Chapter 70
Inventory Control and Big Data

Meghna Sharma
The NorthCap University, India

Niharika Garg
The NorthCap University, India

ABSTRACT

This chapter provides the relation between automated inventory control and generation of big data using the process. Conversion from manual to automated inventory process leads to generation and management of too much data. Possible boons and banes of the conversion of inventory control system to automated one are discussed in detail. In the initial sections explanation about inventory control and benefits of automating is given. Then overall architecture of big data and its management is discussed. Finally, tradeoff between the usage of automated inventory control system with its benefits and generation of too much data and handling it, is discussed.

INVENTORY CONTROL: THE CONCEPT

Inventory Control is the system that involves processing the requisition, managing the inventory, purchasing, and physical inventory reconciliation. The following key objectives define the design of Inventory Control (Board of Trade of Metropolitan Montreal, 2009):

- Informing about the availability of stocked items and the status of requisition in stock.
- Facilitating the requisition process to finish in time.
- Automatic recording and backorders serving.
- Minimizing inventory investments based on the previous purchasing patterns.
- Automated tools which assists in servicing, purchasing, and management of the inventory.
- Improvement in the financial control of the inventory through timely and regular check of the inventory balances with the physical counts.

A set of master tables (User as well as system-maintained), transaction document types, and offline programs are used to meet the above-mentioned objectives. The reports are also created for the same.

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Inventory Control is used to show how much stock we have at any one time, and keeping track of it. It is applied to every item, from raw materials to finished goods. It keeps check on the stock at all the stages of the production process, starting from purchase till delivery and re-ordering the stock.

Right amount of stock at right time and right place is ensured by an efficient stock control.

Manually counting the number of orders and accurate deliver is too much prone to error due to size of the number of orders. An automated inventory control system helps to minimize the risk of error. Now when it comes to automating the system, lot of data of various formats, continuously flowing also comes in the picture.

Stock can be categorized into mainly four types which include:

- Basic raw materials and related components.
- Stock of unfinished goods in progress.
- Stock of finished goods.
- Stock of consumables.

MANUAL INVENTORY CONTROL SYSTEMS

Stock taking process consists of making an inventory, taking record of its location and value. It's often an annual exercise - a kind of audit to work out the value of the stock as part of the accounting process.

For any stock control system the following operations are must:

1. **Tracking Stock Levels:** It means tracking the levels of stock items for ordering and re-ordering, if demanded.
2. **Making Orders:** Based on the orders, the supplies are fulfilled by making orders.
3. **Issuing Stock:** The stocks are issued to respective vendors for further distribution.

Manually log books are maintained for when only few stock items need to be managed and controlled. It keeps the record of stock received and stock issued. When number of stock items are too many, then simple log book system won't work.We need more complex system. In this case, each type of stock has a card associated with it which contains information about the detailed description of the stock, value of the stock, where it is located, what are the re-order levels, quantities required, and details about the supplier and information about the previous stock history.

Keeping track and maintaining the information about all the details related to stock or inventory management control manually is in fact a daunting task. To reduce the tediousness of the tasks and make it simplified, manual inventory management control system should be a big no and automated Inventory controls systems should be encouraged. There are so many advantages of automated Inventory controls system, as discussed next.

AUTOMATED INVENTORY CONTROL SYSTEM

An automated inventory control system (MIDCOM Data Technologies, Inc.,2014) can be defined as the combination of hardware and software based tools for tracking and managing the inventory. Inventory