FACTORS AFFECT TO EFFECTIVE INVENTORY MANAGEMENT SYSTEM IN GOVERNMENT SECTOR ORGANIZATIONS IN SRI LANKA: WITH SPECIAL REFERENCE TO GOVERNMENT SECTOR ORGANIZATIONS SITUATED IN DAMBULLA SECRETARY DIVISION

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Abstract

Managing inventory in an effective manner has a positive impact on the organizations. The objective of this study were to identify the factors affect to effective inventory management system in government sector organizations in Sri Lanka, to identify the type of inventory control system applied by government sector organizations and to give suggestion to government sector organization to handle proper inventory management system. Descriptive research design was used for the study. The sample consists with 65 of inventory section employees in 35 of government sector organizations in Dambulla Secretary Division. Primary data was collected through distributed questionnaires among selecting employees. One way ANOVA and Correlation Coefficient analyses were used to testing hypotheses. The study concluded that inventory record system, storage system, wastage system, procurement system, security system and investment in inventory are affect to effective inventory management system and staff characteristics and method of inventory are not affect to effective inventory management system in government sector organizations in Sri Lanka

Key words: Inventory Management, Factors Affecting

1. Introduction

Inventories are essentially stocks of assets held with the end goal of future production and sales. Inventories may be seen as an idle resource which has an economic value. Better management of inventories would release capital for use else beneficially. Hence Inventory control involves the coordination of materials availability, controlling, usage and acquiring of material. The direction of activity with the purpose of getting the right inventory in the right place at the right time and in the right quantity is inventory control and it is specifically connected to production function of any organization. Inventory management systems obtain and move supplies and equipment to places where they are needed in a timely manner and at an optimum cost. This implies that profitability of any organization directly and indirectly is affected by the inventory management system operated.

Inventory management is the control of materials used and stored in an organization with the objective of providing exactly what is required where and when it is required employing a minimum of residual stock and thus incurring the least possible cost. Managing inventory in an effective manner has a positive impact on the business since it allows business to meet or exceed customers' expectations of product availability with the amount of each item that will maximize their company's net profit or minimize its total inventory investment (Schieber & Akiko, 2010).The main objective of effective inventory management is to maintain inventory at suitable level and at the lowest possible cost to ensure uninterrupted supplies for ongoing operations. Good inventory management is practiced to ensure organizational growth and profitability. Generally poor inventory management practices are over stocking, under stocking bad issuing system. Over stocking is storing materials over the needed quantity. And it may result in damage of materials because of limited place to keep it. Under stoking is storing materials under the needed quantity of the government sector organizations. It has negative impact on the over work of the government sector organizations to achieve its goals. Bad issuing sometimes also is sending the materials from store without keeping of user department.

Many of tools and techniques are used for effective inventory management system. There are ABC analysis, Bar-Coding, Inventory software, Economic Order Quantity, Just in Time (JIT), Stock cared and bin card system etc.

There are lot of government sector organizations in Sri Lanka included the Hospitals, Schools, and Government Administration offices, Airports, Sea Ports, Railway Stations, Universities, Power Generation Plants, Armed forces Quarters and offices, Infrastructure such as road etc. But many government sector organizations in Sri Lanka have not effective inventory control system. It impact is reduce net profit due to increase of the cost of government sector organizations. According to Ndetto, (2010) cited by Nayakeri & Ochiri, (2014) also indicates that inventory management practices in public sector are not effective, the management of inventory is left to operate in general inexplicit guidelines in the legal frame work dispersed in various sections covering other activities. Therefore this leads to the question what are the factors affecting effective inventory management in government sector organizations in Sri Lanka.

Many government sector organizations in Sri Lanka as not implemented advanced inventory management systems which has disadvantaged it on responsiveness to cases of stock outs, poor records, high stock costs, poor quality services, inventory obsolescence and reduced efficiencies. Managing inventory in an effective manner has a positive impact on government sector organizations. Recently various irregularities of stocks can be heard relating Lanka Sathosa.

