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Inventory management and firm competitive advantage for online sales

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Applied Research Project

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Thesis presented in partial fulfilment for the degree of Master of Business Administration to the Faculty of Commerce, Law, and Management, University of the Witwatersrand

February 2023

DECLARATION

I Nishaat Hassen declare that this research report entitled '*Inventory management and firm competitive advantage for online sales,* is my own unaided work. I have acknowledged, attributed, and referenced all ideas sourced elsewhere. I am hereby submitting it in partial fulfilment of the requirements of the degree of Master of Business Administration at the University of the Witwatersrand, Johannesburg. I have not submitted this report before for any other degree or examination to any other institution.

Nishaat Hassen

Nishaat Hassen

Signed at Johannesburg on
18 February 2023

ABSTRACT

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Thesis title: **Inventory management and firm competitive advantage for online sales**

To remain competitive and to gain an advantage over competitors, companies are required to supply their goods more efficiently to the customer and streamline the process to make sure the product ordered reaches the recipient as soon as possible. However, under the ongoing COVID-19 pandemic suppliers and retailers have been forced to enter E-Commerce and online ordering which is all based on effective stock and inventory management. Existing research conducted shows a lack of sufficient information linking an effective inventory management system and process to the value it adds in gaining a competitive advantage. Notable since the advent of COVID, online sales have surged warranting that companies supply goods much faster without any delay to retain customers and to gain new customers. To make products available within the right time has become a competitive advantage for suppliers and retailers. The current study investigated how competitive advantage can be gained for online sales through identifying best practices for inventory management for distribution and logistics companies. The research implemented a cross-sectional approach, whereby information was elicited from 127 personnel comprising top management team, managers and operational workers of logistics and distribution companies in Johannesburg, South Africa. Both descriptive and inferential statistic were conducted. The partial least square structural equation modelling displayed a structural relationship between competitive advantage and inventory management practices dimensions., With COVID 19 majorly impacting operations firms are advised to manage orders more efficiently and forecast in meeting demand fluctuations.

Keywords: Inventory Management, Inventory Management Practices, Competitive Advantage, Online Sales, Covid 19

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CHAPTER 1 INTRODUCTION TO THE RESEARCH

1.1 Background and context

In recent times online sales has become popular amongst the average consumer and has replaced retail sales at stores (Olaleye, Hamdan & Awwad, 2021). Due to the pandemic affecting enterprises, the policies of lockdown provided avenues for rapid spring up of several logistic and distribution firms in both developed and developing nations. It seems customers found it convenient and reliable, as such these industries now play a massive contributing factor to the economy, and this warrants their endless operations and survival.

Recent technological advancements, global rivalry, and rising customer expectations are prompting firms to rethink how they can leverage Information technology to gain a competitive advantage. The economy and scientific technology is developing rapidly, rivalry between small and large companies is imminent. Therefore, it is fundamental that Enterprises explore better ways to compete.

Freitag da Silva (2021) and Olaleye et al., (2021). Observe that consumers are more satisfied with online shopping than in-store shopping. The rise of online purchasing and the decline of retail visits may trigger long-term changes in corporate plans with regards to digital media. The driving force behind a linked supply chain is the internet, and globalization has hastened business. Ecommerce is a difficult operation that requires intense synchronization between many different entities. Customers need a flawless supply chain, which puts more pressure on merchants to control demand and supply, include simpler inventory management procedures, and reduce overall costs. In comparison to the old business model, e-commerce benefits from simplified distribution, cheaper costs, less time limitations and many other indirect benefits. Electronic commerce benefits from low investment, ease of learning, and flexibility of operation (Zhao & Morad, 2013; Zou & Liu, 2012).

Companies are affected by factors that are in their control and other factors that are not their control. For the factors that are in their control they can forecast, budget, and prepare as most instances are foreseeable, for factors that are out of its control, the company is required to understand the stakeholder needs and understand their wants. Distribution and logistics organizations must comprehend their clients in order to maintain a competitive edge. They must also deliver each delivery with excellent customer service because this will be remembered by a customer and influence their decision to use the company again. Good service build trusts with customers and especially with online ordering and the uncertainty that surrounds the idea of ordering online. Service delivery will determine if the customer uses the service again or not. (Leva Meidutė-Kavaliauskienė, 2014)

Companies who can successfully integrate their supply chains in real-time will have an advantage over rivals. To function effectively in real-time, e-commerce apps need to have many layers and packed with swift decision-making capabilities. Additionally, highly operational flexible systems will attain complete connectedness to the global supply chain. (Fawcett, 2000)

Inventory management gives organizations a competitive advantage over competitors by ensuring they constantly have stock of diverse product lines (Miltenburg, 2005). Porter (2004) defines three strategies to attain a competitive advantage as cost leadership, product or service differentiation and market segmentation. The use of any of these will result in a company potentially attaining a competitive advantage. (Namusonge, 2015) indicates that businesses who manage their inventories well are in a good position to maintain a competitive advantage. By stocking the bare minimum of inventory and avoiding overstocking, holding costs are reduced, which contributes significantly to the sustainable competitive advantage. In order to achieve a competitive edge through online sales, the study looks into how logistics and distribution companies manage their inventories effectively.

The accuracy of the Enterprise Resource Planning system (ERP) is required to ensure the online platform reflects the correct product available and

quantity. Ahmed (2020) asserts that companies are required to place reliance ERP system to make decisions. Stock management and location are of utmost importance in avoiding any time delays, the process of executing sales and the product reaching the customer. The time taken to process an order to the time the product reaches the customer has become a competitive advantage. (Eman Yassien, 2017)

Some of the major challenges facing inventory management include actual stock levels compared to the recorded stock levels. This is a result of inaccurate recording of inventory, misallocation of stock, demand fluctuations and multi-channel shoppers because of increased online sales (DeHoratius, 2008). To remain competitive and to gain an advantage over competitors, companies are required to supply their goods more efficiently to the customer and streamline the process so that the customer receives their order as fast as possible (Ahmed, 2020). Companies are required to have a reliable source of data to ensure they are constantly updated with stock levels to avoid stock-outs, to assist in replenishing stock, and to meet customer demand. This has a major financial impact (DeHoratius, 2008).

In summary, the study attempted to identify how logistic, and distribution can gain a competitive advantage from online sales by having an effective inventory management system. The section that follows expounds context competitive advantage.

Businesses should establish a new business strategy to better utilize their own advantages. Accordingly, successful businesses are those that recognize resources and take steps to develop product-market positions that efficiently make use of them. Their capacity to create a lasting competitive advantage results in improved online consumer experiences, which in turn generates long-term economic value (Barney, 1991). Given the increasing competitiveness in most industries, using IT to facilitate sales has become a competitive advantage for logistic and distribution enterprises, especially during the pandemic.

In business, competitive advantage is how a firm can produce values that outperforms its competitors. Customer satisfaction demands a situation-appropriate strategy, minimal prices, outstanding products or services, and rapid response (Atchara, 2017; Pensuk, et al., 2018). Competitive advantage in essence is the value a firm creates in a product or service (Pilinkiene, Kurschus, & Auskalnyte, 2013). When a business can generate more economic value than its rivals, it has a competitive advantage. (Marinagi, Trivellas, & Sakas, 2014; Wagner, 2006).

Miltenburg (2005), A business must draw in new clients and hold on to current ones in order to thrive and outperform its rivals. Companies whose management team are aware of the impact of inventory levels that supply a specific line, they are able to stay competitive by ensuring they always have stock of the product (Miltenburg, 2005).

For manufacturing companies to remain competitive they need to reflect certain qualities which include being cost efficient, providing quality products, time their delivery and be flexible in the process (Olhager, 2013).
According to a study by Hazen (2012), Information technology adoption gives a business a competitive advantage through improved efficiency and effectiveness. In a related study, Hamad (2018) discovered that e-commerce between firms benefits Egypt's growing businesses. achieve a competitive edge. As a result, this improves corporate efficiency, lowers costs, and boosts sales and market share. Thus, the context of inventory management is presented in the next section.
According to Waller (1999), The inventory management process is defined as making things available at the lowest possible cost. To guarantee that the store and warehouse layout, stocking, and stock control are effective, inventory management encompasses all procedures and activities involved in the inventory cycle (Argyropoulos, 2018). Inefficiency results from overstocking, misallocate stock, high shrinkage. Furthermore, challenges in demand planning results in financial loss as well the time taken to supply the product to the end consumer (Godana, 2014).

Inventory management and inventory management systems allow companies to be more efficient and have various financial and non-financial implications both positive and negative. Gaining competitive advantage results from effective inventory management (Kaewchur, 2021). Due to the COVID pandemic suppliers and retailers were forced to enter E-Commerce and online ordering which is all based on effective stock and inventory management. The following section explores research conceptualisation.

1.2 Research conceptualisation

1.2.1 The research problem statement

As a result of the pandemic effect on South Africa's economy, logistics and distribution enterprises are faced with dramatic shifts in client needs and product handling, with most transactions taking place online. This issue must be addressed before any projects are undertaken. A corporation should have adequate stock to meet client demand. However, the corporation does not want to have too many goods on hand due to inventory costs. The implications are low stock levels contribute to rapid purchase, as shown by Okoye et al (2016). Theft, spoiling, and obsolescence of merchandise, maintaining too low supplies to fulfil demand when needed are some of the challenges most companies face. High material costs and wastage rates impact an organization's productivity, sales, and profitability.

Most inventory management processes do not find the equilibrium between product availability and cost (Dumas, 2008). Such ineffective management of inventory places cash flow constraints on businesses and may result in expired or obsolete stock. Concerning online purchasing, understocking of an item and the lead time to source the item for the customer could result in a loss of the sale. A study by DeHoratius (2008) found that there is a direct financial impact when there are inaccurate inventory records. Companies with inaccurate records may not know the inventory levels and incorrect decisions may be made. This has dire consequences as management depends on Enterprise Resource Planning (ERP) inventory records in making more informed decisions. Moreover, Management relies on this to get the product to the

consumer in the shortest time and the correct quality (Ahmed, 2020). All these challenges in inventory management impact consumer satisfaction and company viability putting a compromise on the company's competitive advantage. For enterprises worldwide one of the biggest challenges are to establish and sustain a competitive advantage (Dash, 2013). Hence, managers value research that can help them get a competitive advantage, survive, and improve their ability to compete. In order to assist managers and other decision makers who are involved in the inventory management process, this study attempts to investigate how a competitive advantage can be gained for online sales through identifying best practices for inventory management for distribution and logistics companies.

1.2.2 Research objectives

To investigate the inventory management practices used by logistic and distribution companies in Johannesburg to move towards online sales and gain a competitive advantage.

Also, to:

- identify the major constraints to competitiveness by logistic and distribution companies, when there is inefficient inventory management.
- investigate the structural connection between inventory management practice and competitive advantage.

1.2.3 Research Questions

Primary Question:

What inventory management practices do South African Logistics and Distribution Companies use to move toward online sales to gain a competitive advantage?

Question 2: What are the major issues faced by these companies when there is inefficient inventory management?

Question 3: Is there any structural relationship between inventory management practice and competitive advantage?

1.3 Delimitations and assumptions of the research study

A logistics and distribution company's two divisions each participated in the study. The one division which distributes products for companies like Makro and Take Alot to name a few and the second division was wholesale and retail of fabrics. The targeted participants were the management team, managers and operational workers of the logistics and distribution firms. The research shadowed a quantitative approach but used field observation to depict the inventory management practice and procedure among the firms. The research assumed that due to COVID all retailers were forced into entering online sales and shifting focus from traditional 'brick and mortar' sales to online sales. is the assumption being that all the participants have access to the internet, either via a personal computer, a laptop, or a smartphone. Another assumption was that participants have a stable internet connection and application that allows online sales and delivery system. One of the major delimitations of the study was that due to COVID restrictions a walkthrough could was not visible and limited top management members of the firms were being questioned. Observations on the inventory management process was performed, but high level of confidentiality and bureaucracy indirectly truncate the smooth process of collecting data. The study was limited to the sampled company.

1.4 Significance of the research study

The significance of the study was ascertained by the theoretical and conceptual framework. Firstly, review on management theories related to competitive advantage made a new opening on how structurally and empirically related the theories are to inventory management practices. The heuristic model serves as a new theme on the nexus between competitive advantage and inventory management practices. Above all the study was

conducted in an industry where supply chain is of utmost relevance in this present computer age.

