THE INFLUENCE OF WAREHOUSE MANAGEMENT SYSTEM ON PRODUCT QUALITY IN PANTAI TIMOR HYPERMARKET, KELANTAN

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The Influence of Warehouse Management System on Product
Quality in Pantai Timor Hypermarket, Kelantan

by

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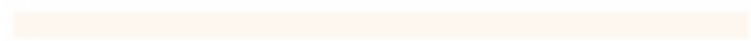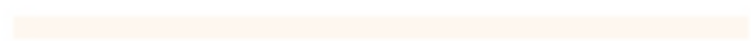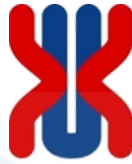**Siti Nur Nadiah binti M.Suhaimi**

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LIST OF ABBREVIATIONS

WMS	Warehouse Management System
3PL	Third-Party Logistics
ERP	Enterprise Resource Planning
RFID	Radio Frequency Identification
VED	Vital, Essential and Desirable
MFA	Material Flow Analysis
2D	Two Dimension
3D	Three Dimension
PDA	Personal Digital Assistant
SKU	Stock Keeping Unit
SPSS	Statistical Package for Social Science
SD	Standard Deviation
ANOVA	Analysis of Variance
Sig.	Significance level Value
df	Degrees of Freedom

LIST OF SYMBOLS

F	F-ratio
H	Hypothesis
H0	Null hypothesis
N	Sample size
r	Pearson's correlation
R	Multiple correlation
%	Percent sign

CHAPTER 1

INTRODUCTION

1.1   Background of the Study

Over the last few decades, the global business environment has changed rapidly and profoundly. The market has become increasingly complex, requiring companies to become increasingly competitive. Now that the new market trends are changing rapidly, it increased the market competitiveness which it leads the company to a permanent decrease in the ability to respond efficiently and quickly (Luo et al, 2022). Companies are being inundated with complex data, and those who can turn it into useful information will have a competitive advantage (Luo et al, 2022).

The overall supply chain process and its improvement are directly influenced by the warehouse's role, the performance of which is determined by its management and the strategy with which the warehouse is managed in terms of capacity, organisation, and the process procedures followed by warehouse operators. A warehouse's primary goal is to manage the movement and storage of goods in the most efficient way possible while also providing flexibility in resource management. According to Vatumalae et al., the primary structure of the warehouse will be the freightage section for distribution and receiving, while the excess or remaining product will be stored in the warehouse for a limited time (2020). Warehouse Management monitors the movement of products through the warehouse. The effectiveness of warehouse management will put the retail chain distribution company ahead of their competitors and set a high standard to compete.

Warehousing management system (WMS) is a necessary approach for every warehouse regardless of whatever business is conducted. Atieh et al. stated that warehousing management system is designed to help reduce costs through effective warehouse processes (2016). Warehouse's primary goal is to control the flow of products or items. The products must be

managed with caution or they will have an impact on time and cost. Because of the profits it generates, the warehouse inventory management system has its own significance in the globalisation of industries.

WMS sustainability assessment is a critical task that is desperately needed, because of the diversity of sustainability and the complexity of incorporating and measuring sustainability in WMS, policymakers face numerous challenges (Torabizadeh et al., 2020). It is impossible to overestimate the importance of devices and associated data in data warehouse. Luo et al. mentioned in their study that by 2020, approximately 200 percent more items are expected to connect to the internet and share data (2022). The level of management decisions would not be based on erroneous and limited data, and it would also aid in avoiding various business issues. WMS have been available since the introduction of the first computer systems. Most Third-Party Logistics (3PL) companies have also altered their value proposition to better meet the needs of their customers. According to Vatumalae et al. research, WMS applications can now be stand alone or as part of an Enterprise Resource Planning (ERP) programme and can incorporate complex technology such as Radio Frequency Identification (RFID) and voice recognition (2020).

Pantai Timor Hypermarket has been chosen to be in this study field regarding their warehousing management system on product quality. Pantai Timor Hypermarket Sdn. Bhd. is a Malaysian company which the headquarters are located in Kota Bharu (*Pantai Timor Hypermarket Sdn. Bhd. Company Profile - Malaysia | Financials & Key Executives | EMIS*, n.d. 2022). It is engaged in the business of Supermarkets and Other Grocery (Except Convenience) Stores. This is convincing that the company warehouse management system has been upgraded since it was build for the past ten years to improve the product quality.

On the *EMIS* website, it is also stated that there is a study about this company that was updated in October, 2022, but only in the financial and company performance fields. There are

a few online studies of Pantai Timor Hypermarket, but they only focus on the company profile. The purpose of this study is to emphasise the Pantai Timor Hypermarket WMS on product quality, which is the dependent variable for this study. The related issue in WMS will be regarding the vital, essential and desirable (VED) analysis, perpetual inventory counting, and periodic review system, which are the independent variables for this study. The Influence of Warehouse Management System on Product Quality in Pantai Timor Hypermarket, Kelantan is the main title for this study.

1.2   Problem Statement

Smart systems are becoming increasingly important in industries, homes, colleges, and other native environments (Tejesh & Neeraja, 2018). Because localization is so important in modern life, there is a linear growth in the concept of localization in smart systems. It is extremely difficult to pinpoint a specific object. It is difficult to track and identify products or objects in large industries, hence the need for this warehouse inventory management system. It is extremely difficult to track any product in a specific time frame.

Material Flow Analysis (MFA) is a popular and effective method for measuring and visualising the material and stock-flow patterns in certain manufacturing systems (Ghani et al., 2022). This method is already widely used in Malaysia which Kelantan is included, whether in waste management, urbanisation, or agriculture. In Kelantan, Malaysia, there are numerous types of warehouse management systems (WMS). The systems are used for inventory management, tracking inventory movements and locations, increasing order fulfilment accuracy, and improving communication with suppliers (Vatumalae et al., 2020). They also offer 2D and 3D barcoding, RFID tracking, mobile personal digital assistant (PDA) scanning, and integration with other software applications.

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Mismanagement and oversight could result in item damage to be delivered and stock loss. Any of these problems could indicate that the warehouse management system is not maintaining accurate inventory records. According to Andiyappillai any retailers in Malaysia have made significant investments to improve inventory accuracy (2020). As a result, warehouses are now in charge of managing stock between the end-to-end supply chain and the retail business. Because of the highly competitive environment in Malaysia, retailers are constantly under pressure to improve inventory accuracy by implementing a warehouse management system-based application to streamline inventory management tracking (Vatumalae et al., 2022).

This study seeks to identify benefits in warehouse operations that have not been investigated in previous studies concerning the impact of warehouse management systems on product quality. In other words, this study may provide new knowledge to companies and industries, particularly decision makers, managers, and policymakers, in providing effective actions to overcome warehouse operations issues, and can learn what benefits and applications of warehouse management system are strongly linked to identification, as well as what associated benefits of warehouse management system on product quality that are rarely examined in the warehousing literature.

If search up online, there is minimum research about warehouse management system specifically in Kelantan as well as Pantai Timor Hypermarket warehouse management system, so far. That is why the purpose of this study to make research about the warehouse management system at the Pantai Timor Hypermarket. The detail and relationship between the inventory analysis including VED analysis, perpetual counting inventory and periodic review system on product quality will be investigated in this study.

1.3 Research Questions

The aim of this research is to study The Influence of Warehouse Management on Product Quality in Pantai Timor Hypermarket Kelantan. There are several research questions to examine this research:

a) How the VED analysis influence the Product Quality in Pantai Timor Hypermarket Kelantan?

b) How the Perpetual inventory counting influence the Product Quality in Pantai Timor Hypermarket Kelantan?

c) How the Periodic Review System influence the Product Quality in Pantai Timor Hypermarket Kelantan?

1.4 Research Objectives

There are several objectives to meet up the questions in this research.

a) Determine the influence of VED analysis on Product Quality in Pantai Timor Hypermarket Kelantan.

b) Identify the influence perpetual inventory counting of on Product Quality in Pantai Timor Hypermarket Kelantan.

c) Analyse the influence of Periodic review System on Product Quality in Pantai Timor Hypermarket Kelantan.

1.5 Scope of the Study

This study is conducted among the employees who work at Pantai Timor Hypermarket Kelantan to gather the necessary data. This is because the employees will be direct person and conscious of the problems occurred in the warehouse. Due to that reason, the target respondents

for this study will be the employees of Pantai Timor Hypermarket Kelantan. It is on the grounds that they may serve as a more accurate representation of the recent research. In additional to that, employees of Pantai Timor Hypermarket Kelantan possess more detailed information and experiences in warehousing management with lengthy period.

Furthermore, this study likewise to identify the influence of warehouse management on product quality in Pantai Timor Hypermarket Kelantan. The most suitable concept is Inventory Analysis and Management Approach for warehouse management which are VED analysis, perpetual inventory counting and periodic review system can determine product quality. Not only that, this study likewise will discover the correlation between the warehouse management and product quality. The interview will be processed to respondents who work at Pantai Timor Hypermarket Kelantan by the researchers in order to obtain the necessary data.

1.6   Significance of Study

This study is to determine the influence of warehouse management on product quality in Pantai Timor Hypermarket Kelantan. It is aim to recognize the importance of the correlation between warehouse management and product quality. Through this way, Pantai Timor Hypermarket Kelantan will establishing up a suitable warehouse management system which involves the right tool particularly for cold products and perishable foods to increase the efficiency.

Nevertheless, this study may contribute beneficial information for the organizations to have well performance in managing warehouses. It may makes the inventory management uncomplicated, enhanced the productivity, reduce costs of the organizations. The organizations utilize the proper way to keep stock in warehouses may ensure the quality and condition of products are protected. It additional can prevent the issues lack of stock for the seasonal product throughout the year without any break.

Moreover, the methodical and neat warehouses advantage to the consumers to acquire the good quality of the products. Due to the fact that, consumers may obtain the products are secured from physical damage and adverse condition. They also can likewise to avoid the issue of inflation which may increase the price of products because of the fixed flow of goods kept in warehouses. Therefore, this study could assist other researchers in attempting to discover the influence of warehouse management on product quality in Pantai Timor Hypermarket Kelantan.

1.7   Definition of Term

The term used in the study are product quality, warehouse management system, VED analysis, perpetual inventory counting, and periodic review system.

1.7.1   Product Quality

In practise, the concept of product quality includes many sub-dimensions such as reliability, maintenance, maintainability, environmental impact, product safety and durability, and so on. The higher the quality of the products, the greater the cost burden on the manufacturers due to higher production costs (Chakraborty et al., 2019).

