

THE STUDY EXAMINES THE RELATIONSHIP BETWEEN INVENTORY MANAGEMENT STRATEGIES AND PROCUREMENT PERFORMANCE OF LARGE MANUFACTURING COMPANIES IN INDIA

^{*1}Kalpana Redhu, ²Dr. Ritu Hooda, ³Dr Meentu Grover

¹Research Scholar, School of Commerce and Management, Om Sterling Global University
Hisar, 125001.

²Assistant Professor, School of Commerce and Management, Om Sterling Global University
Hisar, 125001.

³Assistant Professor, Faculty of Management and Commerce, Guru Kashi University.

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***Corresponding Author: Kalpana Redhu**

Research Scholar, School of Commerce and Management, Om Sterling Global University Hisar, 125001.

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ABSTRACT

The manufacturing sector relies significantly on the procurement process to fulfill client requirements and achieve a competitive edge. Nevertheless, stakeholders have consistently expressed dissatisfaction with the subpar procurement performance, which has seen a significant increase of 23%. The primary objective of this study was to determine the impact of inventory management strategies on the procurement performance of major manufacturing enterprises in India. The study aimed to determine the impact of Economic Order Quantity on procurement performance of major manufacturing companies in India, as well as to examine the influence of Activity Based Costing on procurement performance of these companies. This study employed a descriptive research design. The study focused on procurement authorities employed by large manufacturing companies. The formula developed by Cooper and Schidler was utilized to obtain a representative sample. Hence, a total of 187 procurement officers were selected as a sample using the method of simple random selection. This sampling strategy is used because it ensures that every item in the population has an equal chance of being selected. This study employed a questionnaire as a means of gathering data pertinent to the research. The acquired quantitative data was evaluated using descriptive

statistical approaches, namely frequencies, mean, and standard deviation. Furthermore, it is advisable for major industrial corporations to integrate EOQ (Economic Order Quantity) estimates into their procurement procedures.

KEYWORDS: Inventory management strategies, procurement performance, economic order quantity, activity-based costing, major manufacturing enterprises.

INTRODUCTION

Procurement is a business management function that focuses on identifying, sourcing, accessing, and managing external resources required by an organization. Its purpose is to explore market opportunities for suppliers and services, and to implement resource strategies that provide the best supply and services for the organization and its stakeholders. Improving procurement performance leads to cost reduction and increased firm earnings (Zai, 2021). Procurement practices have experienced substantial transformations in numerous nations, transitioning from a responsive role to a strategic one. This shift is necessary to align with the growing scope of procurement activities and to improve overall procurement performance (Dimitriadis & Maroudas, 2017). As a result, there have been efforts to implement changes in order to create a robust and efficient procurement system that operates under a transparent and effective legal structure (Hunja, 2019). Procurement excellence is becoming increasingly crucial for achieving efficient operations in successful firms. In times of economic decline, when companies are faced with the need to reduce expenses in order to stay afloat, the procurement department becomes crucial in achieving this strategic objective (Schiele & McCue, 2016).

Inventory management is a crucial managerial concern for firms of all sizes, including large, medium-sized, and small companies (Ahmed, 2016). Efficient management of inventory flow in supply chains is a crucial determinant of success. The issue in inventory management lies in maintaining a harmonious equilibrium between the availability of goods and the level of demand. An ideal scenario for a corporation is to maintain sufficient inventory levels to meet consumer needs, hence avoiding any lost sales resulting from inventory stock-outs (Danese & Kalchschmidt, 2017). Conversely, the corporation aims to avoid excessive inventory on hand due to the expenses associated with inventory carrying. The ultimate goal is to have an adequate amount, without exceeding the necessary limit (Coyle, Bardi, and Langley, 2018). The purpose of inventory management is to facilitate rapid inventory turnover. It enhances inventory turnover by a factor of ten (10) and decreases costs by a range of 10% to 40%. The

current inventory turnover is not yet suitable for selling products on the shelves according to the principle of first in first out (FIFO) cycle (Ofori-Ayeh, 2016).

Traditionally, inventories of raw materials, work-in-progress components, and finished goods were maintained as a precautionary measure to prevent shortages of essential items (Lwiki, et al, 2017). Nevertheless, the presence of substantial buffer inventories depletes precious resources and incurs concealed expenses. As a result, numerous organizations have altered their strategy towards manufacturing and inventory management. Since at least the early 1980s, the main focus in inventory management has been to reduce inventory levels. This is particularly true in just-in-time (JIT) systems, where raw materials and parts are acquired or manufactured precisely when they are needed at each stage of the manufacturing process. This inventory management strategy yields significant cost reductions by decreasing inventory levels. Consequently, there has been a decline in inventories in numerous companies (Agu, Obi-Anike, & Eke, 2016), while the data regarding enhanced company performance is inconclusive (Etale, & Bingilar, 2016). Therefore, it is crucial to determine the impact of inventory management strategies on procurement performance.