The research was aimed at assisting retailers, wholesalers, and distribution centres to gain a competitive advantage by having a robust and efficient inventory management system in place. The study emphasized the benefits and outcomes of an effective inventory control system. The impact of COVID-19 on how business is conducted is what made the study significant. Furthermore, the aim was to investigate how most companies and retailers had to move quickly onto online platforms to continue with trading. In all company's inventory is classified as a major portion of the balance sheet and contributes a significant portion to the assets of the company. According to DeHoratius (2008), the record for inventory and the inventory on hand is a significant problem. The documentation of sales is one of the primary causes of this as well as, shrinkage and wastage which include theft and errors in inventory audits. Inaccurate data also places the retailer in a position of incurring additional costs due to incorrect ordering and replenishing of stock (Dayananda, 2017). The new normal amid COVID allows for more online sales and sales through various and more efficient ways of shopping and to avoid long hours of queuing and shopping in-store. Hence, a greater need to investigate competitive advantage for online sales amid Covid 19 in a logistic and distribution company in Johannesburg. The section that follows puts forth preface to the research report.

1.5 Preface to the research report

The report is made up of six chapters. The introductory chapter is followed by Chapter two is the literature review that describes the problem, research of previous studies, the explanatory and conceptual frameworks.

The research strategy, design, and procedures as well as the reliability and validity measures and limitations are discussed in Chapter three. Chapter four is a presentation of the research findings followed by Chapter five, which is a

discussion of the research findings. Chapter six summarises and concludes the study. It also includes recommendations and proposed future research.

CHAPTER 2: LITERATURE REVIEW

2.1 Conceptual Review

2.1.1 Inventory Management

This is critical to improving corporate efficiency and competitiveness. As a result, businesses must adopt good inventory management strategies to boost their competitiveness (Rajeev, 2008). For online retailers, being able to manage inventory is one of the most crucial operations in order to produce high inventory turnover and just-in-time product replenishment. Effective inventory management requires adequate stock levels. Too much inventory takes up space, costs money, and raises the risk of damage, spoilage, and loss. Conversely, poor inventory levels impact business operations and directly affects customer satisfaction. (Dimitrios, 2008). Unnecessary inventories and poor customer service are fairly typical. Inventory management's goal is managing the supply and demand of inventory to meet customer needs which is the main objective. (Aarti & Dhawal, 2013).

According to Axsäter (2006), inventories are costly due to the investment of capital and the administration and operations behind the inventory management process. The lead time for refilling inventory is sometimes extensive, and customer demand is uncertain in most instances. (Axsäter, 2006). Inventory management aims to strike a balance between customer satisfaction and associated costs. According to Choi (2012), A critical factor in any company is having an effective inventory management system and process. In this way, organizations may meet client demands and also be able to receive adequate supply from its suppliers to always fulfil customer orders in the most optimal time period. At this point, it is noteworthy to look at the logistics and distribution industry.

2.1.2 Logistics and Distribution Industry

Logistics related activities have existed for years, and their effects in operations were significant to several organization. However, it was only recently that corporate enterprises realized the advantages of logistics (Carvalho, 2002). As a channel for the exchange of excess production between people, logistics serves as one of the oldest economic activities and one of the most modern managerial notions, resulting in three key logistics functions: stock, storage, and transport. From source to end user any supply chain's efficient and effective flow of goods and services which include information, depends on logistics. In the retail business, consumers always seek timely and cost-effective goods and services (Umair et al., 2019). In order to deliver the finished product at the lowest cost, as quick as possible, and with the greatest quality, this concept encompasses a vast network of relationships and calls for cooperation and mutual commitment from all organizations involved.

The value of process optimization, delivering solutions, increasing efficiency, adding value to commercially available goods and services, and reducing costs along the supply chain, from raw material suppliers to the delivery of finished goods to customers has made logistics an important competitive advantage in retail business organizations over the last decades. Having deliberated on logistic and distribution industry, the following section expounds competitive advantage.

2.1.3 Competitive Advantage

Both academics and practitioners agree on the basic notion of competitive advantage. Porter (1985) characterized survival and building a defendable position over rivals as an organization's competitive advantage. A company's competitive advantage is built on the foundation of the organization's ability to distinguish itself from rivals Marinagi et al. (2014). A company's competitive advantage is a set of assets and competencies that it has over competitors in order to provide value to customers. (Shahmansour et al., 2013).

The outcome of important management choices that enable a business to set itself apart from rivals is competitive advantage. (Tracey, Vonderembse & Lim, 1999). The literature has identified price, quality, delivery, and flexibility as crucial competitive capabilities. (Tracey et al., 1999; Roth & Miller, 1990; Skinner, 1985). A corporation has a competitive advantage when it offers a product that its customers view as better than its competitors. Due to the competitive advantage gained by offering clients better advantages and services, the larger price difference is justifiable.

Goksoy et al. (2013) emphasized competitive advantage as a means of ensuring reduced costs or delivering a special good or service that clearly surpasses rivals. According to Wang (2014), Competitive advantage must also provide superior goods and services to draw in clients. Chopra & Meindl (2013) defined competitive advantage as an organization's capacity to meet consumers' demands better than competitors. Dirisu et al. (2013) Competitive advantages are a group of special resources that a company uses to convince and win customers. According to Rondeau et al. (2000), Simply said, it is aspects of competition that customers value. According to Li et al. (2006), having an advantage over rivals is known as having a competitive advantage.

Several scholars (Porter 2004; Olhager, 2013) explore various competitive advantage aspects, but the competitive advantage dimension was the focus of this study. The study focused on four categories; cost, timely delivery, flexibility and quality, as being operationalized in Olhager (2013), Li et al. (2006), Zhang (2001) and Mahasneh et al., (2020), hence the brief explanation of the dimension is presented below.

2.1.3.1 Flexibility

A company that can change and implement new ways to meet customer needs are known to be flexible. Flexibility is key to having a competitive advantage over competitors. Being able to implement changes within the shortest period of time allows a company to go to market before its competitors (Slack, et al., 2004). To meet changes in demand or any other immediate change in operations is known as flexibility in operations. This is the ability on how quickly a company can respond to a change and implement a new process to counter the change. (Drohomeretski et al., 2014).

It is crucial to emphasize that flexibility is the ability to create a variety of items using current technology. It is the business's capacity to provide a range of goods and services in the target market while remaining abreast of technical developments and creating goods and services that live up to customer expectations. (Russell and Taylor, 2000). Flexibility is the ability to develop and change a broader variety of services utilizing existing facilities.

Dillworth (1996), demonstrates that adapting services to meet different client needs and prevent complaints contributes to high levels of customer satisfaction. According to Zhang and Sharifi (2000), flexibility is the capacity to perform several jobs and meet various goals while employing the same resources. Flexibility in terms of product volume, model/configuration, organizational challenges, and people.

Due to the level of change and variety of customer demands, price and quality are no longer seen as competitive advantages, yet price and quality are still major concerns with many commercial organizations' products. As a result, an organization's ability to adapt to new goods and services has become a key to competitiveness. (Agha et al., 2012). The following section discusses quality.

2.1.3.2 Quality

Many companies strive to improve the quality of their services and products in order to stay afloat and keep up with the competition (Bani-Hani & Al-Omari, 2012). If businesses want to leverage quality as a competitive advantage, they must see it as the gateway to satisfying customers instead of simply a way to solve problems and reduce spending. (Baker, & Crompton, 2000). Porter (2004), quality has been described as the method of developing and discovering new approaches. that are more successful than those used by rivals, as well as the capacity of the organization to put that discovery into practice on a large-scale. Quality is defined more generally and with a focus on the needs of the customer as an organization's capacity to deliver products and services that satisfy or exceed consumers' expectations (Alsmadi, Khan, & Mctavish, 2011; Drake, Lee, & Hssain, 2013; Jabbour, Maria, Paiva, Almada, 2012;). According to the present study, quality is determined by how long it takes to produce something, how effective it is, and how well a company satisfies or surpasses customer expectations.

Quality in lieu of logistic and distribution company refers to capacity to offer measurable services meeting up with required tangibility, assurance, reliability, and empathy for clients. Interestingly, to endure market competition, it is critical for a company to concentrate on attaining superior standards for their items or services. During the 1980s, achieving quality in products and services became critical. Marketers have recognized and quantified quality in tangible commodities, but quality in services is still unknown and requires additional investigation (Parasuraman et al., 1985). Today's global economy has made quality a critical concern, and any company that ignores it runs the danger of losing customers and revenue. (Zhao et al., 2002).

To delight customers and go above and beyond expectations, businesses concentrate on providing quality. To remain relevant many businesses, aim for exceptional quality. Think of quality as a way to satisfy customers as well as a way to reduce costs and find solutions to issues. All organizations, whether

industrial, general, or private, must prioritize quality since it helps them make the most of their resources and keep a step ahead of the competition. (Diab, 2014). The following section elaborates on delivery.

2.1.3.3 Delivery

Delivery involves adaptability and speed in the logistical and distribution organization's responsiveness to the needs of the consumer. Another aspect of importance is organizational rivalry in the markets is the delivery dimension, which focuses on shortening delivery times, expediting the development of fresh goods, and getting them to the end consumer efficiently. Consumer readiness to pay a premium for items they need right now is related to how quickly a company responds to customer demand, which has become a competitive factor among businesses (Bakri, 2005). COVID-19 pandemic has put pressure on logistics companies in that most customers buy online. As a result, delivering on time is of utmost importance. To respond to prompt delivery, logistics companies have had to reduce cycle times (Kaewchur, 2021).

Delivery time is critical in today's manufacturing and service industry. Since, the most effective inventory management strategy enables suppliers to maintain and deliver at a specific time, rather than massive volumes of inventory. Thus, delivery speed is an essential aspect in increasing competitiveness (Kaewchur, 2021). In the next section, cost efficiency is discussed.

2.1.3.4 Cost Efficiency

The most prevalent metric utilized by firms, particularly in marketplaces where consumers are price-sensitive, is cost efficiency. (Diab, 2014). Companies use a reduced cost strategy to provide clients with lower cost services, giving them a competitive edge overall. With today's technology, customers will choose products with similar pricing but different functions. Customers want products that perform similarly yet cost less. Companies who provide their products for

less than their rivals do do so in an effort to outperform their competitors (Dangayach & Deshmukh, 2006). According to research, being able to manufacture and distribute equivalent goods or services to rivals for a cheaper price is what it takes to compete in the market on price (Drohomeretski, Gouvea, Pinheiro, Garbuio 2014; Peng, Schroeder, & shah, 2011). Firms can gain a competitive edge by making their goods and services less expensive. Increasing experience, education, and credentials; successful investments; and using resources effectively are all factors that contribute to lower costs. In what follows, inventory management practice and processes in logistic and distribution companies in Johannesburg are explained.

2.1.4 Inventory Management Practice and Processes in Logistic and Distribution Companies in Johannesburg

The logistics and distribution company's mission statement guarantees a turnaround time of 24 hours for local Johannesburg deliveries and 48 hours for out of Johannesburg. The companies recently embarked on introducing online sales due to COVID 19 and realized the importance of creating an online platform to increase sales and streamline the buying process. As discussed, the current inventory management process is controlled on a software system called Palladium. Each stock item has its unique SKU Code. Purchase orders are placed via the system with local and overseas suppliers. Thus, the current best practice is to strive to move stock straight from pick up to drop off and avoid transfer between vehicles and overnight storage where possible.

This means that for inventory to be delivered directly from the third party to end consumer it will require more complexed controls and will need to be tracked remotely. The inventory will not be recorded in the inventory management system, and this poses a risk that the inventory can be inaccurately accounted for. Trust is placed on the driver and the operational staff have no visibility of the inventory. The delivery needs to be logged onto the system to ensure the inventory is correctly accounted for and billed.

Sales orders are received online or via email. The online ordering system is integrated into the Palladium inventory management system and automatically created a Sales order. The sales representative checks the order to the stock quantity on hand which all reflects on the system and confirms or rejects the order which is then approved by the Financial Manager or Inventory Manager. Once the order is confirmed and if the product is available in stock a time is allocated and an estimated delivery date is assigned, and an invoice is generated and sent to the customer. The date assigned is not an actual date but working days from once payment is received. For example, the estimated delivery will be 7 days from once payment reflects. Orders are only confirmed for dispatch and once payment is received and allocated by the finance department to the order. The procedure involved in inventory management among logistic and distribution firms in Johannesburg is presented with the chart below.

