„Saya/Kami* akui bahawa telah membaca

karya ini dan pada pandangan saya/kami* karya ini

adalah memadai dari segi skop dan kualiti untuk tujuan penganugerahan

Ijazah Sarjana Muda Pengurusan Teknologi (Inovasi Teknologi)"

Tandatangan	: …………………
Nama Penyelia	: …………………
Tarikh	: …………………..

Tandatangan	: …………………
Nama Penyelia	: …………………
Tarikh	: …………………..

*Potong yang tidak berkenaan

IMPLEMENTATION OF SMART INVENTORY MANAGEMENT SYSTEM FOR EFFICIENCY ENHANCEMENT: A CASE STUDY OF SMARTBIN IN COHU, INC SEMICONDUCTOR EQUIPMENT GROUP, MALAYSIA.

MOHAMMAD AMIRUL SYAFEEQ BIN MOHAMMAD SHOKRI

Laporan ini dikemukakan sebagai

memenuhi sebahagian daripada syarat penganugerahan

Ijazah Sarjana Muda Pengurusan Teknologi (Inovasi Teknologi)

Fakulti Pengurusan Teknologi dan Teknousahawan

Universiti Teknikal Malaysia Melaka

JUNE 2014

"Saya akui laporan ini adalah hasil kerja saya sendiri kecuali ringkasan dan

petikan yang tiap-tiap satunya saya telah jelaskan sumbernya"

Tandatangan : …………………………..

Nama   : …………………………...

Tarikh   : …………………………...

DEDIKASI

Untuk emak dan ayah, pensyarah dan rakan-rakan tersayang

PENGHARGAAN

Penulis ingin merakamkan penghargaan ikhlas kepada penyelia, Dr Chew Boon Cheong atas bimbingan dan dorongan yang diberi sepanjang menjalani Projek Sarjana Muda ini.

Penghargaan yang ditujukan kepada semua yang terlibat sama ada secara langsung atau tidak langsung membantu menjayakan projek penyelidikan ini. Semoga laporan ini akan menjadi sumber rujukan kepada pelajar lain kelak.

ABSTRACT

The implementation of smart inventory management system is one of the criteria that have to be emphasized by the industry and private sector particularly a developing country such as Malaysia. According to Heizer and Render (2011), inventory is one of the most expensive assets of many companies, representing as much as 50% of total invested capital. Without a good inventory management, a low cost of inventory cannot be achieved due to the lack of strategy by a company. Other than that, the issues of increasing the waste from the industry make one of the company names Bossard Group came up with the idea of SmartBin. The Bossard SmartBin is the automatic logistic system for components and was first introduced in 1998. In Malaysia, one of the companies that had implemented SmartBin is Cohu, Inc. Semiconductor Equipment Group. In this case study, Cohu, Inc. Semiconductor Equipment Group (SEG) was selected to identify the factors which encourages the use of SmartBin, to investigate how this company strategize the SmartBin usage in order for efficiency enhancement in inventory management and to suggest the innovative solutions in order to enhance the efficiency of inventory management. The research is focus on the smart inventory management using the SmartBin at Cohu, Inc. An interview was conducted by the researcher to collect respondent"s answers, and the data collected was analyzed by using mixed method. As a conclusion, Cohu, Inc has already performed the usage of SmartBin in their companies, and it gives a good impact for their inventory management in order to reduce the wastes

ABSTRAK

Pelaksanaan sistem pengurusan inventori yang pintar ialah salah satu kriteria yang perlu ditekankan oleh industri dan sektor swasta terutama sebuah negara membangun seperti Malaysia. Menurut Heizer and Render, inventori ialah satu daripada aset-aset yang paling mahal banyak syarikat, mewakili sebanyak 50% daripada modal dilaburkan berjumlah. Tanpa satu pengurusan inventori baik, satu kos rendah inventori tidak boleh dicapai disebabkan kekurangan strategi oleh sebuah syarikat. Selain daripada bahawa, isu-isu itu menambahkan sisa dari perindustrian menjadikan salah satu nama syarikat Bossard Group mengemukakan idea SmartBin. Bossard SmartBin ialah sistem logistik automatik untuk komponen dan mula-mula diperkenalkan dalam 1998. Di Malaysia, salah satu syarikat yang telah melaksanakan SmartBin ialah Cohu, Inc. Semiconductor Equipment Group. Dalam kes ini belajar, Cohu, Inc. Semiconductor Equipment Group (SEG) dipilih untuk mengenal pasti faktor yang menggalakkan penggunaan SmartBin, menyiasat bagaimana syarikat ini mengatur strategi penggunaan SmartBin teratur untuk peningkatan kecekapan di pengurusan inventori dan mencadangkan penyelesaian inovatif supaya meningkatkan kecekapan pengurusan inventori. Penyelidikan fokus pada pengurusan inventori pintar menggunakan SmartBin di Cohu, Inc.. Satu temubual dijalankan oleh penyelidik mengutip jawapan responden , dan data dikumpulkan telah dianalisis dengan menggunakan cara bercampur-campur. Sebagai satu keputusan, Cohu, Inc telah pun mempersembahkan penggunaan SmartBin di dalam syarikat mereka , dan ia memberi satu impak baik untuk pengurusan inventori mereka supaya mengurangkan bahan buangan

