

Improving Supply Chain Performance of a Start-Up Company: A Case Study of Avakino Limited

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Abstract— Effective supply chain management is critical for the success of a business, ensuring efficient and cost-effective delivery of products and services while minimizing risks and enhancing the customer experience. This paper presents a case study on Avakino Ltd's supply chain management, analyzing its nature, challenges, and proposed recommendations. The study reveals that Avakino Ltd has an agile and global supply chain, sourcing products from low-cost suppliers in Asia and Africa. However, the company faces challenges due to unreliable suppliers, low production capacity, and supply chain inefficiencies, hindering its aim of providing fast and high-quality products to customers. To address these issues, the study proposes a relationship-building strategy between Avakino Ltd and its suppliers, through long-term contracts, improved communication, and developing low production capacity suppliers through sourcing reliable Tier 2 suppliers. Implementing these recommendations can help Avakino Ltd maintain its competitive advantage and achieve its goal of delivering timely, affordable, and high-quality products to its customers.

Keywords— Supply Chain Performance Measurement; Supply chain analysis, Procurement, Supplier relationship, Supplier development; Avakino Limited.

1. Introduction

1.1 Background of study

The study of supply chain (SC) performance is crucial for companies interested in growth, increasing profit margin, or maintaining a competitive advantage [1]. This is because analyzing the performance of the supply chain provides insight into the efficiency of different SC

aspects involved, such as procurement, production, distribution, and inventory [2], [3].

Procurement is a key function in supply chain management (SCM), involving the acquisition of the right quality of materials at the right time and quantity, from the right source, and at the right price [4]. Procurement is the point of origin for most SC activities, and its efficiency directly affects the overall performance of the chain [5], [6]. Procurement has been constantly evolving for the past few decades, moving from a traditional adversarial approach to establishing a strategic alliance with suppliers [7], [8]. Business managers constantly look for ways to improve procurement efficiency by considering methods to mitigate financial risks and obtain new products at the lowest possible cost [6], [9]. In light of this, managers adapt the most suitable sourcing methods that best suit their companies' objectives and maintain their competitive advantage globally [10].

Globalization and the specialization trend have made companies acknowledge the increased importance and scope of the procurement function in modern businesses [11]. This is a result of the worldwide process of interaction and integration between firms, leading to a rise in competition and complexity, forcing businesses to seek ways of maintaining competitive advantage by sourcing new products and suppliers globally [11], [12]. Consequently, the rise in specialization trend has made procurement a major value-added function as it has resulted in a paradigm shift in the ways companies conduct their operations, focusing more

on their core functions while outsourcing the non-core activities to external suppliers.

Nowadays, purchasing to sales ratios, in general, are in the range of 30%-60% for service organisations, 50%-70% for manufacturing industries and 80%-95% for retailing firms – and many organisations are seeing a further rise in this percentage [10], [13]. This rise in purchasing to sales ratio is an indication that procurement and SCM have become key drivers for businesses seeking to maintain a competitive advantage in the modern market. This study will investigate ways of improving the supply chain of Avakino to enable the business to meet up with its high variety of customer demands as well as maintain its competitive advantage in the industry.

1.2 Company profile: Avakino Limited

Avakino Limited was established in 2015 to produce head wears for women and children suffering from hair loss. The company is headquartered in Manchester, United Kingdom and currently has ten active employees of which three, including the founder, are full-time workers; others are part-time employees and university interns.

The company produces Chemo headwear for people going through hair loss due to Chemotherapy or Alopecia. The firm designs its headwear and outsources the production offshore. According to the Director, the firm's stakeholders are hospitals, hair salons, and online customers. It sells its product across the United Kingdom, Spain, Italy, Denmark, and Australia, and currently expanded to the United States, and delivers its products via carrier services companies.

The company buys its products from three major suppliers, located in different countries: Tunisia, India, and Bangladesh. Its Bangladesh supplier provides the firm with its popular products which are made from Bamboo fabric.

