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Inventory management in organisations: A theoretical perspective

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Abstract
Inventory acquires an important place in the managerial decision making in the organizations. If the inventory is not managed it might result in overstocking, pilferage and expiry. The inventory management is intended to identify the inventory performance and position of the company and to recognize the potency and flaw and to assess the profitability of the company. This again ensures continuous supply, minimized loss, increased production and cost control on the performance of the organizations. This results in the control over substantial costs. The Present study is conceptual in nature to review the literature and the theoretical aspects of Inventory management.

Keywords: inventory, stock levels

1. Introduction
Inventories occupy the most strategic position in the structure of working capital of most business enterprises. It constitutes the largest component of current asset in most business enterprises. In the sphere of working capital, the efficient control of inventory has passed the most serious problem to the cement mills because about two-third of the current assets of mills are blocked in inventories. The turnover of working capital is largely governed by the turnover of inventory. It is therefore quite natural that inventory which helps in maximize profit occupies the most significant place among current assets.

Inventory management is a critical management issue for most companies – large companies, medium-sized companies, and small companies. Effective inventory flow management in supply chains is one of the key factors for success. The challenge in managing inventory is to balance the supply of inventory with demand. A company would ideally want to have enough inventories to satisfy the demands of its customers- no lost sales due to inventory stock-outs. On the other hand, the company does not want to have too much inventory staying on hand because of the cost of carrying inventory [1].

2. Statement of the problem
Inventory is key to profitability. Inventory velocity turns assets into profits. The faster inventory turns, the greater the profitability. Inventory is the key issue to supply chain management success. Customers demand that their orders be shipped complete, accurate and on-time. That means having the right inventory at the right place at the right time.

But this is easier than it sounds. Inventory management is the Gordian knot of supply chain management. No one knows how to untie it, and it cannot be cut. The inventory quandary applies to all inventories-finished goods, raw materials, parts and components, MRO and work-in-process. It includes new products and existing products. It covers all types of businesses-manufacturers, distributors, wholesalers, retailers and others in about every industry.

There is a dichotomy of views. Sales want 100% customer satisfaction and to make sure that there is always inventory on hand to meet each order. Finance wants to carry fewer inventories to free up capital for other needs. Given the vagaries of sales patterns, supplier lead times, and production sizes, the "answer" is dynamic. When sales are booming, inventory may not be as scrutinized as it is when sales are slow and inventory is sitting in warehouses and plants. As a result, inventory creep can occur.

The purpose of supply chain management is to drive out inefficiencies, especially excess inventory. Yet, inventory is a buffer against uncertainty. Uncertainty is difficult to forecast. Collaboration between supply chain partners helps reduce uncertainty because of faster ability to respond and change, but it does not eliminate it.

3. Review of literature
Agu Okoro Agu, Obi-Anike, Happiness Ozioma and Eke Chukwuma Nnate (2016) [2] concluded that inventory management is essential in the operation of any business. Inventory as an asset on the balance sheet of companies has taken on increased importance because many companies are applying the strategy of reducing their investment in fixed assets, like plants, warehouses, equipment and machinery, and so on, which even highlights the significance of reducing inventory.

Ilma Nurul Rachmania*, Mursyid Hasan Basri (Ilma Nurul Rachmania et al 2013) [3] Inventory management has a

[1] Inventory Management and Control, Chapter VI

[2] Singaporean Journal of Business Economics, and Management Studies (SJBEM) VOL. 5, NO. 4, 2016, www.singaporeanjbem.com, ; Effect Of Inventory Management on The Organizational Performance of The Selected Manufacturing Firms

[3] Pharmaceutical Inventory Management Issues in Hospital Supply Chains

significant role in the supply chain. Among various SCM issues, inventory management is a greater extent relevant to the entire supply chain. Inventory management has been recognizes as one of the most important functions that has huge impact on their overall performance. Supply chain inventory management is focused on end-customer demand and aims at improving customer service while lowering relevant cost.

Anna Paula Galvão Scheidegger, Fabio Favaretto, Renato da Silva Lima and João Batista Turrioni proposes a model for classifying materials based on multiple criteria considering the problems and difficulties in the public sector. This model has some advantages: ease of replication, the use of two decision theories together and the use of multiple criteria. Although the criteria are conflicting, the utility theory allowed to circumvent this issue efficiently and also allowed to achieve the proposed objective for the materials classification. This goal is slightly different from the usual goals of materials classification, viz. identify the most important materials.

