, ensure business sustainability/continuity and attain cost reduction/revenue maximization specifically when there is reduction in cost revenue generated can be maximised.

6.5: Contribution to Knowledge and Academics

Oluikpe (2012) highlighted that contribution of knowledge and academics relates to contribution to journals reviewed and the ability of an author to highlight issues from journals and propose solutions to gaps identified in academic journals. In research this enables researchers provide justification for undertaking their topic based on academic literature reviewed. Bryman and Bell (2018) argue that contribution to knowledge is applied to solve trending issues and develop frameworks which will assist area in study area which serves as a contribution to knowledge and. Therefore, In this section contribution to knowledge will be populated to provide justification for this thesis and propose strategies on how best to solve trending issues, therefore preposition on how best to solve trending issues will also be explained; this study has provided three major contribution to knowledge regarding BPM in logistics the contributions are information flow and challenges faced by firms when adopting ERP, the impact of ERP in BPM/Identification of business solutions that suit various silo and role of technology in logistics silo; in addition research also identified gaps in this area of study through the use of academic literatures and exploration of loopholes and issues affecting growth and business sustainability. Most research in recent time have reviewed the role of BPM in logistics and various BPM frameworks they have not clearly mentioned how to measure success in business processes after adopting BPM rather they have left this to firms to populate key performance indicators to determine if success has been achieved, due to this major gap this research would hope that successful prospect and investigation will be available soon to readers, the ambiguity of ERP is true to exist and should not be undermined.

Using the perspective from some organizations and literatures such as (CIPS 2020; IBM 2018; PMBOK 2016; Dumas et al., 2018; Howard et al., 2015) **the first contribution to knowledge** relates to the justification of study is the role of information flow and challenges faced by firms when adopting ERP as some institutions find it rather difficult to engage application software users (Laudon and Laudon, 2020). Thus, thesis has contributed to this area of knowledge by encouraging firms to manage change by explaining to users the purpose and benefit of adoption and adaption some benefit include: - Information flow has simplified business management and aided quick responses to queries raised and this has been made visible from responses gathered during interview session with superordinate and subordinates.

The second contribution is to assess the impact of ERP in BPM/Identification of business solutions that suit various silo. The ability to propose appropriate ERP framework applicable to organization business process relies on a firm's ability to thoroughly understand the problems and identify solutions to problems identified (Noel, 2003). This has been made visible in from Tranex Logistics changing their solution provider to suit the raising needs in business. Once this has been achieved the impact of transformation implemented through the usage of ERP will be made visible in turn-around time of service delivered across all silos and progress achieved can be quantified.

PMBOK (2016) encouraged organisations to always share lessons learnt once they complete a new study. Thus, the third contribution to knowledge is the assessment of the role of technology in logistics silo this is evident as interview participant elaborated on how ERP has benefited their silo activities and encouraged lesson learnt to be shared across departments in Tranex Logistics. In addition, Prajogo and Sohal (2013) highlights issues around logistics organization unilateral data sharing and data shredding. Hopkins and Hawking (2018) encourages firms to keep unilateral flow of information but both authors have not stated have best this platform can be monitored.

Having explained the above it is important to ensure various measures are adopted and employees are prepared to adapt to change; also understand the importance of proposed innovation mechanism which have been implemented. Adoption and adaption to process improvement will lead to sustainability/continuity and transfer of knowledge across organization silo.

The following have been proposed as solutions to trending issues:

- Dumas et al., (2018) raised an issue around processes which should be adopted by firms and how to identify frameworks which will suit certain organizations; this research proposes that firms should thoroughly review BPM solutions before adopting any software in their business, by so doing they will be able to access which software/application will be fit for purpose. In regard to identification of framework which will be fit for purpose firms should aim to adopt applications which will resolve issues in their process before doing this, issue to be resolved would have identified and resolution in their organization silo will be identified (Noel, 2008).

- PMBOK (2016) raised an issue around monitoring of projects after adoption stage, training, change management and sharing of lessons learnt. CIPS (2020) encourages firms to monitor their business process by rechecking those changes applied are functional this could be checked periodically. In this regard change and innovation are beneficial but

provisions around monitoring and assurance will need to be developed; change management is another key substance emphasized by literatures thus firms are encouraged to apply appropriate change management skills before changing any organisation ERP as this will enable users understand the benefit of ERP in their BPM also understand the purpose of changes made.

