

A Study On Inventory Management Practices: A Review

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Abstracts

Different organizations follow different type of inventory management practices; Inventory management practice is the type of activities that an organization follow in is the process of ordering, issuing, storing and trading inventory products held by that organization. Inventory management plays a key role in order management and acts as an integral part in supply chain management. Based on the existing literature, the present paper investigates types of inventory management practices followed by different form of organization. The main objective of the paper is to develop a conceptual framework of inventory management practices.

Key words: inventory management practices, variances, phases and challenges.

Introduction:

The dictionary meaning of the inventory is a list of goods (Business dictionary). In trading business language, inventory means stock of finished goods and in production business, it means unprocessed resources, processed resources and final product. The term inventory derives from the French word "inventaire" and the Latin word "inventarium" (wikionary). Inventory management means supervising the stock starting from procurement till final consumption of such stock. It also means tangible items of finished goods, work in progress and stock of material goods needs to be managed to meet the expected demand as and when they arise. It is necessary to have proper stocking of physical goods in the system as non-availability of such products will lead to delays in services and will give arise to unsatisfied customers (George Elsa 2019). According to Wilson et al. (2015),

inventory polices are categorized into two primary control models namely continues review and periodic review. Proper implementation of the practices related to inventory management enables the firm to minimize waste, costs and increase revenue (Zer and Wei, 2006).

Review of Literature:

- (a) Inventory management practices in manufacturing sector :

Marsudi (2018) reviewed on inventory management in manufacturing industry and found that the demand pattern policy help in determining the best approaches and the inventory systems such as the Economic ordering quantity, Material requirement planning and Just-in-time has benefitted the industry in planning, delivering process, timely production with linking factors that is environment, technology, systems and procedures. Nemptajela and

Mbohwa (2017) reveal that businesses having high inventory percentage are more likely to face low financial results than those business having low inventory stocks percentage. Similarly, the work of Zhiteng and Haifeng (2017) show that there is requirement of businesses in carrying out analytical research on the impact of inventory strategies on the financial performance of a company. In addition, Yan et al. (2017) has demonstrated that those manufacturing firms where they use higher levels of current high-tech inventory management techniques have helped them to improved their performance factor and have made them more competitive in their production process.

(b) Inventory management practices in retail sector:

Spillin et al (2013), observed that retail outlets plays a major role in economy and resulted factor showed that inventory market size had reached substantial growth in many economics. After successfully recognizing the criticality of inventory management by retail outlets in all over the world it just added value to it. Again in the words of Chow, Dubelaar and Larson (2011), it showed the criticality of inventory management since it tops the list of valuable asset of every balance sheet. According to Songa (2016) inventory control is a strategy for effective performance of an organization such as in determining lower inventory holding and carrying costs and the challenges which they faced while experimenting a case study in the supermarket shows that if remedial action through this strategy is taken it can resolve such challenges soon. In the words of Shajema (2018), Vendor Management inventory (VMI), Lean inventory Practices (LI), Inventory Stock taking and Strategic Supplier Management Practices (SSP) are some of the practices which have positive and significant relationship in retail chain store in Nairobi country in Kenya. Similarly, Otieno et al (2018), worked on influence of inventory

management practices such as inventory categorizing, JIT, periodic ordering and electronic data interchange, MRP on retail outlets in the same country.

(c) Inventory management practices in service industry:

Mbiriri, & Moronge. (2018) studied on the influence of inventory management system in public hospital related to service delivery at Nairobi in Kenya country found that there existed strong positive relationship between them. The practices studied under were Vendor Managed Inventory systems, Enterprise Resource Planning Systems, Radio Frequency Identification Systems, JIT systems. Similar study is also done by Samuel and Achuora (2017), but it is on the performance of private commercial banks in Kenya country and found that IT, inventory control practices, cycle counting of inventory and warehousing managing system have a significant and positive relationship with the functioning of private commercial banks in Kenya country. Madu (2022) has studied on inventory management practices applied by stores officers in public tertiary educational institutions in southeast Nigeria country and found that some practices like barcode inventory management practices were moderately applied, while activity based costing inventory management practices were lowly applied in such institutions and also they do not significantly influenced in some institutions and required proper training for effectively implementing such inventory management practices.

Research gap:

After reviewing the existing literature from 2006-2022 period of inventory management practices, it was observed by the authors that such types of studies are not encountered, in case of whether there existed any variances in inventory management practices in manufacture, retail and service industries and

what inventory management practices are followed in such sectors. This study serves as an addition to answer the above stated research questions by developing a conceptual and theoretical view. Hence, the present study is an attempt to fill up the existing gap in the research world.