Although most startups are known to have common challenges [14], Avakino Ltd has been successful in overcoming the common challenges associated with start-ups including marketing, and finance. However, being a modern and innovative company, Avakino is faced with a variety of challenges associated with its supply chain. This is due to its outsourcing nature which makes the firm depend heavily on its manufacturers. Analyzing these

challenges and proposing an approach to improve the productivity and SC performance of the firm forms the motivation behind this study.

Avakino Ltd, being an innovative company with a unique product, heavily depends on its suppliers to produce the products it designs, which makes procurement an important function and directly affects its profit margin and competitive advantage. The company currently has three suppliers located in Tunisia, Bangladesh, and India, with the Bengali supplier being in charge of supplying the firm's bamboo hats; the Indian supplier supplies the knitted hats, and the Tunisian supplier provides most of the other inventories.

Being a start-up company, Avakino Ltd has less negotiating power over its suppliers. As a result, the company is faced with issues like delays in receiving goods from its suppliers which have a direct impact on sales, as well as other activities like new product launching. Additionally, there is high concern about the change in product specifications made by the suppliers without informing the firm. This issue makes it difficult for the firm to maintain a competitive advantage in its market. As a result, Avakino Ltd seeks ways to resolve these supplier-related issues to enable it to become the leading provider of quality organic headwear for its customers. Solving Avakino's sourcing problems forms the bedrock for this research.

1.3 Context of the research

The research would analyse the business environment in which Avakino Ltd operates using two models: Porter's Value-chain and the Five Forces competitive, to analyse the competitive strategy the firm adopted and identify its value-added activities [15], [16]. The research will also analyse the SC of Avakino Ltd and identify the areas of bottlenecks in its supply chain. Using literature, the report will suggest ways of improving the firm's supply chain performance to enable the firm to maintain its competitive advantage.

1.4 Aim and objectives

This study aims to develop a strategic source framework that would improve the SC performance

of Avakino Ltd. To achieve this aim, the objectives will include:

- i. To examine both the supply chain and environment in which Avakino Ltd operates.
- ii. To identify areas in need of improvement.
- iii. To propose research-based solutions to improve the supply chain performance of Avakino Ltd.

1.5 Research questions

To aid the research to achieve its objectives, the following research questions were drafted, which would be answered in chapter four of the study.

- i. What is the nature of Avakino's supply chain?
- ii. What are the key areas of supply chain performance improvement in Avakino Ltd?
- iii. Why is Avakino having challenges in its supply chain?
- iv. How can Avakino address its supply chain issues?

2.0 Problem Definition and Methodology

2.1 Problem definition

Avakino Ltd has a unique product made from bamboo fabrics and heavily depends on its suppliers to produce these products. This makes procurement a value-added activity in the firm because the cost of inventory and speed of fulfilment directly impact the profitability of the firm. Avakino currently has three suppliers located in Tunisia, India and Bangladesh with the Indian supplier in charge of producing the company's most popular product: the bamboo hats. Its bamboo hats are not readily available in the market thus the only supplier available for supplying these products is valuable to the firm.

This dependency makes start-up companies like Avakino prone to high procurement problems some of which are the unreliability of its suppliers and inefficient inventory management system which

leads to an increase in back orders. This unreliability is not only found in the delivery date in the contracts but also in the quality of products produced. Some of the products come in different colours and specifications from the ones given when the order was placed.

2.2 Methodology

2.2.1 *methodological choice: multi-method qualitative*

This study will adopt the Multi-method qualitative methodology. Qualitative research is defined as an array of interpretative techniques which seek to describe, decode, translate, and otherwise come to terms with the meaning not the frequency of certain naturally occurring phenomena in the social world [17], [18]. Qualitative research emphasises the meaning of words rather than quantification in the collection and analysis of data.

This research believes that the Multi-method qualitative method is most right to be used to achieve its objectives. This is because it focuses on a single business environment and hence seeks to acquire quality information instead of quantity [17], [18]. Additionally since this research expects the researcher to participate in undertaking business functions related to SCM in the firm, a Multi-Method Qualitative type of data gathering via participant observation and interview is deemed to be most suitable.