Problem Statement

Procurement is a crucial practice that significantly contributes to the growth and development of businesses in the industrial sector. Enhancing procurement is necessary to further support this growth. In India, both public and private organizations rely on procurement processes as the primary means of achieving efficiency and effectiveness in their operations, ultimately leading to improved performance (Kamotho, 2018). The manufacturing sector primarily depends on the procurement process to fulfill customer requirements and achieve a competitive edge. Nevertheless, stakeholders have consistently expressed dissatisfaction with the procurement performance, as indicated by Malela (2016), Miheso (2013), and Makau (2018). This dissatisfaction has resulted in a significant rise of 23%. The complaints are distinguished by extended procurement lead-time, inadequate service delivery, failure to comply with procurement rules, and excessively high cost of procuring products and services. Malela (2016) contends that the issues faced in procurement by large manufacturing enterprises can be addressed through the deployment of efficient inventory management systems (Kemunto, 2017).

Inventory is an essential component of current assets, particularly in manufacturing companies. Significant financial resources are allocated to stocks in order to facilitate a seamless production process and fulfill client requirements. Nevertheless, managing

inventories often entails incurring substantial expenses. Inventory management is crucial for maintaining a balance between the advantages and disadvantages of storing inventory (Essel, 2020). Competent and productive inventory management plays a crucial role in the prosperous operation and endurance of business enterprises. When organizations are unable to effectively manage their inventory, they are likely to encounter stock shortages, reduced productivity and profitability, and customer dissatisfaction (Nyongesa & Shale, 2019). Inventory management has become obligatory for every production manager in a company due to the intense competition present in every industry. Inventory is a crucial and scarce resource that any organization needs. It demands proper management rather than disregard (Garba, 2018).

Multiple research studies have been conducted on the topic of inventory management and its impact on organizational performance. Rogito (2019) conducted a study on the impact of inventory management on the performance of non-governmental organizations (NGOs). The study conducted by Gathoni and Ngugi (2016) examined the factors that contribute to efficient inventory management and the performance of milk processing companies in Kiambu County, India. The study conducted by Wachaiyu (2019) specifically examined the relationship between inventory management and the overall performance of food and beverage manufacturing companies. However, none of these studies specifically examined the inventory management techniques and procurement performance of major industrial enterprises in India. The purpose of this study was to determine the impact of inventory management strategies on the procurement performance of major manufacturing enterprises in India.

Explicit goals

1. To investigate the impact of Economic Order Quantity on the procurement performance of major manufacturing firms in India.
2. To determine the impact of Activity Based Costing on the procurement performance of major manufacturing enterprises in India.

Review of existing literature

Theoretical Review: Economic Order Quantity (EOQ) Model

The EOQ model, sometimes known as the Wilson EOQ model, was established by Ford Wilson Harris in 1913. Kumar (2016) conducted a rigorous critical analysis of the concept. The implementation of the model has demonstrated a growth in certain expenses while other

expenses decrease. For instance, the costs associated with placing orders decrease as the inventory holdings increase, but the costs of storing goods rise. The overall curve representing the total costs connected with inventory reaches a minimum point. It is sometimes referred to as the point of minimum total inventory costs. The Economic Order Quantity (EOQ) is the optimal inventory level that minimizes the combined expenses of maintaining inventory and placing orders. The economic order-quantity model takes into account the balance between the cost of ordering and the cost of storing when determining the optimal quantity for replenishing item stocks. Increasing the size of an order decreases the frequency of ordering, resulting in a lower monthly ordering cost. However, it also leads to a higher average inventory, which in turn increases the monthly storage cost. Conversely, a smaller order size decreases the average inventory but necessitates more frequent ordering and incurs higher monthly ordering costs (Kazemi et al., 2018). The EOQ model assists firms in minimizing inventory management expenses by decreasing the costs associated with ordering and storing stock. The purpose of this study was to evaluate the impact of Economic Order Quantity on the procurement performance of major industrial enterprises in India.

