THE IMPACT OF SUPPLY CHAIN AGILITY ON FIRM PERFORMANCE OF TOMATO PROCESSING AGRIBUSINESSES IN ZIMBABWE. CASE STUDY OF BEIT BRIDGE JUICING.

BY

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The undersigned certify that they have read and recommended to Bindura University of Science Education for acceptance, a research project entitled: **The impact of Supply Chain Agility on Firm Performance of Tomato Processing Agribusinesses in Zimbabwe. Case Study of Beit Bridge Juicing.** Submitted by Isabel B. Bvunzawabaya in partial fulfillment of the requirements of the Bachelor of Commerce (HONOURS) DEGREE in PURCHASING and SUPPLY.

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DATE: 15 April 2019
DECLARATION

I, Isabel B. Bvunzawabaya, do hereby declare that this project is the result of my research except to the extent indicated in the acknowledgements and references. This project has not been submitted in part or in full for any other degree for consideration by any other university. As such no part of this research should in any form, be reproduced either by photocopying or other electronic means without permission from the undersigned. This project should be used for academic purposes only. I further declare that this research was approved by the Faculty of Commerce at Bindura University of Science Education.

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ABSTRACT

The study set out to analyze the supply chain agility of Beit Bridge Juicing and how it impacts on firm performance. The study was guided by objectives which aimed at identifying the effects of agility practices, employee attributes, firm attributes and employee & firm interventions and to explore other factors that can lower supply chain agility and firm performance of that processing agribusiness in Zimbabwe so as to identify and make use of increment strategies. Exploratory research was used as it was most beneficial to the researcher for its low cost and stratified random sampling was used to select 18 personnel from a population of 25. Primary data of questionnaires and interviews was used. The Cronbach Alpha Test was used to establish reliability and data was presented in forms of tables and percentages. This investigation revealed that Supply Chain Agility at Beit Bridge Juicing is high, however, there are also other factors that need to be addressed. Development targets need to be related to shorter decision making matrices, more flexible and agile working conditions for employees need to be introduced and the company should consider reengaging the government on policy formulation.
DEDICATIONS

I wish to dedicate this piece of work to my late mother Laetitia Chadenga, my husband Edward and my sons Ethan and Elroy.
ACKNOWLEDGEMENTS

First I give God all the glory for His grace that carried me through my academic career. I thank Pastor Bvumberai and Bishop Believe Paradise for lending me their strength when the going got tough. Completion of this research project was made possible thanks to the time, efforts, advice, encouragement and support of Mr L. Muchabaiwa, my dedicated and cooperative supervisor throughout the period of the research study.

I wish to express my gratitude towards the staff at Beit Bridge Juicing Ruwa Depot for their unwavering support. My studies would not have been complete without the help of Demand Manager Mr Simba Hlatywayo who went out of his way in helping me.

I would like to give voice to my gratitude towards my family for morale and supporting me financially through the course of this project and special mention goes to my husband Edward. They understood and were patient with me, always pushing me and encouraging me to do more.
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1.0 Introduction

This report is about a study undertaken on the tomato supply chain in Zimbabwe, conducted to improve supply chain agility and consequently, firm performance of tomato processing plants. In order to gain competitive advantage, companies have had to adapt by consolidating with suppliers and customers for greater flexibility. That aim is how supply chain agility was born, as a pure product of alliances between or among otherwise separate business entities which share material and information flows. The report aims to show the flexibility, adaptability, quickness, effectiveness and efficiency of the tomato processing supply chain and how firm performance is affected by them. This chapter will look at the background of the study, statement of the problem, objectives and summary.

1.1 Background of the Study

From the turn of the 21st century, the market has been characterized by uncertainty, short product life cycles and unreliable supply due to unspecified demand. In response, the firms have gone through a radical change of reconsidering and realigning business strategies and priorities so that they easily respond to the dual market call of globalisation and complexity. This made agility necessary for survival and the competitive edge. Supply chain agility is relatively young as it is a 21st century paradigm. The agility concept was developed by researchers from Lehigh University, USA, Iacocca Institute who wanted to explain and describe essential aspects that should be considered in the production process (Yusuf, et al., 1999). The conclusion was that companies should constantly adapt to changing business environments with the ability to quickly redirect flexibility, responsiveness, infrastructure etc. to benefit the production process.

Agility is basically the ability of a company to respond timeously to rapidly changing market needs in terms of speed, flexibility, infrastructure, competition, customers and suppliers (Youssef, 1994), and it came from the flexible manufacturing paradigm (Christopher, 2000). When talking about agility, flexibility is the foremost concern, but (Sarkis, 2001) provides a clear distinction of the agility paradigm from leanness and flexibility: Agile manufacturing is a combination of lean manufacturing and flexible manufacturing. Agility in the organisation
was born when considerations such as cost efficiency, production continuity, quality and service reliability growth were managed to gain competitiveness (Wadhwa, et al., 2007). Speed and mobility of utilizing opportunities that arise in the dynamic market are the backbone of Agility.

Supply Chain Agility is the alliance of companies with suppliers, designers, producers, logistics and customers to achieve higher than stand-alone flexibility levels. Supply Chain Agility supporters from Iacocca Institute construe it as a strategy for companies to gain market leadership by acting quickly in the changing and growing market (Yusuf, et al., 1999). Network competence is emphasized and the focus is placed on betterment of the structure, coordinating network partner relationships and fostering proximate communications with the end users. (Christopher, 2000) states that an agile supply chain is market sensitive, it can understand and respond to real demand instead of following forecasts and sale assessments.

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respond quickly to changes in market demand</td>
<td>(Christopher and Towill, 2002; Qrunfleh and Tarafdar, 2013)</td>
</tr>
<tr>
<td>Respond to both demand and supply changes</td>
<td>(Lee, 2004; Li et al., 2008; Li et al., 2009; Charles et al., 2010)</td>
</tr>
<tr>
<td>Respond to unpredictable changes in the market</td>
<td>(Lee, 2004; Carvalho et al., 2012)</td>
</tr>
<tr>
<td>Respond proactively and reactively</td>
<td>(Li et al., 2008; Li et al., 2009)</td>
</tr>
<tr>
<td>Respond timely and flexibly</td>
<td>(Li et al., 2008; Swaffold et al., 2008; Wieland, 2013)</td>
</tr>
<tr>
<td>A supply chain capability</td>
<td>(Christopher and Towill, 2001; Ismail and Sharifi, 2006; Baramichai et al., 2007; Gligor and Holcomb, 2012)</td>
</tr>
<tr>
<td>An organizational capability</td>
<td>(Khan and Pillania, 2008; Braunscheidel and Suresh, 2009; Gligor et al., 2013)</td>
</tr>
<tr>
<td>A dynamic capability</td>
<td>(Chiang et al., 2012; Gligor and Holcomb, 2012b; Blome et al., 2013)</td>
</tr>
</tbody>
</table>


Table 1: Characteristics of Supply Chain Agility
According to (Yusuf, et al., 2014), Supply Chain Agility is the ability of an organisation to reconfigure, adjust and change resources for the key Supply Chain processes (plan, source, make, deliver and return) to satisfy the demand of a changing environment. As outlined in the table above, certain characteristics are identified with supply chain agility but the four key elements are responsiveness, quickness, competency and flexibility (Xun, et al., 2009). Responsiveness is the ability to respond to a dynamic market, quickness is the ability to execute activities within the shortest possible timeframe, competency is the ability to achieve goals and flexibility is the ability of coping with change.

Zimbabwe is an excellent country for agribusiness as it enjoys good soils and considerable rainfall patterns. Zimbabwe was once known as the breadbasket of Africa due to its success in the Agribusiness sector when it was a major producer, processor and exporter of a wide variety of agricultural products (Orlet, 2005). At date, the Zimbabwean agribusiness sector is high risk with possible high reward. Agriculture dominates Zimbabwe’s economy but it contributes less than 20% to Zimbabwe's GDP. It is an important sector marked for economic development plans as agribusinesses need to become the driver improving the agricultural sector’s productivity and contribution to economic growth. As a reply, starting in the early 1990s, Zimbabwe undertook a number of structural reforms to improve the market and external orientation of the economy. The reforms were partly successful and high rates of output growth were achieved in several sectors, with Horticulture responding well to economic liberalization.
<table>
<thead>
<tr>
<th>Natural Region</th>
<th>Land Area (ha.)</th>
<th>As % of Total Land</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>613,233</td>
<td>1.56%</td>
<td>1050mm plus of rainfall per year, some rain in all months. Relatively low temperatures.</td>
</tr>
<tr>
<td>II</td>
<td>7,343,059</td>
<td>18.68%</td>
<td>700-1,050mm of rainfall per year, with rainfall confined to summer. Region IIa has generally reliable rainfall and is suitable for intensive farming. Region IIb, rainfall is less reliable with more risk of mid-season dry spells.</td>
</tr>
<tr>
<td>III</td>
<td>6,854,958</td>
<td>17.43%</td>
<td>500-700mm of rainfall per year with relatively high temperatures and infrequent, heavy falls of rain. Subject to seasonal droughts.</td>
</tr>
<tr>
<td>IV</td>
<td>13,010,036</td>
<td>33.03%</td>
<td>450-600mm of rainfall per annum. Subject to frequent seasonal droughts.</td>
</tr>
<tr>
<td>V</td>
<td>10,288,036</td>
<td>26.2%</td>
<td>Normally less than 500mm of rainfall per year. Very erratic rainfall. Northern lowveld may have more rain but topography and soils are poor.</td>
</tr>
<tr>
<td>Remainder</td>
<td>1,220,254</td>
<td>3.1%</td>
<td>Unsuitable for any form of agricultural use.</td>
</tr>
</tbody>
</table>


Table 2: Natural Regions of Zimbabwe

As shown by Table 2, Zimbabwe has 5 agro-ecological regions which are identified by the amount of rainfall that each region receives annually. Tomato farming is prominent in region I as it is the prime land that receives high rainfall (+1050mm/year). Production is rampant near major urban centres, along intercity roads and rural main feeder roads since it favours greater proximity to markets for ease of supply of inputs, transportation and marketing of the perishable product. The product can be provided all-year round but some areas are seasonal due to environmental constraints and climatic conditions, e.g. Mutoko experiences winter frost, hence does not produce tomatoes in the winter months.