2.2.2 *research strategy: a case study*

The research strategy adopted is the Case Study strategy because, case study research strategy according to [18] is preferred when the research questions take the form of 'how' and 'why'." Since this research was developed to answer the research questions of 1. "What is the nature of Avakino's supply chain?" 2. "What are the key areas of supply chain performance improvement in Avakino Ltd?" 3. Why is Avakino having challenges in its supply chain? 4. How Avakino can address its supply chain issues? Looking at these questions, it can be noted that they predominantly consist of "why" and "how" questions favouring case study research.

2.2.3 data collection and data analysis: participant observation

Data collection is a critical aspect of research as it determines the accuracy and originality of the research findings. In this study, data will be collected using participant observation, which is a qualitative research technique that involves actively participating in the research setting. The aim of this research is to achieve a holistic understanding of the Avakino procurement process, and participant observation allows the researcher to achieve this objective as accurately and objectively as possible, given the limitations of the method.

Participant observation involves various qualitative methods, such as interviews, document analysis, and observation of the subject's environment and process [19], [20]. Using this approach, the researcher completely or partially gets immersed in the research setting [18]. This technique provides in-depth and rich data that interviews alone cannot provide [20].

Participant observation allows the researcher to examine the authenticity of the data gathered by checking the definition of the terms used by informants during interviews and observing the situations described by the participant during the interview. It also allows the researcher to access any information that the informant is unwilling to share due to company policies [20], [21].

To ensure the accuracy and reliability of the data collected, data collection and analysis will be done simultaneously in accordance with [18] guidelines. The primary data collection method will be used as the research aims to analyze the current supply chain challenges facing Avakino, and using the primary data collection method will ensure real-time data is collected. The data collected will include the number of back orders per order, the nature of relationships with suppliers, the time taken for order fulfilment by suppliers, and quality tests of the received goods. This information will be stored using a notepad and a reflective "journal," allowing for further analysis and interpretation.

In summary, this research will use participant observation as a qualitative research technique to collect primary data. This approach allows the researcher to achieve the research objectives accurately and objectively, given the limitations of

the method. The data collection and analysis will be done simultaneously to ensure the accuracy and reliability of the data collected.

3.0 Data Analysis

3.1 Interview with the founder and director of Avakino (Ali Nowroozi)

From Table 1, it could be deduced that the challenges in Avakino Ltd's supply chain are acquiring the right quality of products and long lead times from its Indian and Bangladesh suppliers (especially). This issue is observed to hinder the company's aim of ensuring optimum customer satisfaction "of fast delivery of quality luxurious and affordable hats." Thus, forming an obstacle to the firm's competitive strategy. To gain an insight into Avakino's competitive environment, this study adopts Porter's Five Forces Model, which will reveal the longevity of Avakino's profitability in its industry.

3.2 Supply Chain Analysis of Avakino

Avakino's supply chain has been studied through observation and interview with its manager. Being a startup company, its supply chain consists of six members: manufacturers (tier-1 suppliers), distributors, retailers, courier companies, and consumers. Although the manufacturers also have their suppliers (tier two suppliers) for raw materials, Avakino has no direct contact with them and hence does not include them as part of their supply chain. These supply chain members are further explained according to an interview made with the founder of the company.

The upstream sector of a supply Chain is the part of the chain where the product originates and the suppliers, which in the case of Avakino are the product manufacturers [22], [23]. Avakino has three main suppliers for its products, all located in different countries: Tunisia, Bangladesh, and India. As it was observed, Avakino adopts a category Management procurement strategy, by segmenting it's spend into areas which contain similar or related products. The procurement strategy allows more focus on categories that have opportunities for consolidation and efficiencies [24]. Avakino believes that its procurement strategy allows the company to mitigate certain supply chain risks associated with delayed supply or cancellation of contracts from the supplier as stated by [10].

Table 1. Interview Results on Avakino Ltd's Supply Chain Management.

S/N	Key Issues	Interview Results
1	Sourcing Method	Outsourcing 85% of production is offshore with three major suppliers located in India, Bangladesh, and Tunisia
2	Responsibility	Three categories of products: bamboo fabric, knitted wool, and cotton which are procured from India, Bangladesh, and Tunisia respectively. No contact with tier-2 suppliers
3	Order Lead Time	50 pieces of each of its 10 categories of products during first launch, and subsequently orders 10 units of any product that goes low in stock Lead time varies from four weeks for Tunisian supplier to six weeks for Indian and Bangladeshi suppliers
4	Supply Chain Challenges	Acquiring the right quality of products and long lead times from its Indian and Bangladesh suppliers. Products that did not meet the firm's specifications were sent back, causing a decrease in stock and an increase in backorders.