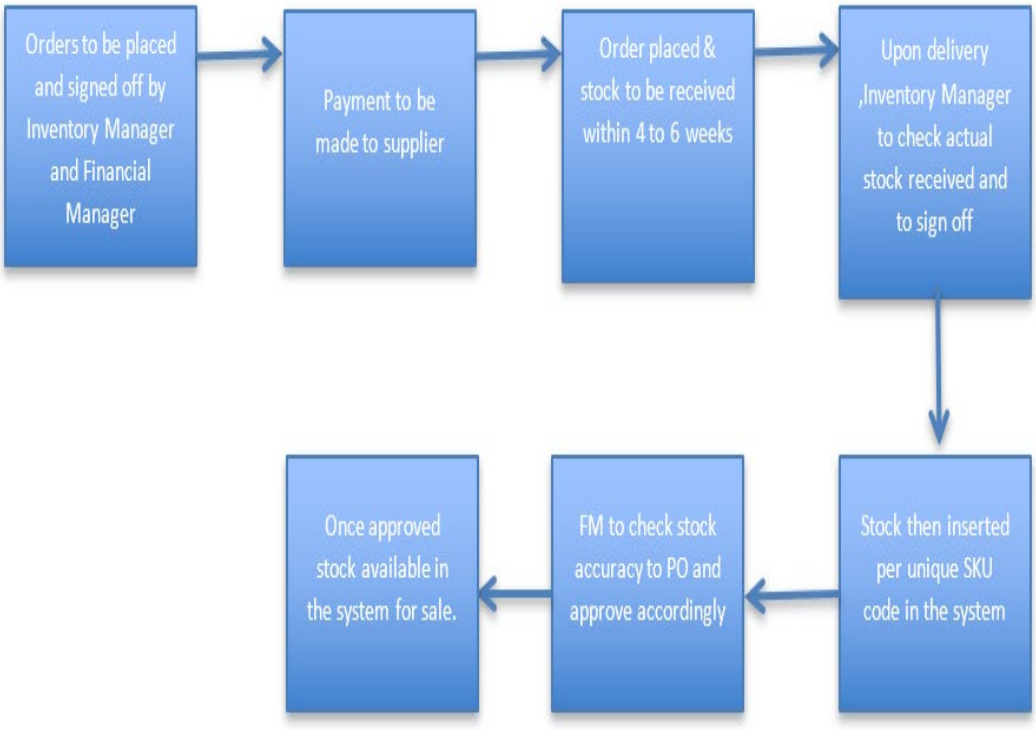

Figure 1: Procedure on Inventory Management in Logistic and Distribution Firms

Source: (Based on Field Observation Notes, 2021)

2.2 Theoretical Review

Marketing professionals' debate if an established business should use an online channel given that store-based networks dominate online sales (Sethuraman and Parasuraman 2005). A corporation acquires a competitive edge when it builds the skills necessary to surpass rivals. The management profession spent nearly half a century developing ideas to characterize competitive advantage. This study is envisaged to help leaders by concentrating on two management theories, to control the allocation of investments and for the purpose of gaining a multi-channel competitive edge, establish more informed strategic goals.; resource-based and marketing-based view theory.

2.2.1 Market-Based View Theory (MBV)

The Market-Based View (MBV) contends that industry factors and a focus on external markets drive business performance (Bain 1968; Caves & Porter 1977; Peteraf & Bergen 2003). Bain's (1968) Structure-Conduct-Performance (SCP) framework and Porter's (1980) Five Forces model are two well-known theories in this field (based on SCP). Value is embedded in the competitive context determining the firm's end-product strategic position. The strategic position is the unique combination of activities that set a company apart from rivals. As an alternative, a company's strategic position is established by how it conducts related but different businesses. This theory holds that an organization's profitability or success is determined entirely by the dynamics of its competitors and market (Schendel 1994).

2.2.2 Resource Based View (RBV)

The firm's resource-based perspective emphasizes the resources that businesses have developed to succeed in the marketplace. Hoskisson's (1999) explanation of strategic thinking development focused on internal elements of the firm during early strategy creation. Researchers like Ansoff

(1965) and Chandler (1962) helped shape this view of strategy (Hoskisson et al. 1999). In the 1980's and beyond, according to Furrer et al. (2008), research moved from examining industry structure to examining firm internal structure. Since then, the resource-based view of strategy (RBV) has grown in acceptance. (Furrer et al. 2008; Hoskisson et al. 1999).

2.3 Empirical Review

This study explored how to give a business a competitive advantage by having an effective inventory management system. The study was conducted at Logistics and Distribution Companies with online ordering capabilities in Johannesburg. The gap identified is how companies implement effective inventory management to save time on completing orders and thus have a competitive advantage. Ineffective management of inventory places cash flow constraints on businesses and may result in expired or obsolete stock (Baker, 2019). With reference to online purchasing, the under stocking of an item and the lead time to source the item for the customer could result in a loss of the sale. Among the symptoms are delayed delivery of goods to customers, customer dissatisfaction, loss of sales, customers place orders, however, no actual stock on hand even though the system has stock and the longer turnaround time to ship products.

Okoye et al. (2016) conducted study of the effects of financial leverage on listed conglomerates' dividend policies from 2010 to 2015. In manufacturing organizations, it looked at how inventory impacts financial performance. Between 1980 and 2005, the researchers looked at 52,254 enterprises and utilized multiple regression to determine if inventory levels and financial performance are related. Using gross and operating profits as their benchmarks, they evaluated financial performance., as well as inventory levels for raw materials, semi-manufactured goods. The findings revealed a connection between inventory management and financial outcomes. Debt financing in fast moving goods companies' financial mix should be optimized to ensure assets are fully utilized. (Okoye et al., 2016, p. 123).

Thogon and Jane (2014), examined the relationship between inventory control and monetary success. The study's goal was to look into how inventory management affected financial performance from 1992 to 2002. Lead times, margins, and inventory levels were used as explanatory variables. They did not discover any evidence, nevertheless, that lower relative levels are associated with greater financial performance. The current study attempted to fill this void, by identifying the key factors that impede logistic and distribution companies' ability to compete when inventory management is ineffective.
In Pavic, Koh, Simpson, and Padmore (2007) a link was discovered between using information technology and competitiveness. According to the report, information technology may not only help maintain and strengthen a competitive edge but also help gain one. According to Hazen and Byrd (2012), implementation of the latest and new information technology increased efficiency and effectiveness, resulting in a competitive edge. Hamad et al. (2018) It was discovered that using business-to-business e-commerce helped Egyptian enterprises gain a competitive advantage by increasing market share and sales. Numerous prior e-commerce studies did not make enough of a distinction between the different competitive benefits brought about by different levels of business-to-business e-commerce adoption. (Hamad et al., 2018; Hazen & Byrd, 2012). Zhong (2008) suggested techniques to improve inventory management in small firms. A qualitative case study was used, where senior management and operations workers at a gym sports equipment supplier were interviewed. The study concluded that smaller wholesalers and firms have less financial and negotiation strength, while factors such as long-distance suppliers, high demand and supply volatility, and no systematic inventory management system aided the wholesaler's poor inventory management.

A study was conducted in which 22 executives were asked about the connection between a firm's competitiveness and objectives. The study focused on cost, delivery, flexibility, customer focus and quality. These were ranked on a five-point Likert scale. The result was that there was a great correlation between competitive advantage and priority.

In a study conducted by Patil and Divekar (2014), they sought to assess online B2C enterprises' customer happiness. The study sought to determine whether customers received their online purchases on time or late. The study showed that online merchants faced multiple inventory management issues, including fluctuating demand and supply, reverse logistics and their impact, product availability, and managing SKUs. Also cited as a challenge were multi-channel shoppers such as those customers that purchase online and shop in store (Patil & Divekar, 2014). The study concluded that better inventory management will boost customer satisfaction, and wholesalers were given advice on how to do this.

In three different industries—food, textiles, and chemicals—Ashok (2008) assessed inventory management's effects on business performance in Greece. The premise that lean inventory management improves financial performance of a corporation was tested. A firm's rate of return appears to be inversely proportional to the number of inventories retained (except from lean operations). The study concentrated on lead time and inventory demand at the corporate level.

According to Grossmann (2008), the supply chain time delay can be represented by splitting the manufacturing and delivery lead times in half. The lead time for production is the period of time from the time the raw materials are ordered until the product is ready for sale or shipping. The lead time for delivery is the period of time from the time an order is made until it is dispatched from the distribution center to the ultimate client.

Loss of sales as customers place orders and there is no actual stock on hand even though the system has stock and the longer turnaround time to ship products. According to Hendricks (2009), sales will be lost as a result of supply chain disruptions, which also affect a company's reputation and share price.

The root causes identified are incorrect data captured, ineffective and under-utilization of Inventory ERP Management, inaccurate data which results in leaving stock counts and stock levels difficult to determine, under-utilization of

space and misallocation of inventory and non-compliance to process flows and procedures (Hendricks, 2009). The consequences of the root cause and symptoms are due to poor stock management customer receives goods later than expected, the customer is dissatisfied due to time taken to receive the product, customer dissatisfied due to order placed however no stock due to inaccurate data, the customer pays the higher price (increased rental costs) and waits longer for the product due to under-utilization of space and misallocations and dissatisfied customer due to time taken to receive the product as staff was non-compliant with the documented processes and procedures (Grant, 2006). Customer pays the higher price (increased rental costs) and waits longer for a product due to under-utilization of space and misallocations and dissatisfied customer due to time taken to receive product as staff were non-compliant with the documented processes and procedures.

According to DeHooratius (2008), A crucial issue in the retail sector is the recording of inventory and the inventory on hand, some of the primary causes of this is recording of sales, shrinkage and wastage which include theft, and errors in inventory audits. Inaccurate data also places the retailer in a position of incurring additional costs due to incorrect ordering and replenishing of stock. At this point, it is noteworthy to examine the conceptual framework guiding this investigation and the construction of the hypotheses in the part that follows.

2.4 Hypotheses Formulation and Conceptual Framework on Inventory Management Practices and competitive Advantage

According to Naliaka and Namusonge, inventory management affects the manufacturing companies' ability to compete (2015). Additionally, the survey found that the company can compete on quality and delivers goods on time. Critical managerial decisions that enable a company to set itself apart from rivals lead to competitive advantage (Li et al. 2006). A competitive advantage can be attained by enterprises through efficient inventory management. To make the appropriate number of necessary things, this entails maintaining just the right amount of inventory in the right location, at the right time, and at the right cost.

The main goals of inventory control strategies are to satisfy customers with competitive pricing options and cost management, including maintaining a steady profit to boost competitiveness. Business needs to manage inventory efficiently in terms of cost, profitability, and cost efficiency, as well as customer satisfaction in order to stay competitive in today's fast paced world (Rahman & Nwagbara, 2018; Wangari & Kagiri, 2015).

The ability of firms to comprehend their clientele and guarantee their contentment is becoming increasingly crucial as competition in the services sector intensifies. Chen, Chang, and Lai (2009), Campos & Nobrega (2009), Chee and Noorliza (2010), Huang & Huang (2009) (2012).

According to Liu & Xie (2013) and Xie, Wang & Lai (2011), a high standard of service delivery is required to remain relevant in the fast-expanding service delivery industry. Excellent service delivery differentiates a company from its competitors (Chen, Chang, & Lai, 2009; Huang, Wang, & Xue, 2012).

Because inventory would be a cost that is incurred at every stage of production, inventory management is an essential component of logistics management. A decent amount of time must pass between projects for them to be successful. Stock is reduced by consistent production. The finished product must be delivered or prepared for customer pickup when it is ready. An awareness of the context and purpose of the inventory is necessary for the intricate process of inventory management. While inventory has advantages and disadvantages, as was already established, the goal of inventory management is to lower costs. The main focus is on inventory management to increase productivity and cut costs.

Inventory management is assumed to have an impact on competitiveness in logistic and distribution companies based on the discussion of the relationship between inventory management practices and competitive advantage that was mentioned earlier. To support this assumption, the current study conceptualized the construct with fig. 1 below and hypothesized the following.

H1a: Cost as a competitive advantage dimension is positively influence by inventory management practices.

H1b: Delivery dependability is a competitive advantage dimension is positively influence by effective inventory management practices.

H1c: Quality as a competitive advantage dimension is positively influence by inventory management.