The local tomato market determines its own prices (seasonally) due to supply and demand’s push and pull factors. It is estimated that tomato small scale sector produces about 60 per cent of all locally marketed tomato and the rest comes from the large commercial sector (Government of Zimbabwe, 2010). Without some form of processing, much fresh produce would perish and go to waste before it could be consumed or sold, 60% losses were observed.
in the study of fruits and vegetables in Africa. Processing helps offset seasonal shortages and processing of tomatoes consists of canning, freezing, dehydration and juice. The leading players in the tomato processing industry are Schweppes Zimbabwe, Mazowe Citrus and Chegutu Canners.

National tomato production in 2016 was at 71,253 hectogram per hectare, down from 78,125 hectogram per hectare in 2010 (FAOSTAT). The local tomato market is very open but 46% of production is sold through the fresh produce markets, 42% through direct sales and own consumption, only 10% are processed and 2% of tomatoes are exported (GoZ). Zimbabwe is currently experiencing very low GDP growth which was recently revised down to 1.2% from 2.7% per annum expected for this year, which is well below the world average of above 3.3% forecast for 2016. This weak result is chiefly due to a poor performance by the agricultural sector which has contributed less than 20% to the overall GDP (FAOSTAT). At one time this sector contributed over 40% of national export earnings and employed more than a quarter of the formal labour force. 10% is a small piece in the tomato agribusiness sector so parallel competition for the perfect product is fierce.

Beit Bridge Juicing Private Limited (BBJ) is a manufacturer and processor of fruits into juice concentrates and other related bi-products such as fruit oils, fruit essences and stock feed. The main product range includes orange, grape fruit, passion fruit, lemon and lime concentrates which are supplied as inputs to food and beverage manufacturers. Best Fruit Processors (BFP), a division of BBJ has the capacity to process other fruit types such as mangoes, guavas, passion fruit and tomato into aseptically packed purees and paste.

1.2 Statement of the Problem
Tomato processing agribusinesses in Zimbabwe have been forced to fold e.g. Fresca, Zagrina, Zim Tomato among others, because they lack key sufficient resources to support the size of their operations. Tomato processing agribusinesses need a constant supply of tomato yield and reducing capacity due to the erratic supply of raw materials and the low yield lag is limiting their potential to process for market and effectively protect their investments. These constraints reduce supply chain agility and processing plants are downsizing production due to inconsistent supplies, resulting in low performance levels and plant closures.
1.3 Objectives
1. Evaluate Supply Chain Agility practices currently being used by tomato processing firms in Zimbabwe.
2. Determine how employee attributes affect Supply Chain Agility of the firms.
3. Determine how firm attributes affect Supply Chain Agility of the firms.
4. Identify employee and firm level interventions to promote Supply Chain Agility of tomato processing firms in Zimbabwe

1.4 Research Questions
1. What are the Supply Chain Agility practices currently being used by tomato processing firms in Zimbabwe?
2. What challenges are the tomato processing firms in Zimbabwe facing at employee level when implementing Supply Chain Agility practices?
3. What challenges are the tomato processing firms in Zimbabwe facing at firm level when implementing Supply Chain Agility practices?
4. What is the relationship between these Supply Chain Agility practices and Firm Performance of the tomato processing firms?

1.5 Significance of the Study
The research benefits the supply chain, Beit Bridge Juicing, the university and the researcher.

The Supply Chain
The research findings may be used to develop sound action plans or strategies for the supply chain under study. Moreover, the recommendations will yield expected benefits to the firms if implemented and companies in similar situations can also adopt the recommended solutions to their work practices.

Beit Bridge Juicing
The company can utilise the recommendations to remedy the problem areas unearthed by the study by developing policies and production policies. Management can redress issues that are hindering firm performance and supply chain agility for overall improvement. The new
understanding of issues can help managers in designing appropriate policies for the implementation of supply chain agility which results in better firm performance.

To The University
The document can be used as a source of secondary data for future studies of both the university and the stakeholders. It will help to ensure that any interested parties of the purchasing and supply department at the university produce competent students to the aspect of the role of agility, which is vital in this modern world business environment. Also, the research can act as a supplement on bridging the gap on the theory (supplied by institution) and also aspect of practice (gained by the firms) during the course of research.

To The Researcher
The study is important to the researcher because it will review the existing knowledge thus increasing the knowledge of the researcher in the areas of study and also how to carry out a research. The importance of the study is to identify the levels of agility or activities that can be done to increase agility and improve the firm performance of the tomato agribusinesses. This will enhance and improve the employable skills set and knowledge of the researcher, as well as also adding academic credits.

1.6 Assumptions
The study will be guided by the following assumptions:

- The respondents have knowledge of Supply Chain Agility
- The chosen respondents will be a true representation of the population
- The targeted population will be willing to give the required information
- The information gathered from respondents will be accurate, relevant and reliable

1.7 Delimitations of the Study
The research study will focus on the supply chain of tomato agribusiness in Zimbabwe in the current period from 2015 to date (2018). The supply chain for tomatoes will be followed, with tomatoes as the commodity base. The information will be gathered from a tomato
processing plant in Zimbabwe, Beit Bridge Juicing, and it will be limited to the tomato supply chain, showing how higher levels of agility can increase firm performance. Material used is from more developed countries.

1.8 Limitations of the Study

- Access to other or some documents may be difficult due to privacy and confidentiality that exists in the organization under study so the researcher will apply for the permission to be given access to confidential information needed for the study.
- The sample to be used may not be a true representative for the whole supply chain hence the researcher will choose a sample size adequate to reach saturation level.
- So far, there are few empirical studies about supply chain agility and use in Zimbabwe because this is relatively new to Africa, hence some critical data (e.g. price information) needed for this research is confidential. The researcher will acquire authorisation and use studies from more developed countries.

1.9 Key definitions

Competitive Advantage – the attribute that allows an organisation to be in a favourable or superior position so that it outperforms its competitors.

Market Sensitivity – the susceptibility of a market to fluctuate according to good or bad news.

Economic Growth – the increase in the inflation-adjusted market value of the goods and services produced by an economy over time.

1.10 Summary

This chapter looked at the introduction, the purpose of the study as well as defining the research problem. It also worked at the back ground of the study, delimitations, and limitations, objectives of the research, research questions and the significance of the study. The next chapter will review literature related to the topic to be studied.
CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

The chapter will discuss literature, theoretical framework and empirical evidence concerning the Supply Chain Agility and Firm Performance of Tomato Processing Agribusinesses in Zimbabwe. This is a more deliberate review and synthesis of prior studies while highlighting established Agile Supply Chain systems and their impact on Firm Performance. Focus will be at theoretical and empirical literature reviews. (Cooper, 1995) says a literature review is an account of what has been published on a topic by accredited scholars and researchers. He defined literature review as an examination of the research that has been conducted on a particular field of study. He further added that literature review is the selection of the available documents (both published and unpublished) on the topic, which contains information, ideas, data and evidence.

Literature review is an objective, critical summary of published research literature relevant to a topic under consideration for research (The Writing Centre). It is an evaluative report of studies found in the literature related to a specific selected area and it describes, summarizes, evaluates and clarifies the literature. It serves to provide a context for the research, justifies the research (to ensure the research has not been done before) and shows where the research fits into the existing body of knowledge.

A Theoretical framework is used in research to outline possible courses of action or to present a preferred approach to an idea or thought. Theoretical framework is a type of immediate theory that attempts to connect all aspects of inquiry for example purpose, problem definition, literature review, methodology, data collection and analysis. They are formulated to explain, predict and understand phenomena (Gabriel, 2008). Empirical evidence is the information that is acquired by observation or experimentation. The data is recorded and analysed by the analysts and it is a central process aspect of the scientific method. There is empirical evidence that supports the frameworks previously outlined.
2.1 Conceptual Framework

Supply Chain Agility and Performance

Lu asserts that speed and responsiveness are now the differentiators of today’s global market that is characterized by variety and short life cycles. Winners are those who quickly and efficiently respond, fostering more nimble businesses and more agile supply chains. Lu says agility is a supply chain-wide capability that embraces organisational structures, value chain configurations, information systems, logistics processes and in particular mind-set and culture. It is an organisation’s competitive capability to transform market uncertainty into opportunities (Ngai, et al., 2011).

Christopher (2011) agrees that agility is not a single company concept but extends from one end of the supply chain to the other. It significantly impacts how organisations within the supply/demand network relate to each other and how they can best work together on the basis of shared information while (Carvalho & Cruz-Machado, 2012) say Supply Chain Agility creates the ability to respond rapidly and cost effectively to unpredictable changes in markets (Agarwal et al., 2007).

Agility is often used intermittently with flexibility but they are quite different. Flexibility is the ability to change status within an existing configuration of pre-established parameters whereas agility is the ability to rapidly reconfigure with a new parameter set at the business level (Bernades & Hanna, 2009). Flexibility is internal focus on capability and adaptability while Agility is external focus on competence and capability at the business level (Swafford, et al., 2008), therefore Supply Chain Agility is a valuable capability that is crucial in improving business performance (Swafford, et al., 2008) which can be distinguished as two forms, operational performance (product quality, service level, on time delivery etc.) and cost performance (inventory, transportation, handling, production etc.).