Trisha Chowdhury (2015) [4] Procurement and inventory management form the interfaces in today's supply chains of industrial goods. As the global division of work is still increasing in all industries in order to improve speed, process integration and customer satisfaction there is a growing need for a modern sourcing system. Procurement and Inventory Management are critical to production companies as well as to service companies, as spending in procurement is often one of the biggest parts of the company's budget. Procurement and inventory management ensure the availability of all supply categories for operations and infrastructure. Both are networked with the other functional areas making and delivering the products.

4. Objectives of the study

1. To understand the Basic Tenet of Inventory.
2. To examine the various Inventory Management Techniques
3. To know the functioning of Inventory Management System

5. Methodology

The study undertakes a research of the Inventory management wherein the previous research studies have been studied. It is a conceptual study wherein the paper has focused on the fundamentals of inventory and also the Inventory management techniques in vogue in the organizations.

6. Definition of terms

- **Demand management** may be thought of as "focused efforts to estimate and manage customers' demand, with the intention of using this information to shape operating decision."
- **Safety stocks** are the minimum additional inventories
- Which serve as a safety margin to meet an unanticipated increase in usage resulting from an unusually high demand and an uncontrollable late receipt of incoming inventory.
- **Inventory management** and *control* refers to the planning for optimum quantities of materials at all stages in the production cycle and evolving techniques which would ensure the availability of planned inventories.
- **Inventory control** involves managing the inventory that is already in the warehouse, stockroom or store. That is knowing, what products are "out there", have much you have each item and where it is.

7. Need to hold inventories [5]

Martin and miller identified three general motives for holding inventories

- **Transaction motive:** This refers to the need of maintaining inventory to facilitate smooth production and sales operations.
- **Precautionary motive:** Precautionary motive for holding inventory is to provide a safeguard when then actual level of activity is differ than anticipated. This inventory serves when there is an unpredictable changes in the demand and supply forces.
- **Speculative motive:** This motive influences the decision to increase or decrease the levels of inventory to take the advantage of price fluctuations.

8. Inventory transactions [6]

- Normal stock receipt – from previously issued purchase orders and transfers
- Unexpected stock receipts – the stuff that just shows up on receiving stock
- Requisitions – a request for material to be consumed within company
- Emergency requisitions
- Sales
  a) Orders to be delivered
  b) Orders to be picked up
  c) Cash sales
  d) Direct shipments
  e) Orders for non-stock products
- Transfers to other warehouses or facilities
- Assembly orders
- Bin to bin transfers within warehouse
- Returns of stock material
- Returns of non-stock material
- Returns of damaged material
- Returns to supplier
- Adjustments of on-hand quantities – who is allowed to approve adjustments? Under what circumstances?
- Scrapping and writing-off stock

4 The Factors Effecting Inventory Management System in FMCG(Fast Moving Consumer Goods) Organization

5 **"A** Study On Inventory Management In Sujana Metal Products Limited" A Project Report Submitted To Jawaharlal Nehru Technological University, Hyderabad, K.V.Sunitha

6 Inventory management – basic concepts Ain Kiisler L-Consult OÜ

Table 1: Scope of modern inventory management

Key Questions in Inventory Management	Description
Where?	Supply availability, location of stores and associated facilities, logistics
What?	Users' needs, usage/frequency level
When?	Planning, efficiency
At what cost?	Budget, stock holding/warehousing and handling cost dynamics
Where?	Supply availability, location of stores and associated facilities, logistics
What?	Users' needs, usage/frequency level

Source: Contemporary Inventory Management Techniques: A Conceptual Investigation; International Conference on Operations Management and Research: (ICOMAR 2016) – "Towards Operational Excellence" January 21-22, 2016, Mysuru, India Stephen ARO-GORDON and Jaideep GUPTE

9. Inventory management techniques [7]

Inventory management techniques are extremely important for business operations because their success and cost reduction of the firm's expenditure necessitate improved supply chain performance and knowledge to the employees (Lambert, 2008). These techniques are critical and knowledge in them is highly desirable thus, managers and procurement staff need to be able to apply the techniques for the benefit of the organization (Fellows and Rottger, 2005).

Wild (2002) recommends, proper warehousing of inventory so that when goods items are ordered, they are kept at the warehouse for the least time possible minimizing holding cost of inventory. Consequently, other operational costs may increase inventory management costs. The way an organization is able to maintain its costs at low levels the better it is for the year end profits (Palevich, (2012), Wisner, Tan and Leong (2011). Organizations buy and sell their inventory; there always arises balance at the end of the year which ought to be carried over to the next year.