The theory of goal setting

According to Locke (1990) and Latham (2002), the goal setting theory states that it focuses on the individual or organizational motivation to achieve desired outcomes. They assume that the budgeting process is a procedure for determining and assigning actions, which establishes the criteria for comparing real accomplishments. Inductive development of over 25 years in the field of industrial organization psychology, based on 400 laboratory and field studies, has demonstrated that setting specific high goals leads to better task performance compared to setting easy goals or vague goals such as the encouragement to "do one's best" (Chituri et.al, 2016). A budget is a strategic tool used to establish specified objectives for a business within a defined timeframe. The fundamental principle is that setting precise objectives leads to greater performance outcomes compared to individuals who simply aim to "do their best". The performance advantages of pursuing tough and well-defined goals have been extensively proven through several laboratory and field research. These goals have a beneficial impact on the performance of individuals, groups, organizational units, and entire organizations over extended periods, such as twenty-five years (Heslin, Vande Walle, & Carson, 2019).

Challenging goals can empower individuals to improve their performance by offering guidance and a measurable benchmark for development. The scholarly and practitioner literatures extensively document that having specific goals can enhance motivation and

performance. This is because specific goals help individuals concentrate their attention and increase their effort towards a particular objective. Furthermore, specific goals enable individuals to persist in the face of setbacks and develop new strategies to achieve their goals. Challenging goals frequently result in valuable rewards such as recognition, promotions, and increased money in the workplace, as demonstrated by motivational processes (Nawanir et.al, 2018).

A budget include not only the objectives to be accomplished but also the nominal values associated with them. Activity-based budgeting is derived from activity-based costing (ABC), a method that is comparable to zero-based budgeting. This budget category pertains to the manner in which staff workers distribute their time and energy across several activities (Keta, 2022). After determining the total cost of each activity, it is possible to develop drivers that connect support activities to the main operations of the organization. In a law enforcement setting, the primary activities refer to the direct costs associated with program delivery (Abdilahe, Kithinji & Naminda, 2023). By formulating a thorough activity-based budget, executives can establish a direct correlation between the amount of work and the associated expenses. Once developed, executives and managers can exert control through various methods. These include allocating personnel based on demonstrated necessity, adjusting the size of the workforce in proportion to changing needs, identifying and eliminating wasteful practices and hidden expenses, evaluating activities in terms of their cost-effectiveness, thus making them subject to scrutiny, assessing the overall efficiency of the organization, identifying areas where costs can be reduced, establishing a cost baseline that can be influenced by process or technological changes that decrease the effort required for certain activities, and advocating for the organization's budget from an informed and objective standpoint. This study utilized the idea of Activity Based Costing to determine the impact of this cost management approach on the procurement performance of major manufacturing firms located in India.

Abstract Model

A conceptual framework is a visual representation of interconnected ideas that explain a certain phenomena. It consists of cause and effect links that aid in interpretation, making it easily comprehensible. This enhances clarity and facilitates accurate predictions (Svinicki, 2019). The figure illustrates the correlation between dependent and independent variables. The study examines the impact of two independent factors, Economic Order Quantity and

Activity Based Costing, on the procurement performance of large manufacturing enterprises in India.

Economic Order Quantity refers to the optimal quantity of goods that should be ordered to minimize costs. It takes into account factors such as demand forecasting, re-order level, and holding cost.

Activity Based Costing (ABC) is a method used to allocate costs to specific activities inside a company. It involves optimizing inventory levels, identifying cost drivers, and placing emphasis on the activities that drive costs.

Figure 1: Conceptual Framework Economic order amount refers to the optimal quantity of a product that should be ordered in order to minimize inventory costs.

Procurement Performance can be measured by two key factors: Cost Reduction and Profit Maximization.

The Economic Order Quantity (EOQ) is a mathematical formula employed in inventory management to ascertain the optimal order quantity for a product, which reduces the overall expenses associated with inventory. The main goal of EOQ is to determine the optimal balance between the expenses associated with ordering and keeping inventory in order to ensure efficient management of inventory costs. The Economic Order Quantity (EOQ) is a fundamental principle in inventory management and plays a pivotal role in optimizing inventory levels for organizations (Mwangangi & Senelwa, 2018).

Demand forecasting is an essential procedure in business and supply chain management that entails predicting the future demand for a company's products or services. Having a thorough understanding of manufacturing, inventory, procurement, and overall business strategy is crucial for making well-informed decisions. Precise demand projections allow firms to efficiently satisfy consumer expectations, optimize inventory levels, minimize stock outs or overstock situations, and properly deploy resources. Data collection is the fundamental basis of demand forecasting. Valuable sources of information include historical sales data, client orders, market trends, and external factors such as economic conditions, seasonality, and competition activity (Achevi, Juma & Otinga, 2021).