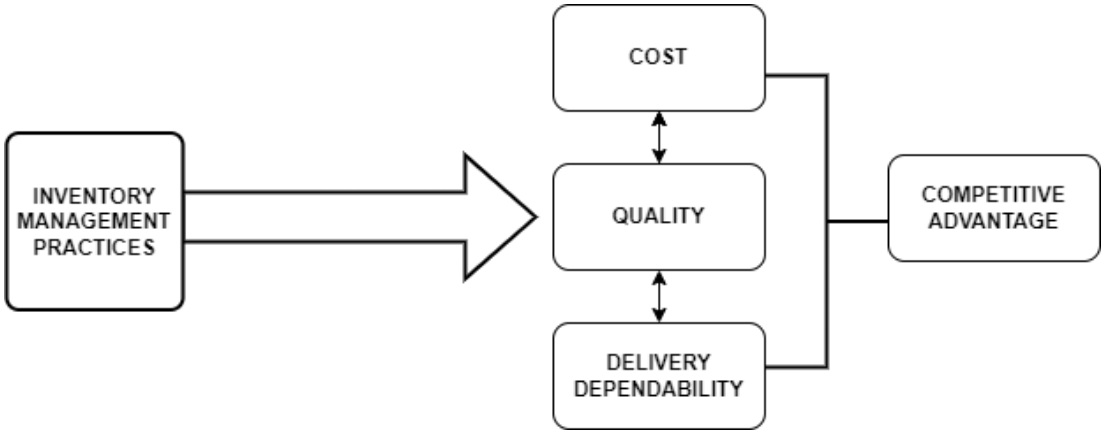

Figure 2: Heuristic Model

2.5 Gaps and Contribution to Literature

According to extant studies, there was a lack of consensus among past researchers' findings, demonstrating the need for more investigation into inventory management techniques, particularly in light of the shift in operational standards brought forth by the COVID-19 outbreak. Competitive advantage has traditionally been viewed as an independent or intervening variable with a notion of determining a phenomenon, however this study demonstrated the novel concept of competitive advantage being assumed to be a dependent variable. Furthermore, this study is distinctive in that it looked at how inventory management techniques affected logistic and distribution businesses in Johannesburg, South Africa, from an industry-based perspective, with a special emphasis on the impact on a dimension of competitive advantage during the pandemic epoch. Finally, the firms'

inventory control systems succinctly articulate their mission, most notably delivery dependability, which is characterized by time, flexibility, and speed.

CHAPTER 3 METHODOLOGY

3.1 Research strategy

This study used a cross-sectional study with a quantitative descriptive research design, involving the use of structured questionnaires, as well as semi-structured interview to gather information on inventory management practices. Research strategy, sometimes referred to as a research approach, is the methodology and plan used by the researcher to address the stated research questions (Zaidah, 2007). Furthermore, covered are the practices and methods that will be used during the investigation. The research plan aids the researcher in taking an orderly approach to the investigation. It was simpler for the researcher to compare and analyze the information and data from the findings to theoretical frameworks thanks to the research strategy.

To gather information from the staff, standardized questionnaires and a semi-structured interview guide were used. The staff included the General Manager, Operations Manager, and Warehouse Manager, and general workers of the selected logistic and distribution companies. The main benefit of using the questionnaire in this study was that it was easier to reach many intending participants who were knowledgeable and positioned in giving relevant and needed information. Moreover, access to adequate and reliable data to base arguments on, were envisaged to help companies make informed decisions. Thus, the data provided the Logistic and Distribution company, the ability to identify which items to stock at distribution centres and which item categories are purchased mostly online. This assisted in determining the firm's level of competitiveness as well. The following section discusses research design.

3.2 Research design

Citing Nieuwenhuis (2016), “a research design is a plan or strategy that moves from underlying philosophical assumptions to specifying the selection of participants, the data gathering methods to be used and the data-analyses to

be done". De Vaus (2001) describes a research design as a method a researcher chooses to combine many elements of a research study into a structured framework to help address the research challenge. A research design, to put it simply, is a structure for the collection, measurement, and analysis of data that is based on the research problem. The research design sets out the design of the research to ensure the correct supporting evidence is gathered to support the argument or assumptions being made.

3.3 Research procedure and methods

This section outlines the precise steps and techniques used in this study to gather, compile, organize, and analyze empirical data. The following are comprehensively detailed:

- the data and information collection instruments (Section 3.3.1).
- the target population and sampling of respondents (Section 3.3.2).
- the ethical considerations during the research process (Section 3.3.3).
- data and information collection process and storage (Section 3.3.4).
- data and information processing and analysis (Section 3.3.5).
- the background description of the respondents who provided empirical evidence for this research study (Section 3.3.6).

3.3.1 Research data and information collection instrument(s)

The study adopted a well-structured questionnaire from previous research works on the various concepts under investigation, which are inventory management practices and competitive advantage. The operationalization of competitive, the dependent variable, followed that of earlier studies. (Li et al., 2006; Zhang, 2001; Mahasneh et al., 2020; Sachitra & Vilani, 2016). The scale consists of nine variables across three dimensions: cost/price (two variables), quality (four variables), and dependability of delivery (three variables), which is the composition of flexibility and timely Meanwhile, inventory management practices stood as the independent variable measured using John, Etim & Ime (2015) developed scale, consisting of 12 items.

Each topic was scored using a 5-point Likert scale, with 1 denoting "Strongly Disagree" and 7 denoting "Strongly Agree," and respondents had chosen the answer that most accurately reflected their thoughts.

Data was acquired via surveys. Both open-ended and closed-ended questions were included. Information regarding the inventory management procedures utilized by the companies was gathered using the semi-structured interview method. Hence, data collected were sorted into groups to make it easy to interpret, analyse and provide comments and recommendations. Questions were inferred from the study objectives. These questions related to competitive advantage, inventory management practices, and challenges confronting the firm in relation to effective inventory management practices.

Since it directly affects the study's findings, accurate and methodical research data collecting is crucial for all studies. According to Abawi (2014), data collection permits gathering of all necessary information related to a subject. The section that follows expounds research target population and selection of respondents.

3.3.2 Research target population and selection of respondents

3.3.2.1 Research target population

The management of the Logistics and Distribution Company at various levels was part of the study's target group. The unit of analysis represented top management team members and workers of logistic and distributions firms in Johannesburg, South Africa. These respondents were selected from the concerned operating task of logistics and inventory who are knowledgeable on the subject matter. The phrase "the whole aggregation of respondents that fulfill the specified set of criteria" can be used to describe the target population. (Burns, 1997).

Participants selected emerged from top management team who are in affairs of decision making, and managers from every division involved in the daily operations of the businesses, personnel from warehousing or store and information technology unit. The preceding section explains sampling technique.

3.3.2.2 Sampling technique

Techniques of convenience sampling and purposive sampling were combined. Purposive technique allows the researcher to set criteria for required sample units since type of participant is already known. That is, researcher used his judgement to choose only participants, he felt is capable of answering the questions. To achieve the desired sample size within the companies, convenience sampling was used to distribute questionnaires. Two hundred workers were proposed to be selected from the logistic and distributions companies based on their populace. The appropriate sample size for this population is 67 using G*Power program version 3.1.9.2, with an intermediate effect size of 0.15, a significance level of 0.05, and statistical power of 0.95. According to Davis (2014), a sample during a study, might be defined as “the people that you can gain access to within the population”. The main types of sampling are systematic, random sampling, stratified sampling, multistage sampling, simple random sampling, and cluster sampling (Pascoe, 2014).
The following formula was used to determine the sample size.

$$\mathrm{S} = \frac{NC^2}{C^2+(N-1)\,e^2}$$

S= sample size
N = population
C= coefficient of variation (0.5)
E= level of precision (0.05)
(Nasiurma, 2000).

$$\mathrm{S} = \frac{200\,X\,(0.5)^2}{(0.5)^2+(200-1)\,0.05^2}$$

$$\mathrm{S} = \frac{200\,X\,0.25}{0.25+199\,(0.0025)}$$

$$s = \frac{50}{0.7475}$$

$$s = 67$$

3.3.3 Ethical considerations when collecting research data.

As a student at Wits Business School, this research is a requirement to complete my master's degree in business administration therefore, this research is solely for the purpose of meeting an academic requirement. Research ethics can be described as safeguarding the wellbeing of the research participants of the study (Blanche, 2006). Ethics in research is of utmost importance and the most common way of defining ethical behaviour is to distinguish between acceptable and unacceptable behaviour. Ethics in research is important for various reasons, one of the reasons is to promote knowledge, the accuracy and absence of error. Prohibition on manipulating, distorting, or misrepresenting research data in order to advance accuracy and reduce error (Resnik, 2015).

The researcher committed to act with integrity, respectfully and be trustworthy. The researcher vows to be held accountable and acted with integrity and followed ethical principles. As the researcher is from a finance background the researcher adheres to the CIMA code of ethics.

For all interviews conducted a written consent was sent and signed by the participant. Participants were officially told of the study's goal in a straightforward manner without any ambiguity or dishonesty. Participants were assured that their identities will be protected as they will remain anonymous. Participants were not placed under duress or stress as that may have resulted in a loss of self-esteem. They were informed that any questions they felt uncomfortable answering could be skipped, and confidentially was upheld throughout the whole study.

3.3.4 Research data and information collection process

Research data collection as defined by (Kabir, 2016, p. 215) is the process of collecting and analyzing data on variables in a systematic manner. A research project's ability to collect data and achieve its objectives is essential to its success.

The study used first-hand information. This kind of data should be gathered directly by researchers from the principal sources of information, which could be through interviews, questionnaires, and experiments. Data needed was sourced through a well-developed questionnaire which was adopted from the extant literature. Meanwhile the survey is administered to executive members and senior management members of the selected company both electronically and paper-based typed. In the next section, research data and information

3.3.5 Research data and information processing and analysis

3.3.5.1 Research data and information processing

The process of converting unstructured data into a form that computers can understand is known as data processing. In a commercial sense-data processing can be described as the processing of data to run businesses (Encyclopædia Britannica, 2016). (Allen, 2017) defines data coding as the process of converting gathered data or observations into a collection of useful, cogent categories. It is the process of condensing and presenting information to offer a methodical explanation of the occurrence that has been observed or documented. Data entry onto a computer can be described as the process of entering data onto computer-based files to store and analyse data (Niewenhuis, 2016). For the study Statistical Package for the Social Sciences (SPSS) package for analysing the data was used.

The process of enhancing the quality of data through modification is called data cleaning, deleting duplicated or irrelevant records within the database (Allen, 2017). The researcher cleaned the data by keeping only relevant data and removing outliers or irrelevant data collected.

Transcribing can be described as the process of copying and modifying information into a visual or written format for analysis (Cronje, 2014). After conducting interviews process flows were drawn up and analysed to compare the actual operations versus the documented process flows.

3.3.5.2 Data analysis

To achieve the study's objectives, the information from the questionnaires was analyzed utilizing a computer system and the SPSS application. The descriptive elements were presented using frequency and simple percentage (objective one and two), while inferential statistics such as correlation was also employed to achieve objective three, while proposed structural model was subjected to strings of tests; psychometric and multi-collinearity and actualizing the hypotheses with confirmation by the Partial Least Square Structural Equation Modelling (PLS–SEM) using SmartPLS 3.0 version. In order to test significance level and their path coefficients, the bootstrapping approach was used. Research data analysis is the process of analyzing the data collected and evaluating it using logical and analytical reasoning. Next, the data is examined and analyzed to help in the decision-making process (Perez, 2019). This describes the methods for analyzing the data that will be gathered. The technical steps required to do the statistical or quantitative analysis are covered. The description of the study participants appears in the preceding section.

3.3.6 Description of the research respondents

The demographics of the research participants—their age, gender, work experience, and educational attainment—were among their most significant traits.

Statistical Profile 74% of the study's sample's participants were men, and 26% were women. The bulk of people were, on average, between the ages of 40 and 49, while the youngest were under 30. According to statistics on educational background, the respondents have some form of education, with the most (45.7%) having a bachelor's degree, followed by 32.3% with a master's, and the least number with a doctorate. The analysis of business operation experience revealed that the majority of operators had been in the logistics and distribution industry for 15 years or longer, while the least amount of time was between 5 and 9 years. This suggests that the operators are knowledgeable in the industry, as operations were not affected by the recent pandemic. The resulting demographic profile is shown in table 1 below:

Table 1: Demographic profile of the respondents

Variables	Categories	Freq (n=127)	Percentage
Gender	Men	94	74
	Women	33	26
Age	Below 30	13	10.3
	30 - 39	28	22
	40 - 49	58	45.7
	50 & above	28	22
Educational Level	Bachelor	58	45.7
	Higher Diploma	25	19.7
	Masters	41	32.3
	Doctorate	3	2.3
Business Operations Experience	Below 5 years	28	22
	5-9 years	16	12.6
	Oct-14	31	24.4
	15 years & above	52	41

Source: Author's survey and computation, 2022

3.4 Reliability and validity

Middleton (2020) discusses how to evaluate the quality of research using concepts like dependability and validity. They show how well a technique, approach, or test gauge something. Whereas reliability is concerned with a measure's consistency, validity is concerned with a measure's accuracy. Reliability and validity must be considered while creating a study design, choosing a research methodology, and summarizing results, particularly in quantitative research. Dudavskiy (2018), Research reliability is defined as the degree to which a research approach produces consistent and reliable results. The same observation made in the same conditions should yield the same or a similar result. This will validate the study. (Hill, 2017).