1.7.2   Warehouse Management System

Warehouse management system is a link between producers and consumers, to the entire logistics system, and even economic development plays an important role in the entire logistics supply chain (Junhong, 2020). A warehouse management system (WMS) is software that assists businesses in managing and controlling daily warehouse operations, from the time goods and materials enter a distribution or fulfilment centre until they leave (Vatumalae et al., 2020).

1.7.3   Vital, Essential, and Desirable (VED) Analysis

The VED analysis highlight items based on essential service values the cost of the item's scarcity. This analysis are divided into three categories which are vital, essential and desirable. Vital (V) items are basically the basic services that are unquestionably life-saving, and the products will always need to be restocked, even if only for a short period of time, because if the stock runs out, the supply service will be cut off at a high cost. As for the essential (E) items, they can be substituted and will be required for the service to continue, which also plays a role in ensuring the service process continues. Desirable (D) items are those that, even if they are out of stock, will never disrupt service even if they are a required item (Gizaw & Jemal, 2021).

1.7.4   Perpetual Inventory Counting

According to Mbanugo et al., perpetual inventory allows for more real-time inventory tracking than other methods, making it superior (2022). When inventory items are received, sold from stock, moved from one location to another, picked from inventory, and scrapped, the perpetual inventory control system updates inventory records and accounts for additions and subtractions Mbanugo et al. (2022). This type of inventory control system works best when combined with a database of quantities and bin locations that warehouse workers update in real time using barcode scanners.

1.7.5   Periodic Review System

Periodic review systems are typically examined and inspected at predetermined, regular intervals to determine if they require replenishment. (Gutierrez & Rivera, 2021). It literally requires a significant amount of automation, digitization, and digitalization. It will be automatically calculated in a subtle manner once it is integrated with digital inventory management systems, safety stocks, cycle stocks, and delivery lead times. Furthermore, it is

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also very useful for reviewing a large number of units scatter across multiple warehouses (Gutierrez & Rivera, 2021). This system can also be used in retail and self-service stores, where stock levels are checked every afternoon and orders are delivered to distribution centres for fulfilment.

1.8   Organization of the Proposal

This study is concerning on the influence of warehouse management on product quality in Pantai Timor Hypermarket Kelantan. Moreover, this study is focusing on the main three research questions which is how the VED analysis influence the product quality in Pantai Timor Hypermarket Kelantan, how the perpetual inventory counting influence the product quality in Pantai Timur Hypermarket Kelantan, and how the Periodic Review System influence the Product Quality in Pantai Timor Hypermarket Kelantan.

Aside from that, Chapter 1 will provide a brief overview of the study's outline, which includes eight key points. Chapter 1 discussed the study's background, problem statement, research question, and objectives, which included three main points. The scope and significance of the study, definition of terms, and organisation of the proposal are also discussed in this chapter. The researchers used a mix method with a combination of qualitative and quantitative data, which was briefly explained in this chapter.

In addition, the literature review will be discussed in Chapter 2. It includes an introduction, underlying theory, previous studies, hypotheses statements, a conceptual framework, and a summary of the impact of the warehouse management system on product quality in Pantai Timor Hypermarket. The third chapter follows. Researchers explain the research methods they are using in this study in Chapter 3. This chapter contains the chapter's introduction, research design, and data collection methods, which were briefly mentioned in Chapter 1 but are explained in detail in this chapter. This chapter also discusses the study

population, sample size, sampling techniques, research instrument development, variable measurement, data analysis procedure, and conclusion in detail.
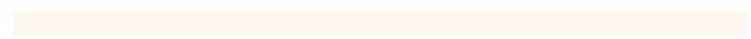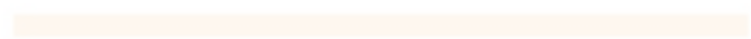
CHAPTER 2

LITERATURE REVIEW

2.1   Introduction

Warehouse management system is very important to every business that exist and its getting much more develop. This chapter focuses on the key issues concerning of warehouse management system on quality product life. The topic of this chapter will be explained by referring to previous studies' journals and articles, and the theory that researchers implied in the study will also be explained. Aside from that, the relevant theoretical framework will be discussed in detail, as will the hypotheses statement that will be used to justify this study in detail.

2.2   Underpinning Theory

2.2.1   Inventory Management Theory

In this paper, researchers discuss various approaches to inventory analysis, management approaches as well as the effects they are likely to have on theory implementation. In particular, researchers consider decision-making environments in which inventory theory may be applicable.

According to Erkip's research, the connection between the theory developed and data in classical theory development is hierarchical; data is used to satisfy the input requirements of the models (2022). There is no assumption of a specific distribution or specific parameters representing a distribution, nor are there any restrictions on parameter values. According to the theoretical framework, inventory control is the function of forecasting, exploring requirements, setting goals, and issuing instructions. The monitoring of warehouse stocks is considered a basic supervisory function that requires more skill and experience.

Overstocking causes inventory deterioration, obsolescence, damage, and loss through pilferage and burglary (Orobia et al., 2020). In the same research paper, the researchers also mentioned that inventory shortages are associated with sales interruptions due to stock-outs, poor customer relations, and underutilised machines and equipment. This is only possible if the individual involved possesses the necessary knowledge, skills, and abilities for inventory planning, monitoring, and control.

This theory can be use in the research by seeing the obvious one is to apply theoretical results in a truly practical case with, for all intents and purposes, minor modifications in a major way. The really second option is to use statistical modelling to optimise for the model's decision variables, assuming sufficient data is available, which is quite significant.

2.3   Previous Studies

2.3 .1 Warehouse Management

In addition to external service such as delivering, customer service, transportation and others in supply chain, warehouse management are playing the crucial behind the scenes role in the whole supply chain, the supply chain's process cannot be successful without warehouse management at all. Warehouse management is defined the principles and procedures involved in managing a warehouse's daily operations are collectively (Jenkins, 2020). A successful warehouse management must include each warehouse operation are optimised and integrated to increase the productivity of an organization and kept the cost to a minimum at the same time.

According to Rick Stinchcombe of the University of Oklahoma Press, the purpose of warehouse operations is efficiently utilising and integrated the available space, tools, and manpower in the warehouse to meet the customer's requirement and specifications. However, warehouse operations can accomplish this by using in a software system, such as a Warehouse Management System, Warehouse Execution System, or Customer Relationship Management

that provides an overview of the retailer's inventory data and information to all department in the supply chain, including customers. The purchase data can be used by the operations manager, planners, and other management to arrange the warehouse floor so that the most well-liked or quickly moving stock keeping unit (SKU) are located in key locations.

2.3.2 Warehouse Management System

Warehouse management system (WMS), according to Julia Rittenberg, is a software that companies or businesses always use in the warehouse due to the WMS function that can easily track all products and commodities and record it digitally once it enters and exits the warehouse (2022). Other than that, WMS function does not only focuses on keeping track of all the supplies in the warehouse, but it also can perform to design procedures which can make the employees' working operation run smoothly such as collect and pack orders. It gives the opportunity to the businessman to monitor the movement of goods as they enter the warehouse and can overcome the problem of movement of goods during the certain process in the warehouse. For example, as they are stacked on shelves and placed in other locations, and as they depart the warehouse to fulfil orders. According to Ramma.A, warehouse management systems can be independent programmes or components of supply chain management (2012). Besides that, controlling the transportation, storage and movement of goods inside a warehouse is the main goal of a WMS. The WMS can be used in paper-based, RF/wireless-based, or a hybrid configuration.

2.3.3 Vital, Essential, Desirable (VED) Analysis

According to Pharm, categorized the items based on the critical values and the item's shortage cost are the foundation of the Vital, Essential Desirable (VED) analysis (2010). Though the implementation of VED Analysis, the product will be categorizing according to their functional importance and value. This technique are divides into three categories such as

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Vital, Essential, and Desirable. Vital items stand for the items without which operations would halt and to not having supplies of essential commodities is suicidal. For example, for a supermarket, the daily supplies such as oil, rice grains, salt are the vital items, if the supermarket do not have sell this kind of items, the sales will definitely get affected. However, the vital items are very necessary for a shop, and we cannot skimp on supply for them but always keep a good supply of these on hand (Tamhankar, 2018).

Besides that, essential stand for the items that would be exceedingly expensive to run out of supplies. Although it won not force to close the business if the businessman doesn't sell them, but the clients will expect the businessman to sale them in the shop. For example, kitchenware, household cleaners, pharmacy products and pet supplies are crucial for a supermarket because customers frequently anticipate purchasing them simultaneously. Plus, desirable stand for the items that advantageous to own but might not directly impact the business's whole performance. Even if the kind of items is a slight interruption in sales, and it will be minimal and simple to restock or resume. For example, if a supermarket does not sell a toy, it won't have any impact on the supermarket's sales flow.

According to Levy, a company can avoid a significant physical disruption in customer support by using VED analysis (2022). However, if a business doesn't classify and manage its inventory in warehouse without implement VED analysis, the risk of a shortage of items will increases and the performance of the business would be negatively impacted, which would lower customer satisfaction.

2.3.4 Perpetual inventory counting

Bill Conway, NetSuite Practice Director describes "Cycle counting is a method of warehouse management techniques that businessmen use for enables to count the number of goods in a specific section of a warehouse without pausing the working operation to do a full

physical inventory" The main purpose of cycle counting is used to find and fix any irregularities in inventory records in warehouse. At the same time, we can understand the performance and functional operation of business, whether it is improving, and how we try to perform in comparison to industry benchmarks is helpful in any process especially the process of warehousing.

Normally, the strategy for workers to cycle counting is frequently prepared by warehouse managers and supply chain experts. The process of cycle counting is including regular, repeated checking of preselected area in inventory. In general, it can be accomplished by staff to beginning in one region of the warehouse and moving through the others in a rotating fashion. The most effective inventory management strategies are carried out exceptionally accurate the number of stock records and low transaction error rates without interfering with staff members' crucial duties (Schwarz, 2021).

2.3.5 Periodic Review Technique

Periodic review technique allows the businessmen to estimate the quantity of a product their business has on hand at predetermined, generally they will set an interval of time such as every Friday or the last day of every month. This technique is suitable for supermarket or any retail business because the stock balance can review at the end of each afternoon and orders are sent to distribution centres for delivery. For example, a supermarket reorders the yogurt though the periodic review technique because yogurt is a type of food which are having short expiration date to serve, so the owner of supermarket needs to reorder the certain quantity of yogurt once in one week or two weeks.