Research questions and objectives of the study:

- A. The research questions are:
 - i. What are the common inventory management practices which are identified in the literature?
 - ii. Whether there exists any difference in inventory management practices of different industrial sectors?
- B. This study attempts to answer the above research question by developing the following research objectives:
 - i. To find out the various inventory

Discussion and Results:

The findings are shown in table 1, 2 and 3.
Types of Inventory management practices:

A number of inventory management practices are reported in the literatures which are considered in the present study. Some of them are: Determination of various levels of materials, economic order quantity, perpetual inventory system, and ABC analysis technique, Periodic review system, Continuous Review system, Vendor Managed Inventory (VMI) Systems, Radio Frequency Identification (RFID) Systems, Enterprise Resource Planning (ERP) Systems, Just – In-Time Systems, Stochastic Inventory Theory, Distribution Resource Planning DRP, ABC-

management practices

- ii. To compare the inventory management practices among different industrial sectors.

Research Methodology:

Qualitative research design is used and extensive literature review is done by analysing non-numerical data in the form of text, video, or audio to understand the concepts, opinions and experiences. Qualitative research is used to gather in-depth views on “how” and “why” in the context of circumstances happens to give deeper view and understanding of such phenomena, concepts and experiences (Cleland Anne Jennifer 2017). Here, the studies were collected from reputed sources such as Google scholar, academia, Scopus, web of science and social science journals to get an in-depth views on such topics. 27 number of studies published during 2018 to 2022 are considered. The findings are shown in the tabular form.

VED matrix, Barcode inventory systems, automatic replenishment, ABC, FSN, VED, XYZ Analysis For Stock, ABC-VED Matrix, ERP, Pareto, Lean Inventory Management System, E- Inventory Management System, Computerized Inventory System, Electronic Data Interchange EDI, Inventory budgeting practices, Frequency of Stock replenishment, Review of inventory levels, Lead time, Inventory Planning, Strategic supplier partnership (SSP), Two-bin system, Base stock policy and so on. The details are shown in table 1.

Table 1: Inventory management practices

Sl. No	Author and year	Title of the study	Inventory management practices found in these studies
1.	Fred O. Sporta (2018)	Effect of Inventory Control Techniques on Organization's Performance at Kenya Medical Supplies Agencies.	Determination of various levels of materials, economic order quantity, perpetual inventory system, and ABC analysis technique.
2.	Mbiriri, E., & Moronge, M. (2018)	Influence Of Inventory Management Systems On Service Delivery In Public Hospitals In Nairobi City County, Kenya	Vendor Managed Inventory (VMI) Systems, Radio Frequency Identification (RFID) Systems, Enterprise Resource Planning (ERP) Systems, Just – In-Time Systems, Stochastic Inventory Theory

3.	Ermias Semu Wodajo (2018)	Inventory Management Practises for Pharmaceuticals items at Health facilities in Addis Ababa	Economic order quantity (EOQ), ABC, ABC-VED matrix,
4	Muhammad Marsudi (2018)	Inventory Management in an Manufacturing Industry: A Case Study	Economic Order Quantity Model (EOQ), Material Requirement Planning (MRP) And Just-In-Time (JIT) System To Improve Inventory Management System
5	Mukuna et al (2018)	Factors Affecting Inventory Management Practices on service delivery in Government Hospitals in Kenya country (A Case Of Trans Nzoia County)	Factors related to independent variable were : Inventory techniques : Prioritize with ABC, FIFO, accurate forecasting. Training, Lead-time, Information technology.
6	Khan and Siddiqui, (2019)	Impact of Inventory Management on Firm's Efficiency – A Quantitative Research Study on Departmental Stores Operating in Karachi	Lean inventory, stock availability, capacity utilization.
7	Rono, E., & Miroga, J.(2019)	Influence Of Lean Inventory Management Techniques On Performance Of Manufacturing Firms In Nairobi City County Kenya	Material Requirement Planning (MRP) System, Just In Time System (JIT) System , Vendor Managed Inventory (VMI) System, ABC Analysis.
8	Okumu Atieno Elsa1 , Shadrack Bett (2019)	Inventory Management Practices and Organization Performance of Steel Industries in Nairobi County, Kenya	EOQ processing Practices, Material/Inventory practices, Quality control practices, Legislation practices.