The questionnaire adopted is said to be a valid research instrument for this study, as it was presented and structured in such a way to elicit the appropriate responses from the respondents. The researcher ensured that a series of questions posed to the respondents was on the subject matter, and the survey measured what needed to be measured. The researcher created the questionnaire, which underwent content analysis and face validity by the researcher’s supervisor who advised on items to be retained, reframed, or rejected.

The degree to which research instruments measure things what they were designed to measure is referred to as research validity (Dudavskiy, 2018). The consistency with which a research instrument generates or is projected to produce results over time is what is meant by a research instrument's reliability. For this research work, Cronbach alpha was adopted for the reliability test. The range of the coefficient values are from 0 to 1. A coefficient value as near to 1 as feasible indicates a highly reliable instrument, whereas a score that is extremely close to 0 indicates a very unreliable or nonexistent instrument.

CHAPTER 4 PRESENTATION OF EMPIRICAL RESEARCH RESULTS

4.1 Introduction

Results of the data collection are presented in this chapter. Results of descriptive research were presented in the field of respondents' demographic profiles, inventory management practices and processes, challenges affecting firms when encountered with ineffective inventory management system. The section's concluding portion uses partial least square structural equation modelling to explain the assumptions that were tested (PLS-SEM).

4.2 Descriptive Analysis

4.2.1 Inventory management practice used by South African Logistics and Distribution Companies

Table 2 revealed the inventory system practiced by logistic and distribution companies that were studied. Result revealed that 66.9% (the majority) use ordering matching processing system, that is third party system, whereas the remaining which is least 33.1% fully owned the inventory system.

Table 2: distribution based on Inventory management practices adopted.

Response	**Frequency**	**Percentage**
Ordering Matching Processing System	85	66.90%
Fully Owned Inventory System	42	33.10%
Total	**127**	**100%**

Source: Author’s survey and computation, 2022

4.2.2 Major constraints to competitiveness by Logistics and Distribution Companies, when there is inefficient inventory management.

Table 3 summarized the various issues faced by logistic companies when there is inefficient inventory management. The results showed that demand fluctuation is the major constraint faced by logistic and distribution problem while reverse logistics had a very severe effect on them and stock out as recorded as being severe, with unrecorded order from third party having the less severe responses.

Table 3: distribution based on challenges faced by logistic and distribution companies.

Challenges	Not Severe		Less Severe		Severe		Very Severe		Most Severe	
	Freq	Percent	Freq	Percent	Freq	Percent	Freq	Percent	Freq	Percent
Reverse Logistics	37	29.1	34	26.7	28	22	61	48	20	15.7
Stock out	20	15.7	17	13.4	58	45.7	12	9.5	12	9.5
Demand Fluctuation	12	9.5	13	10.3	28	22	28	22	82	64.6
Order from Third Party	58	45.7	63	49.6	13	10.3	26	20.5	13	10.2

Source: Field Study, 2022

4.3 Hypotheses Testing

4.3.1 Measurement and Structural Models

The two-stage partial least squares (PLS) model of Andersen and Gerbing (1988) was used to test measurement and structural models.

Convergent validity was used to evaluate the measurement model. The degree of agreement among the instrument's items while evaluating the same concept determines the validity of the instrument.

Loading (λ)

Average Variance Extracted (AVE)

Composite Reliability (CR)

With all items having outer loadings (λ) above 0.5 and composite reliability with sister measures like Cronbach's alpha rho, the total measurement has

acceptable fit and moderate predictive power, as shown by Lin & Wang (2012) and Igbaria et al. (1995).

A value greater than the 0.7 cutoff point, as proposed by Dijkstra and Henseler (2015). It has a convergent item-construct structure. The construct's convergent validity is still sufficient because the AVE is larger than 0.5, with the exception of inventory management procedures, which has an AVE of 0.478 but still remains inside the acceptability region because other measures are significant (Olaleye et al., 2020; Fornell & Larcker, 1981)

Table 4: measurement model

Latent Variables	*Loadings(λ)*	CA	rho_A	CR	AVE
Inventory Management Practices (IMP)		**0.901**	**0.912**	**0.915**	**0.478**
IMP1- "Awareness of existing models of inventory management"	0.517***				
IMP2- "Classification of inventory items by Cost and Demand"	0.555***				
IMP3- "Economic Order Quantity and holding stock"	0.621***				
IMP4- "Unsupported predictions and assumptions used for inventory management"	0.656***				
IMP5- "Cost of holding stock and ordering stock and finding best mix"	0.593***				
IMP6- "use of weighted average cost for costing"	0.835***				
IMP7- "on demand stock holding"	0.787***				
IMP8- "Stock management dependent on suppliers"	0.715***				
IMP9- "stock holding and inventory management dictated by market demand estimates"	0.714***				
IMP10- "Continously replenishing inventory to maintain stock holding levels"	0.773***				
IMP11- "Decisions and forecast based on stock management software output"	0.762***				
IMP12- "Suppliers purchase orders for items not kept on hand"	0.694***				
Price/Cost		**0.847**	**0.847**	**0.929**	**0.867**
PC1- "market related pricing"	0.932***				
PC2- "Able to offer pricing lower than competitors"	0.930***				
Quality		**0.851**	**0.853**	**0.899**	**0.69**
QU1- "compete based on quality"	0.819***				
QU2- "Reliability of products"	0.837***				
QU3- "Durability of products"	0.845***				
QU4- "Quality of products"	0.823***				
Delivery Dependability		**0.838**	**0.841**	**0.903**	**0.756**
DD1: "Delivery products requiring delivery"	0.844***				
DD2: "Timing of Delivery"	0.879***				
DD3: "Realiability and dependability of delivery"	0.884***				

Source: Author's Computation, 2022

CA=Cronbach's Alpha**CR**=Composite Reliability, **rho**= rho, A reliability indices, **AVE**= Average Variance Extracted

4.3.2 Discriminant Validity

Using the Fornell-Larcker (1981) standard, the table below shows that for each latent variable, the square root of AVE is greater than the correlation between each construct in the measurement model. In response to criticisms of the Fornell-Larcker (1981) criterion, the Heterotrait-Monotrait (HTMT) correlation ratio was created (Henseler et al., 2015). The table shows that, in line with Kline's (2005) guideline, every construct in our measurement model has an HTMT value that is smaller than 0.9, indicating that each variable has unambiguous discriminant validity.

Table 5: Discriminant Validity (Fornell-Larcker Criterion and HTMT ratio)

Variable	PC	DD	IMP	QU
Cost Efficiency	[a]**0.931**	[b]*0.628*	*0.665*	*0.231*
Delivery Dependability	0.529	**0.869**	*0.797*	*0.437*
Inventory Management Practices	0.625	0.73	**0.692**	*0.608*
Quality	0.2	0.372	0.501	**0.831**

Source: Author's Computation, 2022

Fornell-criteria, Larcker's the square root of the diagonal values in bold represent the AVE.

The HTMT ratio is shown in b*italics numbers above the diagonal.

4.3.3 Collinearity Statistics

Estimating the Variance Inflation Factor (VIF) for each independent variable is used to evaluate the measurement model's multicollinearity across and among predictors, as shown in add-on table 6 below. The findings demonstrate that there is no issue with collinearity or multicollinearity because all of the VIF values are less than 3. (Hair et al., 2017).

Table *6*: Structural Model Multicollinearity (Inner VIF Values)

Variable	PC	DD	QU
Cost Efficiency	-	-	-
Delivery Dependability	-	-	-
Inventory Management Practices	1.000	1.000	1.000
Quality	-	-	-

Source; Authors Computation 2022

4.4 Structural Model

In addition to the measurement model, the structural model was tested in this study. The structural model is frequently used to assess the causal relationship between the constructs in the instrument by providing a route coefficient, R-squared, t-statistics, P-value, and f2 using 5000 re-sampling methods. The findings show that when the direct effects of the predictor variable on the outcome variables are examined, the competitive advantage dimension is significantly and favorably correlated with the independent variable (IMP). In contrast, H1b showed that delivery dependability as a competitive advantage dimension is positively and significantly affected by inventory management practices (= 0.041, t = 17.962, p 0.05). The direct effects of inventory management practices on cost and quality as a competitive advantage dimension are said to be positively significant (H1a: = 0.070, t = 8.917, p 0.05) and (H1c: = = 0.072, t = 6.964, All theories are therefore supported.

The first hypothesis' estimation of the determinant's coefficients (R2) shows that, although the IMP had a strong relationship with the CAD dimension, delivery dependability was found to have the highest coefficient, and quality showed a moderate relationship. Inventory management practices can explain the competitive advantage dimension to the tune of cost (39.1%), quality (25.1%), and delivery dependability (53.3%).

In order to accurately portray the size of the observed effects, Sullivan & Feinn (2012) It is advised to report the substantive significance along with the beta

coefficients, statistical significance, and variance explained. Reporting the effect sizes of the direct channels and Fig. 3 and 4 are presented below. According to Cohen (1988), two paths (IMPPC and IMPDD) had high effect sizes since their f2 values were above 0.35, and the third path (IMPQU) had a moderate antecedent because its f2 value was below the moderate effect threshold (0.15 – 0.35).Lastly, indicators like the SRMR and normal fit index (NFI), which can be used to measure overall goodness-of-fit (GoF), become relevant when the SRMR is less than 0.08 and the NFI is between 0 and 1. Henseler, Hubona, and Ray (2016) concluded that the study model is statistically fit (SRMR= 0.021; NFI = 0.827).

Table 7: path analysis result

	Model fit summary		SRMR = 0.021		NFI = 0.827		Chi-Square = 694.734	
	Relationship	**Std. Beta**	**Std.Error**	**T-Value**	**p-value**	**F^2**	***R2***	***Decision***
H1a	IMP → PC	0.625	0.07	8.917**	0	0.643	0.391	Supported
H1b	IMP → DD	0.73	0.041	17.962**	0	1.144	0.533	Supported
H1c	IMP → QU	0.501	0.072	6.964**	0	0.335	0.251	Supported

Source: Author's Computation, 2022.