Avakino is the midstream member of the supply chain. This sector in the chain also serves as the hub of the chain, where the processing or assembling takes place [25]. Avakino's main activities are product inspection, packing, labelling, and dispatching orders to its downstream supply chain.

The downstream sector of the supply chain has three members: a distributor, retailers, and end users (consumers). The distributors receive the products at a reduced wholesale price (distribution price) and sell the products at a trade price to the retailers. Avakino Ltd has distributors in Spain and the United States however, it also deals directly with its retailers in the United Kingdom, United States, and Australia. Thus, only Spanish retailers go through their country's distributor for products.

The main retailers in Avakino's supply chain are the National Health Service (NHS) hospitals and saloons. These suppliers obtain their products at a trade price, which is almost twice the Recommended Retail Price (RRP). Nonetheless, the retailers have the flexibility to sell their products at either a higher or lower price than the RRP based on their business strategies.

The last member in the downstream supply chain is the end users or customers. These are majorly patients going through hair loss due to Alopecia or cancer treatment. The end users either buy it themselves from the websites or through a retailer

(NHS or Saloon). Also, people buy headwear as gifts for patients going through hair loss.

The logistics aspect of Avakino involves three courier service companies: United Parcel Service (UPS) and Royal Mail. The manufacturers send the products through UPS to Avakino's head office, and then Avakino sends its parcels both domestically and internationally through UPS and Royal Mail UK. It sends small parcels, classed as "large letters," which involve one to three products through Royal Mail. Avakino Ltd engages as ordinary customers with these carrier companies, so it incurs high logistics costs.

Figure 1 shows that the company has an efficient logistics system because it leverages the Royal Mail carrier service outlet near its office to send light quantity orders both locally and internationally. For high-quantity orders, it uses the UPS carrier service which is cheaper. Avakino, being an SME company with few standardized processes, is flexible and fast in responding to changes in demand variability, making it an agile company.