Once an organization realizes this, it can develop online inventory management tool to monitor its inventory information by breaking it down into groups by correlating the categories with its customers. Since organizations operates differently in different fields, the inventory can be classifies by either seasons or economic year end of your most significant customers hence, demand forecasting need to be employed to have an efficient supply chain (Poiger, 2010).

Re-Order Level

As organizations strive to achieve efficiency, they should be able to understand their Re-Order Levels (ROL) which enables them know when to order and when not to order. This can be achieved through the use of quantitative methods which necessitate proper inventory management (Apte, 2010). Re-Order level is critical for NGOs to achieve optimal efficiency and be effective leading to high supply chain performance and customer satisfaction, then they need to have two reorder levels one that is normal whereas the other is an emergency one in case of disaster (Beamon and Kotleba, 2006).

Economic Order Quantity

Bachetti, Plebani, Saccani and Syntetos (2010) argues that inventory management need to be organized in a logical way so that the organization can be able to know when to order and how much to order. This can only be achieved through the Economic Order Quantity (EOQ) computation. Economic order quantity enables organizations to plan their inventory replenishment on a timely basis such as monthly, quarterly, half yearly or yearly basis.

By so doing, it enables firms to have minimal storage costs or zero within their warehouses since inventory is coming in and going out immediately. Thus, this tends towards the just in time concept of supply chain management adopted by Toyota motor Corporation in Japan which helps in having zero holding costs, (Schonberger, 2008).

Thus, as organizations try to improve on the inventory management, the Economic Order Quantity (EOQ) and Re-order Point (ROP) are important tools that organizations can use to ensure that inventory supply does not hit a stock out as explained by Gonzalez and Gonzalez (2010). Over time, organizations have been maintaining their inventory in a haphazard manner which has necessitated a change in the way firms conduct their business. Stock outs have been experienced adversely leading to customer dissatisfaction hence; firms are changing their approach to be able to remain relevant by employing Economic Order Quantity (EOQ) and Re-order Point (ROP) for customer satisfaction.

Just-In-Time

Just-in-time (JIT) contributes greatly to the positive performance of an organization thus; inventory management needs to be undertaken with utmost keenness taking into account good procurement practices. A study was undertaken between 1981 and 2000 in the US to analyze inventory management and was found out that organizations that kept too much inventory in their warehouse operated an inefficient supply chain, while those that kept very few inventory in their warehouse were very efficient (Lai and Cheng, 2009).

Thus, it was found out that keeping moderate inventory is good and it enables an organization operate minimal expenses of holding costs as well as keep setup cost at bare minimum, eliminate unwanted lead time and produce goods as per customers order. Eventually, this enables an organization achieve total quality control (TQC) as efficient and effective supply chain management are employed within a firm's value chain (Datta, 2007).

Marginal Analysis

Marginal analysis is important for perishable good and it will be highly desirable for NGOs in the agricultural sector because it helps procurement officer know when to make the next order as well as recommend the optimal stock level. This

[7] Inventory Management And Supply Chain Performance Of Non-Governmental Organizations In The Agricultural Sector, Kenya

is critical because perishable good can cost an organization a lot of money, (IAPWG, 2006). Moreover, simulation is also a technique that NGOs can use for their advantage so that they can be able to map the actual orders and deliveries before it actually happens. Hence, inventory batching will save total supply chain cost for the NGOs by reducing their transport cost.

Vendor Managed Inventory

Management of inventory determines the way an organization will thrust itself to high performance efficiency. Some organizations have resulted to vendor managed inventory (VMI) systems which aid the supplier to monitor customer's inventory usage. Through this VMI system, customers will avoid stock outs because the suppliers will have already replenished their inventory. The key aspect here is communication which should be planned well from the beginning of business relations between the supplier and the customer (Frahm, 2003).

Vendor managed inventory saves an organization immense finance and time since the supplier will be able to monitor its customer's inventory levels and make a point of replenishing them. As the customer and supplier interact, the communication channel needs to be clear and fast so that they may avoid instances of stock outs.