The reorder level, sometimes referred to as the reorder point or reorder threshold, is a vital term in the field of inventory management and supply chain management. The reorder point is the inventory threshold at which a corporation should initiate a replenishment order for a product to prevent stockouts prior to the arrival of the new order. The primary purpose of the reorder level is to mitigate the occurrence of stockouts and provide a consistent supply of

items to satisfy consumer demand. Lead time refers to the duration required for a supplier to deliver a product subsequent to receiving an order. This encompasses the duration required for order processing, manufacturing (if applicable), and shipping. Precise calculation of lead time is essential for determining the reorder level (Korir, Kaitany & Sang, 2021).

Activity Based Costing (ABC)

Activity-Based Costing (ABC) is a contemporary accounting technique employed by firms to assign indirect costs to products, services, or activities according to their real utilization of resources. Contrary to conventional cost allocation approaches, which frequently depend on general averages and may not precisely represent the actual cost drivers, Activity-Based Costing (ABC) offers a more precise and detailed perspective on the locations where costs are generated. ABC (Activity-Based Costing) is especially advantageous in sectors that have a wide range of products or services, intricate operations, or where overhead costs make up a substantial proportion of overall expenses. The core of ABC is identifying and analyzing different activities that utilize resources inside an organization. The activities encompass both direct and indirect work, spanning from machine setup, quality control, and material handling to administrative duties such as order processing and customer assistance. Every activity is allocated a cost driver, which is a quantitative measure that indicates the extent of activity usage, such as machine hours, labor hours, or the quantity of orders processed (Ezeala, Nzewi & Tochukwu, 2022).

ABC encompasses multiple essential stages. Initially, companies ascertain and delineate the activities that contribute to their operations. Next, they identify the factors that influence the costs of each activity. After establishing these pieces, the business gathers data on the specific utilization of resources by various goods, services, or projects. Subsequently, ABC computes the cost per unit of the selected cost driver for every action. The cost rate is thereafter employed to assign overhead costs to certain products or services (Oseifuah, 2019). ABC (Activity-Based Costing) offers a more exact understanding of the actual cost structure of products or services by aligning expenses more accurately with the activities that cause them (Ezeagba, 2018).

Review based on direct observation or experience

The relationship between Economic Order Quantity and Procurement Performance Mwangangi and Senelwa (2018) define economic order quantity as the optimal quantity of inventory that should be ordered in a single order. The magnitude of inventory ordered in a

single instance impacts the expenses associated with ordering and holding inventory, which in turn influences profitability. In other words, the Economic Order Quantity (EOQ) is the ideal order size that minimizes the combined cost of ordering and keeping inventory. According to Sporta (2018), Economic Order Quantity (EOQ) is a method used to calculate the most efficient quantity of a product to order, in order to minimize the overall cost of purchasing, delivering, and storing the goods. Noe et al., (2010) define the Economic Order Quantity (EOQ) as the cost associated with minimizing the order quantity. One advantage frequently examined is the potential to alleviate the cost of net inventory and achieve significant savings by purchasing a sufficiently big amount that lowers the unit price of the item. This leads to a decrease in overall costs, which improves the performance of the company. The EOQ model is determined by minimizing the entire annual cost experienced by the company due to its ordering cost and carrying cost.

A study conducted by Achevi, Juma, and Otinga (2021) examined inventory control strategies and the performance of the procurement function at Vihiga County Referral Hospital in India. The study utilized a cross-sectional study design. The study focused on analyzing a group of 83 staff from the Vihiga County Referral Hospital. Stratified random sampling was utilized, namely the principal method. The study employed questionnaires to gather primary data. A pilot study was undertaken to assess the dependability and accuracy of the data collection instruments. The data processing and analysis were facilitated using the SPSS software tool, namely version 22. Quantitative data was analyzed using descriptive and inferential statistics. The prediction regression power of just in time was shown to be the highest among the coefficients of multiple linear regression. It was followed by economic order quantity, and lastly, ABC analysis. The study concluded that the inventory control procedures implemented at Vihiga County Referral Hospital had a substantial impact on the performance of the procurement function.