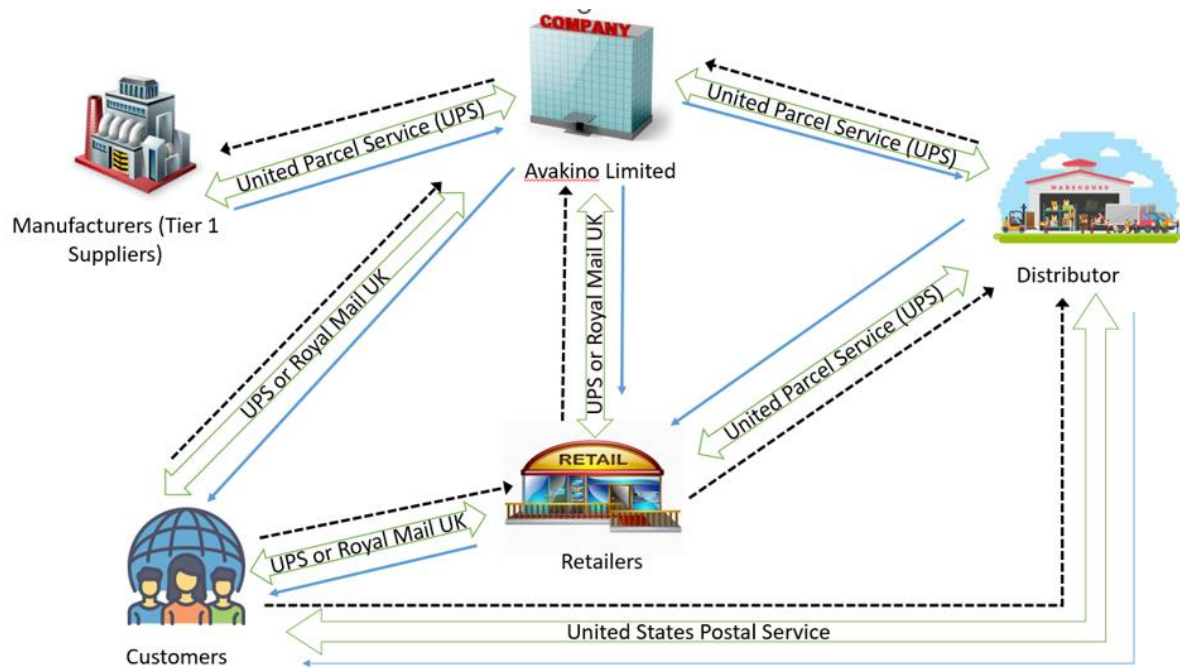


Figure 1. Supply Chain of Avakino (Source: Author's Elaboration).

3.3 Value Chain Analysis for Avakino

The term "Value chain" was introduced by Michael Porter in 1985, in his book: *Competitive advantage: Creating and Sustaining Superior Performance* [16]. He defined Value Chain as a representation of a company's value-adding activities based on the firm's cost structure and pricing plan [16]. Value Chain is a tool used to strategically disintegrate business activities to have a better understanding of the primary and secondary activities in the business and make a better strategic decision [26], [27]. The primary activities, also known as the core functional activities, are those activities that are sources of competitive advantage and directly affect a company's profit margin, whereas the secondary activities are relevant in operating the business but do not directly affect a company's profit margin [27], [28].

3.4 Porters Value Chain Model

Michael Porter creates a value chain model (Figure 2) which he believes is in line with the majority of companies' business strategies. The Model categorizes business functions into primary and support or secondary activities as shown in figure 3.4. Support activities are those activities that have an indirect effect on the final value of the products or services rendered by an organization [16],

therefore assisting the firms to carry out their core functions smoothly. These support activities are Firm Infrastructure; Human Resource Management; Technology Development; and Procurement. The Firm Infrastructure involves all the activities relating to financing, planning, investor relations, and administrative functions [29], [30].

The next supporting activity according to [16] is Technology Development (or Research and Development) which has to do with product design and testing; operation process design; and material and market research. Avakino, being a small business, has its technology development functions done by both the founder of the company and the staff (mostly interns). Different technology development projects like market research and product design and testing are assigned to its interns based on specialty under the supervision of the company's director (Ali Nowroozi). Additionally, the firm works with a research company (Business Growth Hub) for consultancy. Lastly, the company utilizes digital analytics to study its customers' purchasing behavior which enables the firm to make informed decisions.

The last part of the Value Chain's support activity according to [29], is procurement. This entails sourcing components or product parts, machinery, advertisement and services in the organization.

