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ANALYSIS AND OPTIMISATION OF LOGISTIC PROCESSES IN
PARMART PHARMACEUTICALS

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Declaration

I hereby declare that this work submission is my own work and that, to the best of my knowledge, it contains no materials previously published or written by another person or material which to a substantial extent has been accepted for the award of any other degree of the University or other Institute of higher learning, except due acknowledgement has been in the text.

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Abstract

Parmart Pharmacy is a wholesale organisation with three distribution depots at Kumasi, Tema, Cape Coast and the main distribution centre in Accra. This is a company that must meet the demand of customers both locally and internationally. Data gathered from the organisation for the past two years 2008 and 2009 indicated an increase in service level of Accra while total decline in all local distribution centres for 2009. Some problems were identified and divided into four main groups as people, IT and controlling, inventory management and operations. Root causes of these problems were identified on a fishbone diagram with some solutions to eliminate these obstacles and increase service level to meet demand of customers at any point.

The researcher recommended an effective means of management of ICT, engagement of skilled labours, organising in-service training for staffs, calculation of reorder levels, using of moving average to predict demand of customers, encouraging effective communication between various staffs and procurement units, aligning expectation of staffs and clearly spelling out roles and responsibilities. In addition to that, outsourcing trucks to third parties, all this will help the organisation to increase service level and save lots of resources for the organisation.

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1 INTRODUCTION

The motivation of the researcher to write about this company was, the researcher has worked with the company for three and half years and has had practical experience with the company. Clients have complained about low service level of the organization. Due to these complaints, the researcher decided to research into the organization to find out causes and provide adequate recommendations to eliminate these problems. It is the interest of the researcher to help the organization to broaden its market locally and internationally to meet demand of customers and increase its service level.

Parmart Pharmacy has a vision to become one of the major distributors in the country in 2015 by which it will own at least 10 distribution centers in the whole country. Considering this vision it's the aim of the researcher to assist the organization to achieve its objective in the next 5 years. To attain this vision it's important for the organization to satisfy its customers in other for the clients to build confidence in the company. With these reasons the research decided to find out the level to which customers are being satisfied and recommend appropriate solutions to stop the decrease in service level of all local distribution centers and increase them in the long term.

The importance of customer satisfaction which is related to level of service given to customers was identified in marketing during the later part of the 1980s when companies gradually moved away from seller's market to customer market or customer orientation in Ghana.

Presently all over the world, it has been found acceptable to operate marketing activities within the framework of the marketing concept. The marketing concept holds that, consumers are very important to the survival of the organization or company and for that matter customer needs and wants form the starting point for an organization strategy.

Parmart Pharmaceuticals is a product distributor which needs to satisfy the demand or meet the service level of its customers. These products must be made available to these clients at the time and place of need. Customer service level has been identified by [8] as "how often

you have the items you've committed to stock when your customers want them." The role of logistic service is to provide "time and place" utility in the transfer of goods and services between clients and sellers. Goods need to be available when and where the customer wants them. They need to be distributed efficiently so that the customer can afford them and the process should delight customers so that they will come back.

It is very important to make the product available to customers. It is the most important in the distribution function of the business. To make products available is a complex issue which certain factors must interact among themselves to meet the demand and service level of customers. These factors which need to inter relate together constitute customer service level satisfactory. These factors include:

- Delivery frequency of the product
- Reliability of the product
- Stock levels of the product
- Order cycle

In modern business the customer is seen as the king, therefore meeting their needs is paramount otherwise they will find your competitors and buy what they want from them. Inadequate service level satisfactory and the activities of uncommitted and unscrupulous staffs can affect the customer base of the company, which will reduce the profit margin. The researcher will point out how important the logistic service is relevant for wholesale organizations to be specific Parmarts Pharmacy.

1.1 PROBLEM DEFINITION

The low service level identified in all local distribution centers were caused due to these problems encountered by the company. Increase in customer service level is determined by the interaction of these factors: delivery frequency, delivery lead-time, stock level and order cycle that affect the process of making products and service available to the clients.

Although the company is doing well in the pharmaceutical environment, this research aims at evaluating inadequate number of trucks, poor IT management, long lead-time, poor

forecasting, lack of committed employees, human resource (unskilled labour), poor supervision, and poor data record. The researcher needs to eliminate these problems to increase service level of the organization. It's the only means to keep the business growing, meet the demand of customers and achieve the dream of the organization.

1.2 RESEARCH METHODOLOGY

1.2.1 Type of research

This study was an analytical research and it was to analyse into low service level of Parmart Pharmaceuticals.

1.2.2 Analysis of data

Qualitative and quantitative method was used to analyse the data such as; the use of matrix, use of re-order level formula, etc.

1.3 SCOPE OF THE STUDY

The research was restricted to Parmarts Pharmacy. It looks at customer service level of the company and its positive and negative impact on the business. The scope of the study is as follows:

- The replenishment levels and re-orders level of the stocks.
- Interaction between Parmart and Clients on customers satisfactory.
- IT management of the Parmart Pharmacy and local depots.
- Communication between the procurement and depots of the organization.