Korir, Kaitany, and Sang (2021) conducted a study on the application of the economic order quantity stock control approach and its impact on the performance of chosen level Five Hospitals in India. The primary objective of the article was to examine the correlation between the Economic Order Quantity stock control technique and the performance of level five hospitals in the south rift region of India. Which idea of economic quality was utilized. The utilization of a correlation study design was suitable. The target demographic consists of 248 workers who work in the procurement and supply chain department of a level five hospital. These employees are responsible for material purchase, stock control, record keeping, and disposal. The researchers employed the purposive sampling strategy to choose

A total of 156 respondents completed questionnaires for data collection. The data was examined using descriptive methods and then displayed through the use of frequency tables. Regression models were utilized to assess inferential statistics. The study results indicated a positive statistical correlation between economic order quantity and the performance of level five hospitals.

In a study conducted by Kisaka (2016) on dairy enterprises, it was shown that the adoption of the economic order quantity model resulted in a reduction in the cost of raw materials stock. This finding highlights the cost-saving benefits associated with the implementation of this model. This study was conducted by comparing the overall expenses associated with maintaining inventory of raw materials using the traditional project employed method to the cost of stock management using the economic order quantity method. The study focused on all the dairy companies in a certain area and gathered primary data using structured questionnaires. These findings suggest that reducing costs related to storage and material ordering resulted in a significant enhancement of the financial performance of the dairy companies.

Padachi (2018) did a study on the economic order quantity technique and its influence on the financial performance of firms. The study employed a case study research design and focused on 58 small manufacturing enterprises in Mauritius from 1998 to 2003. The quantitative data was analyzed using SPSS, and the findings were presented through correlation and regression models. The study's findings revealed a correlation between material receivables and profit margin. The study focused on many key indicators, including stock replenishment period, cash conversion cycles, accounts payable, and accounts receivable. These indicators were found to have a favorable impact on the financial performance of manufacturing enterprises.

A study conducted by Thogori and Gathenya (2018) in India examined the impact of inventory management on customer happiness in manufacturing enterprises. The study found a favorable correlation between the use of inventory management techniques and customer satisfaction. The study conducted was a case study of the Delmonte Company, focusing on their well-developed supply chain material technology. This technology enables the company to share information with their clients in real time, which in turn enhances their stock management. The study employed a census research strategy due to the limited size of the target group.

All 50 of them constituted the sample size. The primary method of data collecting employed was the utilization of an observation guide, interview guide, and questionnaire. The study findings indicated unanimous agreement among all respondents on the presence of minimal

stock in the store. The study found that processing and manufacturing enterprises had an inadequate stock management system, which negatively impacted their capacity to meet client demands, resulting in decreased sales and profitability.

An analysis of the relationship between Activity Based Costing and procurement performance.

Abdilahi, Kithinji, and Naminda (2023) examined the impact of activity-based costing on the financial performance of the cement manufacturing business in India. This study examined the impact of activity-based costing on the financial performance of the manufacturing industry in India. The study included a combination of qualitative and quantitative research methods. The study focused on a target demographic of 100 individuals in middle level management. The study utilized primary data acquired by a questionnaire containing structured inquiries. The acquired quantitative data was examined using descriptive analysis and presented through percentages, means, standard deviations, and frequencies in SPSS presentations. The data was presented using frequency tables. The study findings indicated a substantial correlation between the financial performance of the manufacturing industry in India and the implementation of activity-based costing. Activity-based costing had a beneficial impact on performance. The study found that implementing activity-based costing (ABC) has a favorable impact on cement manufacturing enterprises. ABC improves cost reduction, leading to a significant improvement in profit and overall organizational performance.

In their study conducted in 2022, Keta examined the impact of activity-based costing, specifically in relation to inventory management, on the supply chain performance of Homa Bay County Teaching and Referral Hospital. In this study, we utilized correlation and descriptive research techniques. The target population consisted of thirty (30) procurement officials from Homa Bay County Teaching and Referral Hospital. Questionnaires were utilized to collect data, while statistical analyses were conducted using SPSS. The regression analysis findings indicated that the implementation of activity-based costing inventory technique had a statistically significant positive influence ($\beta = 0.321$, $p = 0.001$) on the supply chain performance of Homa Bay Teaching and Referral hospital. Overall, the survey found that 48.1% of the respondents either agreed or strongly agreed that activity-based costing decreases space in the supply chain at the county teaching and referral hospital in the health institution.