- Jeston and Nelis (2014) raised an issue around measurement of success after adoption and adaption of process management framework. **Laudon and Traver (2020) highlights that due to the ambiguity in process management it is difficult to propose a specific means of measuring success and hereby advises firms management team to apply or develop means of accountability and consistency is delivery excellence.** In this regard there is no specific standard to measuring success after adoption of digitalized BPM.

The above have been developed to justify purpose of thesis and also highlight some trending issues with the adoption of digitalized business process management.

6.6: Research Contribution to Tranex Logistics Operations

Research has also contributed to accessing processes which are value for money oriented as some services might not yield service excellence therefore ability to identify how organization silo apply appropriate ERP in business operations enhances knowledge around processes in firm's silo which will in turn increase productivity in daily operations. Insights as to how firms benefit from adoption and adaption of ERP have been explained through user's experience being aligned to various silos. Therefore, it is logical to state that process adaptation through the use of the application of appropriate ERP will enhance service excellence in Tranex Logistics and in logistics activities as most firm perform similar daily operations. Next strategies adopted in process management will enhance service delivery in business process management as they are able to reach equilibrium in service delivery and business sustainability. Also, note that firms will need to exhaust the benefit of ERP software which they have implemented this means the firms will need to ensure that they maximize the function of the software which they have adopted.

This study has also elaborated on the various elements which are applied in attaining visibility, collaboration and agility in obtaining service excellence and increase revenue as they serve as the key determinants in logistics business process management because without adequate visibility logistics activities will not be able to function coherently; through the aid of partnership working firms are able to achieve collaborative process management and through agility agile and proactive methods of monitoring business activities and risk mitigations are being implemented.

6.7: Scope for Further Research

Areas for further research will be developed based on information gathered from gaps in literature, issues raised by interview participants and trending issues identified in literature reviewed. It is vital to note that customer's needs and wants will continue to evolve; therefore, firm's process management will need to evolve to ensure customer loyal to their brand. First firms will need to detect how track and trace systems can eradicate theft completely in logistics process. How can business sustainability be achieved with ERP as customer needs and wants might change constantly?

The second area for further research is how businesses measure success after deploying various forms of frameworks. The third scope for further research is the use of manual method of service delivery so that firms do not rely solely around digitalized process management. Manual process management should be interlinked with digitalized processes so that they can serve as back-ups to business process management. The evolution in customer's needs will continue to lead to change in BPM which will lead to further job loss as some employees might not be able to cope working with automated and digitalized software which are being used in performing daily operations. Next challenge is how firms develop manual system of working should in case ERP fails; how do firms measure success as BPM through the use of ERP is very ambiguous

The fourth relates to unilateral flow of information across logistics firms specifically merits and demerits of this act cannot be measured as this process has not been established. The fifth area is centred around how ERP can be applied to protect drivers and freight from external robbery/highway theft; however, managers have noted that this issue is being managed through the provision of restricted driving hours.

6.8: Further Research Limitations

In this section limitation encountered during the course of this study will be noted; the first limitation researcher faced was finding a company that currently practices digitalized process management and next challenge was the company of choice went into recession due to the pandemic; most of the locally based logistics companies have not migrated fully into the use of digitalized process management. Due to this several companies had to be contacted and this led to downtime in research because author could not proceed. Fortunately, author resolved this challenge by searching for company which is called Tranex Logistics and fortunately they had same facilities as the previous company of choice.

The next limitation stroke during the pandemic and this really affected data collection and relationship building with the new firm of choice; these two items became a context as

chosen organization became hesitant to answering interview questions and providing time to respond to emails, this made it impossible to reach out to Tranex Logistics as they became so engrossed with trying to sustain their business during the pandemic. This really affected relationship building across all silos as researcher was not receiving positive vibes and lack of interest became more obvious than normal. Therefore, author had to extend data collection to September 2020 which aligned with the Nigerian government covid rules and regulations of opening businesses, this became author contingency plan as yielded positive result as in October/January 2021 as Tranex Logistics had kick started operations and became more willing to engage.

The next limitation was around conducting of interview sessions as previous plans had to be changed and all interviews were conducted electronically and therefore meeting invites were circulated among attendees and some attendees could not make time out to attend. This limitation was resolved by researcher by conducting interview among senior and junior management independently.

Other limitations encountered are time, mobility and resources which led to the lack of using quantitative study to verify findings this therefore opens a space for further research.