1.4 ORGANISATION OF THE STUDY

The study was organized into eight chapters as follows:

Chapter one (1): This covers the introductory background of the subject matter, problem definition, justification of the research, objective of the study, methodology, scope, elimination and organization of the study.

Chapter two (2): This entails the theoretical review of the study.

Chapter three (3): This chapter entails the goals of the study.

Chapter four (4): This chapter identifies methodologies adopted by the researcher.

Chapter five (5): This entails analysis of the current state of the company and discussion of data collected for 2008 and 2009 of the organization.

Chapter six (6): This chapter entails proposal of solution from that data gathered.

Chapter seven (7): This chapter covers conclusion of the research.

Chapter eight (8): This chapter entails references of all related topics.

2 THEORETICAL REVIEW

2.1 INVENTORY MANAGEMENT

Effective inventory management is a crucial aspect of a successful business practice.

Inventory management is an integral part of a successful business. Inventories typically consist of goods, raw materials and finished products. Each of these elements translates into money for the business owner. The key to profitability is a carefully balanced inventory. [1]

Balanced inventories are important because many businesses rely on its stock of items to make a profit. Stockpiles that never move from the shelves do little good for the company. A proper balance is of the utmost importance. [1]

2.2 MISMANAGED INVENTORIES

Mismanagement of inventory can be disadvantageous to a business, especially considering the cost of these items. Inventories that run out of control can lead to significant losses that the company may not be able to recoup. Considerable investment is required to develop adequate stock. Improper managed of supplies lead to profit loss.

2.3 BOOMING INVENTORY MANAGEMENT

Properly managing supplies requires the ability to create a balance. Part of the balancing approach should include aspects of inventories that many business owners fail to recognize. Issues that may be underestimated include:

- Storage cost

- Insurance
- Taxes
- Ordering dilemmas
- Pricing

Storage costs, insurance and taxes are important aspects of stocking shelves and keeping necessary supplies at hand. These costs should be figured into the purchasing budget for the stock. The upfront purchasing costs are complicated with ordering dilemmas and pricing considerations. [1]

2.4 ORDERING AND PRICING

Managing inventories can be complicated, but some considerations can make the process much easier. Management may be concerned primarily with having a balanced stock while keeping supplies readily available without overstocking the shelves. Other considerations are important as well.

- Balanced assortment of items
- Quick, efficient turnover
- Maintaining service quality
- Stocking up-to-date items
- High volume purchases
- Cost control

Successful inventory management may seem as if it requires psychic abilities, and while a peek into the future can help, managers can fare pretty well by addressing managerial performance. Creating realistic goals backed by evaluations can be beneficial. The data collected in evaluations can give managers insight into the best approach for purchasing stock in the future. [1]

2.5 POS SOFTWARE

One of the most valuable tools available to business managers is POS software. Point of Sale software offers an array of features that provide the guidance necessary for proper inventory and business management. A good program offers more than simply tracking inventories and sales.

Different programs offer different features, so it is important to consider the company's specific needs. The right software system can save a business considerable time and money in a number of ways. The benefits of a Point of Sale software program range from inventory control to accounts receivable, depending on the program. [1]

VENDOR-MANAGE INVENTORY (VMI)

It is a collaboration strategy often used by these large retailers, the suppliers (vendors) monitor inventory levels at retail stores and replenishment orders when needed.[5,7]

2.6 TECHNOLOGICAL ADVANCES IN MANAGING INVENTORIES

The latest technologies for businesses offer a wide range of benefits that make managerial tasks much easier. The intricacies of balancing supplies can be as simple as reviewing a tracking summary. Collected data may include the latest purchasing trends and higher demands for specific services. [1,5]

Technological advances in the realm of inventories provide the necessary tools to help managers make reliable decisions according to current trends in their industries. Software products have a significant impact on the efficiency of a company's performance. Well-balanced inventories translate into profits and effective inventory management can be very lucrative. [1]

2.7 MANAGING OF INVENTORY

2.7.1 Techniques to purchase, stock and manage inventory efficiently

Learning to manage inventory efficiently and correctly will allow a company to stock a sufficient quantity of product to meet customer needs. Not enough inventory causes delays and is bad for business. Excessive inventory costs a business money. A retail business only makes money when its stock is sold, maintaining the point inventory until it has sold incurs certain expenses. These expenses include:

- Interest on any loans used to purchase goods.
- Cost of storage space.
- Cost of moving stock and arranging it for display.
- Cost of time spent managing the inventory.
- Any cost of damaged or stolen inventory.
- Payroll

A large amount of a business's money may be tied up in inventory. It is possible to manage inventory so that profits are maximized and costs are minimized. [1]

2.7.2 Purchase the right products

These are steps taken by [1] to identify the right products of clients.

- Use market research to identify the proper products for each target market.
- Analyse sales from previous years.
- Look for new products for each target market.
- Study the economy forecast for the coming period and determine how target market purchasing power might be affected.
- Compare the effects competitors sales have on your sales.
- Learn from experience what products to buy and in what quantities to buy them.

