Chapter 27
Promoting Business Activities Using Utility Mining Techniques

Sivamathi C
Bharathiar University, India

Vijayarani S
Bharathiar University, India

ABSTRACT

Inventory control can be defined as the process of inspecting stocks in a shop. Today even small and mid-sized businesses are using computerized inventory management systems for their business. Data mining discovers the knowledge and patterns which are potentially useful and previously unknown. Utility mining is one of the recent emerging fields in data mining. It incorporates usefulness of the knowledge or pattern retrieved. Such usefulness of the knowledge retrieved is termed as utility. In retail industry, utility mining can be used to retrieve highly profitable product in a market. Identifying such profitable products helps in better decision in inventory management. This chapter discusses how utility mining concepts can be implemented in inventory control.

1. INTRODUCTION

According to the Merriam-Webster dictionary, inventory control can be defined as the “coordination and supervision of the supply, storage, distribution and recording of materials to maintain quantities adequate for current customer needs without excessive supply or loss.” In wholesale and retail markets, inventory control can be further defined as the process to maximize an inventory of an organization. The objective of inventory control is to generate the maximum profit from the least amount of inventory investment (John Toomey, 2000)). It relates to purchases, sales and logistic activities. It concerned with the control of stocks throughout the whole supply chain. Inventory control sits at the data level where the day-to-day business is organized. Activities here are data driven and are primarily concerned with short-term planning and recording of events. Inventory control is concerned with maintaining the

DOI: 10.4018/978-1-5225-3232-3.ch027
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correct level of stock and recording its movement. It deals mainly with historic data. In this section, a brief introduction about inventory control, its advantages and limitations, inventory control techniques and Utility mining are given.

1.1 Inventory Control

In general, Inventory control is a method where all stocks of goods are properly and promptly issued, accounted and preserved in the best interest of an entity that handles its inventory. Inventory control is monitoring the stock of goods used for production, distribution and consumption (Chtriki.T, Ravindranath. K(2009). Thus inventory Control maintains the inventory at a desired level.

The main objective of inventory control is (John Toomey (2000)):

1. To decrease capital investment in inventory. This can be accomplished by identifying excessive stock of products. Once such surplus products are identified, purchasing more products can be reduced.
2. To ensure availability of required products.
3. To provide a basis for planning of inventory needs;
4. To meet over the demand fluctuations by maintaining sensible number of stock;
5. To reduce risk of loss due to obsolescence, deterioration, etc.;
6. To maintain necessary records for protecting against thefts, wastes leakages of inventories and to decide timely replenishment of stocks.

The inventory control can be achieved by (Chtriki.T, Ravindranath. K, 2009):

1. All the products are to be purchased at right-quantity, at the right-place and at right-time.
2. All the products should be placed in secure and sufficient place.
3. Develop a proper inventory identification system.
4. Maintaining an up-to-date record regarding stock of products.

Advantages of Inventory Control

Following are some of the advantages of using inventory control in industries (John Toomey, 2000), Peng Zhang, 2010).

1. Inventory control protects a company from fluctuations caused by demand of its products.
2. It ensures better services to its customers by properly monitoring the stock.
3. It keeps a smooth flow of raw-materials, so that it aids in continuing production operations.
4. It checks and maintains the right stock periodically and thus reduces the risk of loss.
5. It helps to minimize administrative workload, manpower requirement regarding stock maintenance.
6. It avoids over-stocking.
7. It also check on loss of materials due to carelessness or stealing.
8. It facilitates cost accounting activities.
9. It avoids duplication in ordering of stock.
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