9	Kenneth Boro Wallace Atambo (2019)	Effect Of Inventory Management Practices On Warehouse Efficiency Of Tea Processing Companies In Kenya: A Case Study Of Tea Processing Companies in KisiiCounty	Activity-Based Costing, Just In Time, BIN card Practice, Vendor Managed Inventory Practice
10	Fararishah Abdul Khalid And Samantha Reina Lim (2019)	A Study On Inventory Management Towards Organizational Performance Of Manufacturing Company in Melaka	Vendor Managed Inventory VMI, Material Requirement Planning MRP, Just-in-time JIT,
11	Johnson et. al. (2019)	Inventory Management Practices and Supply Chain Performance of Antiretroviral Medicines in Public Hospitalsin Nyamira County, Kenya	Inventory control model, Determination of order quantities, Stock keeping records and reporting, Safety stock policy
12	Chakrabarty, Nayan (2020)	A Methodology For Supply Inventory Management For Hospital Nursing Units Considering Service Level Constraint .	RFID, two-bin system
13	Choolwe, Kaile (2020)	Effects Of Inventory Management Practices On Service Delivery At Adult Hospital-The Case Study Of University Teaching Hospital (Uth)	ABC , EOQ, MRP I, MRP II, ERP Distribution Resource Planning DRP, JIT, VMI, Lean inventory system.
14	Opoku, et,al (2020)	Inventory Management Practices And Operational Performance Of ManufacturingFirms In Ghana	Strategic supplier partnership (SSP), Economic Order Quantity (EOQ), Activity based costing (ABC), Vendor Managed inventory (VMI), Just-in-time (JIT)
15	Tekalign Negash Kebede (2020)	Assessing The Inventory Management Practices, A Case Of Manufacturing FirmIn Hawassa City, Ethiopia	Economic Order Quantity Model (EOQ), Materials Requirements Planning (MRP),The ABC Inventory Control Technique, Just In Time (JIT) Philosophy, Computerized Inventory System, Electronic Data Interchange EDI,

16	Kehinde Busola, E., Ogunnaike Olaleke, O., Adegbuyi, Omotayo, A. Ibidunni, Ayodotun, S. (2020)	Analysis Of Inventory Management Practices For Optimal Economic Performance Using ABC and EOQ Models	Economic Order Quantity Model (EOQ), Activity based costing (ABC)
17	Robert M. Arasa and John O. Achuora (2020)	Strategic Inventory Management Practices and the Performance of Supermarkets in Nairobi County, Kenya	Vendor- Managed Inventory, Activity Based Costing (ABC) System, Lean Inventory Management System, E- Inventory Management System
18	Almrdof Fatima & Ahmed Attia (2021)	The Effect of Inventory Management Practices on Productivity.	Pareto Analysis , Economic Order Quantity, Material Resource Planning, Just-In- Time, Enterprise Resource Planning(ERP).
19	. Manyuat et.al (2021)	Assessment of Storage and Inventory Practices to Improve Medicine Supply Chain in Jubek State South Sudan	Assessing medicine storerooms and inventory management practices and assessing the knowledge of the health workers working in the store and inventory management.
20	Barasaa Edwin Wabwire & Mukanzib Clive (2021).	Influence of Inventory Control Practices on Procurement Performance of Public Hospitals in Trans Nzoia County	Economic order quantity, safety stock ordering, first-in-first-out and inventory audit.
21	Muzerwa Paulin & Ndolo Jackson (2021).	Analysis Of Inventory Management Practices And Performance Of Private Hospitals In Burundi: A Case Of Kira Hospital.	Just-in-time deliveries and reductions in the amount of inventory held, inventory planning and scheduling, inventory technology and business processes.
22	Jobira T, Abuye H, Jemal A, Gudeta T. (2022)	Assessment Of Knowledge, Practices, And Challenges Of Pharmaceuticals Inventory Control Among Pharmacy Professionals Working In Selected Public Health Facilities Of West Arsi Zone, Oromia, Ethiopia .	ABC, FSN, VED, XYZ Analysis For Stock , ABC-VED Matrix,

23	Irene Omari Mbugi, and Dr Deusdedita Lutego (2022)	Effects of Inventory Control Management Systems on Organization Performance in Tanzania Manufacturing Industry- A Case Study of Food and Beverage Manufacturing Company in Mwanza City	Perpetual inventory system, Periodic inventory system, Barcode inventory systems, Economic ordering quantity, Vendor Managed inventory, Just-in-time , automatic replenishment, ABC inventory model,
24	Muluwerk Wuletaw (2022)	Examining Factors Affecting Inventory Management Practice at Wollega University Main Campus	Inventory budgeting practices, Frequency of Stock replenishment, Review of inventory levels, Lead time, Inventory Planning.
25	Naithani Kumar Sanjay and Costa Nascimento Andre (2022)	Inventory Management for Automated Convenience stores in Brazil	Economic ordering quantity, continuous review policy, base stock policy, pareto analysis, and found that Periodic review policy to be best above all.
26	Ayivi et al (2022)	The effects of inventory management practices on educational service delivery :A case study of Sunyani Technical University , Ghana	Cycle stock, in-transits inventory, inventory planning and scheduling, inventory recording , inventory control, Material requirement planning.
27	Legese Nanati, Teshome Dawit, GedifTeferi. (2022).	Inventory Management of Health Commodities in a Tertiary Teaching Hospitals in Ethiopia	ABC Analysis, VEN Analysis