Significant at P < 0.01; P *** <0.05 ***- (Not Applicable)**

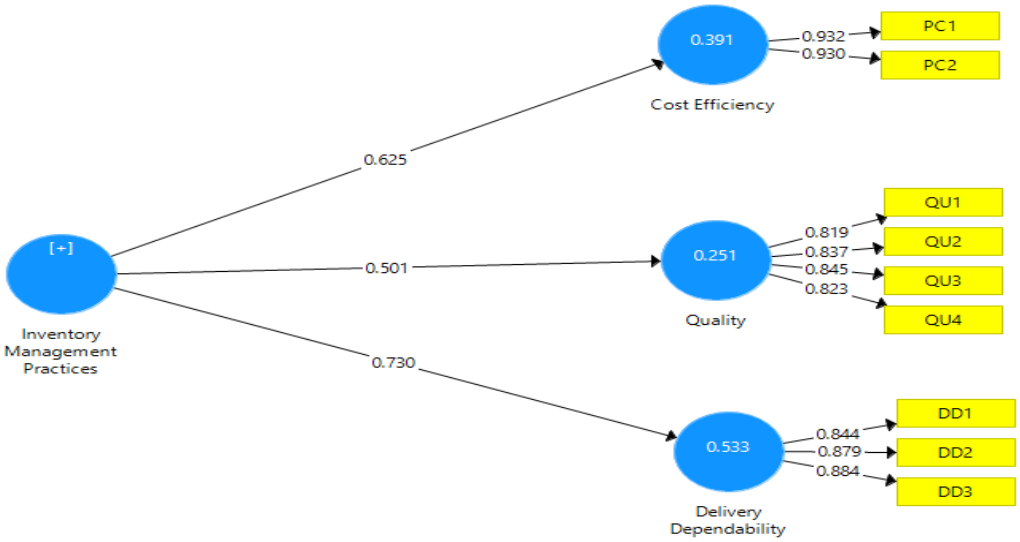

Figure 3: PLS Structural Model

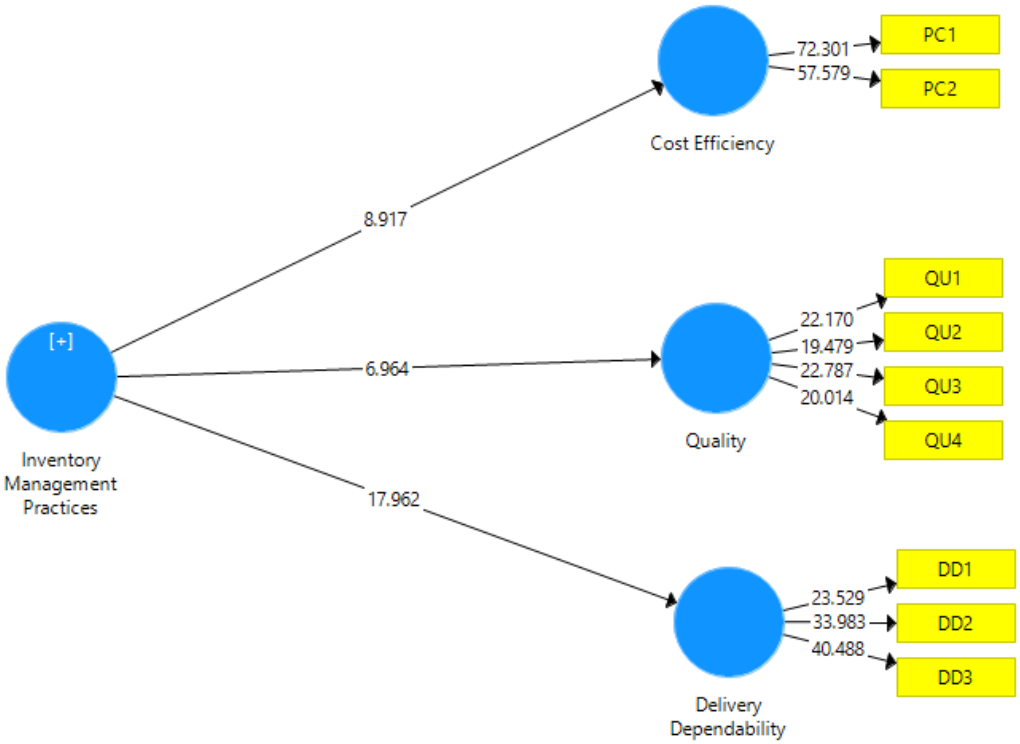

Figure 4: t-test statistic

CHAPTER 5 DISCUSSION OF RESEARCH FINDINGS

5.1 Introduction

Examining the study results and drawing analogies to prior literary works are the main objectives of this chapter. To learn more about inventory management techniques, the study used a cross-sectional study using a quantitative descriptive research design that included structured questionnaires and semi-structured interviews. The findings were discussed in the prior chapter.

Insights into the research questions are given below. The questions attempted to address the following goals: identifying inventory management practices used by South African logistics and distribution companies as they move towards online distribution; identifying significant barriers to competitiveness faced by logistics and distribution companies; and understanding the structural relationship between inventory practices and competitive advantage dimensions.

5.2 Theoretical Interrogation

The following subsections compare the results and findings from survey to comparative studies of a similar nature. The research findings in the study explain the inventory management process followed by the respondent companies. The research findings also detail the process followed by the respondent companies and explain these businesses' difficulties and challenges. The research questions and hypotheses developed in the previous chapter's objectives are discussed in the parts that follow. The material acquired is given meaning through the presentation and interpretation of the research findings.

Grossmann (2008) asserts that the supply chain time delay can be divided into the production lead time and the delivery lead time, as discussed in the

literature review section. The lead time for delivery is the period of time between placing an order and having the product shipped from the distribution center to the final customer. The production lead time is the amount of time it takes from placing an order for raw materials to having the product available for sale or shipping. It was discovered that the order lead time (the amount of time it takes until it is dispatched from the third party's store or distribution center to the final client) changes depending on whether the order is placed online or in person. The delivery lead time is then assumed by the company as of the moment the order is prepared for pickup at the store or distribution center of the third party. For all orders in Johannesburg, the companies aim to keep the lead time for delivery to 24 hours, and for deliveries to other provinces, it is 48 hours.

According to Grant (2006), maintaining a successful logistics and inventory management system provides a company a competitive advantage. An inventory management system that is efficient and effective is difficult for competitors to duplicate. The firm will be able to uphold its goal statement of delivering within 24 hours thanks to an efficient inventory management method and system, giving it a competitive edge.

5.3 Empirical Interrogation

The following research inquiries and hypotheses are addressed below, each of which is based on the hypothesized research problem from the introduction: The primary research question to be addressed was how does effective inventory management practices provide a competitive advantage in a South African logistics company? As this question is broad the researcher therefore formulated sub questions to easily address this question.

5.3.1 Research Question 1

What inventory management practice is used by South African Logistics and Distribution Companies moving towards online to gain competitive advantage?

According to the research's conclusions, the last mile of the delivery process is completed by logistic and distribution companies. Customers place orders online on online store platforms likes TakeAlot and Makro to mention a few. The orders are then processed, and the goods ordered are sent to the dispatch area of the store or distribution centre of these companies. The interviews revealed that the Company is then notified that the order is ready for delivery to the customer. Company processed an open order, and this is issued to the driver to collect the order. Once the order is collected the order is received at company distribution centre and processed into the system. At this stage the orders are sorted and allocated to specific vehicles to streamline the delivery process and ensure the correct vehicle is used for the order, this is referred to as the order matching process.

The findings of the study point to a company having an inventory management system in place, this assists the management team to forecast and plan with reasonable accuracy. This is supported by (Mbohwa, 2017, pp. 699 - 706)'s in study that companies should implement “effective demand and forecasting techniques”. As the company does not own the entire supply chain, many assumptions are incorporated into the decision-making process to order correctly for overseas suppliers. Lead time and delivery time are all factored in. By identifying fast-moving lines, the company can keep stock of such product lines to ensure it always meets demand even during peak periods. According to Divekar's (2014) study, the findings revealed that companies are required to be organized. This means that the company and staff know what inventory is in stock and where to find it and is described as a basic concept of an effective inventory management system. It also mentions that customers become unsatisfied if an order is placed and there is no stock of the item and the order is rejected.

5.3.2 Research Question 2

What are the major issues faced by these Companies when there is inefficient inventory management?

Responses from logistic and distribution companies agree that if inventory is not recorded accurately and if a system and procedure for managing inventories is ineffective, several constraints will be faced. This includes theft, stock loss in transit and keeping up with high demand and supply fluctuations. Stock out arises from uncontrollable events such as delay from supplier, ship freight, local and foreign port. Furthermore, reverse logistics emanated since potential customers place order from central platform and this allows them to return order placed, once it is already received from other retailersConsequently, each of them has the potential to erode the firm's competitiveness. Majority of the challenges conform with research conducted by Patil and Divekar (2014) and Snyder & Hamdan (2009), where demand fluctuations, product returns, seasonality swings, and out of stock were some of the primary difficulties studied, and online merchants faced multiple inventory management issues like fluctuating demand and supply, reverse logistics and poor management of SKUs.

In another study, Hendricks (2009) affirm that disruptions in the supply chain will cause a decline in sales and will negatively impact the reputation and even the share price of a company. The root causes identified are incorrect data captured, ineffective and under-utilization of Inventory ERP Management, inaccurate data which results in leaving stock counts and stock levels difficult to determine, under-utilization of space and misallocation of inventory, and non-compliance to process flows and procedures. DE Horatius (2008) The records for inventory and the inventory on hand are a big concern in the retail industry, which would be consistent with the study's findings. The study also discovered that some of the primary causes of this is the recording of sales, shrinkage and wastage which includes theft and errors in inventory audits. Inaccurate data also places the retailer in a position of incurring additional costs due to incorrect ordering and replenishing of stock.

5.3.3 Research Question 3

Is there any structural relationship between inventory management practice and competitive advantage?

The PLS-SEM result depicts the structural relationship and also affirmed the hypotheses (H1a-c), that inventory management practices and competitive advantage dimension have a positive and significant correlation. Considering that the company recently embarked on introducing online sales due to COVID 19 and realized the importance of creating the online platform to increase sales and streamline the buying process. It was imperative that the shopping preferences of the respondents is being explored, as this will necessitate the logistic retailer in having variety of products in case customers changes their order and this of course will give a goodwill to competing company. The result of the current study supported what Mbohwa (2017) found in the study on the associating between demand and inventory holding. According to Mbohwa (2017), 72% of survey respondents said there is a positive association between demand and inventory keeping. This can be achieved by having an excellent inventory management system. To address consumer needs, the company should identify the types of inventory consumers buy. The findings conform with Dwivedi et al. (2012), with the conclusion inventory control procedures influenced competitiveness because they aimed to reduce costs and maximize profits. Because the majority of competitive advantage was based on cost, quality, and delivery, inventory management can be enhanced or evolved inside the organization by establishing standards that are pertinent to each logistic establishment.

5.4 Conclusion

By attempting to determine the connection between efficient inventory management and how it converts into a competitive advantage, the study adds to the knowledge base on inventory management in businesses that already exists. Based on the research, the conclusion confirms that if efficient inventory management is put into practice, timely product delivery will quicken

and avoid stock-outs, leading to customer satisfaction and a competitive advantage for the business. It equally implies that firm with effective inventory management will be less prone to theft, dissatisfied customers and will be able to forecast more accurately.

In regard to relationship between inventory management practices and cost efficiency, once there is timely delivery, cost tends to be reduced. For instance, cost for rental space will be saved, while cost to be incurred for overstocking will be totally avoided. Logistic companies will be able to keep up to demand, as the online ordering platforms will be updated with more accurate stock available on the platform.

CHAPTER 6 SUMMARY, CONCLUSION AND RECOMMENDATIONS

6.1 Summary and Conclusion

This chapter provides an overview of the study that was done, as well as a discussion of the findings, restrictions, suggestions, and suggested future research. Based on the result, discovery established that an effective inventory management system will provide an organization or company a competitive advantage, particularly for logistics and distribution companies, where an effective inventory management will allow them to deliver the orders in the shortest period and this feat the survival of the firm. These research findings are similar with the finding of other similar reports because there is consensus that an effective inventory management system has many benefits and will in turn result in customer satisfaction and provide the company with a competitive advantage due to this. In gaining competitive advantage, decisions on cost efficiency, quality and dependable delivery are being made through effective inventory management practices covering forecasting and planning for demand fluctuations, especially during peak periods. The following section discusses recommendations of the study.

6.2 Recommendations

According to the study's results and recommendations, the company should adopt information technology and inventory management systems to strengthen its competitive advantage. Companies that handle distribution and logistics should create a policy framework to hasten the adoption of the most effective inventory management techniques. For inventory management, the company should always keep up to date with the latest technology advancements because it will lower inventory costs, improve returns, improve information exchange, and expedite orders from suppliers, resulting in shorter lead times. Additionally, top executives of logistics and distribution firms are urged to employ a number of competitive advantage strategies. For instance,

using innovation, speed to market, and delivery reliability as a planning and competitive advantage strategy Finally, the firm should increase its allocation of resources to inventory management staff training, research, and development. This will improve the skills of the team, ensure all new and old employees are made aware of the process and will translate into implementing more innovative ways of delivery. They will gain a competitive advantage in the industry as a result of this. The following paragraphs discuss limitations and ideas for future research.

6.3 Limitations and Suggestions for Future research

The present study was industry based. Therefore, further studies can elaborate on the operational aspects as individual-industry context, where a multi-level analysis will be conducted, recognizing how inventory management techniques affect competitive advantage, as well as the resulting effect on customers' satisfaction. Given the small sample size chosen from the entire country, the generalizability of this study remains debatable. Consequently, study replication is important. and can also be made in other industries or sectors in South Africa and other developing nations. Furthermore, a longitudinal study can be conducted to reflect a cause-and-effect relationship of constructs over time. Finally, measurement used can be broadly evaluated considering dimensions of inventory management practices, and potentially upping factors like supplier performance and organizational efficiency that are connected to competitiveness and inventory management.

REFERENCES

Aarti D. and Dhawal, M. (2013). Inventory Management Delivering Profits Through Stock Management. Paper presented at 6th International Business & Social Science Research Conference. Novotel Hotel, World Trade Centre, Dubai.

Agha, S., Alrubaiee, L., and Jamhour, M. (2012). Effect of core competence on competitive advantage and organizational performance. *International Journal of Business and management,* 7(1), 192.

Ahmed, M. A. (2020). The Role of ERP Information to Support Decision. *International Journal of Interactive Mobile Technologies*.

Allen, M. (2017). *The sage encyclopedia of communication research methods (Vols. 1-4).* Thousand Oaks, CA: SAGE Publications, Inc.

Alsmadi, M., Khan, Z., and McTavish, A.-M. (2011). Evaluating competitive advantage priorities of SMEs in Jordan. *International Journal of Networking and Virtual Organizations,* 9(1): 25-43.