In a study conducted by Nawanir et.al (2018), the researchers examined the influence of ABC inventory practices on the performance of operations and businesses in Indonesian

manufacturing companies. The study found that implementing ABC inventory control practices had a positive and significant effect on various aspects of operations performance, including product quality, inventory reduction, timely delivery, cost reduction, as well as supply chain performance, including profitability, sales, and customer satisfaction. Chituri et.al (2016) examined the relationship between factors influencing inventory management and customer satisfaction in Nigerian supermarkets. They found that ABC inventory management methods had the greatest beneficial influence on customer satisfaction. Additionally, the findings demonstrated that having a well-functioning inventory management system is crucial for improving the operational efficiency of supermarkets by maximizing capacity utilization.

Ezeala, Nzewi, and Tochukwu (2022) conducted a study on the impact of activity-based costing on the financial performance of consumer goods manufacturing enterprises in Nigeria. The research data included ten consecutive financial years, including an equal number of years before and after the adoption of ABC. The study was guided by a quasi-experimental research design. The population of the study consisted of all Consumer Goods Manufacturing Companies registered on the Nigeria Stock Exchange, whereas the sample consisted of consumer goods manufacturing companies in Nigeria that have implemented the activity-based costing approach. The Chow Test, a method for assessing the structural stability of econometric regression using ordinary least squares, was employed. The analysis was conducted using Statistical Package for Social Sciences (SPSS) version 25. The analyses indicated that the implementation of activity-based costing did not have a substantial impact on the financial performance of the individuals or organizations who adopted it. A recommendation was made to redesign the ABC system in order to incorporate internal control, hence enhancing its ability to eliminate waste and improve resource efficiency. The study determined that the removal of waste could have a favorable effect on the financial performance of the organization.

Ezeagba (2018) investigated the impact of Activity Based Costing (ABC) on the financial performance in the South East region of Nigeria. The researcher gathered secondary data from two industrial firms that were being studied. The researcher utilized the Pearson product moment correlation for the purpose of data analysis. The investigation shows that implementing the ABC technique has a substantial impact on the profitability of industrial businesses. The study's findings suggest that the cost of items continues to be the primary factor influencing the profitability of manufactured products. The study suggests that manufacturing organizations should possess a comprehensive understanding of the

composition of their products' costs and the associated activities. Additionally, manufacturing organizations with advanced manufacturing technologies and multiple product lines are advised to implement Activity-Based Costing (ABC) methods.

Oseifuah (2019) conducted a previous study to evaluate the influence of Activity Based Costing (ABC) on financial performance and identify the circumstances in which improvement might be attained in the South African public sector. The financial performance was quantified using indicators such as gross profit margin, current ratio, interest cover, and total debt to total assets. The case study technique was utilized to gather and examine data pertaining to the enhancement of financial performance, perception, and success of ABC in Buffalo City Municipality in the Eastern Cape Province of South Africa. The study shown that implementing Activity-Based Costing (ABC) yields notably more precise and valuable cost data compared to conventional cost accounting methods. The findings also revealed that management is highly in favor of the ABC application due to its ability to offer deeper insights into cost drivers, enhance cost control and management, facilitate a better understanding of cost reduction opportunities, improve decision-making processes, and provide more precise information for product and service costing and pricing.

Study Design

This study employed a descriptive research design, which entailed collecting data that provides a description of events, and subsequently organizing, tabulating, displaying, and describing the data. The study focused on manufacturing enterprises located in India. In December 2020, there were a total of 1012 major manufacturing enterprises located in, according to KAM (2020). More precisely, the study focused on procurement officers employed by these organizations. This study utilized simple random sampling procedures to choose the large manufacturing enterprises that comprise the target population. Hence, a total of 187 procurement officers were selected for the sample using the method of simple random selection. The selection of this sampling strategy is favored since it provides every item in the population with an equal chance of being chosen. This study employed a questionnaire as a means of gathering primary data. Data collection for this study was conducted using questionnaires. This study utilized the self-administered questionnaire method. The pilot study was conducted on a sample of 19 participants, which is considered sufficient according to Glesne (2015), who said that a pilot test size of 10% of the population is suitable.

Analysis of research results and subsequent discussion

The survey included a total of 187 procurement officers from significant industrial enterprises. Questionnaires were distributed to the chosen sample. Upon receiving the surveys, they were meticulously reviewed to ensure accuracy and completeness. Out of the total, 169 questionnaires were deemed valid and reliable, making them suitable for further analysis and reporting. The surveys that were returned resulted in a response rate of 90.4%. According to Sekaran and Bougie (2016), a response rate of 70% or higher is considered excellent. Hence, the remarkable response rate of 93.4% is deemed exceptional for subsequent research and reporting.