Source : conceived by authors after review of literature

Table 2: Comparison of inventory management practices among different industrial sectors :

Sl. No	Manufacturing	Retail	Service

1	Inventories in manufacturing encompasses raw-materials, semi-finished products and finished products used for production process or on the factory floors which are required in making a product.	It encompasses carrying the merchandize products that the shoppers wanted to sell and which are neither too little nor too much on hand. It is stocking of finished products that are sold directly to the customers.	Inventories in service industries includes all process that are included prior to the customer's arrival.
2	Common inventory management techniques are: Just-in-time, Vendor managed inventory, Lean inventory system, perpetual inventory system, ABC inventory analysis system, consignment inventory, re-order point , safety stock system.	Common inventory techniques are: categorizing inventory like ABC Analysis, VED analysis , FSN analysis , forecasting inventory, stock-in-charge, FIFO system for stock keeping unit and LIFO system, Strategic supplier system, Economic ordering quantity system, Open to buy (OTB) system, Just-in-time system, cycle counting, RFID system, barcoding system , enterprise resource planning system .	Common inventory techniques found are : economic ordering quantity system , Just-in-time system, material requirement planning system, minimum ordering quantity system, six sigma including lean six sigma system, inventory replenishment system, RFID system used for asset inventory management system.

3	<p>Inventory Practices in manufacturing sector helps in Saving money and time, increases precision , traceability, progress tracking, increases productivity, integrated warehouse approached for distributors and manufacturers, enhanced visibility, minimizes human intervention, smooth and precise scheduling.</p>	<p>Inventory Practices in retail sector helps in Decreases inventory cost by reducing storage and carrying cost, minimizes out-of-stock through real time inventory , improves profit, prevents spoilage and obsolesces, improves multi-channel locations and Omni channel performance and order fulfilment, simplifies process and facilitates growth, reduce shrinkage, ease supply chain management , improves customer satisfaction , improves forecasting,</p>	<p>Inventory Practices in service sector works for better inventory planning an forecasting, improves operational system, manage surplus, obsolete and wastage of inventory, and improves customer satisfaction, accurate stock flow process system.</p>
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Source : conceived by authors after review of literature

Table 3: Issues of inventory management practices in different industrial sectors :

Manufacturing	Retail	Services
<p>Lead to missed sales, Push the customer to go elsewhere, Ties-up unnecessary liquidity, Lead to understocking and overstocking inefficiencies causing disruptions in the process flow, Lack of optimized production process, Lack of investment in advanced technologies, Lack of support from top officials to factory employees, Unreliable suppliers form.</p>	<p>Lack of centralized data management system, Inaccurate inventory counts occurs, Shipping errors, Lack of proper connection between shipping orders and documents, purchase orders and invoice documents, Occurrences of Overselling, Dissatisfied customers, Slow re-ordering process, Issues with inventory theft and loss, Increases warehousing cost, Carrying too much inventory arise, When and how much inventory is required exactly is not known.</p>	<p>Lack of better demand forecast with reduced inventories, applicability of matrix inventory control system, increasing visibility and measuring labels for reduction purpose, security hacking problem, implementing changes or innovation in technology frequently or periodically, calculating accurate ROI and aligning them with customer preferences, habits and experiences, record based management system, disruptions in process due to unorganized inventory system or complex system, Competency and training facilities.</p>

Source: conceive by authors after review of literature

Conclusions:

In this paper the authors made an attempt to understand inventory management and the different practices in broad term; the different types of inventory management practices are followed in manufacture, retail and service industry. There are variances in the application of inventory management and the challenges faced while implementing such practices among the sectors . A thorough applied study is highly essential to establish cause and effect relationship of type of inventory management practices and issues faced by the organization. To conclude, inventory management is a life-blood vein in most of the organization If the inventory management practices are followed by the organizations in effective and diligent way, the organization's profitability will be increased. Hence, proper practices are to be followed by every organization.

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