Anderson, J. C., and Gerbing, D. W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. *Psychological bulletin, 103(3), 411.*

Ansoff, H. (1965). Corporate Strategy: An Analytic Approach to Business Policy for Growth and Expansion, McGraw Hill, New York.

Argyropoulos, G. P. (2018). Inventory management concepts and techniques. *IOP Conf. Ser.: Mater. Sci. Eng*, 459.

Ashok, K. P. (2013). Relationship between inventory management and probability: an empirical analysis of Indian cement companies. *Asia pacific journal of marketing and management review*, ISSN 2319-2836, 2(7).

Atchara. M. (2017). The Competitive Advantage of Agricultural Processing Industry SMEs Entrepreneurs in Upper Northern Region, Thailand. *Journal of Yala Rajabhat University*, 12, 13-26.

Axsäter, S. (2006). A simple procedure for determining order quantities under a fill rate constraint and normally distributed lead-time demand. *European Journal of Operational Research*, 174(1), 480–491.

Bain, J. (1968). Industrial Organization, John Wiley and Sons, New York.

Baker, Dwayne A., and Crompton, John L. (2000). Quality, Satisfaction and Behavioral Intentions. *Annals of Tourism Research*, 27(3), 785±804.

Baker, M. J. (2014). Marketing strategy and management. Macmillan International Higher Education.

Bani Hani, Jehad S. and Al-Omari, Zyad (2012). The Role of Quality Improvement Factors in Improving Quality Based Operational Performance: Applied Study in Private Hospitals in Jordan, International Journal of Business and Social Science, 3(18), 213-222.

Burns, N. (1997). *The Practice of Nursing Research: Conduct, Critique And Utilisation (3rd ed.).* Philadelphia: Saunders.

Campos, D., F., and No´brega, K., C. (2009). Importance and the zone of tolerance of customer expectations of fast-food services. *Journal of Operations and Supply Chain Management*, 2 (2), 56–71.

Carvalho, J. M. (2002). Logística. 3ª ed. Lisboa: Sílabo.

Caves, R. E. and Porter, M. E. (1977). From entry barriers to mobility barriers: conjectural decisions and contrived deterrence to new competition. *Quarterly Journal of Economics*, 91, 241–261.

Chandler, A. (1962). Strategy and Structure, MIT Press, Cambridge.

Chee, Y., W., and Noorliza, K. (2010). Explaining the competitive advantage of logistics service provider: A resource-based view approach. *International Journal of Production Economics,* 128 (1), 51–67.

Chen, K., Chang, C., and Lai, C. (2009). Service quality gaps of business customers in the shipping industry. *Transportation Research* Part E, 45, 222–237.

Choi, T. (2012). Handbook of EOQ inventory problems – Stochastic and deterministic models and applications. New York, Heidelberg, Dordrecht, London: Springer.

Chopra, S. and Meindl, P. (2004). Supply chain management: strategy, planning, and operation. Boston, MA: Pearson.

Cronje, J. C. (2014). Quantitative data collection. In R. &. Bezuidenhout, *Research Matters (173-195).* Cape Town: Juta.

Dangayach, G. S. and Deshmukh, S. G. (2006). An exploratory study of manufacturing strategy practices of machinery manufacturing companies in India. *Omega* 34(3), 254-273.

Dash, A. K. (2013). Competitive Advantage: its importance and impact on design of strategy. *International Journal of Application or Innovation in Engineering & Management* (IJAIEM), 2(12), 7-10.

Dayananda, P. J. (2017). Deterministic Parameters for the Success of Vendor-Managed Inventory in Sri Lanka. *R4TLI Conference Proceedings*, 93.

DeHoratius, N. A. (2008). Retail Inventory Management When. *MANUFACTURING & SERVICE*, pp. 257–277, Vol. 10, No. 2, Spring .

Diab, S. M. (2014). Using the competitive dimensions to achieve competitive advantage: A study on Jordanian private hospitals. *International Journal of Academic Research in Business and Social Sciences*, 4(9), 138-140.

Dijkstra, T. K. and J., Henseler (2015). Consistent Partial Least Squares Path Modeling. *MIS Quarterly*, 39(2), 297-316.

Dilworth, J. (1996). Operations management, 2th ed, p,76. mcgraw-hall, inc, usa.

Dirisu, J. I., Iyiola, O., and Ibidunni, O. S. (2013). Product differentiation: A tool of competitive advantage and optimal organizational performance (A study of Unilever Nigeria PLC). *European Scientific Journal,* 9(34).

Divekar, P. A. (2014). Inventory Management Challenges For B2C. *Procedia Economics and Finance 11*, 561 – 571.

Drohomeretski, E., Gouvea Da Costa, S. E., Pinheiro De Lima, E. and Garbuio, P. A. D. R. (2014). Lean, six sigma and lean six sigma: An analysis based on operations strategy. *International Journal of Production Research*, 52(3), 804-824.

Dudavskiy, J. (2018). *Research Reliability*. Retrieved from Retrieved from http://research-methodology.net: Retrieved from http://research-methodology.net

Dwivedi, A. kumar, and P. kothiyal (2012). Inventory Management: A Tool of Identifying Items That Need Greater Attention for Control. *The Pharma Journal*, 1:125-125.

Encyclopædia Britannica. (2016, May 11). *https://www.britannica.com/technology/data-processing*. Retrieved from https://www.britannica.com: https://www.britannica.com/technology/data-processing.

Fornell, C., and Larcker, D. F. (1981). Structural equation models with unobservable variables and measurement error: Algebra and statistics. *Journal of Marketing Research, 18*, 382-388.

Furrer, O, Thomas, H and Goussevskaia, A. (2008). The structure and evolution of the strategic management field: a content analysis of 26 years of strategic management research. *International Journal of Management Reviews*, 10(1), 1–23.

Godana, B. E. (2014). Determinants of Effective Inventory. *European Journal of Business Management*, 341-361.

Goksoy, A., Vayvay, O., and Ergeneli, N. (2013). Gaining competitive advantage through innovation strategies: an application in warehouse management processes. *American Journal of Business and Management*, 2(4), 304-321.

Grant, D. L. (2006). Fundamentals of Logistics Management: European Edition. *McGraw Hill Education*.

Grossmann, F. Y. (2008). Design of Responsive Supply Chains under Demand Uncertainty. *Journals of Computers and Chemical Engineering*, 32(12), 3090-3111.

Hair, J. F., Hult, G. T. M., Ringle, C. M. and Sarstedt, M. (2017). A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM), 2nd ed., Sage, Thousand Oaks, CA.

Hamad, H., Elbeltagi, I., and El-Gohary, H. (2018). An empirical investigation of business-to business e-commerce adoption and its impact on SMEs competitive advantage: The case of Egyptian manufacturing SMEs. *Strategic Change*, 27(3), 209-229.

Hazen, B. T., and Byrd, T. A. (2012). Toward creating competitive advantage with logistics information technology. *International Journal of Physical Distribution & Logistics Management,* 42(1), 8-35.

Hendricks, K. B. (2009). The effect of operational slack, diversification, and vertical relatedness on the stock market reaction to supply chain disruptions. *Journal of Operations Management*, 27(3), 233.

Henseler, J., Hubona, G. and Ray, P.A. (2016). Using PLS path modeling in new technology research: updated guidelines. *Industrial Management and Data Systems*, 116(1), 2-20.

Henseler, J., Ringle, C. M., and Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science*, 43(1), 115-135.

Hill, K. (2017). *How To Know If A Research Study Is Reliable.* . Retrieved from Retrieved from http://sites.psu.edu : http://sites.psu.edu

Hoskisson, R. E., Hitt, M. A., Wan, W. P. and Yiu, D. (1999). Theory and research in strategic management: swings of a pendulum. *Journal of Management*, 25(3), 417-456.

Huang, Ch., J., and Huang, K. P. (2012) The logistics capabilities scale for logistics service providers. *Journal of Information and Optimization Sciences*, 33 (1), 135-148.

Igbaria, M., Iivari, J., and Maragahh, H. (1995). Why do individuals use computer technology? A Finnish case studies. *Information & management, 29(5), 227-238.*

Jabbour, C. J. C., Maria Da Silva, E., Paiva, E. L., and Almada Santos, F. C. (2012). Environmental management in Brazil: Is it a completely competitive priority? *Journal of Cleaner Production*, 21(1), 11-22.

John, N., Etim, J., and Ime, T. (2015). Inventory management practices and operational performance of flour milling firms in Lagos, Nigeria. *International Journal of Supply and Operations Management*, 1(4), 392-406.

Kabir, S. (2016). *Methods of Data Collection. Basic Guidelines For Research:An Introductory Approach For All Disciplines.* Chittagong: Book Zone Publication.

Kaewchur, P. (2021). Role of inventory management on competitive advantage of small and medium companies in Thailand. *Turkish Journal*

of Computer and Mathematics Education (TURCOMAT), 12(8), 2753-2759.

Kavitha, M. P., Karthikeyan, M. P., and Devi, M. N. (2013). An investigation of competitive priorities and competitive advantage among small scale industries with reference to Coimbatore city. *IOSR Journal of Business and Management*, 7(3), 39-44.

Li, S. R., Ragu-Nathan, B., Ragu-Nathan, T. S., and Subba Rao, S. (2006). The impact of supply chain management practices on competitive advantage and organizational performance. *Omega,* 34(2), 107–124.

Liu, W., H., and Xie, D. (2013) Quality decision of the logistics service supply chain with service quality guarantee*. International Journal of Production Research*, 51 (5), 1618–1634.

Mahasneh, M. M., Alnahdi, S. A., and Bani Hani, J. S. (2020). Innovation in health services alignment with the competitive advantage achievement in private hospitals in Saudi Arabia: Strategic evidence. *International Journal of Business and Social Science*, *11*(3), 58-68.

Marinagi, C., Trivellas, P., and Sakas, D. P. (2014). The Impact of Information Technology on the Development of Supply Chain Competitive Advantage. Procedia - Social and Behavioral Sciences, 147, 586-591.

Mbohwa, N. N. (2017). Relationship between inventory management and uncertain demand for fast moving consumer goods organisations. *Procedia Manufacturing*, 699 - 706.

Middleton, F. (2020, June 26). *Reliability vs validity: what's the difference?* Retrieved from https://www.scribbr.com: https://www.scribbr.com/methodology/reliability-vs-validity/#:~:text=Reliability%20and%20validity%20are%20concepts,the%20accuracy%20of%20a%20measure.

Miltenburg, J. (2005). Manufacturing strategy: How to formulate and implement a winning plan. In J. Miltenburg, *Manufacturing strategy.* New York: Productivity Press.

Naliaka, V. W., and Namusonge, G. S. (2015). Role of inventory management on competitive advantage among manufacturing firms in Kenya: A case study of Unga Group Limited. *International Journal of Academic Research in Business and Social Sciences*, 5(5), 87–104.

Namusonge, N. V. (2015). Role of Inventory Management on Competitive Advantage among Manufacturing Firms in Kenya: A Case Study of Unga Group Limited. *International Journal of Academic Research in Business and Social Sciences*.

Okoye, E.I., Amahalu, N.N., Nweze, C.L., and Obi J.C. (2016). Effect of financial leverage on dividend policy of quoted conglomerates. Managing diversification for sustainable development in sub-saharan Africa, Faculty of Management Sciences, 2016 International Conference, 8-10, November 2016.

Olaleye, B. R., M. Akkaya, O. L. Emeagwali, R. I. Awwad and S. Hamdan (2020). Strategic Thinking and Innovation Performance; The Mediating Role of Absorptive Capabilities. *Revista Argentina de Clínica Psicológica,* 29(5), 2030- 2043.

Olaleye, B. R., S. Hamdan, and R. I. Awwad (2021). The mediation-moderation effect on the nexus between social media adoption, customer satisfaction, social media competence, and SMEs performance during COVID-19 pandemic. *International Journal of Data and Network Science*, 5(4), 803-814.

Olhager, J. (2013). Evolution of operations planning and control: from production to supply. *Evolution of operations planning and control: from production to supply*.

Parasuraman, A., Zeithaml, V. A., and Berry, L. L. (1985). A conceptual model of service quality and its implications for future research. Journal of marketing, 49(4), 41-50.

Pascoe, G. (2014). *Research Sampling.* Cape Town: Juta.

Patil, H., and Divekar, B. R. (2014). Inventory Management Challenges for B2C E-commerce Retailers. *Procedia Economics and Finance*, 11, 561-571

Pavic, S., Koh, S. C. L., Simpson, M., and Padmore, J. (2007). Could e-business create a competitive advantage in UK SMEs? *Benchmarking: An International Journal,* 14(3), 320-351.