The relationship between Economic Order Quantity and Procurement Performance

The primary aim of the study was to investigate the impact of Economic Order Quantity on the procurement performance of major manufacturing enterprises in India. The participants were asked to express their level of agreement with the Economic Order Quantity and procurement performance of major manufacturing enterprises in India. The findings are displayed in Table 1.

Based on the findings, the participants concurred that EOQ models are regarded as a valuable instrument for enhancing procurement performance, hence assisting manufacturing firms in sustaining competitiveness in the market. This is corroborated by an average of 3.996 with a standard deviation of 0.865. Furthermore, the data reveals that the respondents, with a mean of 3.819 and a standard deviation of 0.945, expressed agreement about the utilization of EOQ principles by manufacturers to attain cost savings in procurement. This, in turn, has had a favorable effect on their overall profitability. Moreover, the participants concurred that the implementation of EOQ has improved cooperation with suppliers within major manufacturing firms, leading to the development of stronger partnerships and more dependable procurement procedures. This is demonstrated by a mean value of 3.798 with a standard deviation of 0.611.

The participants also concurred that EOQ models have empowered manufacturing firms to make well-informed choices regarding reorder points, leading to a decrease in emergency orders and the related expenses. This is demonstrated by a mean value of 3.731 with a standard deviation of 0.908. The respondents agreed that using EOQ strategies had led to improved cash flow management in manufacturing organizations, with a mean of 3.711 and a standard deviation of 0.776. The participants concurred that EOQ calculations have played a significant role in decreasing procurement lead times, enabling manufacturers to rapidly

address market needs and changes. This is demonstrated by a mean value of 3.675 with a standard deviation.

The value is 0.897. The respondents, with a mean of 3.613 and a standard deviation of 0.786, expressed agreement that EOQ models are considered a significant tool for optimizing procurement performance. They also noted that these models assist manufacturing organizations in maintaining competitiveness in the market.

Table 1: Economic Order Quantity and Procurement Performance.

	Mean	Std. Dev.
EOQ models are seen as a valuable tool for optimizing procurement performance, helping manufacturing companies to maintain competitiveness in the market	3.996	0.865
Manufacturers have leveraged EOQ principles to achieve cost savings in procurement, which has positively impacted their overall profitability.	3.819	0.945
The use of EOQ has enhanced collaboration with suppliers among large manufacturing companies fostering stronger relationships and more reliable procurement processes	3.798	0.611
EOQ models have enabled manufacturing companies to make informed decisions regarding reorder points, resulting in reduced emergency orders and associated costs."	3.731	0.908
By implementing EOQ strategies, manufacturing companies have witnessed improved cash flow management	3.711	0.776
EOQ calculations have contributed to reduced procurement lead times, allowing manufacturers to respond promptly to market demands and fluctuations	3.675	0.897
EOQ models are seen as a valuable tool for optimizing procurement performance, helping manufacturing companies to maintain competitiveness in the market	3.613	0.786
Aggregate	3.732	0.841

An analysis of the relationship between Activity Based Costing and procurement performance.

The study's second particular purpose was to determine the impact of activity-based costing on the procurement performance of major industrial enterprises in India. The participants were asked to express their level of agreement about different claims concerning activity-based costing and the procurement performance of major manufacturing enterprises in India, India. A 5-point Likert scale was employed, with 1 representing significant disagreement, 2 representing disagreement, 3 representing neutrality, 4 representing agreement, and 5 representing strong agreement. The findings were displayed in Table 2. Based on the

findings, the participants concurred that implementing Activity-Based Costing (ABC) has furnished our organization with a more precise and detailed perspective on procurement expenses. This is corroborated by an average of 4.168 with a standard deviation of 0.905. Furthermore, the data reveals that the respondents, with a mean of 3.959 and a standard deviation of 0.885, expressed agreement about the identification of certain cost drivers within our procurement procedures through ABC. This has allowed us to deploy resources in a more efficient manner. Moreover, the participants concurred that ABC has enhanced our capacity to evaluate supplier performance by comprehensively grasping the expenses linked to each provider. This is demonstrated by a mean value of 3.920 with a standard deviation of 0.605. The respondents also concurred that the use of ABC has allowed them to achieve a competitive edge in the manufacturing sector in India by optimizing procurement costs. This is demonstrated by a mean value of 3.915 with a standard deviation of 0.981.

The participants concurred that ABC has enabled them to make well-informed decisions during supplier negotiations, leading to cost reductions and improved contractual conditions. This is corroborated by an average of 3.911 with a standard deviation of 0.873. Furthermore, the data indicates that the respondents, with a mean of 3.897 and a standard deviation of 0.786, agreed that their procurement team has effectively utilized ABC data to create a sourcing plan that is more economical for acquiring materials and components.