Supply Chain Agility enables firms to better synchronise demand/supply (Christopher, 2000) and help those firms smoothly handle supply chain disruptions when they do occur as it fosters an effective response to change (Dove, 2005). These linkages with supply chain partners can be a source of competitive advantage in the Relational View framework (Dyer and Singh, 1998). Other positive effects are that firms are better equipped to meet delivery deadlines when information and material flows become more accurate and dependable, production processes become flexible and lead times improve. An agile supply chain
becomes prompt at recovering from external shocks which contributes to performance (Lee, 2004).

2.2 Theoretical Review

Many models have been proposed to explain Supply Chain Agility and how Firm Performance is affected by it. The following models help in the study of Supply Chain Agility as it may affect Firm Performance negatively or positively.

2.2.1 The Value Chain Theory by Micheal Porter

The term “value chain” was coined by Michael Porter in 1985 in a book called “Competitive Advantage: Creating and Sustaining Superior Performance”. The value chain analysis describes activities the organisation performs (within and around the organisation) and links them to its competitive position (competitive strength) thereby making it clear which activities add what value to company products and/or services. This was operational under the impression that an organisation is not just hardware, personnel and money, but must be treated as systems and systematic activities that produce products and/or services consumers are more than willing to acquire.

According to Sangram (2018), in these systems and systematic activities, there are primary activities which are directly linked with creating or delivering products/services and support activities which help improve effectiveness and efficiency of primary activities. Primary activities are Inbound Logistics, Operations, Outbound Logistics, Marketing & Sales, and Service. Support activities are Procurement, Technology Development, Human Resource Management and Infrastructure. The special links between the two activities aid corporate success, information flow and continuity. It is every department's duty to release information timeously and accurately to other departments, the company will be able to respond accordingly and achieve seamless cooperation that improves Supply Chain Agility.

2.2.2 The Systems Theory

This analysis says that organisations should consider the whole supply chain in its correct topology (Chih-Hui and Huili, 2017). Long supply chains (complex dynamic systems plagued with discontinuity, time delays and non-linearity) are less adaptable to changes essential for its continuity. This is because the possible emergence of stability and control
problems which remain unsolved may lead to system mal-performance when the disturbances experienced downstream ripple back through the system and supply chain with increasing amplitude, increasing supply bottlenecks. The more lengthy or complex a supply chain is, the greater the risk of profit sapping variability. It is essential to make and keep making your supply chain as short, simple and flexible as it can be (Mercier, et al., 2010). Firms that have developed properly defined structures are expected to perform better than competitors who do not have the same strategic fit (Stank et al. 2005). This paradigm provides the theoretical support for assessing the relationship between Supply Chain Agility and Firm Performance.

2.2.3 Relational View Theory by Dyer and Singh (1998)

The Relational View theory (RV) stresses that sources of competitive advantage for a firm may extend beyond firm boundaries (Turkmen, 2013). This analysis suggests that it is important to know how you cooperate with your partner’s and how they also cooperate with their own business partners. Customers and suppliers are not regarded as competitors but are seen more as collaborators. Studies support the notion that partners who make relation-specific investments and combine resources in unique ways achieve superior levels of performance (Asunuma, 1989; Dyer, 1996). This theory explains the conceptual analysis for reciprocity in cooperative relationships, where there arises opportunities for the development of new resources. Resource combinations can be made to the effect of organisational ties, creating better resource structures than firms that are unwilling to make similar strategic linkages.

The focus is on a larger network consisting of more than the two traditional players also known as the buyer and seller, but can encompass different actors who all have their own networks while dependant on each other (Hakansson and Johanson, 1992). The inter-organizational competitive advantage may arise from relation-specific assets which are considered to generate relational rents through sub-processes of safeguard durations and the volume of inter-firm transactions. It may also arise from knowledge-sharing routines which lead to relational rents through sub-processes of partner-specific absorption capacity, encouraging transparency and discouraging free riding. Another culprit is complementary resources/capabilities which facilitate relational rents through sub-processes of partners’ abilities to recognise and evaluate potential complementarities, and their ability to access benefits of strategic resource complementarity. Effective governance generates relational
rents through sub-processes related to partners' ability to employ self-enforcement mechanisms instead of third party enforcement and the ability to employ informal versus formal self-enforcement governance mechanisms (Dyer and Singh 1998).

Another positive result is the establishment of better organisational relations and trust through mutually shared routines, systems and processes which have continuity, multiplicity and specificity. Firms no longer compete individually but as supply chains as the Relational View theory already suggests that competitiveness comes from inter-firms instead of from within-firm because firms may not be able to develop Supply Chain Agility if they don’t cooperate with their Supply Chain members (Dyer and Singh, 1998). Basically there will be exchange processes and adaptation processes as the network relationships are nurtured based on trust between supply chain members, partner identification of complementary resources and capabilities that can help supply chain members combine their resources to more effectively respond to changes (Gligor, 2012) hence this theory is crucial for Supply Chain Agility.

Source: primary data

Figure 1: Conceptual Framework
2.3 THEORETICAL FRAMEWORK

2.3.1 Independent Variables
Supply Chain Agility Practices

These are sets of activities and processes that fulfil particular tasks only in the Supply Chain (Li, et al., 2005). When Supply Chain Agility Practices are executed efficiently and effectively, improved performance can be achieved. These particular activities should work hand in hand with Supply Chain Strategies to harness benefits from the concept of complementarity (Milgrom and Roberts, 1995). The set of activities are coordinated effort between the Supply Chain partners such as suppliers, manufacturers and customers (Greene, 1991). However, scholars have assented that performance effects of certain practices hinge on the environmental context (Sousa and Voss, 2008).

Due to the ever changing markets, companies have to become agile by adopting practices that are pertinent to their company or supply chain. These organizational practices are often complex and multi-dimensional in linking internal (departments) and external players (suppliers and customers) involved. The Supply Chain practices should cover internal integration, integration with suppliers and integration with customers, i.e. both internal and external firm integration. (Bowersox & Closs, 1996) stress the importance of a company developing their integrated behaviour to incorporate suppliers and customers, which they referred to as Supply Chain Management.

Internal integration is the coordinated management of the company’s internal operations to achieve goals and objectives, and is often aided by supporting technology to smooth and integrate operations which range from resource planning technologies to logistics flow technologies. The key element is timely, accurate, reliable and unrestricted information flow/sharing of key operational data from integrated databases of various internal departments which facilitates better firm and supply chain performance. An achievement of internal integration is the ability for a firm to supply products with many different configurations (Stevenson and Spring, 2007).

Customers demand agility today more than ever so it is important to simultaneously link with both suppliers and customers to deliver better customer value than competitors. Increasing
sophistication in customer preferences means highly customized products are often required (Chen, et al., 2011). In the competitive business, better relationship management with customers is crucial for organisation success (Wines, 1996). Firms to employ the best practices in supply chain planning, supply chain purchasing and supply, supply chain manufacturing and supply chain logistics in order to stay in the competitive field and to satisfy their customer base. It is the mandate for a supply chain to react quickly to changes in customer demand (Qi Zhao and Sheu, 2011) through interactive Customer Relationship (Li, et al., 2005). Customer Relationship enables the development and management of close and long term relationships with customers through engaging customers, getting their feedback and addressing their complaints, thereby building customer loyalty and developing customized products (Li, et al., 2005). Customer linkage can include sharing product information with customers, receiving customer orders, managing customer demand, sharing order statuses and product delivery stage (Lee et al, 2007). Consequently, close customer relationships enable product differentiation, elevates the value provided to customers and boost customer satisfaction and loyalty (Thatte, 2007).

Firms need integration with suppliers so they are aware of and can quickly adapt to sudden changes in product life cycles and technological advancements (Lee, 2000). This is termed Strategic Supplier Partnership and it aims at establishing and maintaining a close and long term relationship with fewer suppliers (Li, et al., 2005) who in turn can be more willing to share risks and rewards (Thatte, 2007). A firm should develop 'favoured status' with key suppliers because strong relationships with few key suppliers may gain you priority status in times of shortages (Mercier et al, 2010). It calls for coordination with suppliers in problem solving, mutual planning, new product design and continuous improvement (shared destiny). Shared benefits and ongoing collaboration in key strategic areas like technology, products and market are realised (Thatte, 2007). Also, early supplier engagement enables the supplier to suggest alternative cost-effective designs, aid in better component selection, more efficient technologies and aid in designing assessment (Tan et al, 2002).

Firm Attributes

These are high levels of integration between internal operational processes e.g. sales, forecasting, production planning, sourcing and delivery (Lu, 2011). Market trend changes in
one department triggers a chain reaction of responsive or corrective changes through many other operations in the Supply Chain. This raises the need to integrate and perform internal processes as if they are one entity.

Martin Christopher agrees that 'division of labour' creates the 'silo mentality' which is slow to respond to changes whilst companies that are quick to respond tend to focus more upon managing 'processes'. Business organization significantly impact agility. If teams are closed in on themselves, they tend to block other teams’ successes and compete instead of complementing each other, which is better for agility. Decision making processes prove to be longer and harder than they should and teams are wary of each other which hinders Supply Chain Agility. Agile teams strive for team building and aid each other as they are cross-functional.

An agile firm works and invests towards educating their employees. The uncertain marketplace is constantly changing which means there are new forms of working and new types of jobs which require a different combination of skills (Bakan, 2011). Continual education programs empower and inspire employees to always think on their feet, be more competent and more responsive to work requirements. Some developed countries have great legislative support and frequent partnership between education providers and employers (Pinnington & Edwards, 2000). It has been established that there is a significant relationship between human capital, efficiency and financial performance (Meditinos, et al., 2011) and human capital plays the main role in organisational performance (Ahmadi, et al., 2011).

Education ranges from inductions, in-house training courses by employers, external courses with other employers, training by specialist training centres to enrolling in university or academy schools. Employee education is most successful when employees see the benefits of such programs to himself (Bakan, 2011).

Employees spend a considerable amount of their time at the work place giving their time and skills to the benefit of the company, so it is essential for the employers to see to their well-being for optimal efficiency and performance. Welfare is “such services, facilities and amenities as adequate canteens, rest and recreation facilities, arrangements for travel to and from work, and for the accommodation of workers employed at a distance from their houses and other such services, amenities and facilities as contribute to improve the conditions under which workers are employed” (The 1947 International Labour Organisation). The two types
of welfare packages are compulsory packages (statutory) and company initiated (non-statutory) packages. Employee welfare is important as it secures employee dedication to the organisation (Casey, 2013). Happy and satisfied employees make agile workers as they are more willing to do better for a company that takes care of their needs. Armstrong & Baron (2000) assert that performance is based on the assumption that if individual performance levels can be raised somehow, better organisation performance will be witnessed as a direct result.

Quality is defined by (Parasuraman & Zeithaml, 1985) as a zero error rate, producing a perfect product on the first try and Crosby (1979) says it is the producer’s ability to meet expectations. Product quality and the firm’s adherence to named quality raises customer satisfaction which in turn increases firm performance. (Suchanek, et al., 2014) assume that “customer satisfaction affects corporate performance since it is surmised that customers will buy a product from companies they will be satisfied with, i.e. such products that will meet their expectations (in all aspects).” Consequently, companies should aim to reach the optimal level of quality that their customers expect and require as productivity is directly linked to performance.

(Lu, 2011)says these are the internal measures sourced directly from and closely linked with the external market the Supply Chain operates in. An agile supply chain measures performance and improves operations by setting up a very high level of market sensitivity. This means that internal customers and external customers are linked to the ultimate end-consumers. The Supply Chain should sense sudden changes of market behaviour as responsiveness is a primary measure for Supply Chain Agility.

Employee Attributes

Employees are crucial in the transformation of a traditional company towards agility. Employee attributes contribute towards agility if the behaviour of the employees make the company more agile and flexible through commitment and communication among the employees. Other firms believe in “agile working” which is when a company gives the employees the chance to choose where, when and how they want to work which brings stellar
results from their efforts. This empowerment can only be achieved if the workforce are highly skilled, technologically competent and adaptable to ensure flexibility as they can deal with non-routine and exceptional circumstances (Youndt, et al., 1996).

Self-development is when employees seek new development areas and continuously learn about new technologies all on their own (choice and self-directed learning according to Knowles, 1984) by choosing what to learn and how to develop themselves. (Antonacopolou, 2000) says that self-development is the integration of the person and the job role while (Meggison & Whitaker, 1998) say it is promoted as a promising strategy for developing employees (including managers). Although the concept is attractive, it is scarcely implemented within organisations as it hinges on employee willingness to learn and take responsibility for their development, and most are not eager to undertake extra work after a full day at the office. (Cunningham, 1999) supports this assertion by pointing out that individuals cannot be forced to learn or develop without their will. Self-development allows the necessary flexibility and more immediate response to changing needs of the organisation (Stewart, 1991) and it enhances self-confidence in developing latent abilities which improve work performance (Temporal, 1984).

Flexibility is crucial for employees and those who have a personal change policy are better at becoming more agile at work (Detollenaere, 2017). Flexibility is necessary for agile working because the agribusiness supply chain has no room for errors as raw materials are perishable. To achieve the required flexibility, employees should be agile and up to date with the whole supply chain, the supplier’s temperaments and customer tendencies. It is also necessary to understand the disruptions that may arise so as to be better prepared to deal with them, thereby raising performance optimization.

Information sharing must not be overlooked as an important employee attribute. The employees should have an information sharing culture so that all departments have relevant information timeously in order to react accordingly. Information sharing empowers the company as a whole only if the information shared in the Supply Chain is relevant, accurate, timely and reliable (Thatte, 2007). Better decision-making and quick action can be utilised on the basis of greater visibility due to information sharing (Davenport, et al., 2001).

Employees should be competent personally and in using company technology. They should be quick to grasp new concepts and be willing to be trained and developed continually to ensure optimum IT-infrastructure use (Detollenaere, 2017). Competent employees have better
working leeway than their counterparts as they can improvise wisely on the job and are not scared to be accountable for their working decisions.

Agile employees are collaborative, adaptive and innovative. They are more at ease when dealing with internal and external changes, however unexpected as they tackle issues as a team. Agile teams have a higher influence, job satisfaction and autonomy among others (Gren, et al., 2017). Agile employees make agile teams which are cross-functional, support aligned strategies, are more flexible as they support each other's success and avoid limiting the success of other departments. However, it is still difficult to establish an empirical definition of employee agility as there is little existing literature (Muduli, 2016).

Employee and Firm Interventions

(Lu, 2011) explains that this is how participating members of the Agile Supply Chain are best connected with each other. Market forces bond the parties (suppliers and buyers) together through the use of more sophisticated information systems with higher levels of information disclosure. Martin Christopher supports by stating that all parties in the Supply Chain should “march to the same drumbeat”. Aligning processes and sharing information creates one set of numbers and a single schedule for the entire Supply Chain enabled by web-based technology. Up to date and market leader technology are a necessity for Supply Chain Agility as they ease workload pressure and are a God-send in this advanced technological era. Today’s global market is viewed as a village due to the use of technology that readily connects otherwise distant entities. Suppliers and customers interface and are constantly in touch with each other, enhancing relations and consequently performance.

(Carvalho & Cruz-Machado, 2012) says the integration level is positively related to the existence of dynamic alliances in the agile Supply Chain. Agility implies the ability to take advantage of opportunities by responding to changes in the local market (Lu, 2011). It is a given that there should be the ability to leverage skills, assets and other resources through shared goal establishment and clear communication thereof across the supply chain. If the structure and processes are managed individually and to a minimum, the supply chain becomes more agile and responsive.
Both employees and the firm are affected by internal and external drivers of change. A need for the culture of change arises when there is an area of ineffectiveness. The culture of change should be supported by both employees and the firm as (Ford, et al., 2008) pointed out that change agents can bring about their own downfall through a lack of communication, the mismanagement of employee trust and resistance. A good transition enables flexibility and better response, thus increasing effectiveness and efficiency, key performance gears. Flexible employees and organisation have high performing cultures, instead of operating with a ‘default' culture which is simply adamant about 'the way things are done around here' (Parfitt, 2013).

2.3.2 Dependent Variables

Supply Chain Agility Measurement

Supply Chain Agility is still a new concept for developing countries so it is not yet readily understood or measured due to its complexity. The fact remains that Supply Chain Agility should be measured in order to ascertain its effectiveness and value but available literature is not yet evolved to include all aspects that affect it. Some aspects are beyond human preparation or control, for example natural disasters.

Performance Measurement

There is still a literature gap on the relationship between Supply Chain Agility and Firm Performance. In terms of Firm Performance, efficiency (ratio between the normal level of inputs over the real level of inputs) and effectiveness (ratio between real outputs and expected outputs) in accomplishing a given task should be considered (Mentzer and Konrad, 1991). Business Performance can be measured using Return On Investment (ROI) according to (Smith, et al., 1987), Return On Sales (ROS) according to (Kean, et al., 1998), Market Share, ROI growth, ROS growth and Market Share growth (Sanchez & Perez, 2005). In another study, (Vickery, et al., 2003) said performance should be measured by accounting data that reveals firm's performance and the market valuation. Alternatively, (Rosenzweig, et al., 2003) used ROA, sales growth, customer satisfaction and percentage revenue from new products. In this report performance is evaluated by assessing return on sales, return on
assets, return on investments and profit margins (Fugate et al. 2009). For the purpose of this study, the researcher used ROA, ROI, ROS and Profit Margin.

2.4 Empirical Evidence
Many theories have been propounded to demonstrate the effects of Supply Chain Agility on Firm Performance. With the aid of The value Chain Theory, it is evident that an organisation is not a random compilation of machinery, equipment, people and money but a system of all factors of production to be harmonised and coordinated as one to ensure agility is achieved in various dimensions of the organisation; business processes and structures, Supply Chain Agility, and Performance outcomes are inextricably linked in many ways (Li, et al., 2008). There has been considerable researches in agribusiness supply chain in Africa, but there still exists a literature gap on agile Zimbabwean agribusiness firm performance, especially in tomato processing.

2.5 Summary
This chapter looked at the theoretical framework and the empirical evidence in relation to Supply Chain Agility Theories, employee attributes and interventions in a tomato processing company and the chapter ended by focusing on the findings from previous research. The next chapter will review the research methodology which was used to collect data for the research problems of Supply Chain Agility and Firm Performance of Tomato Processing Agribusinesses in Zimbabwe.
CHAPTER THREE
RESEARCH METHODOLOGY

3.0 Introduction
Research Methodology is the approach taken in tackling a problem and (Waliman, 2009) says that the quality of research largely depends on the type of methodology used. This chapter discusses the way that various aspects of methodology will be tackled to have relevant data. It explains data collection and analysis plans in assessing Supply Chain Agility and Firm Performance of a Tomato Processing Agribusiness in Zimbabwe. Primary and secondary methods of research which will be used to collect data are discussed and so is brief data presentation and analysis. Last is a brief overview of the whole chapter.

3.1 Research Design
(Crough & Housden, 2003) agree with (Leedy, 1993) that a research design is a total plan showing how research data is gathered and (McMillian & Schumacher, 1993) say that research design is a plan for selecting a subject, research site and procedures. A descriptive research design will be used as the researcher identifies the appropriate data collection methods, record findings and/or observations because it ensures more flexibility through the use of open ended questionnaires which give qualitative data. This will be done to be more prepared for complexities that might arise with a situation.

(Denzin, 1994) supports the use of qualitative research as they are better at accurately describing, decoding and interpreting the meaning of phenomena occurring in a normal social context. According to (Waliman, 2009) a descriptive research design depends on human observations so there is the danger of data distortion that may occur so the research tried by all means deemed necessary to minimize its occurrence. This design also brings in the ability to interact with research subject in their own language and on their own terms, hence minimizing data loss through miscommunication.

The downside of this research method is that the flexibility and changing context of the method runs a possibility of making the research depart from its original objective and reveal multiple perspectives of respondents. However, the data collection techniques will be limited
to questionnaires and interviews as qualitative research only gathers opinions and perceptions and should be carefully planned to ensure that it remains focused on Supply Chain Agility and Firm Performance of Tomato Processing Agribusinesses in Zimbabwe.

3.2 Sample Size and Sampling Techniques

A sample is a subset of data collected from the total quantity of subjects on whom the study depends. A larger sample size has a greater chance of better representing the total population. It is to the researcher's belief that the selected people included in the survey are knowledgeable in the field under study so as to reduce the possibility of biased data.

For the purpose of this study, probability sampling was used. Probability sampling is when all subjects of the total population have an equal chance of being selected to represent the population, hence may guarantee a representative sample. As shown in Table 3, the total population found was twenty four personnel under their Supply Chain, from which eighteen were selected for the study. The personnel were selected from six departments.

<table>
<thead>
<tr>
<th>Department</th>
<th>Total size</th>
<th>Population</th>
<th>Sample Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agribusiness</td>
<td>3</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Distribution</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Finance</td>
<td>8</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Procurement</td>
<td>5</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Sales</td>
<td>6</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Stores</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>24</strong></td>
<td><strong>18</strong></td>
<td></td>
</tr>
</tbody>
</table>

Source: primary data

Table 3: Sample Size
The probability sampling method has three types which are random sampling, systematic sampling and stratified sampling. In a case of a large population, it becomes difficult to identify each and every member of the population, hence biased results may be sampled. There is need for a representative to be generated somehow by a method that is simple and straight-forward. In stratified sampling the researcher divides the entire target population into different subsets and then randomly selects the final subjects proportionally from the different stratum. The stratum would be a subset of the target population that has at least one common characteristic. The sample size would be randomly selected depending on the stratum’s bearing on the total population size. The sampling technique used was stratified random sampling because performance differs with positions and motivation. The researcher used the areas stipulated since they are the epicentre of all tomato productions and Processing made in Zimbabwe, therefore directly affecting the performance of all processors in Zimbabwe.

Source: primary data

Figure 2: Sample Size
3.3 Research Instruments

3.3.1 Questionnaire
A questionnaire is a research instrument that consists of a set of questions or other types of prompts that aims to collect information from a respondent (QuestionPro). Identical questions are posed to respondents in form of writing. The questions would be well formulated to probe and obtain responses regarding the objective of the study. A questionnaire will be used because it makes it possible to receive responses without necessarily talking to every respondent and specific objectives are kept in focus. Raw data which is easy to analyze is obtained. More honest answers are anticipated due to the lack of identification necessary for the research. Uniformity is ensured and it is an economic way of gathering data. However questionnaires are not as flexible as interviews hence questions might be interpreted differently leading to varying answers to one question. This leads to confusion due to ambiguity of replies hence a mixture of open ended and close ended questions will be used.

Questionnaires will be given to respondents to obtain data for this research because they do not rush the respondents for answers and allow for them to reply honestly. Ambiguous questions will be addressed on site ensuring accurate responses.

3.3.2 Interviews
An interview is a tool of gathering data whereby one (interviewer) engages in a conversation with the respondent (interviewee) by posing questions and noting down the responses. It may be a telephone conversation or a face to face interaction. Responses are spontaneous and any clarification needed by the respondents will be promptly given. However, interviews can be time consuming as they take longer to complete, differing with each respondent. Costs would also be incurred if the interviews take long to complete, given that food and transport would have to be accounted for. In this research, personnel interviews will be used to gather data, as a supplement to the questionnaires as the researcher can probe further to get more information if the need arises. According to (Lekvall & Wahlbin, 1993), the advantage of individual interview is that it allows the interviewer to ask all kinds of questions, and the questions could be extensive and subjective under conditions that is preconceived for the interviewees.
3.4 Validity Of Data
Validity is the extent to which the research instrument was successful enough to represent the state of affairs as they are on the ground. It is the extent to which the questionnaires and interviews managed to be interpreted into meaningful information. Validity can also be defined in terms of the accuracy and truthfulness of the research in representing the situation. Reliability on the other hand is the extent to which the research was able to constantly address the core objective of the study. Yin (1994) asserts that reliability minimizes errors and biases in a study. The research validity and reliability can be obtained by making sure the sample respondents are knowledgeable in the field that they are being asked and are free enough to open up.

The questions will be general but will cover all the research’s objectives so if the respondents do not understand them or do not disclose information, they will not be able to truly represent the population (www.fao.org). The questions will be posed in a uniform manner when the respondents are not in a hurry to go anywhere or do anything, but respectful of people’s differences, in a bid to try and reach everyone on their level of interaction.

The questions will be pre-tested in a bid to discover and rectify ambiguous questions and repetitive questions. This is necessary to eliminate weak questions and better convey the questions across in a way that brings the objectives into focus. Methods of pre-testing include focus groups and paired comparisons. Responses from the pilot test then make room for changes to be made when better questions are crafted.

3.6 Data Presentation and Analysis
A combination of qualitative and quantitative methods of data analysis will be used. Results will be deducted after analysis of all data present making use of descriptive modes such as tables, graphs and charts. Figures will be constructed to show relationship between variables for better understanding.

3.7 Summary
This chapter discussed the research methodology which is how the research was actually carried out, the target population, sample size, sampling techniques and research instruments. The chapter also covered data validity and reliability as well as data presentation and analysis so as to arrive at meaningful conclusions. The next chapter is on data presentation and research findings.
CHAPTER FOUR

PRESENTATION AND ANALYSIS OF DATA

4.0 Introduction
This chapter looks at the data obtained and presents it for analysis and interpretation. It will reveal facts about the subject of the study pertaining the Last-mile distribution system and how it affects transport costs. Questionnaires and personal interviews were used in gathering the primary data and then interpreted into meaningful information.

4.1 Response Rate
The response rate enables the researcher to judge the validity of the research findings by ensuring that the percentages of the respondents who manage to respond are sufficient to facilitate meaningful interpretation analysis. Data was collected from a total of 15 respondents, from a sample size of 18.

Source: Primary Data

Figure 3: Response Rate in Percentages
According to (Sekaran, 2006), a response rate of 30% is considered acceptable for surveys. Thus, the response rate achieved in this study of 83% can be considered as an acceptable representation to give the findings adequate reliability. The researcher used the data obtained to analyze and interpret it into information. All the groups targeted responded since the population was small, hence the sample was small and manageable. The researcher obtained a high response rate of 83% because she hand-delivered the questionnaires and collected them personally after they were completed. The researcher also took time to undertake interviews. From the pie chart above, it can be concluded that the response rate was good.

4.2 Demographics Of Respondents

This section outlines the demographic characteristics of the sample under study who responded to the questionnaires and interviews. The demographics include gender, age, education level, position and length of the period with Beit Bridge Juicing. This shows the hiring tendencies and employee retention of the firm under study.

Gender

The sample was made up of both male and female respondents, whereby there were responses from 9 males and 6 females. This gave the males a dominant percentage of 60% as compared to 40% for females. The Bar Graph below shows the percentage difference in respect to the gender of the respondents who participated in the research study.

Source: primary data

Figure 4: Gender of Respondents in Percentages
This shows that the tomato processing agribusiness at Beit Bridge Juicing is male dominated and that males form the backbone of the tomato processing agribusiness and women are still inching their way into the line of business. However, the margin shows that Beit Bridge Juicing is giving women a chance into the line of agribusiness and doing away with the notion that only men are supposed to be the officially employed.

Age of respondents

The tomato processing agribusiness is characterized by personnel over 21 years to more than 50 years. 4 respondents were between the ages of 20-30 years, 8 respondents were between the ages of 31-40 years, 2 respondents were between the ages of 41-50 years and 1 respondent was over 50 years old.

Source: primary data

Figure 5: Age of Respondents in Percentages
27% of the respondents were between the ages of 20-30. 53% were between the ages of 31-40 years, 13% were between the ages of 41-50 years and 7% were over 50 years old. This shows the tomato processing agribusiness is dominated by agile personnel as it requires highly mobile people who are physically fit and mature as shown by the bar graph above.

Academic Qualifications

Everyone had tertiary education with the least level being a Diploma. Dominating was the Degree level with a minority of Masters and Post Masters.

![Qualification Chart]

Source: primary data

Figure 6: Qualifications of Respondents

Diploma Holders were 7%, the populace with Degrees were 79%, 7% had Masters Degrees and 7% were on Post Master’s. All respondents held Professional Courses relating to their fields with others holding Professional Qualifications. This shows that the company hires personnel with high levels of education and values academic achievements. This is a clear indication that the employees have the relevant skills needed in the processing firm.
Department Response

Every department had representatives, as all departments responded to the questionnaires and interviews. The Supply Chain at Beit Bridge Juicing has 5 departments that the researcher was interested in and all departments responded to the questionnaires and interviews.

Source: primary data

Figure 7: Department Response in Percentages

The Finance department had the largest response rate percentage of 33%, followed by procurement with 27%, Sales and Agribusiness both had 13% and lastly Distribution had 7%, the same with Stores which registered 7%.
Experience of Personnel

Source: primary data

Figure 8: Experience of Respondents in Percentages

The study found out that 34% of the respondents had 4 years or less working at Beit Bridge Juicing and this is considered as the young blood at the company. 53% of the respondents had 5-10 years’ experience working at Beit Bridge Juicing which was the majority. 13% of the respondents had 11 years and above working experience at Beit Bridge Juicing. This is an indication that the majority of the respondents have been at Beit Bridge Juicing for a lengthy period hence were able to provide relevant and reliable information useful to this study. The study shows that the company is good at attracting and retaining skilled workers and keeps on employing new people periodically when needed. The assumption was that the longer the employees were at the company, the better their level of understanding regarding internal information relevant to the company. This is good for the company as new blood adds new ideas and energy.
4.3 Supply Chain Agility Awareness

All the respondents had an understanding of Supply Chain Agility and the responses differed according to the personal understanding of the individual. The responses cited highlighted supply chain sensitivity at 13%, swiftness at 20%, the ability to respond to changes at 47% and flexibility at 20%. There were no responses which indicated that Supply Chain Agility is an unknown phenomena at Beit Bridge Juicing as everyone had a working definition according to the demands of their department.