According to Sherman, many businesses find that a perpetual inventory system able to complements their technology and their demand for speedy sales tracking in their warehouse (2019). Plus, it can be useful for investigate a vast number of items even spread across different

warehouses. By implement this technique, it assures that expired food items will be identified and taken off the shelves by the staff. This is very important for supermarket to maintain their quality product as well as helping to uncover theft and other sources of item loss.

2.3.6 Product Quality

According to Indeed Editorial Team, product quality describes how well a product fulfils industry standards, satisfies client's needs, and accomplishes its intended function (2022). In general, businesses examine several important elements when assessing the quality of a product, such as whether it solves a problem, functions effectively, or serves customers' needs. The purpose of product quality helps businesses retain customers, build brand recognition, and control expenses. Besides that, businesses can lower expenses associated with product returns, faults, and losses through the implementation of product quality management. Plus, customers frequently will purchase more from brands they are familiar with and trust such as Nestle company. Since nestle company very good on product quality, therefore every family almost buy their product in daily life. However, assuring product quality can assist clients get familiar with your brand, motivate them to purchase your goods, and boost your revenue.

2.4 Hypotheses Statement

For this study, researchers have already developed three hypotheses. The hypotheses are designed to investigate the relationship between the three independent variables, VED analysis, perpetual inventory counting, and the periodic review system, and the dependent variable, product quality.

H1: There is a significant relationship between VED Analysis and product quality in Pantai Timor Hypermarket Kelantan.

H2: There is a significant relationship between Perpetual inventory counting and product quality in Pantai Timor Hypermarket Kelantan.

H3: There is a significant relationship between Periodic Review System and product quality in Pantai Timor Hypermarket Kelantan.

2.5   Conceptual Framework

The conceptual framework is theoretical representation of the various elements that have been determined to be crucial to the issue. The research framework as shown in Figure 2.5 consists of two components, which are warehouse management would be independent variable and product quality is dependent variable.
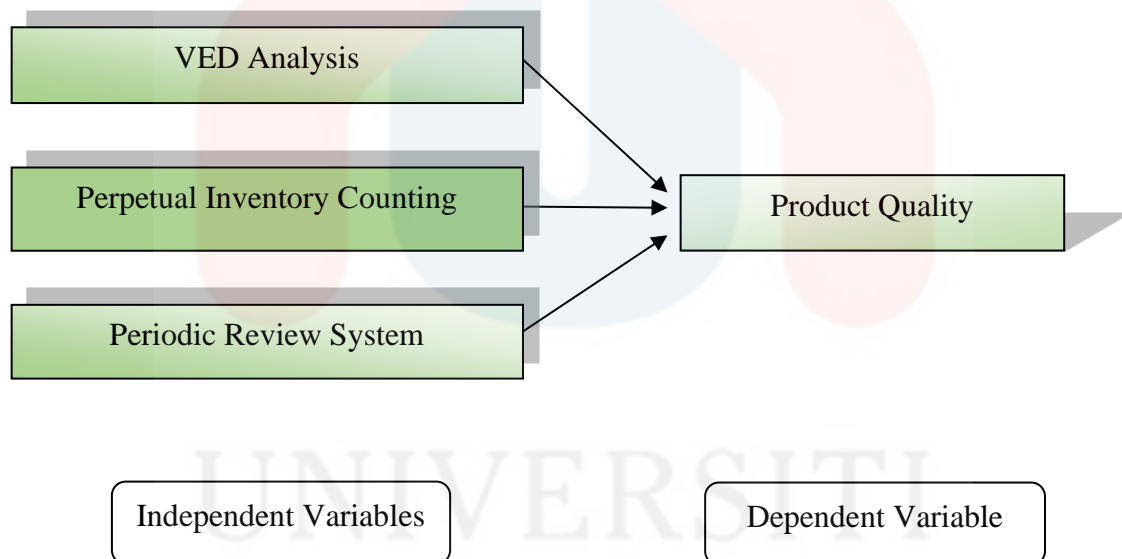
Figure 2.1: Conceptual framework of research variables and their Relationships

The figure 2.1 shows the relationship between the independent variable (warehouse management) and the dependent variable (product quality). The proposed framework is based on the influence of warehouse management on quality product in Pantai Timor Hypermarket Kelantan. The warehouse management included Vital, Essential, Desirable (VED) analysis, perpetual inventory counting, and periodic review system can determine product quality.

2.6   Conclusion

In summary, the research framework likewise called conceptual framework of this study was established in Literature Review. It demonstrates the relationship between warehouse management and product quality in Pantai Timor Hypermarket Kelantan. Warehouse management involved VED analysis, perpetual inventory counting and periodic review system can determine product quality. The following chapter will discuss the type of method are using to figure out the result of this study.

CHAPTER 3

RESEARCH METHODS

3.1 Introduction

In this chapter, the researchers will explain in detail about the research methodology that will be used in the study after recalling the past studies discussed in chapter 2. The research methodology is focused to answer the research questions and research objectives which are identified in chapter 1. Moreover, the researcher also clarifies about the research design, data collection method, the process of creating question for interview and questionnaire for survey and several procedures of data analysis that used in this study.

3.2 Research Design

This study has been conducted to know about the Influence of Warehouse management on product quality in Pantai Timor Hypermarket Kelantan. The researchers used some methods such as websites to obtain more extensive and detailed information data on the influence of warehouse management on product quality in Pantai Timor Hypermarket Kelantan. In general, a researchers will use either quantitative or qualitative research to carry out the statistical analysis. Quantitative research is a method that place an emphasis on precise measurements and the statistical, mathematical, or numerical analysis of data gathered through surveys, polls, and other types of research. Normally, it focuses on collecting numerical data and using it to understand a specific event or generalise it across groups of individuals. However, qualitative research is a method that gathering and evaluating non-numerical data such as text, video, or audio to better comprehend ideas, opinions, or experiences. For example, carry out the interviews with target which is personally asking people questions in one-on-one conversations.

Since this study is conducted by quantitative and qualitative research, the data was gathered by face-to-face interview with the manager of Pantai Timor Hypermarket and distribute the questionnaire to the regular staff in Pantai Timor Hypermarket Kelantan. However, the researchers also obtained the secondary data from library reference methods, websites, and social media.

3.3   Data Collection Methods

The data collection method is the process of collecting information for the targeted variables in an organized method. The study relied on primary data gathered through a face-to-face interview with the researcher also by distributing questionnaire to the selected department staff. An interviewer was used to collect data on the influence of warehouse management system on product quality tool. The interviewees were those involved in the formulation, evaluation, and implementation of the organization's inventory management. The interview guide was divided into two sections: the respondents' profile and the organization's warehouse management system influencing the product quality. The interviewees will be the manager, two supervisors from the logistics departments, and two of regular logistics staff as they are the key informants for this study.

Researchers decide to use the mix method which it includes qualitative and quantitative method to make this study sturdy. Qualitative method had been chosen because researchers wanted various answers depending on the situation and the questions that has been asked. Researchers would like to see in a very wide angle by interviewing 5 different staffs that each one of them has different mindset and different on the way they see something. Researchers take serious for every answers because they are important for this study. Besides that, Statistical Package for Social Science (SPSS) Statistics software will be used to complete this study research.

3.4   Study Population

In this study, the study population will be 37% from the total staff which are 100 staffs from 268 staffs in total from Pantai Timur Hypermarket. Researchers only focus on four (4) main department that are relevant to this study. The main department are canned food, frozen, warehouse and minimart which total of staff for these departments are 100 staffs. Researchers are able to collect in total of 100 respondents through google form by distributing it personally. The population for this study also included the manager, supervisors and regular staff from organisations as well as logistic departments from organisations. As a result, the total population of this study by including the five members of the organization's staff that had been interviewed are 100 respondents in total.

3.5   Sample Size

According to KIBUACHA (2021), "sample size" refers to the number of people who are included in a study to adequately reflect the big population. The sample size refers to the overall number of participants in a study, and this figure is frequently divided into subgroups according to demographic factors such as age, gender, and geography to ensure that the final sample accurately reflects the entire community. However, the target population must be defined with considerable care due to avoid the tendency to choose an unjustified large population.

This study will conducted by face to face interview with five employees in Pantai Timor Hypermarket, Kelantan as respondents. There are manager, two supervisors and two regular logistics staff due to the researcher want to gain detailed data and information about a specific phenomenon rather than make statistical inferences from big population.

At the same time, the researchers also delivering the questionnaires to the regular staff of Pantai Timor Hypermarket, Kelantan. The sum number of staff in Pantai Timor Hypermarket

Kelantan is 268, they are from several departments such as canned food, frozen, warehouse and minimart. However, the researchers took 37 percent out of 268 staffs which is 100 staffs as respondents in this study.

3.6   Sampling Techniques

There are two type of sampling procedure to select a representative sample to collect the research data which are probability sampling and non-probability sampling. However, the researcher choose purposive sampling as the sampling procedure in this research which is element of non-probability. According to purposive sampling, the researcher conduct a face to face interview with three respondents in Pantai Timor Hypermarket, Kelantan in order to obtain data which are valid and reliable that can help the researcher conduct this research smoothly. They are manager, called Tye Cork Chye, supervisor in logistics department and regular logistics staff. Since the researcher just have three respondents as a sample size, therefore the researcher decided to choose purpose sampling as sampling procedure due to the researcher desire to learn more about a specific phenomenon in depth rather than make statistical inferences as well as purposive sampling is suitable for the population is extremely small and particular.

Besides that, the researcher also conducts the snowball sampling to deliver the questionnaire to the regular staff of relevant department in Pantai Timor Hypermarket Kelantan which are canned food, frozen, warehouse and minimart. Since the researchers hard to access the primary data from the staff of relevant department in Pantai Timor Hypermarket Kelantan, so this snowball sampling can be used to recruit respondent via other respondents and the researchers also can get in contact with more respondents.

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3.7 Research Instrument Development

The researchers will prepare the dual language questions of interview and questionnaire specifically English and Malay to facilitate understanding of respondents. The questions prepared by researchers are established based on the variables on this research which are influence of warehouse management on product quality. The question concerned with the independent variables which included Vital, Essential, Desirable (VED) analysis, perpetual inventory counting and periodic review system considering the influence the product quality. Over and above, the dependent variable is product quality which was applied to figure out the connection between warehouse management and product quality.

3.7.1 Qualitative Method

The qualitative method will be utilized for this study is interviewing the manager, two supervisors and two regular logistics staff of Pantai Timor Hypermarket Kelantan. The questions are shown as the table 3.7.1.

Table 3.1: The table of interview questions

DEPENDENT VARIABLE:
1. What will you do if the product has a lot of stock but nearly expired in Pantai Timor Hypermarket Kelantan? / Apa yang anda akan laksanakan jika produk mempunyai banyak stok tetapi hampir tarikh luput di Pantai Timor Hypermarket Kelantan?
2. How did you keep your perishable products to maintain their quality in Pantai Timor Hypermarket Kelantan? / Bagaimanakah anda mengekalkan barang cepat rosak dengan qualiti yang baik di Pantai Timor Hypermarket Kelantan?
3. What will you do if the products are broken unexpectedly in Pantai Timor Hypermarket Kelantan? / Apakah tindakan yang anda akan melaksanakan sekiranya produk rosak diluar jangkaan di Pantai Timor Hypermarket Kelantan?
INDEPENDENT VARIABLES:

4. Do you think your warehouse need to be improved? / Adakah anda rasa gudang anda perlu ditambah baik?

5. How do you solve the insufficient space in warehouse? / Bagaimanakah anda menyelesaikan masalah kekurangan ruang dalam warehouse?

6. How do you arrange the products in warehouse? / Bagaimanakah kesusunan produk dalam gudang?

7. How the products displayed and arranged which following the price, size, expired date in Pantai Timor Hypermarket Kelantan? / Bagaimanakah anda mempamerkan dan menyusun produk seperti mengikut harga, saiz, tarikh luput di Pantai Timor Hypermarket Kelantan?

8. When is the routine that you will execute stock take in warehouse? / Bilakah anda akan menjalankan memeriksa persediaan dalam gudang?

9. What kind of software or current technology that used by Pantai Timor Hypermarket Kelantan? / Apakah software atau teknologi yang terkini digunakan oleh Pantai Timor Hypermarket Kelantan?

10. When you will order the products to keep in warehouse? / Bilakah anda akan memesan produk untuk disimpan di gudang?

3.7.2 Quantitative Method

The quantitative method will be utilized for this study is delivering the questionnaires to the regular staff of Pantai Timor Hypermarket Kelantan. The questionnaire designed as the table 3.7.2.

Table 3.2: Instrument of questionnaire

Section	Part	Explanation
A	Demographic Information	• Gender
		• Department
		• Age
		• How Long Onboarding
		• Monthly Income

| B | Dependent Variable | This part interpreted the product quality and it included four questions. |
| C, D, & E | Independent Variables | This part interpreted the VED analysis, perpetual inventory counting, and periodic review system of warehouse management. Section B is divided into three parts and each part consists of four questions. |

3.8   Measurement of the Variable

3.8.1   Interview

Interview conducts face to face to obtain the information and data required in this study. The unstructured interviews will be processed to highlight a few of initial problems in order that researcher can identify the elements require more in-depth analysis for a limited time on this study. The unstructured interviews are generated with open-ended questions depend on the individual's perceptions and direct questions about their perceptions of the problem as well as the situation. The researchers would be aware of the variables that need further attention after conducting a sufficient amount of unstructured interviews with employees at various levels and analyzing the data gathered.

3.8.2   Questionnaire

Questionnaire created with Google Form and it functions as the methods to gather the data required for this study. For a short period of time, the Google Form offered a large sample on a wider geographical scale and a large quantity of usable data for this study. Therefore, a five-point Likert Scale and closed-ended questions with multiple-choice answers are used in creating questionnaires. In additionally, an independent variable and dependent variable was applying the five-point Likert Scale with the aid of an ordinal scale to assess this study.

Table 3.3: The table of five-point likert scale

Characteristics	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Number	1	2	3	4	5

3.9   Procedure for Data Analysis

Data analysis is a method of controlling and presenting data as well as statistical procedures. The obtained data from respondents in this study will be examined before being analyzed into useful information for this research. The Social Sciences Statistical Package (SPSS) software version 25.0 will be used for this study to analyze the data collected from the questionnaire. Therefore, the method analysis used in this study is Scatter Plot, Reliability Analysis, Descriptive Analysis, Multiple Linear Regressions, and Pearson's Correlation.

3.9.1   Reliability Analysis

Reliability analysis is examined the correlation between the scores received from various administrations of the scale, which can be conducted to identify the proportion of systematic variation in scale. As a result, when the association in the reliability analysis is strong, the scale yields reliable results since the result are consistent.

3.9.2   Descriptive Analysis

The descriptive analysis in this study was utilized to analyze data gathered from the questionnaire which is about the demographic of the respondents. The researchers likewise have to compute the mean, standard deviation, and frequency distribution of the independent variables. Hence, it was beneficial for the Section A in questionnaire where the respondents were asked to provide demographic information.

3.9.3   Multiple Linear Regressions

A regression model known as multiple linear regression utilizes a straight line to evaluate the relationship between a quantitative dependent variable and two or more independent variables. The researchers utilize the multiple linear regression to analyze the factors due to the independent variables of this study have more than one which involved VED analysis, perpetual inventory counting, and periodic review system.

3.9.4   Pearson's Correlation

Pearson's correlation is the method to determine the direction among independent variables and dependent variables. Throughout this study, the researchers measured the correlation between independent variables and dependent variable by using Pearson's Correlation Analysis. Thus, Pearson's Correlation Analysis will be used to identify the association for several variables which included VED analysis, perpetual inventory counting, and periodic review system.

3.10   Conclusion

In this summary, we clearly explained about the methodology that we used in our research. This chapter will explain about the research design, data collection method, study population, sampling technique, sample size, research instrument development, measurement of the variables, and procedure of data analysis. We will be discussed and analyzed more detail about the findings in Chapter 4.

CHAPTER 4

DATA ANALYSIS AND FINDINGS

4.1   Introduction

In this chapter, researchers will examine the data from the procedures described in the previous chapter. SPSS is a data analysis tool that researchers use to analyse collected data. The reliability analysis was conducted using Cronbach's alpha. The data of respondents' demographic profile was analysed using descriptive analysis. The influence of warehouse management system on product quality was predicted using multiple linear regression. Finally, Pearson's correlation was used to assess the significance of the VED analysis, perpetual inventory counting, and periodic review system in Pantai Timor Hypermarket, Kelantan, with the influence of warehouse management system.

4.2   Demographic Profile of Respondents

Table 4.1: Respondents demographic profile

Respondent profile	Classification	Frequency (N = 100)	Percentage (%)
Gender	Male	53	53
	Female	47	47
Department	Canned Food	37	37
	Frozen	39	39
	Warehouse	14	14
	Minimart	10	10
Age	20 years old and below	15	15
	21 years old - 30 years old	61	61
	31 years old - 40 years old	21	21
	41 years old - 50 years old	3	3
Duration of service	1 year and below	19	19
	2 years - 5 years	68	68
	6 years - 9 years	13	13

	10 years above	0	0
Monthly income	RM1500 - RM1999	26	26
	RM2000 - RM2999	58	58
	RM3000 - RM3999	15	15
	RM4000 - RM4999	1	1

This study gathered the contextual profiles of 100 staff respondents. Gender, department, age, length of service, and monthly income are all listed in Table 4.1. There were 53% of male respondents with 53 students, and 47% of them are 47 female staff members who participated in this questionnaire. The majority of respondents (39% with 39 staff) were from the frozen department, followed by 37% (N=37) from the canned food department, 14% (N=14) from the warehouse department, and 10% (N=10) from minimart. Researchers also discovered that the majority of the staff in Pantai Timor Hypermarket are between the ages of 21 and 30 years old, with 61% (N=61), 21% (N=21) between the ages of 31 and 40 years old, and 15% (N=15) between the ages of 41 and 50 years old, respectively.

Aside from that, the results showed that the average staff duration time of service is 2 years - 5 years with 68% (N=68), 1 year and below with 19% (N=19), 6 years - 9 years with 13% (N=13), and 10 years and above with none from the respondents at Pantai Timor Hypermarket, Kelantan. Furthermore, the majority of respondents' monthly income is RM2000 - RM2999 (58% (N=58), while 26% (N=26) represent RM1500 - RM1999, 15% (N=15) represent RM3000 - RM3999, and the highest range of monthly income is RM4000 - RM4999 with only 1% (N=1) from the overall respondents.

4.3 Descriptive Analysis

In this study, four variables were determined by two categories: dependent and independent variables. Product quality was the dependent variable in this study, and the independent variables were VED analysis, perpetual inventory counting, and a periodic review

system. The mean for each particularly variable particularly was essentially examined by the researcher in a major way.

4.3.1 Overall Mean Score for Variables

The 5-point Likert scale, as shown in Table 3.3, was used to calculate the overall mean score for the variables as well as the standard deviation.

Table 4.2: The overall mean score for each variables

Part	Dimension	Mean	Std. Deviation (SD)	N
B	**Dependent Variables**	4.0750	0.50189	100
	Product Quality	4.0750	0.50189	100
C, D & E	**Independent Variables**	4.1058	0.42998	100
	VED Analysis	4.0850	0.51642	100
	Perpetual Inventory Counting	4.0725	0.49017	100
	Periodic Review System	4.1600	0.48659	100

According to Table 4.2, the mean score for the dependent variable, product quality, was 4.0750 for the mean and 0.50189 for the SD, while the independent variable was significantly higher than the dependent variable, which was 4.1058 for the mean and 0.42998 for the SD. The highest scoring independent variable was the periodic review system with 4.1600 for the mean score and 0.48659 for the SD, while the other two, VED analysis and perpetual inventory counting, scored 4.0850 and 4.0725 for the mean and 0.51642 and 0.49017 for the SD, respectively.

4.3.2 Descriptive Analysis for Independent Variables

Table 4.3: Descriptive analysis of VED analysis

No.	VED Analysis	Mean	SD	N
1.	VED analysis should implement in a hypermarket.	4.14	0.739	100
2.	Products should displayed with price, size, and weight rather than its functional importance in a hypermarket.	3.94	0.839	100
3.	Products arranged neatly may convenience to customers at Pantai Timor Hypermarket Kelantan.	4.08	0.692	100
4.	Products arranged neatly may decrease the risk of damaged goods and help to maintain product quality in Pantai Timor Hypermarket Kelantan.	4.18	0.672	100

According to Table 4.3, descriptive VED analysis consists of four questions. It displays the mean of respondents' responses to the VED analysis variable based on the 5-point Likert scale ranging from 3.94 to 4.18. The table's average mean for VED analysis was 4.0850. To elaborate, the mean for question 1 (VED analysis should be implemented in a hypermarket) was 4.14 (SD=0.739). The mean score for question 2, where respondents responded that products should be displayed with price, size, and weight rather than functional importance in a hypermarket, was 3.94 (SD=0.839). The mean for question 3 was 4.08 (SD=0.692), with respondents responding that neatly arranged products may be of convenience to customers at Pantai Timor Hypermarket Kelantan. Finally, the mean score for question 4 was the highest with 4.18 (SD=0.672), indicating that respondents responded with neatly arranged products, which may reduce the risk of damaged goods and help to maintain product quality in Pantai Timor Hypermarket Kelantan.

Table 4.4: Descriptive analysis of perpetual inventory counting

No.	Perpetual Inventory Counting	Mean	SD	N
1.	Perpetual inventory counting should execute in warehouse to maintain product quality for a hypermarket.	4.18	0.730	100
2.	Perpetual inventory counting helping track and record stock balance in warehouse Pantai Timor Hypermarket Kelantan.	4.00	0.765	100
3.	Carry out stock take in a certain time such as once in a month that can help to maintain product quality in Pantai Timor Hypermarket Kelantan.	4.04	0.695	100
4.	Repeated checking can help to maintain product quality in Pantai Timor Hypermarket Kelantan.	4.07	0.624	100

The descriptive analysis of perpetual inventory counting is comprised of four questions, as shown in Table 4.4. It displays the mean of respondents' responses on a 5-point Likert scale ranging from 4.00 to 4.18 to the perpetual inventory counting variable. The above table's average mean for perpetual inventory counting was 4.0725. To elaborate, the mean for question 1 was 4.18 (SD=0.730), which is the highest mean where respondents cared about perpetual inventory counting in warehouse to maintain product quality for a hypermarket. The mean score for the second question was 4.00 (SD=0.765), with respondents responding to perpetual inventory counting assisting in tracking and recording stock balance in warehouse Pantai Timor Hypermarket Kelantan.

Following that, question 3 mentioned that carrying out stock take at a specific time, such as once a month, can help to maintain product quality in Pantai Timor Hypermarket Kelantan, which has a mean score of 4.04 (SD=0.695). Finally, the mean score for question 4

was 4.07 (SD=0.624), with respondents responding that repeated checking can help to maintain product quality in Pantai Timor Hypermarket Kelantan.

Table 4.5: Descriptive analysis of periodic review system

No.	Periodic Review System	Mean	SD	N
1.	Restock for each department perform manually in a hypermarket.	4.19	0.720	100
2.	Periodic review system is convenience and useful during restock process in a hypermarket.	4.08	0.706	100
3.	Periodic review system should implement by a hypermarket to maintain the product quality especially perishable products.	4.12	0.656	100
4.	Periodic review system helping to uncover theft and other sources of item loss in Pantai Timor Hypermarket Kelantan.	4.25	0.702	100

The descriptive analysis of the periodic review system consists of four questions based on the results shown in the table above. It displays the mean of respondents' responses to the periodic review system variable on a 5-point Likert scale ranging from 4.08 to 4.25. The average mean for the periodic review system in the preceding table was 4.1600. To elaborate, question 1 stated that restocking for each department is done manually in a hypermarket, and the respondents' mean score was 4.19 (SD=0.720). The mean score for question 2 was 4.08 (SD=0.706), indicating that the periodic review system is useful and convenient during the restocking process in a hypermarket.

Furthermore, the mean score for question 3 was 4.12 (SD=0.656), with respondents responding that a hypermarket should implement a periodic review system to maintain product quality, particularly perishable products. Finally, question 4 had the highest mean score among

the others, with respondents responding to a periodic review system assisting in the discovery of theft and other sources of item loss in Pantai Timor Hypermarket Kelantan, with a score of 4.25 (SD=0.702).

4.3.3 Descriptive Analysis for Dependent Variables

Table 4.6: Descriptive analysis of product quality

No.	Product Quality	Mean	SD	N
1.	Maintaining product quality is important for a hypermarket.	4.08	0.631	100
2.	A hypermarket sold many products nearly expired will influence product quality.	4.09	0.767	100
3.	Products broken unexpectedly should send back to suppliers for maintain product quality in Pantai Timor Hypermarket Kelantan.	4.06	0.736	100
4.	Order perishable products in constant quantity can maintain product quality for Pantai Timor Hypermarket Kelantan.	4.07	0.671	100

Table 4.6 displayed the descriptive analysis product quality, which also included four questions. It displays the mean of respondents' responses to the product quality variable on a 5-point Likert scale. The product quality average was 4.0750. To be more specific, the mean for question 1 where respondents were asked if maintaining product quality was important for a hypermarket was 4.08 (SD=0.631). The mean for question 2, in which respondents were asked whether a hypermarket selling many nearly expired products would influence product quality, was 4.09 (SD=0.767).

Furthermore, the mean score for question 3 was 4.06 (SD=0.736), with respondents responding that products broken unexpectedly should be returned to suppliers in order to

maintain product quality in Pantai Timor Hypermarket Kelantan. Finally, the mean score for question 4 was 4.07 (SD=0.671), with respondents responding that ordering perishable products in a consistent quantity can help Pantai Timor Hypermarket Kelantan maintain product quality.

4.4   Reliability Analysis

The inconsistency of the experiment was where the data of the reliability coefficient, which was the amount of variability, was obtained. Cronbach's Alpha was used to test the data to ensure the reliability and interior reliability information. Table 4.7 displays George and Mallery's Rule of Thumb for Cronbach's Alpha Coefficient Range (2016).

The alpha coefficient range for reliability analysis was shown in Table 4.7. According to George and Mallery (2016), values of 0.4 and below are considered unacceptable, while values of 0.9 and above are considered very reliable. The closer the value is to 1, the higher the item's internal consistency reliability.

Table 4.7: Rule of thumb of Cronbach's alpha coefficient range

Cronbach's Alpha Range	Level of Reliability
$\alpha > 0.9$	Excellent
$\alpha > 0.8$	Good
$\alpha > 0.7$	Acceptable
$\alpha > 0.6$	Questionable
$\alpha > 0.5$	Poor
$\alpha > 0.4$	Unacceptable

Source: Adopted from George and Mallery (2016)

4.4.1 Actual reliability test

In terms of table reliability, all three independent variables of product quality were considered as the coefficient standards were 0.6. According to the Rule of Thumb in the table above, the coefficient alpha for VED analysis was a questionable value of 0.652. The perpetual inventory counting and periodic review systems both showed questionable values of 0.643 and 0.651, respectively. Furthermore, the product quality gained 0.679, which is also a questionable coefficient value.

Table 4.8: Reliability Coefficient for each section of questionnaire

Section	Items	No. of item	Cronbach's Alpha
B	Product quality	4	0.679
C	VED analysis	4	0.652
D	Perpetual inventory counting	4	0.643
E	Periodic review system	4	0.651

No. of respondents (N) = 100

4.5   Normality Test

In this study, normality testing was used to determine whether or not a sample was normally distributed. If the data was normally distributed, Pearson's Correlation will be used to identify the hypotheses; if the data was not normally distributed, Spearman's Correlation will be used to compute the hypotheses.

Table 4.9: Result of normality test

Variable	Skewness	Kurtosis	Result
Product quality	-0.277	-0.043	Normally distributed
VED analysis	-0.230	-0.476	Normally distributed
Perpetual inventory counting	-0.343	-0.256	Normally distributed
Periodic review system	-0.224	-0.799	Normally distributed

According to Bryne (2010), skewness values between -2 and +2 and kurtosis values between -7 and +7 indicate that the data is normally distributed. All of the data were normally distributed, according to Table 4.9. This is because the skewness values for each variable range were still in the normally distributed data range, which was between -0.22 and -0.34, and the kurtosis values were between -0.04 and -0.79. The Pearson's Correlation Coefficient was going to be used in this study to examine the hypotheses between product quality, VED analysis, perpetual inventory counting, and the periodic review system because the data was normally distributed.

4.6   Pearson's Correlation

One of the correlation measures used to as determine the strength of a two variable linear relationship is Pearson's correlation. Based on the results obtained from the test, researchers decided to use Pearson's correlation coefficient to identify the consequential relationship between independent variables which were VED analysis, perpetual counting inventory and periodic review system with dependent variable which was product quality. The magnitude relationship of Pearson's correlation was shown in the Table 4.10, while the Pearson's correlation results was shown in the Table 4.11.

Table 4.10: The magnitude relationship of Pearson correlation value

Pearson Correlation Value, r	Magnitude Relationship
1.01 – 0.09	Negligible
0.10 – 0.29	Low
0.30 – 0.49	Moderate
0.50 – 0.69	Substantial
0.70 – 0.90	High
1.0	Perfect

Table 4.11: The pearson correlation results

		Product quality	VED analysis	Perpetual inventory counting	Periodic review system
Product quality	Pearson correlation	1	.647**	.558**	.615**
	Sig. (2-tailed)		.000	.000	.000
	N	100	100	100	100
VED analysis	Pearson correlation	.647**	1	.606**	.604**
	Sig. (2-tailed)	.000		.000	.000
	N	100	100	100	100
Perpetual inventory counting	Pearson correlation	.558**	.606**	1	.650**
	Sig. (2-tailed)	.000	.000		.000
	N	100	100	100	100
Periodic review system	Pearson correlation	.615**	.604**	.650**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	100	100	100	100

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

4.7   Multiple Linear Regression

In this study, multiple linear regression was used to predict the impact of warehouse management systems on product quality based on the independent variables VED analysis, perpetual inventory counting, and periodic review system.

Table 4.12: Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.712[a]	.506	.491	.35806

Predictors: (Constant), Mean for IV1, Mean for IV2, Mean for IV3

According to Table 4.12, the value of the multiple correlation coefficient was 0.712, which is a large enough value to convince the researchers that there was a strong relationship between the variables. The strength of the model's correlation with product quality R is also explained in the table. Aside from that, changes in the VED analysis, perpetual inventory counting, and periodic review system can justify the R square value from the coefficient, which represents 50.6% of the change in product quality. There is no correlation between the VED analysis, perpetual inventory counting, and periodic review system and product quality, which is represented by the remaining value of 49.4%.

Table 4.13: ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	12.629	3	4.210	32.836	.000[b]
	Residual	12.308	96	.128		
	Total	24.937	99			

a. Dependent Variable: Mean for DV

b. Predictors: (Constant), Mean for IV1, Mean for IV2, Mean for IV3

F is 32.836, and the p-value is 0.000, indicating significance less than the 0.05 alpha level. This means that the difference between dependent and independent variables is statistically significant. So, in Pantai Timor Hypermarket, Kelantan, VED analysis, perpetual inventory counting, and periodic review system do predict the percentage of influence of warehouse management system on product quality.

Table 4.14: Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.719	.346		2.077	.040
	Mean for IV1	.380	.093	.391	4.071	.000
	Mean for IV2	.132	.103	.129	1.277	.205
	Mean for IV3	.304	.104	.295	2.932	.004

a. Dependent Variable: Mean for DV

According to the results of table 4.14, the P values of VED analysis and periodic review system were 0.000 and 0.004, respectively, where the value was less than (0.05). It suggests that VED analysis and the periodic review system had an impact on product quality. While the P value for perpetual inventory counting was 0.205. Because the $P > 0.05$, it is explained that this variable has no bearing on the influence of WMS on product quality.

4.8 Hypothesis Testing

4.8.1 Relationship between VED Analysis and product quality in Pantai Timor Hypermarket Kelantan

H0: There is no significant relationship between VED Analysis and product quality in Pantai Timor Hypermarket Kelantan.

H1: There is a significant relationship between VED Analysis and product quality in Pantai Timor Hypermarket Kelantan.

According to Table 4.11, there is a significant relationship between VED analysis and product quality in Pantai Timor Hypermarket, Kelantan, because the p-value was 0.000, which was less than α=0.05. Meanwhile, the Pearson correlation coefficient was 0.647, indicating a

significant relationship between VED analysis and product life. As a result, the H1 is accepted and H0 is rejected.

4.8.2 Relationship between Perpetual inventory counting and product quality in Pantai Timor Hypermarket Kelantan

H0: There is no significant relationship between Perpetual inventory counting and product quality in Pantai Timor Hypermarket Kelantan.

H2: There is a significant relationship between Perpetual inventory counting and product quality in Pantai Timor Hypermarket Kelantan.

According to Table 4.11, there is a significant relationship between perpetual inventory counting and product quality in Pantai Timor Hypermarket, Kelantan, because the p-value was 0.000, which was less than $\alpha=0.05$. Meanwhile, the Pearson correlation coefficient was 0.558, indicating a significant relationship between perpetual inventory counting and product life. As a result, the H2 is accepted and H0 is rejected.

4.8.3 Relationship between Periodic Review Technique and product quality in Pantai Timor Hypermarket Kelantan

H0: There is a significant relationship between Periodic Review Technique and product quality in Pantai Timor Hypermarket Kelantan.

H3: There is a significant relationship between Periodic Review Technique and product quality in Pantai Timor Hypermarket Kelantan.

According to Table 4.11, there is a significant relationship between periodic review system and product quality in Pantai Timor Hypermarket, Kelantan, because the p-value was 0.000, which was less than $\alpha=0.05$. Meanwhile, the Pearson correlation coefficient was 0.615,

indicating a significant relationship between periodic review system and product life. As a result, the H3 is accepted and H0 is rejected.

4.9   Conclusion

The SPSS software was used to achieve the data analysis results for the tests and results in this chapter. The data was used for descriptive analysis, reliability testing, normality testing, Pearson's correlation, and multiple linear regression to determine the relationship between the independent and dependent variables. Aside from that, the information gathered was used to determine the impact of a warehouse management system on product quality life in Pantai Timor Hypermarket in Kelantan. In Chapter 5, the relationship between independent variables and dependent variables will be explained and discussed. The finding of the aforementioned relationship will also be discussed.

CHAPTER 5

DISCUSSION AND CONCLUSION

5.1 Introduction

The research findings using the Pearson's correlation coefficient, as well as the multiple linear regression examined in Chapter 4, will be thoroughly explained and discussed in this chapter. The result summary was created based on the issue and previous studies mentioned by the researchers in Chapter 2. This chapter will also go over whether or not the assumptions about the research hypotheses were accepted or rejected. Furthermore, the conclusion of the result objective in relation to the research objective mentioned in Chapter 1 will be discussed.

5.2 Key Findings

The relationship between VED analysis, perpetual inventory counting and periodic review system with product quality is the main objective of this study. According to the results in Chapter 4, researchers have agreed that VED analysis, perpetual inventory counting and periodic review system do influence product quality on warehouse management system in Pantai Timor Hypermarket, Kelantan. Table 5.1 exhibits the summary of the results regarding objectives that are to find the relationship between VED analysis, perpetual inventory counting and periodic review system with product quality.

Table 5.1: Findings of the result.

Hypotheses	Result	Findings of data analysis
H1: There is a significant relationship between VED Analysis and product quality in Pantai Timor Hypermarket Kelantan.	r=0.647 p=0.000 Substantial	H1 is accepted
H2: There is a significant relationship between Perpetual inventory counting and product quality in Pantai Timor Hypermarket Kelantan	r=0.558 p=0.000 Substantial	H2 is accepted
H3: There is a significant relationship between Periodic Review Technique and product quality in Pantai Timor Hypermarket Kelantan.	r=0.615 p=0.000 Substantial	H3 is accepted

5.3   Discussion

5.3.1 Hypothesis 1

Based on the result from chapter 4, the table 5.1 showed there is significant relationship between VED Analysis and product quality in Pantai Timor Hypermarket Kelantan (r=0.647, p=0.000) because of the significant value of Hypothesis 1 is less than alpha value which is .0.05. Plus, the result also show there is substantial correlation between VED Analysis between product quality. According to Jeremy Levy (2022), a company getting a higher risk of running out of popular items if it doesn't separate and manage its inventory using VED analysis. The

performance and quality product of the store would suffer as a result of this calamity, which would lower client happiness. Therefore, there is clearly showed the H1 is accepted.

5.3.2 Hypothesis 2

From the table 5.1 shown, there is a significant relationship between Perpetual inventory counting and product quality in Pantai Timor Hypermarket Kelantan (r=0.558 p=0.000). This is because the significant value of Hypothesis 2 is less than alpha value which is 0.05. Besides that, the result also show there is substantial correlation between Perpetual inventory counting between product quality. The first step in managing product is selecting a perpetual inventory system versus a manual and time-consuming one (Rachel Hand,2022). Thus, Rachel Hand also supported that have a positive significant between perpetual inventory counting and product life. Therefore, H2 have been accepted.

5.3.3 Hypothesis 3

There is a significant relationship between Periodic Review Technique and product quality in Pantai Timor Hypermarket Kelantan from the table 5.1 shown (r=0.615, p=0.000) since the significant value of Hypothesis 3 is less than alpha value which is 0.05. However, the result also show there is substantial correlation between Periodic review technique and product quality. According to Lisa Schwarz, Senior Director of Global Product Marketing (2022) also stated that have the positive relationship between Periodic review technique and product quality. Therefore, the H3 in this study was supported and accepted.

5.4 Implications of the Study

This research focused on the the influence of Warehouse Management on Product Quality in Pantai Timor Hypermarket Kelantan. There are several influences of warehouse management that will affect the product quality in Pantai Timor Hypermarket Kelantan such as VED analysis, Perpetual inventory counting and Periodic Review System. If a hypermarket

cannot maintain the product life when carry out its operation and cause the product expired, stinks, damaged and others, it will definitely influence the whole performance of the business and the satisfaction of customers as well as cause collapse in the future. Instead, if a hypermarket willing to maintain the product life by several technique management such as VED analysis, Perpetual inventory counting and Periodic Review System. It will help the hypermarket purchasers add and remove products from store shelves at ideal times. At the same time, it can increase efficiency within the whole operation by standardizing inventory movements, picking methods and inventory locations, as well as reduces error rates and unnecessary cost.

Based on the overall data and result that have analyzed from this research which is the influence of warehouse management on product life in Pantai Timor hypermarket Kelantan, there are several beneficiaries will can learn and obtained benefit in our research such as consumer, future hypermarket owner and future researchers.

Firstly, the consumer will benefit from our research because the consumer will know a hypermarket will carry out a lot of consideration on the convenience and trepidation of customers. For example, consumer will know the hypermarket will arrange and display the product by using VED analysis so that the consumer can straight the way to buy the product that they needed and no need to waste time to find the category of product that they needed.

On the other hand, in the beginning, the future hypermarket owner will worry about how to carry out the operation and management to maintain the product life in his hypermarket. Therefore, the hypermarket owner will obtain and study a lot of useful information regarding to the influence of warehouse management on product life in a hypermarket though our research. For example, there is significant relationship between independent variables which are VED analysis, Perpetual inventory counting, Periodic Review Technique and dependent

variable which is product life in Pantai Timor hypermarket based on our research, so the future hypermarket owner can refer to the technique warehouse management in our research and implement in his operation even implement more technique warehouse management to expand his business as well.

Lastly, this study will be one of the references to the future researcher to do their research that the topic is regarding to our research. In conclusion, our research will be helpful to those are needed to learn or obtain real information related to their purpose.

5.5   Limitations of the Study

The limitation on the study was lack of participation for respondents who were the regular staff of Pantai Timor Hypermarket Kelantan. It became challenging due to certain respondents did not provide cooperation in the data collection process in a limited time. As a result, the research has been unable to adequately define the relationship between warehouse management system and product quality in Pantai Timor Hypermarket Kelantan.

On top of it, the time was one of the constraints faced in conducting this research by virtue of the hurried timeline for completion. Owing to the limited time frame, the researchers are difficult to demonstrate a full-time commitment to their work.

Last but not least, the respondents exclusively concentrated on a few departments of the employees at Pantai Timor Hypermarket Kelantan with a sample size of only 100 respondents. The study cannot be made available to every warehouse management system due to the limited sample size and limited ways in warehouse management.

5.6   Recommendations for Future Research

A few suggestions have been provided by the researchers to further examine this study. For the reason that this study only investigated at a few departments of employees in Pantai

Timor Hypermarket Kelantan, it is adviced that future researchers broaden their geographic focus to include all of departments in this study. The future study may deliver more precise results if it covers a larger geographic area. This is due to the potential impact of respondents who from various regional origin may determine the influence of warehouse management system on product quality in Pantai Timor Hypermarket Kelantan.

Furthermore, the future researchers will be able to discover additional variables for influence of warehouse management system on product quality in Pantai Timor Hypermarket Kelantan towards this study that would have an impact on the correlation coefficient value. In additional to that, the researchers adviced conducting long term research on warehouse management system on product quality when time is allowed. This is because it can aid in identifying the various time periods across the study model. As a result, it advances knowledge of the warehouse management system on product quality in Pantai Timor Hypermarket Kelantan.

Last but foremost, the researchers are adviced to clarify and interpret in different languages to assist the respondents who have weak English or Malay comprehension skills. This will assist in avoiding the misunderstandings and inadequate data. The researchers may profit greatly from obtaining higher quality data by being fully conscious and instruction.

5.7   Overall Conclusion of the Study

In conclusion, the 3 independent variables which are VED analysis, Perpetual inventory counting, Periodic Review Technique and dependent variable which is product life had been defined in this research. The main purpose of this research is to investigate the influence of warehouse management on product life in Pantai Timor Hypermarket Kelantan. In this research, the researchers have conducted interview with manager and distribute the questionnaire to 100 targeted respondents. Pearson Correlation Coefficient have used to

determine the relationship between dependent variable and independent variables and multiple linear regressions is used for identifying the influence of warehouse management on product life in Pantai Timor Hypermarket Kelantan.

Based on the finding of Pearson's Correlation Coefficient, the three independent variables do have significant relationship between product life in Pantai Timor Hypermarket Kelantan and also proved VED analysis, Perpetual inventory counting, Periodic Review Technique will absolutely influence on product life in Pantai Timor Hypermarket.

References

Andiyappillai, N. (2020). Factors Influencing the Successful Implementation of the Warehouse Management System (WMS). *International Journal of Computer Applications*, *177*(32), 21–25. https://doi.org/10.5120/ijca2020919787

Atieh, A. M., Kaylani, H., Al-abdallat, Y., Qaderi, A., Ghoul, L., Jaradat, L., & Hdairis, I. (2016). Performance Improvement of Inventory Management System Processes by an Automated Warehouse Management System. *Procedia CIRP*, *41*, 568–572. https://doi.org/10.1016/j.procir.2015.12.122

Bevans, R. (2022, November 15). Multiple Linear Regression | A Quick Guide (Examples). *Scribbr*. https://www.scribbr.com/statistics/multiple-linear-regression/

Chakraborty, T., Chauhan, S. S., & Ouhimmou, M. (2019). Cost-sharing mechanism for product quality improvement in a supply chain under competition. *International Journal of Production Economics*, *208*, 566–587. https://doi.org/10.1016/j.ijpe.2018.12.015

Chapman, E. (2022, February 27). What is a VED inventory analysis useful for? Retrieved from https://www.blyp.ai/a/question-hub/shopify-entrepreneurs/what-is-a-ved-inventory-analysis-useful-for

Erkip, N. K. (2022). Can accessing much data reshape the theory? Inventory theory under the challenge of data-driven systems. *European Journal of Operational Research*. https://doi.org/10.1016/j.ejor.2022.08.024

Five simple ways to improve warehouse efficiency. (2015, August 13). Supply Management. https://www.cips.org/supply-management/opinion/2015/august/five-simple-ways-to-improve-warehouse-efficiency/

Ghani, L. A., Mahmood, N. Z., Ismail, R., Sa'at, S. A., Ali, N., & Mohd Zakuan, S. A. (2022). Scenario modelling of proxy system in the context of Malaysian food flow management. *Heliyon*, *8*(12), e12309. https://doi.org/10.1016/j.heliyon.2022.e12309

Gizaw, T., & Jemal, A. (2021). How is Information from ABC–VED–FNS Matrix Analysis Used to Improve Operational Efficiency of Pharmaceuticals Inventory Management? A Cross-Sectional Case Analysis. *Integrated Pharmacy Research and Practice*, *Volume 10*, 65–73. https://doi.org/10.2147/iprp.s310716

Gutierrez, M., & Rivera, F. A. (2021). Undershoot and order quantity probability distributions in periodic review, reorder point, order-up-to-level inventory systems with continuous demand. *Applied Mathematical Modelling*, *91*, 791–814. https://doi.org/10.1016/j.apm.2020.09.014

Jaleel, R. A., & Abbas, T. M. (2020). Design and Implementation of Efficient Decision Support System Using Data Mart Architecture. *2020 International Conference on Electrical, Communication, and Computer Engineering (ICECCE)*. https://doi.org/10.1109/icecce49384.2020.9179313

Jenkins, A. (, 2020, eptember 24). What is Warehouse Management? Benefits, Processes, & Strategies. Retrieved from https://www.netsuite.com/portal/resource/articles/erp/warehouse-management.shtml

Julia Rittenberg, R. W. (2022, Aug 11). *What Is A Warehouse Management System (WMS)?* Retrieved from https://www.forbes.com/advisor/business/software/what-is-wms/

Junhong, M. (2020). Research on Intelligent Warehouse Management System Based on RFID. *Proceedings of the 2020 9th International Conference on Applied Science, Engineering and Technology (ICASET 2020)*. https://doi.org/10.2991/aer.k.201203.006

Luo, J., Xu, J., Aldosari, O., Althubiti, S. A., & Deebani, W. (2022). Design and Implementation of an Efficient Electronic Bank Management Information System Based Data Warehouse and Data Mining Processing. *Information Processing &Amp; Management*, *59*(6), 103086. https://doi.org/10.1016/j.ipm.2022.103086

Mbanugo, C. I., & Uzoka, O. A. (2022). *Perpetual Inventory Management Practice Applied By Stores Officers In Public Tertiary Educational Institutions In South-East Nigeria*. UNIZIK Journal of Educational Research and Policy Studies, 14(1), 1-10.

Orobia, L. A., Nakibuuka, J., Bananuka, J., & Akisimire, R. (2020). Inventory management, managerial competence and financial performance of small businesses. *Journal of Accounting in Emerging Economies*, *10*(3), 379–398. https://doi.org/10.1108/jaee-07-2019-0147

Pantai Timor Hypermarket Sdn. Bhd. Company Profile - Malaysia | Financials & Key Executives / EMIS. (n.d.). https://www.emis.com/php/company-profile/MY/Pantai_Timor_Hypermarket_Sdn_Bhd_en_4216424.html

Ramaa.A. (2012, September 1). Impact of Warehouse Management System. Retrieved from file:///C:/Users/karfa/Downloads/5y1.org_ae31b58bcc8aca042efcfec195ba3d0b.pdf

Sekaran, U., & Bougie, R. (2016). *Research Methods For Business: A Skill Building Approach* (7th ed.). Wiley.

Sridhar Kare, Mahesh Kumar Rajuldevi, & Ranjit Veeramachaneni. (2009). Warehousing in theory and practice : A case study at ÖoB, Clas Ohlson, Stadium, Åhlens. *University of Boras School of Engineering*.

Tamhankar, R. (2018, May 9). VED Principle for a successful business. Retrieved from https://www.newindianexpress.com/opinions/2018/may/10/ved-principle-for-a-successful-business-1812507.html

Tejesh, B. S. S., &Neeraja, S. (2018). Warehouse inventory management system using IoT and open source framework. *Alexandria Engineering Journal*, *57*(4), 3817–3823. https://doi.org/10.1016/j.aej.2018.02.003

Torabizadeh, M., Yusof, N. M., Ma'aram, A., & Shaharoun, A. M. (2020). Identifying sustainable warehouse management system indicators and proposing new weighting method. *Journal of Cleaner Production*, *248*, 119190. https://doi.org/10.1016/j.jclepro.2019.119190

Vardells Ltd. (2020, June 24). *The 6 Key Benefits of a Warehouse Management System*. Vardells. https://www.vardells.co.uk/blog/6-key-benefits-warehouse-management-system/

Vatumalae, V., Rajagopal, P., & Kaliani Sundram, V. P. (2020). Warehouse Management System of a Third Party Logistics Provider in Malaysia. *International Journal of Economics and Finance*, *12*(9), 73. https://doi.org/10.5539/ijef.v12n9p73

Vatumalae, V., Rajagopal, P., Sundram, V. P. K., & Hua, Z. (2022). A study of retail hyper market warehouse inventory management in Malaysia. *SMART Journal of Business Management Studies*, *18*(1), 71–79. https://doi.org/10.5958/2321-2012.2022.00009.4

West, C. (2020, July 11). What Is a Scatter Plot and When To Use One. *Visme Blog*. https://visme.co/blog/scatter-plot/

APPENDIX A – DRAFT OF QUESTIONNAIRE

INFLUENCE OF WAREHOUSE MANAGEMENT SYSTEM ON PRODUCT QUALITY IN PANTAI TIMOR HYPERMARKET, KELANTAN

Dear respondents,

We are final year students of Bachelor of Entrepreneurship (Logistics and Business Distribution) with Honours from the Faculty of Entrepreneurship and Business, University Malaysia Kelantan (UMK). We are conducting a study under the title "Influence of Warehouse Management System on Product Quality in Pantai Timor Hypermarket Kelantan."

The following questionnaire is created for the purpose of the study. Your participation in this research is greatly appreciated. The questionnaire will take about 5 to 10 minutes of your valuable time. Your personal information will be strictly confidential. The data collected are only used for the purpose of academic research. We would really appreciate it if you could spare a moment of your time to help us complete this survey from enables us to further our study. Thank you for your willingness to answer our questionnaire.

Prepared by:
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SITI NUR NADIAH BINTI M. SUHAIMI (A19A1132)
LIN KAR FAI (A19A0246)

SECTION A / *BAHAGIAN A*: DEMOGRAPHIC BACKGROUND / *LATAR BELAKANG DEMOGRAFI*

Please tick (/) on the appropriate answer.

Sila tandakan (/) pada jawapan yang sesuai.

1. Gender / *Jantina*

   Male / *Lelaki*

   Female / *Perempuan*

2. Department / *Jabatan*

   Canned Food

   Frozen

   Warehouse

   Minimart

3. Age / *Umur*

   20 years old and below / *20 tahun dan kebawah*

   21 years old - 30 years old / *21 tahun - 30 tahun*

   31 years old - 40 years old / *31 tahun - 40 tahun*

   41 years old - 50 years old / *41 tahun - 50 tahun*

4. Duration of service / *Tempoh berkhidmat*

   1 year and below / *1 tahun dan kebawah*

   2 years - 5 years / *2 tahun - 5 tahun*

   6 years - 9 years / *6 tahun - 9 tahun*

   10 years above / *10 tahun keatas*

SECTION B / *BAHAGIAN B*: PRODUCT QUALITY (DV) / *KUALITI PRODUK (DV)*

Please indicate the degree of your agreement or disagreement with each statement by filling in the circle that best represents your point of view. / *Sila nyatakan tahap persetujuan atau ketidaksetujuan anda dengan setiap pernyataan dengan mengisi bulatan yang paling mewakili pandangan anda.*

Please choose from the following answers: / *Sila pilih daripada jawapan berikut:*

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1	2	3	4	5

DEPENDENT VARIABLE: PRODUCT QUALITY

1.	Maintaining product quality is important for a hypermarket. *Mengekalkan kualiti produk adalah penting untuk pasar raya besar.*	1	2	3	4	5
2.	A hypermarket sold many products nearly expired will influence product quality. *Pasar raya besar menjual produk yang hampir tamat tempoh akan mempengaruhi kualiti produk.*	1	2	3	4	5
3.	Products broken unexpectedly should send back to suppliers for maintain product quality in Pantai Timor Hypermarket Kelantan. *Produk yang rosak secara tidak dijangka harus dihantar semula kepada pembekal di Pantai Timor Hypermarket Kelantan.*	1	2	3	4	5
4.	Order perishable products in constant quantity can maintain product quality for Pantai Timor Hypermarket Kelantan. *Produk mudah rosak yang ditempah dalam kuantiti yang berterusan boleh mengekalkan kualiti produk untuk Pantai Timor Hypermarket Kelantan.*	1	2	3	4	5

SECTION C / *BAHAGIAN C*: INDEPENDENT VARIABLE 1

IV 1: VITAL, ESSENTIAL, AND DESIRABLE ANALYSIS (VED)

IV 1: ANALISIS KEPERLUAN, KECUKUPAN, DAN KEMAHUAN (VED)

Through the implementation of VED Analysis, the product will be categorizing according to their functional importance and value. This technique are divides into three categories such as Vital, Essential, and Desirable.