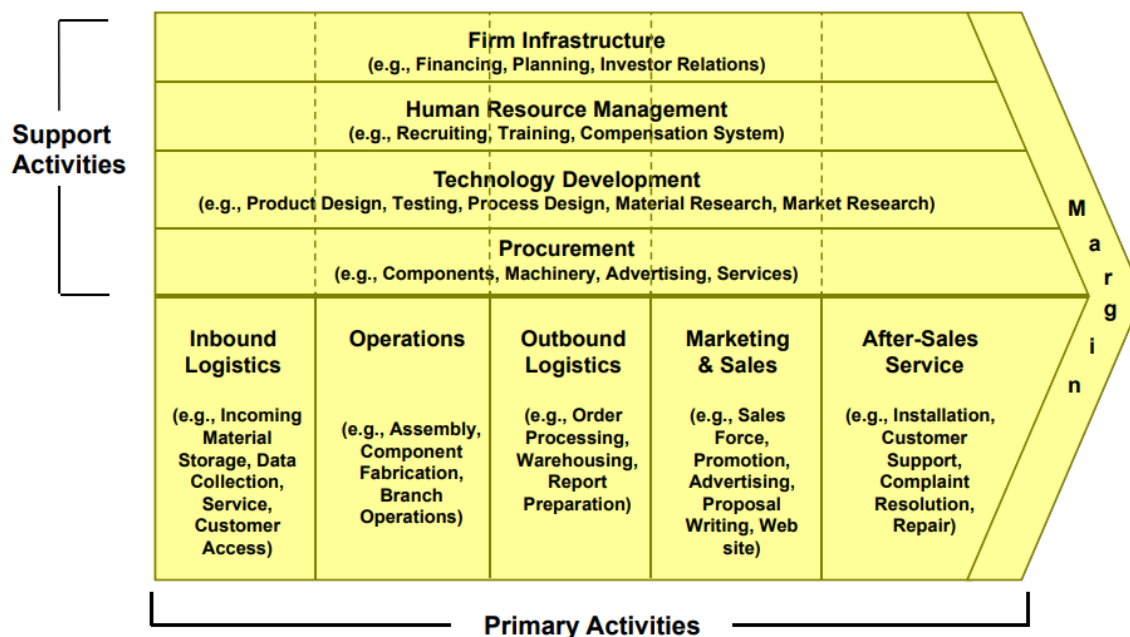


Figure 2. Michael Porter's Value Chain Model Source: [27].

In Avakino, eighty per cent of its production is outsourced. Avakino outsources its products internationally from low-cost countries: India, Tunisia, and Bangladesh. The company works closely with its suppliers to ensure the exact product specification is delivered. It purchases its products every three months, enough to meet its immediate customer need for each season. Procurement places a significant role in Avakino's value chain because, a slight disruption in this activity affects the company's core value, which is "to provide organic and comfortable head wears for people going through hair loss." Additionally, an increase or decrease in procurement cost directly affects the headwear's pricing.

The primary activities, as explained by [16], are activities that have a direct effect on adding value to the production of goods or services and the profit margin of a business. These activities include inbound logistics, operations, outbound logistics, marketing and sales, and after-Sales-Service [29], [31]. Inbound Logistics, from the model, involves all activities relating to receiving products, storing products and claiming rights to product ownership [31]. These activities include warehousing, inventory management material handling, data collection, and customer access [16], [31]. In the case of Avakino, products are received from the airport and delivered by the founder (Ali Nowroozi). Upon arriving at the company, a quality assurance check is done where the colours

and materials of the products are checked. Also, the packaging boxes and labels are checked to ensure the company's brand name is printed. Any product that does not meet these requirements is sent back after contacting the supplier. Stocks are stored in the company's storehouse and subsequently taken to the office based on demand.

The Operations activities, on the other hand, involve all activities relating to processing the products into finished goods such as assembling, component fabrication, and branch-related operational activities [31]. Since Avakino outsourced eighty per cent of its production, the remaining process is done in the company's office. This process involves assembling, labelling and packaging products before shipping them to the customers either locally or internationally. Based on Avakino's process design, its operation activities begin when a customer places an order, which is through the company's website, third-party website (like amazon UK), phone call, or direct email to the company.

Outbound Logistics in a business involves all the activities relating to customers' orders, processing and dispatching the orders [16]. It also includes report preparation and warehousing of finished goods. According to [31], outbound logistics activities are important both in generating value and creating differentiation because about fifty per cent of the value is created close to the buyer.

Avakino processed customers' orders immediately and uses the Royal Mail courier service to send its small parcels locally and internationally. For larger parcels weighing from fifteen-kilogram, Avakino uses the DPD courier service to send its products. The company offers three shipping options for its customers: standard delivery, which takes between two to three working days; recorded tracking, which provides tracking information of the delivery; and special or next delivery, for customers in urgent need of the products. These services come with a different cost and it is included in the total cost of the headwear.

The Marketing and sales activities, are those activities that involve sales force, promotion, advertisement, proposal writing and website campaign [29], [30]. Avakino Ltd pays significant attention to its marketing and sales activities. This is because the company competes with its competitors in the global market which means it must come up with ways of keeping its customers abreast with its promotional offers and new products and strive to gain more customers. Its marketing activities involve promotional offers, press releases, offering discount codes and including a product leaflet or catalogue in every order.