Source: primary data

Figure 9: Supply Chain Agility Awareness
4.4 Supply Chain Agility Effectiveness

Supply Chain Agility effectiveness refers to the efficiency of Supply Chain Agility, its performance impact on an organisation’s competitiveness. Effective supply chain agility is connecting various processes, people and integrating resource sharing. Ineffective supply chain agility is the absence of harmony in the above mentioned areas which leads to a company that cannot adapt quickly in the face of rapid changes in the business environment. The study showed that 47% of the respondents said their Supply Chain’s Agility is Moderately Effective while 53% said the Supply Chain’s Agility is Very Effective. Ratings for ineffectiveness were non-existent as the personnel at Beit Bridge Juicing were quite confident of the company’s Supply Chain Agility.

4.5 Reliability

In this study Cronbach Alpha coefficient was used to measure reliability. The scale states that if the coefficient is more than 0.70, the data is taken as reliable, but if it is below then the data is treated as unreliable. The reliability analysis for factors yielded the following results: performance measures (0.992), employee attributes (0.9595), firm attributes (0.9562), employee and firm attributes (0.9087) and lastly supply chain agility practices (0.7541).
data was justified to be used for further analysis because the Cronbach Alpha Coefficient was more than 0.73.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Items</th>
<th>Cronbach Alpha</th>
<th>Comment</th>
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<td>Supply Chain Agility Practices</td>
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<td>Employee Attributes</td>
<td>7</td>
<td>0.9595</td>
<td>Accept</td>
</tr>
<tr>
<td>Firm Attributes</td>
<td>6</td>
<td>0.9562</td>
<td>Accept</td>
</tr>
<tr>
<td>Employee and Firm Interventions</td>
<td>3</td>
<td>0.9087</td>
<td>Accept</td>
</tr>
<tr>
<td>Performance Measures</td>
<td>4</td>
<td>0.992</td>
<td>Accept</td>
</tr>
</tbody>
</table>

Source: primary data

Table 4: Cronbach Alpha Reliability Test for combined variables

4.6 Supply Chain Agility Practices

<table>
<thead>
<tr>
<th>Supply Chain Agility Practices</th>
<th>N</th>
<th>Mean</th>
<th>Std.Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintaining good customer relations</td>
<td>15</td>
<td>4.4</td>
<td>0.5071</td>
</tr>
<tr>
<td>Flexible production processes to meet varying demand requirements</td>
<td>15</td>
<td>3.8</td>
<td>0.7746</td>
</tr>
<tr>
<td>Technology used in most operations</td>
<td>15</td>
<td>3.6</td>
<td>1.0556</td>
</tr>
<tr>
<td>Maintaining good supplier relations</td>
<td>15</td>
<td>4.3</td>
<td>0.7037</td>
</tr>
<tr>
<td>Conducting regular trainings for stakeholders in the Supply Chain</td>
<td>15</td>
<td>2.6</td>
<td>1.291</td>
</tr>
<tr>
<td>Sustainable supply ensured by contracting</td>
<td>15</td>
<td>3.7</td>
<td>0.7988</td>
</tr>
<tr>
<td>Inter-organizational integration</td>
<td>15</td>
<td>4.3</td>
<td>0.7988</td>
</tr>
<tr>
<td>Monitor regulatory issues</td>
<td>15</td>
<td>4.2</td>
<td>1.2649</td>
</tr>
<tr>
<td>Reduce lead time</td>
<td>15</td>
<td>3.5</td>
<td>1.2456</td>
</tr>
<tr>
<td>Average mean</td>
<td></td>
<td>3.8</td>
<td></td>
</tr>
</tbody>
</table>

Source: primary data

Table 5: Supply Chain Agility Practices on Supply Chain Agility

The table above shows that good supply chain agility practices have been successfully adopted at Beit Bridge Juicing. Maintaining good customer and supplier relations are the foremost practices that an agile company does and these practices have immensely helped in Supply Chain Agility at the company. This agility practice is supported by (Christopher,
2000) who says that the ability to better synchronize demand and supply is a form of Supply Chain Agility. Feedback from customers is ensured by good customer relations and the ‘favoured status’ is enjoyed from good supplier relations, which increases the Supply Chain Agility of their company. Dyer and Singh (1998) echo this notion by stating that these linkages with supply chain partners can be a source of competitive advantage in the Relational view framework, a form of agility. Beit Bridge Juicing has an impressive inter-organisational integration as is evidenced by their centralised decision making. This makes it easier to monitor regulatory issues, which is an agility practice. When regulations are followed, everyone is kept in check which protects the company. An agile company grows into a firm that promptly senses external shocks if regulations are followed and Lee (2000) says that an agile supply chain becomes prompt at recovering from those external shocks, which contributes to performance. Least ranking is the conduction of regular trainings for stakeholders. This is one area of agility that Beit Bridge Juicing could endeavour to improve. Agility calls for employees that are continuously updated and educated as the market is now very dynamic. (Lu, 2011) asserts that speed and responsiveness are now the differentiators of today’s global market, so it serves in the company’s interest to regularly conduct trainings as the employees feel that they can benefit more from in-house and external trainings.

Source: primary data

**Figure 11: Average Practices Score in Percentages**
Overall score for Supply Chain Agility Practices is 3.8 from a possible 5.0, which translates to 76%. This is supported by (Lin, et al., 2006) who found out that an increase in firm performance can improve the level of implementation of supply chain practices (Lin, et al., 2006). (Li, et al., 2006) also state the firms that will achieve a high impact use of supply chain practices can be viewed and assessed through the achievement of the firm and the competitive advantage offered by the firm. The high ranking from the study shows that good Supply Chain Agility Practices have indeed been adopted and affect Supply Chain Agility and Performance to a greater extent.

### 4.7 Employee Attributes

<table>
<thead>
<tr>
<th>Employee Attributes</th>
<th>N</th>
<th>Mean</th>
<th>Std.Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>My firm promotes competence</td>
<td>15</td>
<td>3.9</td>
<td>1.2228</td>
</tr>
<tr>
<td>Employees share relevant information timeously</td>
<td>15</td>
<td>3.9</td>
<td>1.1629</td>
</tr>
<tr>
<td>Employees have strong collaborative tendencies</td>
<td>15</td>
<td>3.4</td>
<td>1.0556</td>
</tr>
<tr>
<td>All employees aim for quality improvement</td>
<td>15</td>
<td>3.7</td>
<td>1.3345</td>
</tr>
<tr>
<td>Our firm empowers employees to work agilely</td>
<td>15</td>
<td>3.5</td>
<td>1.1255</td>
</tr>
<tr>
<td>Employees are always pursuing self-development</td>
<td>15</td>
<td>3.7</td>
<td>1.2344</td>
</tr>
<tr>
<td>Employees are given room to be flexible in uncertain moments</td>
<td>15</td>
<td>3.7</td>
<td>1.1751</td>
</tr>
<tr>
<td>Average mean</td>
<td></td>
<td>3.7</td>
<td></td>
</tr>
</tbody>
</table>

Source: primary data

**Table 6: Employee Attributes on Supply Chain Agility**

The table above shows that employees that work at Beit Bridge Juicing have commendable attributes of their own. The ratings show that they have the ability of working together, complementing each other’s work and upholding the team spirit. The employees also know how to keep sharpening their skills on their own by continuously adding value through self-development which is supported by (Maditinos, et al., 2011) who discovered that there is a significant relationship between human capital, efficiency and performance. An agile company gives its employees better job opportunities and the employees are aiming to benefit from various in-house job opportunities that arise in the course of their service. The firm promotes competence and flexibility in uncertain moments which encourages employees do their best to share information timeously as this is a great Supply Chain Agility driver.
Flexibility is internal focus on capability and adaptability as opposed to being rigid and unbending. (Swafford, et al., 2006) supports this by saying that they found out that flexibility within the supply chain has a significant influence on supply chain agility. They also found that firms derive higher levels of supply chain agility through integrating information across the supply chain activities which transforms market uncertainty into opportunities; an agile organisation’s competitive capability (Ngai, et al., 2011).