Peng, D. X., Schroeder, R. G., and Shah R. (2011). Competitive priorities, plant improvement and innovation capabilities, and operational performance.

International Journal of Operations and Production Management, 31(5), 484–510.

Pensuk, K., L. Woraluck, T. Siriluck, and J. Korkaew (2018). Competitive Advantage of SMEs in Thailand 4.0. *Journal of Humanities and Social Sciences Mahasarakham University,* 37, 245-256.

Perez, E. (2019). *What Is Data Analysing And Its Methods*. Retrieved from Retrieved from http://utreee.-: What Is Data Analysing And Its Methods?. Retrieved from http://utreee.-

Peteraf, M. A. and Bergen, M. E. (2003). Scanning dynamic competitive landscapes: a market-based and resource-based framework. *Strategic Management Journal*, 24, (10), 1027-1041.

Pilinkiene, V., Kurschus, R.-J., and Auskalnyte, G. (2013). E-business as a source of competitive advantage. *Economics and Management,* 18(1), 77-85.

Porter, M. E. (1980). Competitive Strategy: Techniques for Analysing Industries and Competitors, Free Press, New York.

Porter, M. E. (1985). Competitive Advantage: Creating and Sustaining Superior Performance, Free Press, New York.

Porter, M. (2004). *Competitive Advantage.* New York: Free Press.

Rahman, M., C. Mordi, and U. Nwagbara, (2018). Factors influencing E-HRM implementation in government organisations. *Journal of Enterprise Information Management,* 31, 247-275.

Resnik, D. B. (2015, December 1). *What Is Ethics in Research & Why Is It Important?* Retrieved from https://www.niehs.nih.gov/research/resources/bioethics/whatis/index.cfm

Rondeau, P. J., Vonderembse, M. A., and Ragu-Nathan, T. S. (2000). Exploring work system practices for time-based manufacturers: their impact on competitive capabilities. *Journal of Operations Management*, 18(5), 509-529.

Roth A. and Miller, J. (1990). Manufacturing strategy, manufacturing strength, managerial success, and economic outcomes. In: Ettlie J, Burstein M, Fiegehaum A., editors. Manufacturing strategy. Norwell, MA: Kluwer Academic Publishers, 97–108.

Russell, R., and Tyllor, B. (2000). Operation management, 3rd edition. prentice-hallinc, new york

Sachitra, V. (2016). Review of Competitive Advantage Measurements: Reference on Agribusiness Sector. *Journal of Scientific Research & Reports 12*(6): 1-11.

Schendel, D. (1994). Competitive organizational behavior: toward an organizationally: based theory of competitive advantages*. Strategic Management Journal,* 15, 1-5.

Sethuraman, R. A. and Parasuraman (2005). Succeeding in the Big Middle through Technology. *Journal of Retailing,* 81 (2), 107–11.

Shahmansouri, S., Esfahan, M. D., and Niki, N. (2013). Explain the theory of competitive advantage and comparison with industries based on advanced technology. *International Journal of Economy, Management and Social Sciences,* 2(10), 841-848.

Shop.org (2006), "Statistics: US Online Shoppers," [available at http://shop.org/learn/stats usshop general.asp].

Skinner, W. (1985). The taming of the lions: how manufacturing leadership involved, 1780–1984. In: Clark KB, Hayes R, Lorenz C., editors. The uneasy alliance: managing the productivity-technology dilemma. Boston, MA: The Harvard Business School Press; p. 63–110.

Slack, N.; Chambers, S.; Harland, C.; Harrston, A; and Johnston, R. (2004). Operations Management. 4th ed., New York, Prentice Hall: 44-45.

Snyder, R. and Hamdan, B. (2009). E-Commerce and Inventory Management. Proceedings of ASBBS Annual Conference. Vol. 16. No 1, Las Vegas, February.

Sullivan, G. M., and Feinn, R. (2012). Using Effect Size-or Why the P-Value Is Not Enough. *Journal of graduate medical education,* 4(3), 279–282.

Thogon, M., and Jane, G. (2014). Role of inventory management on customers' satisfaction among the manufacturing firms in Kenya. *European journal of business and management*, 6(27).

Tracey, M., Vonderembs, M. A. and Lim J. S. (1999). Manufacturing technology and strategy formulation: keys to enhancing competitiveness and improving performance. *Journal of Operations Management*, 17(4), 411–28.

Umair, A.S., Zhang, W.Y., Han, Z.T. and U. I. Haq, S.H. (2019) Impact of Logistics Management on Customer Satisfaction: A Case of Retail Stores of Islamabad and Rawalpindi. *American Journal of Industrial and Business Management*, 9, 1723-1752.

Urbancova, H. (2013). Competitive advantage achievement through innovation and knowledge. *Journal of competitiveness*, 5(1).

Wagner, S. M. (2006). A firm's responses to deficient suppliers and competitive advantage. *Journal of Business Research*, 59(6), 686-695.

Waller, M. M. (1999). Vendor-Managed Inventory in the Retail Supply Chain. *Journal of Business Logistics*, 183-203.

Wang, H. L. (2004). A framework to support and understand strategic decision-making in business to- business electronic commerce. in The International Workshop on Business and Information (BAI2004), Taipei.

Wangari, K. L. and A. W. Kagiri, (2015). Influence Of Inventory Management Practices on Organizational Competitiveness: A Case of Safaricom Kenya Ltd. *International Academic Journal of Procurement and Supply Chain Management,* 1, 72-98.

Xie, G., Wang, S. Y., and Lai, K. K. (2011). Quality improvement in competing supply chains. *International Journal of Production Economics*, 134 (1), 262–270.

Zaidah, Z. (2007). Case Study as a Research Method. *Journal Kemanusiaan, 9,* 1-6.

Zhang, Z. and Sharifi, H. (2000). A methodology for achieving agility in manufacturing organizations. *International Journal of Operations and Production Management,* 20, (4), 496-512.

Zhao, H. and Morad, B. (2013). From e-commerce to social commerce: A close look at design features. *Electron. Commer. Res. Appl.*, 12, 246–259.

Zhao, X., Yan Yeung, J. H., and Zhou, Q. (2002). Competitive priorities of enterprises in mainland China. *Total Quality Management,* 13(3), 285-300.

Zhong, L. B. (2008). Improving Inventory Management in Small Business: A Case Study. *Master Thesis in International Logistics and Supply Chain Management*.

Zou, Z. X. and Liu, J. (2012). The development strategy of e-commerce in SMEs. *Enterp. Econ.*,12, 89–90.

APPENDIX 1.1: DATA COLLECTION INSTRUMENT(S)

Survey

UNIVERSITY OF THE WITWATERSRAND, SOUTH AFRICA

DEPARTMENT OF BUSINESS ADMINISTRATION

FACULTY OF COMMERCE, LAW AND MANAGEMENT

QUESTIONNAIRE

Dear Sir/Ma,

As a postgraduate of Student of the Department of Business Administration of the above-mentioned university, conducting a study on the "**Inventory management and firm competitive advantage for online sales**". Your firm had been selected as one of the study areas, and this necessitates collecting all related information on this subject matter, which I promise to keep confidential and used solely for research purposes alone.

Thank you.

Nishaat Hassen

SECTION A: DEMOGRAPHIC PROFILE OF RESPONDENTS

Kindly tick the appropriate response that indicates your choice of options.

1. Gender Male ☐ Female ☐

2. Age (in years) Below 30 years ☐ 30-39 years ☐

40-49 years ☐ 50 years & Above ☐

3. Highest Educational Level Bachelor ☐ Higher Diploma ☐

Master's ☐ Doctorate ☐

4. Working experience <5 years ☐ 5-9 years ☐

10-14 ☐ 15 & Above ☐

SECTION B: INVENTORY MANAGEMENT PRACTICES

Instruction: kindly indicate the extent of your agreement with the statement below by ticking [√] one of the spaces provided. Where:

SD = Strongly Disagreed, D = Disagree, U = Undecided, A = Agree, SA = Strongly Agree.

S/N	Statements	SD	D	U	A	SA
1	Management is aware of existing scientific models of managing a firm inventory"					
2	All inventory items in our stores are classified according to their economic value and importance.					
3	In arriving at the optimum quantity to order and kept at any point in time, management is guided by a specific model					
4	Inventory management decisions in my firm are based on guestimates					
5	In determining optimum stock levels, management strives to maintain a balance between minimum cost of ordering and holding stock					
6	There is a specific procedure of determining the cost components of total inventory in this organization					
7	We operate a made-to-stock inventory system pending when demand arises					
8	Our stock management decisions are solely made by our suppliers					
9	Inventory decisions in this firm are solely based in predetermined market demand estimates					
10	Stock replenishment is done continuously					
11	Most inventory decisions are made based on computerized data output					
12	Our suppliers are contacted immediately there is need for production. Thus, we keep no stock in stores					

SECTION C: COMPETITIVE ADVANTAGE

With regard to competitive advantage of your firm, please tick [√] the appropriate number to indicate the extent to which you agree or disagree with each statement. The items scales are five-point likert scale.

SD = Strongly Disagreed, D = Disagree, U = Undecided, A = Agree, SA = Strongly Agree.

S/N	STATEMENTS	SD	D	U	A	SA
QU	**Quality**					
1	We are able to compete based on quality.					
2	We offer products that are highly reliable.					
3	We offer products that are very durable.					
4	We offer high quality products to our customer.					
PC	**Cost Efficiency**					
1	We offer competitive prices.					
2	We are able to offer prices as low or lower than our competitors.					
DD	**Delivery Dependability**					
1	We deliver the kind of products needed.					
2	We deliver customer order on time.					
3	We provide dependable delivery.					

SECTION D: CONSTRAINTS TO EFFECTIVE INVENTORY MANAGEMENT PRACTICES

Kindly, tick [√] in the spaces provided below to connote your choice of option (s) on major constraints to competitiveness by Logistics and Distribution Companies, when there is inefficient inventory management.

S/N	Challenges	Not Severe	Less Severe	Severe	Very Severe	Most Severe
1)	Reverse Logistics					
2)	Stock out					
3)	Demand Fluctuation					
4)	Unrecorded Order from Third Party					
5)	Others					

Thank you for your time and efforts.

APPENDIX 1.1: DATA COLLECTION INSTRUMENT(S)

Interview Schedule for Management

Interview Schedule for Managers

Thank you for agreeing to participate in the study. You are at liberty not to respond to questions you do not feel comfortable responding to. The interview may take 30-60 minutes of your time.

Section A: Demographic Questions

1.(i). What is the name of the organisation?_____

(ii) What are your duties in the organisation?_____

2). When did you join the organisation? _____

3). Which age category from these three do you fall under?

20-35	
36-50	
51-65	
66+	

4.) Under which race do you fall under?

African	
White	
Coloured	
Indian	
Other	

5.) What is your highest level of education?

Grade 9 or below	
Grade10 or above	
Grade 12	
Occupational Certificate	
Higher Certificate	
Diploma	
Degree	

1

Section B: Focal questions for the study

1). What type of inventory does the company stock?

2). What is the inventory management process?

3.) Does the Company have an inventory management policy and process flow? Please explain

4.) What is the average turn-around time from the time an order is placed to reaching the consumer?

5.) Is stock recorded on a system (inventory management software system)?

6.) How often is stock counts held

7.) What is the procedure for discrepancies between stock on the system and the physical stock count?

APPENDIX 1.2: ETHICS CLEARANCE CERTIFICATE

Graduate School of Business Administration
University of the Witwatersrand, Johannesburg

Wits Business School Ethics Committee
Constituted under the University Human Research Ethics Committee (Non-Medical)

Ethics Clearance Certificate

Ethics protocol number: WBS/BA2287297/909

This certificate is only valid with a legitimate ethics protocol number and signed by the Researcher (below).

Project title	Inventory management and firm competitive advantage for online sales
Investigator / Researcher	Mr Nishaat Hassen
Nature of Project	MBA (Research Article)
Decision of the Committee	Approved, provided stakeholders and participants are guaranteed confidentialty.
Issue Date of Certificate	2022-10-11
Expiry date	Date of submission of the project / research report
Chairperson	Prof Anthony Stacey ☎ +27 11 717 3587 +27 82 880 4531 anthony.stacey@wits.ac.za

Declaration by Researcher

One copy must be signed by the Researcher and returned to the Chairperson of the Wits Business School Ethics Committee.

I fully understand the conditions under which I am authorized to carry out the abovementioned research and I guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I undertake to resubmit the protocol to the Committee.

Signature

14 October 2022
Date: