

# Warehouse Management for V.S. Service

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## **Warehouse Management for V.S. Service**

by

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### **Abstract**

V.S. Service Company had long faced problems on their inventory management as well as traceability of their equipment. The existing system needs a major improvement in order solve the problems as well as be letting the company able to compete with other competitors whose system are more organized and controllable. This research paper investigates the existing warehouse management of a company which conducts film production services. Then further study had been conducted on the way to improve the company work flow and inventory management using logistics and supply chain related input. After the implementation, the total service time is reduced by 80 percent.

The **objective** of this paper is to find the best warehouse management system software to improve the inventory system of the company, to improve the existing process for better overall performance, to minimize loss from unnecessary activities and non-systematic work procedures and to increase competitive advantage of V.S Service.

## **Introduction**

V.S. SERVICE Limited Partnership had one generator in 1985. The company started small by working in domestic films and worked up to international films. V.S. SERVICE's reputation has grown over many years. At present, V.S. SERVICE is Thailand's largest and most integrated supplier of electrical equipment and accessories. The company also offers film production services with unsurpassed completeness and competence.

The services that V.S SERVICE offers are lighting services, grip services, motorhome and transport services and support crews.

For lighting services, the company's warehouse features products from ARRI, LTM, K5600, Airstar, and plenty other industry's standard equipment. In addition, an extensive amount of HMIs and Tungsten lighting solution, as well as a large catalog of expendables and cables too.

For grip services, the company's warehouse features product from Chapman-Leonard, MSE, GFM, Avenger, and many other leading manufacturers. Grip packages, dollies, jibs, cranes, additional equipment and grip accessories are available for rental.

## **Statement of the Problem**

The problems of V.S SERVICE occurred because there is no clearly define system in the company which leads to no product accountability, unable to figure out the margins and find the most suitable rental price from demand and find out the cost for operation. Moreover, there is no way of keeping track of lost and damaged goods and cost of replacement. There is also no structured way to check in or check out or even coordinate changes in shipment with the customers.

## **Term Definition**

**"Film Crew"** is a group of people hired by a production company for the purpose of producing a film or motion picture. Crew is also separate from producers, those who own a portion of either the film company or the film's intellectual property rights. A film crew is divided into different sectors, each of which specializes in a specific aspect of the production.

“**Camera dolly**” is a specialized piece of filmmaking and television production equipment designed to create smooth camera movements (cinematic techniques). The camera is mounted to the dolly and the camera operator and focuses puller or camera assistant; usually ride on the dolly to operate the camera.

“**Dolly grip**” is the dedicated technician trained to operate the dolly.

## **Literature Review, Theory, and Related Research**

**1. Barcode System** is a network of hardware and software, consisting primarily of mobile computers, printers, handheld scanners, infrastructure, and supporting software. Barcode systems are used to automate data collection where hand recording is neither timely nor cost effective. Barcoding systems are not radio-frequency identification (RFID) systems even though the companies that provide barcode equipment will often also provide RFID equipment and many companies use both technologies as part of larger resource management systems.

A barcode is an optical machine-readable representation of data, which shows data about the object to which it attaches. Originally barcodes represented data by varying the widths and spacing of parallel lines, and may be referred to as linear or 1 dimensional (1D). Later they evolved into rectangles, dots, hexagons and other geometric patterns in 2 dimensions (2D). Although 2D systems use a variety of symbols, they are generally referred to as barcodes as well. Barcodes originally were scanned by special optical scanners called barcode readers; later, scanners and interpretive software became available on devices including desktop printers and smartphones.

**2. Database System** is a system composed of an organized collection of data for one or more purposes, usually in digital form. The data are typically organized to model relevant aspects of reality (for example, the availability of rooms in hotels), in a way that supports processes requiring this information (for example, finding a hotel with vacancies). This definition is very general, and is independent of the technology used.

The term "database" may be narrowed to specify particular aspects of organized collection of data and may refer to the logical database, to physical database as data content in computer data storage or to many other database sub-definitions. The term database is correctly applied to the data and their supporting data structures. The utilization of databases is now spread to such a wide degree that virtually every technology and product relies on databases and DBMSs for its development and commercialization, or even may have such embedded in it. Also, organizations and companies, from small to large, heavily depend on databases for their operations.

**3. Warehouse Management System** or WMS is a key part of the supply chain and primarily aims to control the movement and storage of materials within a warehouse and process the associated transactions, including shipping, receiving, put away and picking. The systems also direct and optimize stock put away based on real-time information about the status of bin utilization.

Warehouse management systems often utilize Auto ID Data Capture (AIDC) technology, such as barcode scanners, mobile computers, wireless LANs and potentially Radio-frequency identification (RFID) to efficiently monitor the flow of products. Once data has been collected, there is either batch synchronization with, or a real-time wireless transmission to a central database. The database can then provide useful reports about the status of goods in the warehouse.

The objective of a warehouse management system is to provide a set of computerized procedures to handle the receipt of stock and returns into a warehouse facility, model and manage the logical representation of the physical storage facilities (e.g. racking etc.), manage the stock within the facility and enable a seamless link to order processing and logistics management in order to pick, pack and ship product out of the facility.

Warehouse management systems can be stand-alone systems or modules of an ERP system or supply chain execution suite.

The primary purpose of a WMS is to control the movement and storage of materials within a warehouse – you might even describe it as the legs at the end-of-the line which automates the store, traffic and shipping management.

In its simplest form, the WMS can data track products during the production process and act as an interpreter and message buffer between existing ERP and WMS systems. Warehouse Management is not just managing within the boundaries of a warehouse today; it is much wider and goes beyond the physical boundaries. Inventory management, inventory planning, cost management, IT applications & communication technology to be used are all related to warehouse management. The container storage, loading and unloading are also covered by warehouse management today. Warehouse management today is part of SCM and demand management. Even production management is to a great extent dependent on warehouse management. Efficient warehouse management gives a cutting edge to a retail chain distribution company. Warehouse management does not just start with receipt of material but it actually starts with actual initial planning when container design is made for a product. Warehouse design and process design within the warehouse (e.g. Wave Picking) is also part of warehouse management. Warehouse management is part of Logistics and SCM.

Warehouse Management monitors the progress of products through the warehouse. It involves the physical warehouse infrastructure, tracking systems, and communication between product stations.

Warehouse management deals with receipt, storage and movement of goods, normally finished goods, to intermediate storage locations or to final customer. In the multi-echelon model for distribution, there are levels of warehouses, starting with the Central Warehouse(s), regional warehouses serviced by the central warehouses and retail warehouses serviced by the regional warehouses and so on. The objective of warehouse management is to help in optimal cost of timely order fulfillment by managing the resources economically. Warehouse management means "Management

of storage of products and services rendered on the products within the four walls of a warehouse."

**4. ABC Analysis** (sometimes referred to as the 80/20 rule and as Pareto analysis) is a method of classifying items, events, or activities according to their relative importance. It is frequently used in inventory management where it is used to classify stock items into groups based on the total annual expenditure for, or total stockholding cost of, each item. Organizations can concentrate more detailed attention on the high value/important items. Pareto analysis is used to arrive at this prioritization.

Taking inventory as an example, the first step in the analysis is to identify those criteria which make a significant level of control important for any item. Two possible factors are the usage rate for an item and its unit value.

Close control is more important for fast moving items with a high unit value. Conversely, for slow moving, low unit value items the cost of the stock control system may exceed the benefits to be gained and simple methods of control should be substituted.

These two factors can be multiplied to give the annual requirement value (ARV) - the total value of the annual usage.

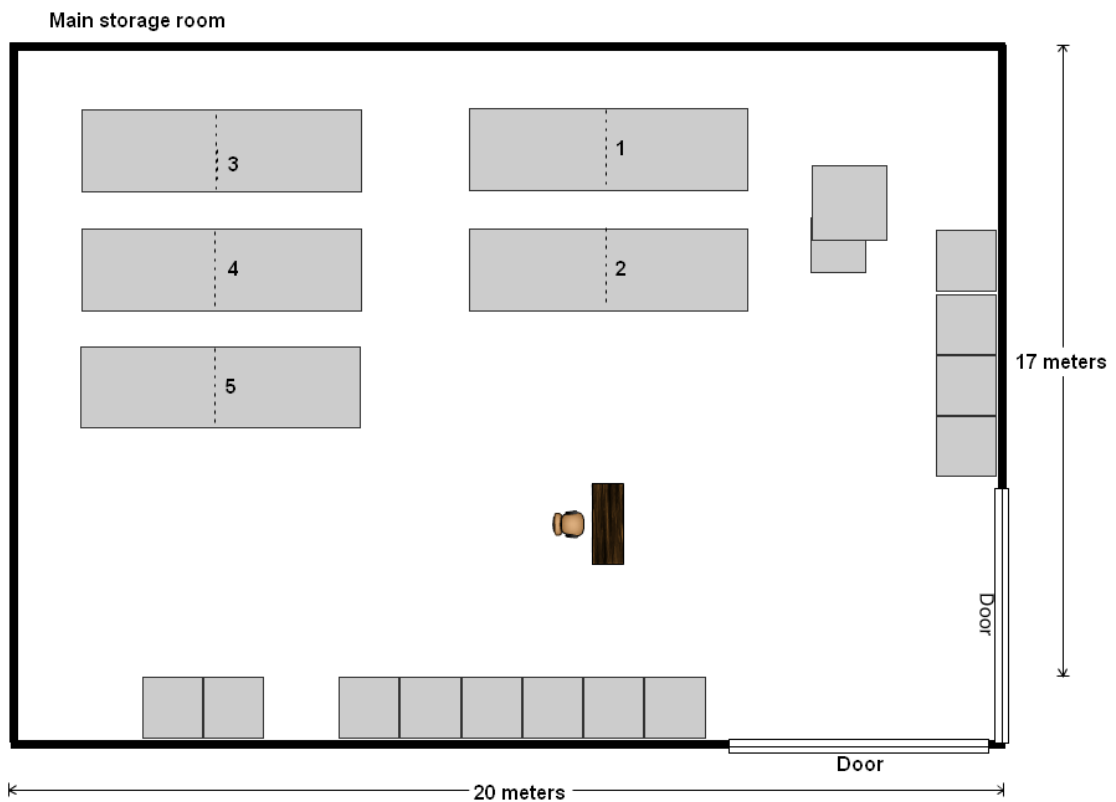
The alternative term ABC analysis stems from the fact that the first 20% of important items are known as Category A items, the next, typically 40% are Category B items and the relatively unimportant, though larger in number, 40% are Category C items.

### **Research Methodology and Findings**

From the through study made with the existing warehouse management in VS Service Company, it had been found out that the company conducts a poor management with their inventory in the warehouse. This resulted in loss of properties, no traceability in the assets, hidden costs and a chaos for the management level of VS Service. An Investigation of performance efficiency in the labor management for

instance, to identify how many man-hour uses in the warehouse operation and activities of receiving, put away, storage, order picking and right through shipping whether it is increasing in productivity and cost reduction, which lead to warehouse management performance efficiency. In this research, I have decided to apply the use of database system as well as Warehouse Management System (WMS) software or Enterprise Resource Planning software to implement to the company. With this decision made, a collection of data and major study had been conducted to compare between the local software and the international software.

The collected data from site visits will be analyzed into a case study and the outcome of this analysis will depend on how well the task had been carrying out. Basically, based on the data gathered, we can choose the new layout plan for the warehouse with the best availability of resources and allocation. ABC analysis technique was used to aid in designing the new layout. Below is the new layout which was selected.





From the data analyzed, it was found out that applying the new layout can help minimize the workload of the workers as well as reducing the man-hour for handlings the equipment. Moreover, if WMS was put to use in the company, the inventory report can now be summarized from the installed system and help the manager to trace the data needed. The equipment inventory can then be reliable and reduce the loss of equipment.

From the study conducted, local WMS called Amanda Stock Manager was selected by me and the staff due to the local support provided with reasonable pricing. Moreover, Amanda can be customizable per VS Service user requirements and the software interface is in Thai, which can be recognized easily by lower level staffs. With the WMS installed, the total working hours for the processes had been reduced from 195 minutes to 40 minutes which is around 80 percent reduction. And as for the layout of the warehouse, we decided to choose the layout that resided on the ground floor with larger space. This new layout can bring more efficiency and effectiveness to the warehouse itself while minimize costs and maximize value of the asset.

### **Conclusion, discussion and suggestions**

In conclusion, the warehouse should use WMS application to improve the existing system which is paper-based, time consuming and non-traceability. And as for the layout, VS Service should also change their existing layout due to the problems of location, space scarcity and etc.

To conduct a research paper, time and efforts is very important and must be taken seriously. Schedule must be planned ahead of time to prevent any tragedy which can happened any time at any situations. The steps of implementation for V.S Service

begins from obtaining user's requirement, then the requirements were studied and applied the logistics methodology to meet the requirements, after that alternatives solutions were proposed to the management of the company. Those alternatives included the use of WMS to solve the warehouse problem as well as proposing the new layout plan to replace the existing layout. Aside from that, the barcode system was recommended to use with the equipment inventory to fasten the check in / check out process and stock check. However, the barcode system will be implemented at a latter phase.

As for the warehouse, the new layout was applied, thus improving the service by reducing the response time due to its new location and rearrangement of the equipment using ABC analysis.

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