According to Upali Newspapers, (2016 November) there are flagrant allegations that Lanka Sathosa sells the rice stocks, fake in wholesale market of Pettah at a low price which available to sell for the public at a low price. And it is revealed that there was an Rs. 650 million valued stock of unnecessary goods, which were perishing within several Lanka Sathosa branches. Not only that a portion of onions purchased from the farmers were spoiled at some Lanka Sathosa branches According to above incidents it is clear that there is no an effective inventory management system within Lanka Sathosa. Sumathi Newspapers (2017 February) disclose that there were some irregularities when purchasing medicine in government hospitals, and also expired medicine were existed within those hospitals. Therefore most of times the necessary medicines are not in the

government hospitals. The major reason for this situation is inefficient inventory control conducted by them.

After considering above factors, there is no an effective inventory management system in government sector organizations in Sri Lanka. There are several reasons for that such as lacking of a better security system for inventory, lacking of proper purchasing system, storage system and weaknesses of wastage handling system. Hence it is confirmed that there is a poor inventory management system in Sri Lankan government sector organizations. This called for the need of critically looking at the determinants of effective inventory management system in the government sector in Sri Lanka. The study used the government organization situated at Dambulla Divisional Secretary Division as its case study. The study was to address the following specific objectives;

i.   To identify the type of inventory control system applied by government sector organizations in Sri Lanka.

ii   To give suggestion to government sector organization to handle proper inventory management system.

2. Theoretical review

2.1 Inventory Management

Inventory is an asset that is owned by a business that has the express purpose of being sold to a customer. This includes items sold to end customers or distributors. It includes raw materials, work in process, and finished goods. According to Adam & Ebert, (1992) inventory is stores of goods and stocks, including raw materials, work-in-process, finished products, or supplies. Drury, (1996) defined inventory is a stock of goods that is maintained by a business in expectation of some future demand. Various researchers have mentioned about inventory management system in many organizations. Adam & Ebert, (1992) defined inventory management is activities that maintain stock keeping items at desired level. In manufacturing, since the focus is on physical product, inventory control focuses on a materials control. According to Kumar & Suresh, (2006)inventory management is a planned approach of determining what to order, when to order and how much to order and how much to stock so that costs associated with buying and storing are optimal without interrupting production and sales.

2.2 Factors affecting of Inventory Management

It is very important to an organization maintaining an effective inventory management system. Various factors are affected to an effective inventory management system. Authors such as Mwangi, Gok, Nyakeri, Ochiri, James, Sharma, Kumar, Suresh, Victoria, Ukpere, Pandey, Stehle, have emphasize various opinion regarding these factor through research articles, published journals. Factors which have been identified are staff characteristics, inventory record system, storage system, wastage handling system, inventory procurement system, inventory security system, investment in inventory and methods of inventory system.

2.2.1 Staff characteristics

Storehouse staff is responsible for receiving and storing inventory, recording inventory information, security system of inventory etc. Therefor staff characteristics are most important factor of controlling store room activities. According to Thomas & Michael, (2000) people in stores are

responsible for the distribution of inventory to all storage or using locations and they are also responsible for the physical security and safekeeping of inventory at all stores places and for all storekeeping activities, including inventory receiving, put-away, and inventory picking and distribution. According to James, (2013) qualified staff that is capable and skilled will help the organization to achieve its goals and objectives by being efficient and effectively.

2.2.2 Inventory record system

Inventory record system is most important part of the any kind of organizations. Also it has been helped to reduce stock outs, inventory frauds, obsolescence etc. Thomas & Michael, (2000) said inventory should be recorded, manually or using an automated management information system. Also accurate records are a necessity to effective inventory management. According to Burton (1989) cited by (Mwangi, 2013) inventory record inaccuracy has had a significant impact on decreasing levels of customer service, increasing costs, and decreasing productivity.

2.2.3 Storage system

Each of inventory items has been enough space in storehouse and it has handle by suitable system. Kumar & Suresh, (2006) said store management involves physical control of inventories, preservation of stores, minimization of obsolescence and damage though timely disposal and efficient handling, maintenance of stores records, proper location and stocking. According to Ogbo, Victoria, & Ukpere, (2014) inventory managers have to stock-up when required and utilize available storage space resourcefully, so that available storage space is not exceeded.