CONTENT

LIST OF TABLES

LIST OF FIGURES

NO.	TITLE	PAGE NUMBER

LIST OF APPENDIX

CHAPTER 1

INTRODUCTION

1.1   Background of the Study

In 21st century, the inventory management system in the worldwide has totally changed and required to be more efficient. According to Gopalakrishnan (2010), proper management of inventory will help in meeting customer requirement. It has been stated that the proper inventory management will help the organization to build a strong relationship with the suppliers. Since the inventory management representing around 50% of total invested capital, it becomes the importance assets to the organizations. According to Heizer and Render (2011), the objective of inventory management is to strike a balance between inventory investment and customer service.

1.2   Research Question

Nowadays, all organizations has been used the same type of inventory management. The efficiency of using the same inventory management makes it became reduced and stagnant. To overcome this problem, Bossard Group has developed Smart Bin. According to Gopalakrishnan (2010), a successful inventory management has to do the following: improve material planning, reduce inventory, and organize stores.

Smart Bin is one of the innovations in inventory management developed by Bossard Group. Needed parts are automatically ordered online and delivered to the customer on time. The supply cycle is quicker, simpler and more efficient. Smart Bin consists of normal bin and scales. The scales specially developed for smart bin, and it also constantly check the current stock. When the minimum order is reached, the predefined order quantity is delivered. By the usage of Smart Bin, it can help the customers to achieve efficiency in procurement in the future.

There are three research questions: 1)what are the factors which encourage the use of Smart Bin, 2)how the Cohu, Inc. Semiconductor Equipment Group, Malaysia strategise the Smart Bin usage in order for efficiency enhancement in smart inventory management 3)what are the innovative solutions in order to enhance the efficiency of smart inventory management? The researcher will try the best to answer these questions.

1.3   Research Objective

The research objectives of this research are to investigate the implementation of smart inventory management: A case study of Smart Bin in Cohu, Inc. Semiconductor Equipment Group, Malaysia.

a) To identify the factors that encourages the use of Smart Bin for smart inventory management
b) To examine the strategies of Smart Bin usage in order to enhance efficiency.
c) To propose the innovative solutions in order to enhance the efficiency of smart inventory management.

1.4   Scope

The scope of this project is to investigate the efforts taken by Cohu Inc to implement their smart inventory management for waste reduction. Cohu Inc has been selected as a location to conduct this research because this company has implemented Smart Bin and it also one of the leading company in semiconductor industry.

The researcher methods are interviewing 5 top managements and 25 respondent's staff production at Cohu Inc itself. This allows the researcher to understand the needs of using Smart Bin in Cohu Inc.

1.5   Limitations

Two limitations are identified in this study. Firstly, the case study is to investigate how Cohu Inc implements Smart Bin for smart inventory management. Therefore the result and outcome of the study is only applicable for Cohu Inc only. Secondly, researcher assumed that all respondents have provided honest and correct answers.

1.6   Summary

The core operation management activity is smart inventory management. According to Stevenson (2009), good inventory management is important for the successful operation of most businesses and their supply chains. The usage of Smart Bin is one of the most advance innovations for inventory management. The case study of Smart Bin in Cohu Inc is focused on how the company implements the Smart Bin usage in order to enhance the efficiency of inventory management.

CHAPTER 2

LITERATURE REVIEWS

2.1   Introduction

The aim of this chapter is to review the definition of inventory management for waste reduction. This literature reviews were taken from what was happening all over the world, and not only in Malaysia areas. The theory of inventory management is explained, while the contributions of waste reduction are elaborated in detail to provide clear understanding. According to Gopalakrishnan (2010), proper management of inventory will help in meeting customer requirement.

2.2   Inventory Management

According to Stevenson (2009), inventory means is a stock or store goods. In the manufacturing firms, they usually stock hundreds or thousands of items that firms used it for their production of goods. It has been estimated that a typical firm has about 30% of its current assets and perhaps as much as 90% of its working capital invested in inventory. Other than that, the excessive inventory can lead to the other problem to the firm itself.