Table 2: Activity Based Costing and Procurement Performance.

	Mean	Std. Dev.
The adoption of Activity-Based Costing (ABC) has provided our company with a more accurate and granular view of procurement costs.	4.168	0.905
Through ABC, we have identified specific cost drivers within our procurement processes, enabling us to allocate resources more efficiently	3.959	0.885
ABC has improved our ability to assess supplier performance based on a comprehensive understanding of the costs associated with each supplier	3.920	0.605
By implementing ABC, we have gained a competitive advantage in the manufacturing sector by optimizing procurement costs.	3.915	0.981
ABC has allowed us to make informed decisions when it comes to negotiating with suppliers, resulting in cost savings and better terms	3.911	0.873
Our procurement team has leveraged ABC data to develop a more cost-effective sourcing strategy for materials and components	3.897	0.786
Aggregate	3.886	0.858

Procurement Performance of Large Manufacturing Companies

The participants were asked to express their level of agreement about different claims concerning the procurement performance of major manufacturing enterprises in India. A 5-point Likert scale was employed, with 1 representing significant disagreement, 2 representing disagreement, 3 representing neutrality, 4 representing agreement, and 5 representing strong agreement. The outcomes were as displayed in Table 3.

Based on the findings, the participants concurred that the firm exhibits robust financial success, encompassing both revenue expansion and profitability. This is corroborated by an average of 4.084 (standard deviation = 0.997). Furthermore, the data reveals that the respondents, with a mean of 3.917 and a standard deviation of 0.831, unanimously acknowledged that the business routinely surpasses client expectations in terms of product quality, availability, and delivery. In addition, the respondents concurred that the company proficiently oversees production and distribution operations to guarantee punctual delivery and limit any occurrences of delays or stock outs. This is demonstrated by a mean value of 3.858 with a standard deviation of 0.563. The respondents also concurred that the corporation upholds robust ties with clients and suppliers to cultivate collaboration and bolster long-term economic prosperity. This is demonstrated by a mean value of 3.831 with a standard deviation of 0.851. In addition, the participants concurred that the company consistently evaluates and enhances key performance indicators (KPIs) pertaining to production, efficiency, and cost management. This is demonstrated by a mean value of 3.787 with a standard deviation of 0.897.

Table 3: Procurement Performance of Large Manufacturing Companies.

	Mean	Std. Dev.
The organization demonstrates strong financial performance, including revenue growth and profitability.	4.084	0.997
The organization consistently meets or exceeds customer expectations in terms of product quality, availability, and delivery.	3.917	0.831
The organization effectively manages production and distribution processes to ensure on-time delivery and minimize delays or stock outs.	3.858	0.563
The organization maintains strong relationships with customers and suppliers to foster collaboration and support long-term business success.	3.831	0.851
The organization continuously monitors and optimizes key performance indicators (KPIs) related to productivity, efficiency, and cost management.	3.787	0.897
Aggregate	3.831	0.876

CONCLUSIONS

Furthermore, the study establishes that the economic order quantity has a favorable and substantial impact on the procurement performance of major manufacturing firms in India. The study uncovered insights into demand forecasting, re-order levels, and holding. The cost factor significantly impacts the procurement performance of major industrial enterprises located in India. The study also determines that activity-based costing has a favorable and substantial impact on the procurement performance of major industrial enterprises in India. The study found that inventory optimization, cost drivers, and attention on activities have an impact on the procurement performance of large manufacturing enterprises in India.

Suggestions

According to the results, this study suggests that large industrial enterprises in India should integrate EOQ calculations into their procurement processes. Optimizing inventory management involves ordering the appropriate amount of commodities at the optimal time, reducing carrying costs, and limiting stock outs.

It is advisable for companies to develop and periodically assess reorder points to verify their alignment with demand patterns. When deciding on reorder levels, it is important to take into account issues such as lead time, fluctuation in demand, and the need for safety stock. Modify these values as required to avoid both stock outs and overstock problems.

Recommendations for Further Academic Pursuits

This study aimed to investigate the impact of inventory management strategies on the procurement performance of major manufacturing enterprises in India. Due to the focus on procurement performance of large industrial enterprises in India, the results of this study cannot be applied to the performance of other firms in India. Hence, the paper proposes conducting additional research to investigate the impact of inventory management systems on procurement performance in other Indian companies.

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