2.2.4 Wastage handling system

According to Kumar & Suresh, (2006) some commercial values are involved with waste and scrap, it consists of spoiled raw-materials, rejected components, defective parts, waste from production departments etc. Therefore waste management is a significant role in managing operations.

2.2.5 Inventory procurement system

Procurement is the process of obtaining products and services from suppliers. 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. This means knowledge about strategies, concepts, process, methods and technical system in the areas of procurement and inventory management.

2.2.6 Inventory security system

Management should take appropriate steps to safeguard inventory such as insurance coverage, getting action of loss by theft, hazard, damages etc. According to Brackus (2010) cited by (Nyakeri & Ochiri, 2014) the inventory control concerned with two parts, one of form of inventory control include ensuring high security of the store house and stock yard, good custody of keys, limiting access to premises and making of materials as in coding, to minimize theft, segregation of prescribed item.

2.2.7 Investment in inventory

According to Carter & Price (1993) cited by (James, 2013) With adequate investment the organization can run its activities efficiently and effectively while with inadequate investment an organization may have difficulties in running its activities. According to Mwangi, (2013) investment of inventory can be a constraining factor to effective inventory control when investment allocated cannot provide wholly for the organizations inventory requirements within the budget period.

2.2.8 Methods of inventory system

Nyakeri & Ochiri, (2014) said just in time stocking (JIT), economic order quantity (EOQ), enterprise resource planning (ERP) and material requirement planning (MRP) affects for inventory management. And also there are several methods are helpful to determine effective inventory control in the organizations such as ABC analysis, Bar-Coding, Radio Frequency Identification, Economic Order Quantity etc.

3. Methodology

This study attempted to investigate the factors affecting on effective inventory management system in government sector organization. There are 166 of government sector organization in Dambulla Divisional Secretary Division. The total 35 government sector organizations were selected for the sample based on the highest number of employee in organizations. The researcher was thereby select the 65 inventory sections employees from these organizations to participate in the study. The study relied on primary data which was collected through semi-structured questionnaires. One way ANOVA and Pearson correlation coefficient were used to calculate and analyze the survey data.

3.1 Hypotheses of the study

In this study effective inventory management is the dependent variable while factors affecting on inventory management are independent variables. Accordingly staff characteristics, inventory record system, storage system, wastage handling system, inventory procurement system, inventory security system, investment in inventory and methods of inventory systems had been identified as independent variable. Following hypotheses were developed to test the relationship between dependent variable and independent variables.

H1: There is a positive relationship between staff characteristics and effective inventory management system.

H2: There is a positive relationship between inventory record system and effective inventory management system.

H3: There is a positive relationship between storage system for inventory and effective inventory management system.

H4: There is a positive relationship between wastage handling system and effective inventory management system.

H5: There is a positive relationship between inventory security system and effective inventory management system.

H6: There is a positive relationship between inventory procurement system and effective inventory management system.

H7: There is a positive relationship between investment in inventory and effective inventory management system.

H8: There is a positive relationship between methods of inventory system and effective inventory management system.

4. Result and discussion

To identify the relationship between key research variables, one way ANOVA and correlation coefficient analysis was used to testing hypotheses. In statistics, correlation coefficient (r) indicated the strength and direction of a relationship between two or more variables.

Table 1 ANOVA analysis for effective inventory management of staff characteristics

	Sum of Squares	df	Mean square	F	Sig.
Between Groups	0.479	03	0.160	0.324	0.808
Within Groups	29.607	60	0.493		
Total	30.086	63			

The result of ANOVA test reveals that p value is 0.808 there is not significant on effective inventory management of staff characteristics which are professional qualifications, education qualifications, and working experience at <0.05 significant level (p>0.05). According to above statistics results staff characteristics are not significant on effective inventory management. Therefore these results are not support to the first hypothesis (H1) of the study.