![Average Employee Attributes score in percentage]

Source: primary data

**Figure 12: Average Employee Attributes score in percentages**

The overall score for Employee Attributes is 3.7 from a possible 5.0, which translates to 74%. This is a high ranking that shows that employees at Beit Bridge Juicing have commendable personal attributes that affect Supply Chain Agility and Performance to a greater extent.
4.8 Firm Attributes

<table>
<thead>
<tr>
<th>Firm Attributes</th>
<th>N</th>
<th>Mean</th>
<th>Std.Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>My firm has organization-wide integration</td>
<td>15</td>
<td>4</td>
<td>1.1952</td>
</tr>
<tr>
<td>My firm has cross-functional working teams</td>
<td>15</td>
<td>3.9</td>
<td>1.1255</td>
</tr>
<tr>
<td>My firm upgrades workforce skills regularly</td>
<td>15</td>
<td>3.7</td>
<td>1.2344</td>
</tr>
<tr>
<td>My firm focuses on employee satisfaction</td>
<td>15</td>
<td>3.3</td>
<td>1.0998</td>
</tr>
<tr>
<td>My firm deals with market need changes</td>
<td>15</td>
<td>3.9</td>
<td>1.2459</td>
</tr>
<tr>
<td>My firm produces products with a great life quality</td>
<td>15</td>
<td>4.4</td>
<td>1.3522</td>
</tr>
<tr>
<td>Average mean</td>
<td></td>
<td>3.9</td>
<td></td>
</tr>
</tbody>
</table>

Source: primary data

Table 7: Firm Attributes on Supply Chain Agility

Every firm has inherent attributes that differentiate it from others. Beit Bridge Juicing has invested in organization-wide integration because it part of a much bigger enterprise. They are under Schweppes Zimbabwe which has other subsidiaries beside Beit Bridge Juicing and their integration makes their teams cross-functional as they deal with market need changes. Employees do not have a ‘silo mentality’ (Christopher, 2000) which hinders agility by making employees slow to respond to changes. Beit Bridge Juicing tends to focus more on managing processes which increases their agility. The company has products that have a great life quality, which is their agility driver as productivity is directly linked to performance. (Kekre, et al., 1995) study support the notion that a positive impact on product quality is evidenced when there are fewer strategic suppliers who are sustained on a long term basis. Their insistence on making products with great life quality is evidenced from the table above, which is a major boost for performance as customers are loyal to great products. Least ranking attribute is the focus on employee satisfaction. The firm is not placing due importance in keeping their employees satisfied, which hinders Supply Chain Agility and Firm Performance. Employees spend a huge portion of their lives at the work place so it would be in the best interest of the company to make sure they are not disgruntled to keep their dedication to the company (Casey, 2013).
The overall score for Firm Attributes is 3.9 from a possible 5.0, which translates to 78%. This is a high ranking that shows that inherent attributes of Beit Bridge Juicing as a company are respectable and affect Supply Chain Agility and Performance to a greater extent.

### 4.9 Employee And Firm Interventions

<table>
<thead>
<tr>
<th>Employee and Firm Interventions</th>
<th>N</th>
<th>Mean</th>
<th>Std.Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>Our production system is based on flexible technology</td>
<td>15</td>
<td>3.3</td>
<td>1.1629</td>
</tr>
<tr>
<td>Employees have the required skills and knowledge to operate support technology</td>
<td>15</td>
<td>3.6</td>
<td>1.1212</td>
</tr>
<tr>
<td>Our firm and employees have a culture of change</td>
<td>15</td>
<td>3.7</td>
<td>1.1751</td>
</tr>
<tr>
<td>Average mean</td>
<td></td>
<td>3.5</td>
<td></td>
</tr>
</tbody>
</table>

Source: primary data

Table 8: Employee and Firm Interventions on Supply Chain Agility
The table above shows that employee and firm interventions at Beit Bridge Juicing are good. People adjust accordingly and the technology used is understood as well as flexible. This enhances agility when there are available channels to communicate and the people using them know how to get the most out of the technology by having optimum IT-infrastructure use (Detollenaaere, 2017). The firm has put in place flexible technology which makes interfacing among employees and supply chain partners easier. This enables agility as goals are shared and worked towards. Employees know how to operate the support technology which would be otherwise useless if used improperly. To address agility, employees at Beit Bridge Juicing have a culture of change. If new practices are introduced or if new management styles are adopted, the people are not adamant about ‘the way things are done around here’ (Parfitt, 2013) which hinders agility. They adapt along with the flexible technology, which completes the change matrix.

![Employee and Firm Interventions Average Score in percentages](image)

Source: primary data

**Figure 14: Employee and Firm Interventions Average Score in percentages**

The overall score for Employee and Firm Interventions is 3.5 from a possible 5.0, which translates to 70%. This is a relatively high ranking that shows that employees indicates that
there is room for improvement at Beit Bridge Juicing, as the firm’s IT strategy is shaped by its business strategy but also can provide new business strategy opportunities (Chen, et al., 2010). However, Employee and Firm attributes affect Supply Chain Agility and Performance positively to a greater extent.

4.10 Firm Performance

Table 9: Firm Performance

<table>
<thead>
<tr>
<th>Performance Measurement</th>
<th>N</th>
<th>Mean</th>
<th>Std.Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>Return on Assets (ROA)</td>
<td>15</td>
<td>3.9</td>
<td>1.6676</td>
</tr>
<tr>
<td>Return on Investments (ROI)</td>
<td>15</td>
<td>4</td>
<td>1.6903</td>
</tr>
<tr>
<td>Return on Sales (ROS)</td>
<td>15</td>
<td>4.3</td>
<td>1.7512</td>
</tr>
<tr>
<td>Profit Margin</td>
<td>15</td>
<td>4.3</td>
<td>1.7512</td>
</tr>
<tr>
<td>Average mean</td>
<td>15</td>
<td>4.1</td>
<td></td>
</tr>
</tbody>
</table>

Source: primary data

The table above shows that Firm Performance at Beit Bridge Juicing is high ranking. The economy in Zimbabwe is currently very unstable which has robbed the firm of local competitors, but they are thriving excellently. All performance measurement scales are well faring and in the high.

4.11 Discussion

Even though there are tremendous benefits of agility, organisations are faced with challenges in implementing the measures necessary to increase their agility (Ismail & Sharifi, 2006). The answer lies in the ability of an organisation to act with other partners as a supply chain and not act as an independent entity. Organisations have to develop strategies in order to respond to ever-increasing levels of volatility in demand (Vinodh, et al., 2009). This study highlights that four factors take priority in critical to this question, namely Supply chain agility practices, Employee attributes, Firm attributes and Employee & Firm Interventions. Agility was established as the ability to sense external situations from customers, suppliers and competitors, and then assess useful information to take up some remedies to respond to unexpected changes.
The response capabilities enable Beit Bridge Juicing to make a variety of responses, ranging from a complex move, a simple move, or even no move (Overby, et al., 2006) to enhance its competitive advantage. Competitive advantage is built upon sustainable and well-planned agility practices. Supply chain agility practices consist of managerial practices and unique business models that aid the company in succeeding in a less predictable world. Supply chains that survive are those that can activate concurrent business processes and core competences that merge infrastructures, share risks and costs, leverage the shortness of today’s product lifecycle, reduce time to market, and gain and anticipate new vistas for competitive leadership (Ross, 1998).

Employee attributes are important in sheltering a company from human based abuse. They are personal attributes that are useful in the running of the company. An agile supply chain has firm attributes that are distinguishable in order to enrich and satisfy customers which include responsiveness, flexibility and adaptability. (Christopher, 2000)says that market sensitivity, process integration, network base and virtual are key elements that help in becoming more flexible, responsive and adaptive to market conditions. Firm attributes should enable connectivity, information sharing and visibility, which is the ability of the supply chain to enable access and sharing of information across the supply chain partners (Lamming, et al., 2001). Achieving an agile supply chain is a challenge due to the complexities involved. Employee & Firm Interventions are put in place as an effort to address barriers to agile practices.

4.12 Summary
This chapter looked at data presentation, interpretation and analysis as a way of making sense of the findings of this study. The major highlights of the study are that the dynamic nature of the tomato processing agribusiness affects agility of the Supply Chain at Beit Bridge Juicing but there are also factors inherent of the company itself that affect agility and performance to a greater extent. The study will be summarized in the next chapter and conclusions will be drawn from the findings.
CHAPTER FIVE

5.0 Introduction
This report is on factors that affect Supply Chain Agility and Firm Performance in Beit Bridge Juicing, a Tomato Processing Agribusiness in Zimbabwe. This study was motivated by the alarming rate at which tomato processing plants are shutting down and opting to import processed tomato into the country. The researcher used four factors to measure and draw conclusions from. This chapter summarizes and concludes the research question and presents the methodologies of the study and the findings of the present research. It discusses the findings, conclusions and recommendations to improve the area investigated while highlighting the suggestions for future research derived from research conclusions.

5.1 Summary of Major Findings
This research sought to analyze how Supply Chain Agility practices, employee attributes, firm attributes and Employee & Firm Interventions affect Supply Chain Agility and Firm Performance of a tomato processing agribusiness in Zimbabwe. Different ideas from authors were viewed in the literature review to see the findings observed by other authors who have studied in the same area before. Theoretical and empirical data were used in analyzing previous work that was available at hand to realize effectiveness of Supply Chain Agility. Data was then collected from the field using observation, contextual interviews and sentence completion form, an exploratory research design was implemented and meaningful data was analyzed then interpreted to know about the existing concept in use. The observation was made at Beit Bridge Juicing Ruwa Plant. The questionnaire form was the main research method to understand the Supply Chain attributes and to gain innovative improvement ideas. The respondents were chosen among the employees of Beit Bridge Juicing. This summary briefly sums up the major findings of the research and these are based on the independent variables’ data presented in chapter four.

- The findings revealed a significant positive relationship between agility practices, supply chain agility and performance. This means that the practices that are adopted in the supply chain affect the performance of the firm in a positive way.
- The company engages in morning briefings and weekly boards which are a major boost for agility as better practices are shared and adopted but the time spent planning
also takes up too much time and leaves the employees with less time to actually go into the field and take action.

- The firm has stellar relationships with their customers and suppliers which makes it very sensitive to any changes that may arise upstream or downstream.
- The employees feel that they could benefit more from trainings that the company initiates as they are grounds for team building and morale.
- The findings revealed a positive relationship between employee attributes and supply chain agility.
- Employees could collaborate more, they are mostly segregated by the demands of their individual departments which force them apart.
- The firm allows for flexibility to some degree as the agribusiness is a complex and highly dynamic business. It is unique and has its own subset of things that may go wrong.
- Agile working could be improved as that increases flexibility.
- The company is embracing the technology role and aiming to improve the technology function as they phased out manual ordering.
- Using the NAR version is adding transparency and easing the workload of the company’s employees.
- The company has a long and difficult decision making matrix which aids lead time. This is supported by (Soman, et al., 2004) who say that the decision making process in production planning is hierarchical and depends on the frequency of occurrence.
- There is use of the inconsistent government policy (SI 64) which is worsened by the unstable multi-currency system.
- The mother company Schweppes is a bottling company and the decision system is centralised so sometimes the upper management may not have the intimate appreciation of what the processing company deems important.
- The company has a low rating of focusing on employee satisfaction, which reduces performance.
- The technology used has no room to be flexible, it is quite rigid
- Employees could benefit more from trainings to understand the production system that is now in use.
- The employees are still hindered from increasing supply chain agility by the already established company culture. There is little room to initiate change.
5.2 Conclusions
In this research project an attempt has been made to study the factors affecting supply chain agility and firm performance of Beit Bridge Juicing, a tomato processing agribusiness in Zimbabwe. The study concludes that employees at Beit Bridge Juicing have a fair appreciation and knowledge of Supply Chain Agility in their agribusiness. 1. Supply Chain Agility practices currently being used by Beit Bridge Juicing were evaluated.