Stevenson (2009) stated that, there are different kinds of inventories which is:

I.   Raw materials and purchased parts
II.   Work in process (WIP)
III.   Finished-goods inventories
IV.   Tools and supplies
V.   Maintenance and repairs (MRO) inventory
VI.   Goods in transit warehouse (pipeline inventory)

According to Greasley (2009), inventory management can be considered part of materials management in a service or manufacturing organization. Materials management includes the acquiring of inventory, the organization of the movement of inventory and assessment when inventory should be ordered and the amount of inventory that should be ordered. In addition, inventory management can be defined as a core of operations management activities. The good inventory management is important along the operation of supply chain and business of that firm.

According to Greasley (2009), inventory can be classified by its location and type. Inventory that can be classified by location is raw materials, work in progress and finished goods. The proportions between these inventory types will vary but it is estimated that generally 30% are raw materials, 40% are work in progress and 30% finished goods. Figure 1.0 show the flow of inventory classified by location.
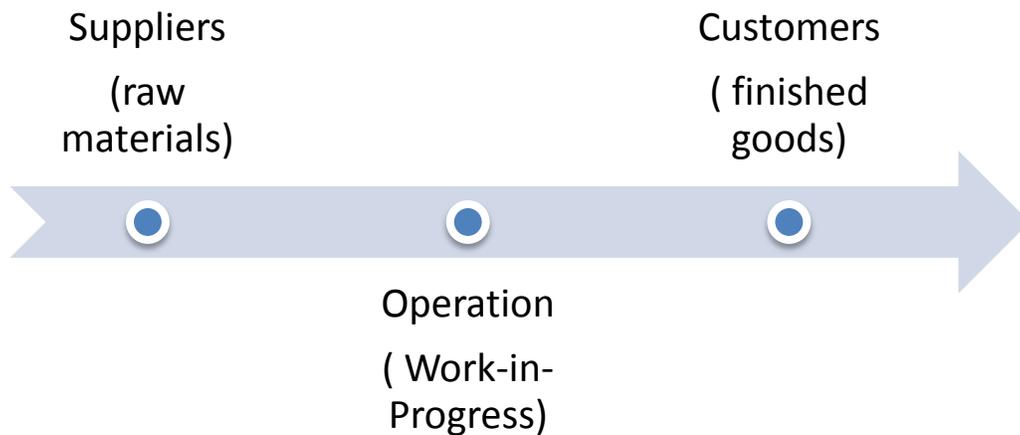

Figure 2.1The Flow of Inventory Classified by Location

Other than that, inventory that classified by type include buffer/safety, cycle, decoupling, anticipation and pipeline/movement. These all types of inventories can help the organization to manage their inventory more effective plus they also can control and handle the materials efficiently with cost that are not too high.

Stevenson (2009) also explained that there is a function of inventory that needs to be highlighted by the company:

I. The function of inventory is to meet anticipated customer demand. These inventories referred to as anticipation stocks because they are held to satisfy expected demand.

II. Is to smooth production requirements. Some companies experienced the seasonal patterns in demand and for that they need to prepare the inventories more quickly because the demand during certain season is high.

III. Is to protect against stock out. Delayed deliveries can cause many problems to the firm. The risk of shortages can be reduced by holding safety stocks.

2.3   Purpose of Inventory Management

According to southern fulfilment (2010), inventory management has always been important; it has become more important over the past several decades. As the needs of companies increase, they must in turn increase demands on their suppliers. In order for suppliers to have the goods their customers need, it is necessary for them to maintain excellent and accurate inventory management.

Inventory management is a very important function that determines the health of the supply chain as well as the impacts the financial health of the balance sheet. Inventory management requires constant and careful evaluation of external and internal factors and control through planning and review. Most of the organizations have a separate department or job function called inventory planners who continuously monitor,

control and review inventory and interface with production, procurement and finance departments.

Based on Wilson (2010), the purpose of inventory is singular and simple; you should only hold the inventory you will need to protect your sales.

In India, according to Chandra Bose (2006), the above methods have been used with great success in foreign firms and in private sector. And there is a good scope for further improvement in these techniques for application in the public sector so as to increase their efficiency and profitability.

There are other important of inventory, according to Chandra Bose (2006); inventory is also held as a precaution against or as a contingency for any increase in lead time or consumption rate

2.4   Variation of Inventory Management

There are a few variations in an inventory management that has been found by a researcher. According to Wilson (2010), it is the three part definition of variation and it says:

i)   Everything varies

ii)   Individual items are not predictable

iii)   Groups of items, from a constant cause system, tend to be predictable.