The last value-added activity is the After-Sales Service which refers to activities concerning installation, customer support service, complaint resolution, and repair [29], [30]. Avakino is swift in responding to customers' complaints and rectifies issues relating to customer complaints immediately. It has a customer return policy which makes it easy for customers to return products or exchange products. In a case where a customer is genuinely not satisfied with a product, or when any error is done while processing a customer's order, the company offers the customer the opportunity to choose whichever headwear the customer likes from the varieties of headwear available for free. The company also has a third-party customer service company that manages activities relating to after-sales services.

According to [31], the value-added activities are categorized based on a firm's competitive strategy and therefore one of the value chain models could be modified. At the end of this analysis, it is observed that Procurement plays a significant role in the firm's value-added activities and hence has a

direct effect on the company's profit margin. Whereas Operational activities are less and are integrated with the Outbound activities; and therefore, deemed to have less influence on the profit margin. For this reason, the procurement function is considered a primary activity while operations are considered secondary as illustrated in Figure 3.

4 Result and Discussion

This section discusses the analysis carried out to achieve the aim and objectives of the report, and to answer the research question: (1) what is the nature of Avakino's supply chain? (2) To what degree is sourcing important in its operations? And (3) how can Avakino address supply chain issues? Hence, the research proposes solutions to current supply chain issues facing Avakino Ltd to assist the firm in maintaining a competitive advantage in its market. This study was conducted to enlighten Avakino Ltd on the business environment in which it operates as well as analyse its supply chain performance whilst identifying areas of bottlenecks in its supply chain. Using Michael Porter's Five Forces Model, this study analysed the competitive environment in which Avakino operates. Employing observation and interview, the paper studied the firm's supply chain and went further to investigate the value-added activities in the firm using Michael Porter's Value chain model. At the end of these analyses, the study proposed ways of addressing the issues relating to the firm's supply chain.

The Value-chain analysis indicated that procurement is a primary value-added activity which is in contrast with Porter's model. This is because the company outsourced its production offshore to Bangladesh, India and Tunisia. Also, it was observed that a variation in supply cost or delivery has a direct effect on the firm's profit margin. The remaining primary activities are inbound logistics, outbound logistics, marketing and sales, and after-sales services. Consequently, the Operations activities are deemed to be secondary activities for the same reason because the firm is not designed to undertake product transformation in its infrastructure; thus, buying readymade products. The other secondary activities are those relating to Human Resource Management, Firm infrastructure, and Technology Development.

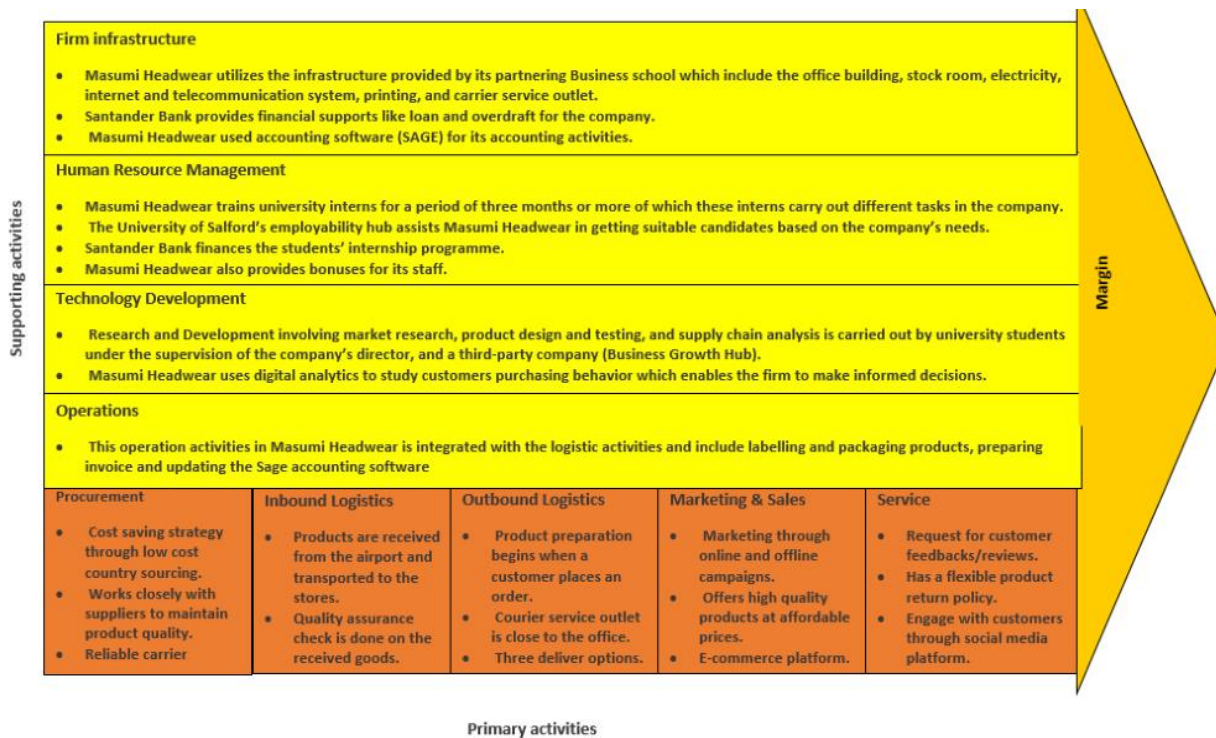


Figure 3. Value Chain Activities for Avakino Ltd.

From the interview conducted and the observation made on Avakino's supply chain. The firm has an agile supply chain due to its flexible responsive nature and small-scale operation. The firm also has an efficient logistic system in that it leverages the use of a national carrier service outlet near its office to send light quantity orders both locally and internationally. For high-quantity orders, it uses DPD carrier service which deemed to be cheaper. However, the firm is struggling in the upstream part of its supply chain. This is because the firm has three suppliers of which two (the Indian and Bangladeshi) are often unreliable, and the reliable (Tunisian) supplier has a low production capacity and capability to supply all the products Avakino needs.

5 Conclusion and Recommendations:

5.1 Conclusion

This research aimed to answer three research questions related to Avakino Ltd's supply chain: (1) what is the nature of its supply chain? (2) What are the key areas requiring supply chain performance improvement? and (3) How can Avakino address its supply chain issues? The study found that Avakino Ltd has a global and agile supply chain that focuses on low-cost sourcing. However, the

company's supply chain faces challenges in the upstream sector, primarily due to unreliable high-capacity suppliers.

5.2 Recommendations: Proposing a Supplier Relationship Improvement Strategies for Avakino Ltd

Although Avakino manages its logistic aspects efficiently, the firm suffers from its procurement aspect. The reason is that some of its suppliers, especially those that supply the firm's niche products, are unreliable. Supplier unreliability is likely to be caused by these factors: conflict in goals; lack of clear communication; or shifting in strategic requirements from any of the parties according to [32], [33]. Establishing a relationship with suppliers and letting them understand the importance of such a relationship is a key factor in maintaining a strategic edge in the supply chain[3], [34]. Relationships between buying firms and their industrial suppliers are characterized by three factors: information sharing, engaging in long-term contracts; and collaboration for mutual benefits [3], [35], [36].

Therefore, by enhancing the relationship between Avakino Ltd and its suppliers, through communication as well as engaging in long-term contracts, the firm would have more reliance on its

suppliers. This is because, a good supplier relationship enables a buying firm to achieve an optimum long-term supplier contribution which would consequently enable the buying firm to achieve its strategic goals [3], [37]. If this is successfully established, Avakino Ltd would benefit from having a more responsive supply chain; and better payment options.

Additionally, Avakino Ltd is advised to engage in developing its Tunisian supplier. This is a type of supplier engagement that involves the buying company to use a variety of activities to improve its supplier's capabilities and performance to achieve mutual benefits [3], [37], [38]. These activities include supplier performance evaluation, raising performance expectations, providing awards and recognitions to outstanding, and training suppliers' workforce [39], [40]. All these activities are within the capability of Avakino; hence it is highly recommended that the company implements this to improve its Tunisian supplier's performance. Therefore, by developing the Tunisian supplier, Avakino will have a better competitive advantage in its market as well as gain a higher bargaining power against its suppliers. This is because when the Tunisian supplier gains the capability of producing all of Avakino's products, it will cause competition between the suppliers and hence give Avakino higher negotiating power.

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