2. Employee attributes affect Supply Chain Agility of the firm in a positive way to a greater extent. The departments are aware of the effects of agility in their respective departments. However, they are more departmentally loyal as they follow procedures which inherently affect other departments without knowing the impact that has on other departments’ performance.

3. Firm attributes affect Supply Chain Agility of the firm positively. The firm has a working system which it put in place for the convenience of the departments called the NAR version.

4. Employee and firm level interventions to promote Supply Chain Agility of the tomato processing firm were identified.

5.3 Recommendations
The researcher deems the following as necessary to increase supply chain agility and firm performance:

- The company can timeously share information, as shortening the lead time is quite impossible in this line of business. Quickly sharing information is vital in reducing the use of obsolete information and backward ripples are lessened in this complex business.

- The organisation can adopt short decision systems, reduce redundant echelons and use flexible capacities. Agile working should be encouraged more, giving employees the flexibility to work as long as they are competent, responsible, exercise due care and diligence and are accountable. Reduction for the requisition and ordering processes should be seen to so that there is timeous supply of the orders.
• The system should allow pro-activeness since agribusiness is a zero error business that calls for perfection every time. This calls for the company to commit to more flexibility and be adaptive, convince supply chain partners of the importance.
• The company can re-engage the government and RBZ (Reserve Bank of Zimbabwe) to redress the policies that affect tomato processing.
• Reports can be lessened to some degree and focus on taking action.
• Agribusiness is volatile and deals with perishables, stock parts in advance to avoid non-production and waste.
• Ask for input from all levels of production, even lower than managers for ways of improving supply chain agility and performance.
• Continuous improvement and trainings should be invested in with focus on the business’ past history for its pertinent problems that need to be reviewed.

5.4 Further Researches
Future research can be done to the supply chain instead of just a firm as the unit of analysis to prevent the possibility of potential bias. The study can be done in a different country to retest the results.

5.5 Summary
Recommendations on how to improve the current situation have been outlined specifically to the management as a whole.
References


Appendix A

Interview

Dear Respondent

I am a student at Bindura University of Science Education (BUSE) studying for a Bachelors Degree of Commerce in Purchasing and Supply. I am carrying out an academic research on Supply Chain Agility and Performance of Tomato Processing Agribusinesses in Zimbabwe. It is in partial fulfilment of the requirements for the completion of the aforementioned area of study. I humbly ask for your sincere assistance to the best of your knowledge and be rest assured it is purely for academic purposes in confidence so there will be no misuse of information so obtained. Your cooperation in filling the questionnaire is greatly appreciated and I will be grateful for your assistance. I would like to thank you in advance for your support.

Yours Faithfully

XXXXXXXXX
Interview Questions

1. Which department do you serve in?
   ........................................................................................................................................

2. What checks have been put in place to monitor regulation adherence?
   ........................................................................................................................................
   ........................................................................................................................................
   ........................................................................................................................................
   ........................................................................................................................................
   ........................................................................................................................................

3. In the case of varying demand requirements, what practices have been put in place as a safeguard?
   ........................................................................................................................................
   ........................................................................................................................................
   ........................................................................................................................................
   ........................................................................................................................................
   ........................................................................................................................................

4. What have you done in the past 6 months to keep your skills current?
   ........................................................................................................................................
   ........................................................................................................................................
   ........................................................................................................................................
   ........................................................................................................................................
   ........................................................................................................................................

5. How have you encouraged co-workers or team members to pursue continuous improvement?
   ........................................................................................................................................
   ........................................................................................................................................
   ........................................................................................................................................
   ........................................................................................................................................
   ........................................................................................................................................

6. What incentives has your firm put in place to keep employees satisfied?
   ........................................................................................................................................
   ........................................................................................................................................
   ........................................................................................................................................
   ........................................................................................................................................
   ........................................................................................................................................
7. Which learning courses that your firm initiated have you found most beneficial in keeping you up-to-date with the Supply Chain?
.............................................................................................................................................
.............................................................................................................................................
.............................................................................................................................................
.............................................................................................................................................

8. What is the importance of the technology role in your firm?
.............................................................................................................................................
.............................................................................................................................................
.............................................................................................................................................
.............................................................................................................................................

9. Would you consider your firm as a technology leader or laggard and why?
.............................................................................................................................................
.............................................................................................................................................
.............................................................................................................................................
.............................................................................................................................................

Thank you for your time. Blessed day.
Appendix B

Questionnaire

Dear Respondent

I am a student at Bindura University of Science Education (BUSE) studying for a Bachelors Degree of Commerce in Purchasing and Supply. I am carrying out an academic research on Supply Chain Agility and Performance of Tomato Processing Agribusinesses in Zimbabwe. It is in partial fulfilment of the requirements for the completion of the aforementioned area of study. I humbly ask for your sincere assistance to the best of your knowledge and be rest assured it is purely for academic purposes in confidence so there will be no misuse of information so obtained. Your cooperation in filling the questionnaire is greatly appreciated and I will be grateful for your assistance. I would like to thank you in advance for your support.

Yours Faithfully

XXXXXX
SECTION A

1. Please indicate your gender
   a. Male [ ]
   b. Female [ ]

2. Please pick your Age Group:
   a. 20-30yrs [ ]
   b. 31-40yrs [ ]
   c. 41-50yrs [ ]
   d. 50yrs and above [ ]

3. Level of Education:
   a. Ordinary level [ ]
   b. Advanced level [ ]
   c. Certificate level [ ]
   c. Diploma level [ ]
   d. Degree level [ ]
   d. Masters [ ]
   e. Other …………………………………………

4. In which department do you serve?
   a. Agribusiness [ ]
   b. Distribution [ ]
   c. Finance [ ]
   d. ICT [ ]
   e. Procurement [ ]
   f. Sales [ ]
5. How long have you been employed by your organisation?

a. 4 years and under [ ]

b. Between 5-10 years [ ]

c. 11 years and over [ ]

SECTION B

6. What is Supply Chain Agility?

.............................................................................................................................
.............................................................................................................................
.............................................................................................................................
.............................................................................................................................
.............................................................................................................................

7. How do you rate the agility of your Supply Chain? Where 0-4 ineffective............ 5-7 moderate effectiveness............. 8-10 very effective

a. 0-4 [ ]

b. 5-7 [ ]

c. 8-10 [ ]

8. With regard to Supply Chain Agility Practices, rate the extent to which they have been adopted and are used in your organisation. Use the scale 1-5 where 1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree and 5= Strongly Agree.

<table>
<thead>
<tr>
<th>Practices</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintaining good customer relations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flexible production processes to meet varying demand requirements</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technology used in most operations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Maintaining good supplier relations

Conducting regular trainings for stakeholders in the Supply Chain

Sustainable supply ensured by contracting

Inter-organizational integration

Monitor regulatory issues

Reduce lead time

9. With regards to Employee Attributes, rate the extent to which they are present and are fully utilised in your organisation. Use the scale 1-5 where 1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree and 5= Strongly Agree

<table>
<thead>
<tr>
<th>Attribute</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>My firm promotes competence</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employees share relevant information timeously</td>
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<tr>
<td>Employees have strong collaborative tendencies</td>
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<td>All employees aim for quality improvement</td>
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<tr>
<td>Our firm empowers employees to work agilely</td>
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<tr>
<td>Employees are always pursuing self-development</td>
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<tr>
<td>Employees are given room to be flexible in uncertain moments</td>
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</table>
10. With regard to Firm Attributes, rate the extent to which your firm has the following attributes working. Use the scale 1-5 where 1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree and 5= Strongly Agree

<table>
<thead>
<tr>
<th>Attribute</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
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<tbody>
<tr>
<td>My firm has organisation-wide integration</td>
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<td>My firm has cross-functional working teams</td>
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<td>My firm upgrades workforce skills regularly</td>
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<td>My firm focuses on employee satisfaction</td>
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<td>My firm deals with market need changes</td>
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<td>My firm produces products with a great life quality</td>
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</table>

Employee and Firm Interventions

11. With regard to Employee and Firm interventions, rate the extent to which they have been adopted and are used in your organisation. Use the scale 1-5 where 1= Strongly Disagree, 2= Disagree, 3= Neutral, 4= Agree and 5= Strongly Agree

<table>
<thead>
<tr>
<th>Intervention</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
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</thead>
<tbody>
<tr>
<td>Our production system is based on flexible technology</td>
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<tr>
<td>Employees have the required skills and knowledge to operate support technology</td>
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<td>Our firm and employees have a culture of change</td>
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</table>

12. In your judgement, how did your company perform relative to its major competitor in the previous fiscal year with respect of the following. Use the scale 1-5 where 1= Far below competitors, 2= Below competitors, 3= On Par with competitors, 4= Above Competitors and 5= Far above competitors
13. What practices implemented at your company do you feel are hindering Supply Chain Agility?

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14. What practices implemented at your company do you feel are reducing the overall Firm Performance?

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15. What do you think employees can do to increase Firm Performance?

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16. In your own opinion what is best suitable strategy you can recommend to improve the Supply Chain Agility of your company?

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Thank you for your time. Blessed day.