Vital: The daily supplies such as oil, rice grains, salt are the vital items.
Essential: The items that would be exceedingly expensive to run out of supplies, such as kitchenware, household cleaners, pharmacy products and pet supplies.
Desirable: The items that advantageous to own, such as toy and jewelry.

Melalui pelaksanaan Analisis VED, produk akan dikategorikan mengikut kepentingan dan nilai fungsinya. Teknik ini dibahagikan kepada tiga kategori seperti Keperluan, Kecukupan, dan Kemahuan.

Keperluan: Bekalan harian seperti minyak, bijirin beras, garam adalah barangan keperluan.
Kecukupan: Barangan yang sangat mahal untuk kehabisan bekalan, seperti peralatan dapur, pembersih rumah, produk farmasi dan bekalan haiwan kesayangan.
Kemahuan: Barangan yang berfaedah untuk dimiliki, seperti mainan dan barang kemas.

1.	VED analysis should implement in a hypermarket. *Analysis VED harus dilaksanakan di pasar raya besar.*	1	2	3	4	5
2.	Products should displayed with price, size, and weight rather than its functional importance in a hypermarket. *Produk harus dipaparkan dengan harga, saiz dan berat berbanding kepentingan fungsinya di pasar raya besar.*	1	2	3	4	5
3.	Products arranged neatly may convenience to customers at Pantai Timor Hypermarket Kelantan. *Produk yang disusun dengan kemas boleh memberi keselesaan kepada pelanggan dalam Pantai Timor Hypermarket Kelantan.*	1	2	3	4	5
4.	Products arranged neatly may decrease the risk of damaged goods and help to maintain	1	2	3	4	5

product quality in Pantai Timor Hypermarket Kelantan. *Produk yang disusun dengan kemas boleh mengurangkan risiko barangan rosak dan membantu mengekalkan kualiti produk di Pantai Timor Hypermarket Kelantan.*						

SECTION D / *BAHAGIAN D*: INDEPENDENT VARIABLE 2
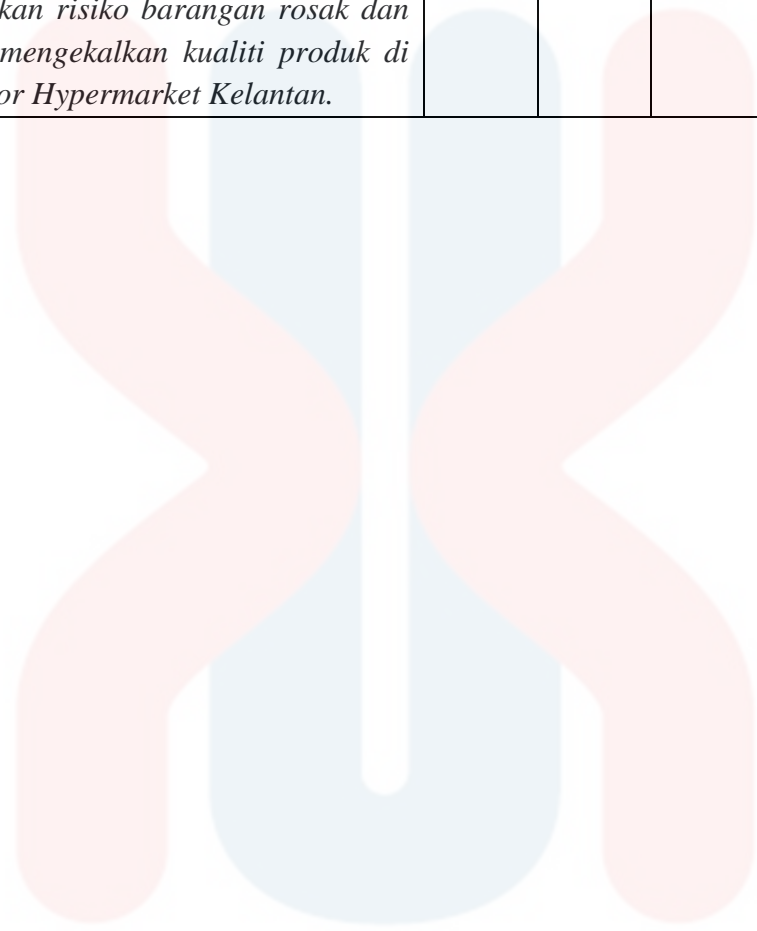
IV 2: PERPETUAL INVENTORY COUNTING

IV 2: PENGIRAAN INVENTORI BERTERUSAN

Involves regular, repeated checking of preselected sections in inventory. A good alternative to annual stock counts by spreading the effort throughout the year.

Melibatkan pemeriksaan biasa, berulang kali bahagian yang telah dipilih dalam inventori. Alternatif yang baik untuk kiraan stok tahunan dengan menyebarkan usaha sepanjang tahun.

1.	Perpetual inventory counting should execute in warehouse to maintain product quality for a hypermarket. *Pengiraan inventori berterusan harus dilaksanakan di gudang untuk mengekalkan kualiti produk untuk pasar raya besar.*	1	2	3	4	5
2.	Perpetual inventory counting helping track and record stock balance in warehouse Pantai Timor Hypermarket Kelantan. *Pengiraan inventori berterusan membantu mengesan dan merekod baki stok di gudang Pantai Timor Hypermarket Kelantan.*	1	2	3	4	5
3.	Carry out stock take in a certain time such as once in a month that can help to maintain product quality in Pantai Timor Hypermarket Kelantan. *Jalankan pengambilan stok dalam masa tertentu seperti sebulan sekali yang boleh membantu mengekalkan kualiti produk di Pantai Timor Hypermarket Kelantan.*	1	2	3	4	5
4.	Repeated checking can help to maintain product quality in Pantai Timor Hypermarket Kelantan. *Pemeriksaan berulang boleh membantu mengekalkan kualiti produk di Pantai Timor Hypermarket Kelantan.*	1	2	3	4	5

SECTION E / *BAHAGIAN E*: INDEPENDENT VARIABLE 3

IV 3: PERIODIC REVIEW SYSTEM

IV 3: SISTEM SEMAKAN BERKALA

Periodic review technique allows the businessmen to estimate the quantity of a product their business has on hand at predetermined, generally they will set an interval of time such as every Friday or the last day of every month.

Teknik semakan berkala membolehkan ahli perniagaan menganggarkan kuantiti produk yang dimiliki oleh perniagaan mereka pada masa yang telah ditetapkan, secara amnya mereka akan menetapkan selang masa seperti setiap hari Jumaat atau hari terakhir setiap bulan.

1.	Restock for each department perform manually in a hypermarket. *Restock untuk setiap jabatan berfungsi secara manual di pasar raya besar.*	1	2	3	4	5
2.	Periodic review system is convenience and useful during restock process in a hypermarket. *Sistem semakan berkala adalah kemudahan dan berguna semasa proses stok semula di pasar raya besar.*	1	2	3	4	5
3.	Periodic review system should implement by a hypermarket to maintain the product quality especially perishable products. *Sistem semakan berkala perlu dilaksanakan oleh pasar raya besar untuk mengekalkan kualiti produk terutamanya produk mudah rosak.*	1	2	3	4	5
4.	Periodic review system helping to uncover theft and other sources of item loss in Pantai Timor Hypermarket Kelantan. *Sistem semakan berkala membantu membongkar kecurian dan punca kehilangan barang lain di Pantai Timor Hypermarket Kelantan.*	1	2	3	4	5

APPENDIX B – INTERVIEW QUESTIONS

DEPENDENT VARIABLE:

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1. What will you do if the product has a lot of stock but nearly expired in Pantai Timor Hypermarket Kelantan? / *Apa yang anda akan laksanakan jika produk mempunyai banyak stok tetapi hampir tarikh luput di Pantai Timor Hypermarket Kelantan?*

2. How did you keep your perishable products to maintain their quality in Pantai Timor Hypermarket Kelantan? / *Bagaimanakah anda mengekalkan barang cepat rosak dengan qualiti yang baik di Pantai Timor Hypermarket Kelantan?*

3. What will you do if the products are broken unexpectedly in Pantai Timor Hypermarket Kelantan? / *Apakah tindakan yang anda akan melaksanakan sekiranya produk rosak diluar jangkaan di Pantai Timor Hypermarket Kelantan?*

INDEPENDENT VARIABLES:

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4. Do you think your warehouse need to be improved? / *Adakah anda rasa gudang anda perlu ditambah baik?*

5. How do you solve the insufficient space in warehouse? / *Bagaimanakah anda menyelesaikan masalah kekurangan ruang dalam warehouse?*

6. How do you arrange the products in warehouse? / *Bagaimanakah kesusunan produk dalam gudang?*

7. How the products displayed and arranged which following the price, size, expired date in Pantai Timor Hypermarket Kelantan? / *Bagaimanakah anda mempamerkan dan menyusun produk seperti mengikut harga, saiz, tarikh luput di Pantai Timor Hypermarket Kelantan?*

8. When is the routine that you will execute stock take in warehouse? / *Bilakah anda akan menjalankan memeriksa persediaan dalam gudang?*

9. What kind of software or current technology that used by Pantai Timor Hypermarket Kelantan? / *Apakah software atau teknologi yang terkini digunakan oleh Pantai Timor Hypermarket Kelantan?*

10. When you will order the products to keep in warehouse? / *Bilakah anda akan memesan produk untuk disimpan di gudang?*

APPENDIX C – GANTT CHART

ITEMS	W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12	W13	W14
INTRODUCTION	███	███	███											
LITERATURE REVIEW				███	███									
RESEARCH METHODS						███	███							
DATA ANALYSIS AND FINDINGS								███	███	███	███			
DISCUSSION AND CONCLUSION												███	███	███