Table 2 Result of correlation between Independent variables and dependent variable

Independent Variable	Test	Effectiveinventory management (Dependent variable)
Inventory record system	Pearson Correlation Sig.(2-tailed)	.520** .000
Storage system	Pearson Correlation Sig.(2-tailed)	.621** .000
Wastage handling system	Pearson Correlation Sig.(2-tailed)	.573** .000
Inventory procurement system	Pearson Correlation Sig.(2-tailed)	.470** .000
Inventory security system	Pearson Correlation Sig.(2-tailed)	.488** .000
Investment in inventory	Pearson Correlation Sig.(2-tailed)	.561** .000

**. Correlation is significant at the 0.01 level (2-tailed)

The result of Pearson Correlation Coefficient there is significant (0.000) and week positive relationship (0.520) between inventory record system and effective inventory management. It means there is a positive relationship between inventory record system and Effective inventory Management System. Therefor under the Pearson Correlation Coefficient second hypothesis (H2) of the study can be accepted.

According to result of Pearson Correlation Coefficient there is significant (0.000) and week positive relationship (0.621) between inventory storage system and effective inventory management. It means there is a positive relationship between inventory storage system and Effective inventory Management System. Therefor under the Pearson Correlation Coefficient third hypothesis (H3) of the study can be accepted.

According to above statistics result of Pearson Correlation Coefficient there is significant (0.000) and week positive relationship (0.573) between inventory wastage handling system and effective inventory management. It means there is a positive relationship between wastage handling system and Effective inventory Management System. Therefor under the Pearson Correlation Coefficient fourth hypothesis (H4) of the study can be accepted.

The result of Pearson Correlation Coefficient there is significant (0.000) and week positive relationship (0.470) between inventory procurement system and effective inventory management. It means there is a positive relationship between procurement system and Effective inventory Management System. Therefor under the Pearson Correlation Coefficient sixth hypothesis (H6) of the study can be accepted.

According to above result of Pearson Correlation Coefficient there is significant (0.000) and week positive relationship (0.488) between inventory security system and effective inventory management. It means there is a positive relationship between security system and Effective inventory Management System. Therefor under the Pearson Correlation Coefficient fifth hypothesis (H5) of the study can be accepted.

According to above statistics result of Pearson Correlation Coefficient there is significant (0.000) and week positive relationship (0.561) between investment in inventory and effective inventory management. It means there is a positive relationship between investment in inventory and Effective inventory Management System. Therefor under the Pearson Correlation Coefficient seventh hypothesis (H7) of the study can be accepted.

Table 3 ANOVA analysis for effective inventory management of methods of inventory

	Sum of Squares	df	Mean square	F	Sig.
Between Groups	3.519	05	0.704	1.536	0.193
Within Groups	26.567	58	0.458		
Total	30.086	63			

The result of ANOVA test reveals that p value is 0.193 there is no significant on effective inventory management of method of inventory system which are Just in Time method (JIT), ABC system, Economic Order Quantity method (EOQ), Bar-coding method, Radio Frequency Identification (RFID) system and other inventory control methods at <0.05 significant level (p>0.05). According to this statistics results method of inventory management is not significant on effective inventory management. Therefore these results are not support to the eighth hypothesis (H8) of the study.

5. Conclusions and Recommendations

The correlation among inventory management practices and effective inventory management were evident. Six factors which are considered by researcher are positive and significant on effective inventory management and other two factors are not significant on effective inventory management

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system. The research finding are statistically proved that inventory record system, inventory storage system, wastage handling system, inventory procurement system, inventory security system and investment in inventory strongly impact to the effective inventory management. It is revealed that staff characteristics and method of inventory handling system are not positively impact to the effective inventory management system. The study revealed that most of government sector organizations were used ABC inventory control method to handle inventory.

Based on research findings it is suggested, following things to carryout effective inventory management system for government sector organization in Sri Lanka.

1. Inventory should be physically checked and those must record in permanent inventory record sheet.
2. All inventory items should be classified and coded within storeroom. It will be easy to get inventory items from storeroom.
3. Proper recycling system should be implemented in the organization to get advantages of waste inventories.
4. Effective communication system should be developed between organization and inventory suppliers to continue proper inventory procurement system.
5. Use written document to get approval by responsible officer of the store department for release inventory from the storeroom.

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