6.9: Chapter Summary

Research has examined gaps and challenges which logistics firm face as regards to the use of ERP in managing their BP; research evaluated various framework applied in managing business processes and focused on ERP because it is vaster, and Tranex Logistics apply ERP in managing their daily activities. Findings derived from research depicts that the use of ERP in process management enables businesses grow instantly and expand their line of business as they are able to foresee and oversee all routine and daily activities. Research further explored the effect of ERP in customer service excellence, and this shows that clients will remain loyal to a brand if they are granted consistency and transparency.

The ability for firms to be creative and develop flexible and feasible processes will increase substantial growth and development in service delivery and process management. Also, the ability to encourage the use of equipment which will facilitate daily operation in ERP management will enhance sales, research and development and lead to increase in revenue. Also, it is vital to note that the ability of a firm to exhaust the functions of ERP software solutions applied will lead to maximization of such application as some firms adopt digitalized software application which is appropriate for their firm, but they fail to optimize the functions of the software.

The integration of these challenge is due to lack of ideology in innovation and BPM architecture knowledge. Although the findings capture the situation of service delivery in logistics environment in Nigeria, it can relate to share similar characteristics of transport manage systems within the logistics sector. Based on the development status of logistics activity and the continuous change in customer's needs and wants it is important for Logistics firms to know-how business processes can increase value for money spent, increase business sustainability in achieving the needed growth in their business process management.

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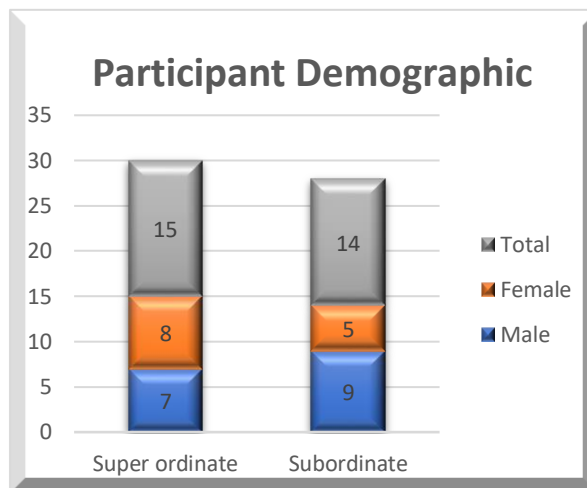
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Appendix 1

Participant Demographic



Appendix 2

Interview Questions

Research Interview questions for super-ordinate and middle level managers:

1. Do you think that all processes in your organization activities are visible? (that is reporting, data sharing across departments, parcel delivery, staff data).
2. How likely do all organization silo share data among their units? (that is information flow across all business processes (big data analytics).
3. How does your organization business process currently function from top to bottom? (This question relates to the use of technology from receiving of parcel to the last mile. It also relates to how technology facilitates each business process (e.g. use of RFID scanners, management of fulfilment centers and warehouse)
4. How likely do you consider product theft to occur in a delivery and how has technology supported or cubed theft?
5. Do you think there is an issue with agility and efficiency? (This question relates to entire enterprise resource planning (ERP) running effectively and efficiently).
6. Do you use cloud computing? This question relates to the sort of ERP system which is currently being applied in business process management such as SAP, Mix-telematics. Kindly state the various systems
7. Do the public laws/ and basic amenities affect your operations?
8. Do you use technology in monitoring your departmental activities?
9. Do you think there is an issue with data clarity?
10. How often do you review your current process in order to measure success achieved?
11. How do you measure success in all organization silo?

12. How do you plan to manage customer data and employee data?
13. How will you rate Tranex Customer Satisfaction/Service Excellence?
14. How best can Tranex business process management be enhanced/improved

(please share your idea)

Research Interview questions for subordinate:

1. Do you think there is an issue with agility and efficiency?
2. Do you use cloud computing (ERP)?
3. How do you plan on ensuring that all transactions are tracked from collection of items from customers to door-to-door delivery?
4. How effective is your tracking software?
5. How likely do you consider product theft to occur in delivery?
6. If there are cases of theft how do you plan to mitigate against this act?
7. How do you plan to manage customer data and employee data?
8. Do you think there is adequate visibility and collaborations in your organization process?
9. From a lower-level perception how best do you think that your organization business process can ensure that all silo work collaboratively (i.e. please suggest areas that require improvement such as HR data base; fulfilment centers activity coordination; on-time delivery and improvement around TAT turn-around time on delivery)
10. Do you think that the geographic location of this business is also an issue with achieving business process management development? (i.e. in comparison to the technology innovation around logistics do you think your organization geographic location has been an issue?
11. How will you rate Tranex Customer Satisfaction/Service Excellence?
12. How best can Tranex business process management be enhanced (please share your idea)