Where the customer anticipates having an abnormal order levels, they should notify the supplier so that they can adjust their production to cater for the demand. Moreover, we now have Joint Managed Inventory (JMI) which is an advance level of vendor managed inventory (VMI). It seeks to integrate the supplier more firmly into the customer's organization by using the point of sale (POS) which allows the supplier to see the real time data of its customer's inventory (Frahm, 2003).

Activity Based Costing Analysis

Fellows and Rottger (2005) agree that having inventory in your store has an added advantage for the organization since customers will be satisfied instantly leading to improved performance rating. With inventory in your warehouse, an organization has the advantage of timely delivery and stock out are not experienced. Thus, NGOs need to ensure that they have adequate stock for their operations and distribution. One way they can achieve this is thorough the "Pareto Analysis" also known as Activity Based Costing (ABC) analysis.

ABC analysis is where stocks are classified into three categories namely: A – stock items that are of high value and material to the organization but low volume such as land, building and motor vehicles; B – stock items which are of medium value and medium volume; C – stock items baring minimal value but are of great volume such as pollination bags which are packed in thousands, farm fertilizers, daily farm products, medicine for live stocks and farm chemicals.

10. Principles and techniques of managing inventory [8]

i. Controlling each individual item, through its acknowledged characteristics, on a day to day basis.
ii. Ensuring the effective use of personnel involved in the management process.
iii. Providing information and feedback on the effectiveness of the inventory system. Inventory management is largely looked upon as a day to day operation concerned with meeting specified short term targets. It does, however, have a major role to play in the short, medium and long term developments of an organisation and should be an integral part of the business planning cycle.

Awareness of the expected development of the business in terms of future production, suppliers, customers, volumes etc. are all essential to enable inventory management to make recommendations, measure the impact and plan the necessary actions to meet the long term requirements. Decisions on what product lines to stock, where to stock them and the form of the distribution network, to achieve the continuing optimisation of investment cost and service level is an on-going process in which inventory management needs to be involved.

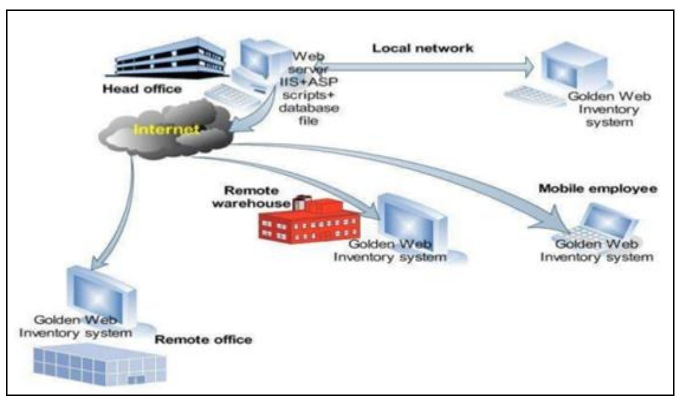
11. Importance of inventory management

The consequence or connotation of inventory management could be specified as below:

- Inventory management helps in maintaining an exchange between transport costs and ordering costs which results into minimizing the total cost of inventory.
- Inventory management facilitates maintaining adequate inventory for smooth production and sales operations.
- Inventory management avoids the stock-out difficulty that a firm otherwise would face in the lack of proper inventory management.
- Inventory management suggests the proper inventory control system to be applied by a firm to avoid losses, damages and misuses.

12. Inventory management system [9]

The Inventory Management System is an application targeted at customers who requires a simple inventory management or stock control system, the prime factor of the system focuses on ease of use and simplicity.



Source: www.slideshare.net/gauravssil/inventory-management-system

Fig 1

The product is equipped with modules, which helps its users

[8] Principles And Techniques Of Managing Inventory Training Manual Pharmacy Unit (Ghs) & Procurement & Supplies Directorate

[9] http://improsys.in/inventory_management_system.htm

to manage stocks at their warehouses, keep track of their inventory, monitor and regulate stock movement. Transactions to receive and move stock are modelled in a way that creating purchase orders, tracking inbound stocks, transferring stocks or sending them to your customers becomes easy.
No more worrying about tracking your inventories when you are raising POs or creating receipts. With efficient and comprehensive reports Inventory Management System will provide you with a new perspective to handling stocks in business.

13. Conclusion
Inventory management forms a significant function in the organizations. The inventory cost is to be checked so that the costs are under control and the organization does not have to suffer because of the buffer stock. The present study is a step in the direction to study the conceptual aspect. The organizations must handle inventory so that they do not suffer losses and are profitable in the long-run.

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