2.7.3 Buying Correct Quantities

It is necessary to maintain the proper variety and quantity of inventory to satisfy the target market. At the same time it is important to not get caught with an overstock of obsolete items[2]. To do this you must:

- Know what product to order
- Know how much product to order
- Know when to order the product
- Know when to expect the products to arrive
- Know what quantities of product should be in stock during the business cycle
- Know when reorders should no longer be submitted
- Know when products should no longer be in stock
- This knowledge is acquired by analysis and experience:

2.7.4 This knowledge is acquired by analysis and experience

Through analysis and experience of [1] these knowledge has been acquired.

- Make sure suppliers are reputable and will provide products in the quantities required.
- Study lead times for supply and delivery to ensure ordering at the correct time, or determining the delivery time for the customer if additional products have to be ordered.
- Don't over buy just to take advantage of special supplier deals.
- Review buying plans weekly and adjust as needed. If inventory is selling or being used faster than expected, look to source more products as soon as the trend is spotted.
- Establish stock levels (minimum, maximum and at what point to re-order).

2.7.5 Managing Inventory

The easiest way to manage inventory is with a computer inventory management system. The time required to accurately manage inventory will be minimized by using one of these systems:

- Point-of-sale terminals-automatically update computerized inventory levels
- Job costing and inventory systems-automatically update computerized inventory levels

- Barcodes and barcode readers-allow inventory to be input and stock takes to be completed quickly
- Electronic Supplier product catalogs-allow inventory details to be loaded automatically either via the internet or CD/DVD

Once you ensure the stock management system and its reports accurately allow you to manage inventory:

- Remove all goods from the system as soon as they are sold.
- Check regularly to make sure the stock system is accurate against physical stock quantities with spot checks and stock takes.
- Review stock reports weekly and identify products that are not selling so that appropriate steps may be taken. [1]

2.8 PROCESS OF MEASURING THE SUCCESS OF INVENTORY SYSTEM

A successful inventory system makes keeping up with supplier deliveries and filling customer orders easy while still keeping the overall worth of the inventory within acceptable parameters.

While implementing an inventory system is a great step forward in keeping up with transfers into and out of your inventory, don't consider your job complete. As part of the ongoing dedication to managing resources with the greatest degree of efficiency, it is necessary to check on how well your system is working. That means taking time to evaluate the performance level of several key functions within the system and adjusting those functions as needed. Here are examples of how you can measure the success of your inventory system and make sure the system is functioning at optimum efficiency. [1]

In order to measure the success of any inventory system, it is necessary to periodically evaluate what is known in many companies as key performance indicators. Because the exact structure of inventory systems will vary slightly from one situation to another, it is

important to measure the level of performance as it relates to the goals and general operating procedures of your company. However, there are a handful of key performance indicators that are useful in almost every situation. [1]

Your first group of indicators has to do with how well your inventory system is helping your business meet, and possibly exceed, the expectations of your customers. Your system must be capable of accounting for everything that is currently in your finished goods inventory, including what was produced as of the latest completed production cycle. This will optimize the chances of pulling units for customer orders in a timely manner and notifying the shipping department that the order is ready to be released. [1]

The truly successful inventory system makes it possible for your company to shorten the lead-time necessary for order fulfillment by speeding up the process of identifying and removing from inventory the items that are needed by the customer. Compare the average lead-time in the period just before the new inventory system was implemented with the most current period and see if there has been improvement. If so, you know your system is functioning properly. [1]

Measuring the efficiency and success of your inventory system also involves how well the process helps with placing orders with suppliers and vendors. Ideally, your inventory software is capable of adjusting the ordering quantities and delivery lead-time to match the current performance of the suppliers. If not, there is a good chance that your system will flag an item for reorder too late to keep the production process running smoothly. The result is downtime for the production departments, which costs the company money. [1]

A solid inventory system makes it possible to strike that perfect balance between the stock that is on hand and the stock that is needed to operate the company efficiently. This is very important, as maintaining a high inventory means paying more taxes in most cases. When the system is capable of providing data that makes it possible to keep the inventory within a given range, and is capable of flagging items for obsolescence when applicable, your system is successfully and competently managing the inventory, while still minimizing the amount of taxes due each period. [1]

When some aspect or function of your inventory system is not working at full efficiency, there is the need to take immediate action. In some cases, this will be a matter of making a few minor changes to the software. However, if the inventory system is limited and too rigid to allow for occasional refinements, you would be well advised to begin looking for a new inventory system that will meet your company's needs. [1]

2.9 INVENTORY CONTROL

2.9.1 Inventory control is the delicate balance of the costs versus profits associated with having stock on hand.

Inventory control means maintaining the overall costs associated with having inventory as low as possible without generating problems. This is sometimes called stock control. It is an important part of any business that must have a stock of products or items on hand. Effectively managing inventory control is a delicate balance at all times between having too much and too little in order to maximize profits. The costs associated with holding stock, running out of stock, and placing orders must all be looked at and compared in order to find the right formula for a particular business. [1]

It is impossible to have an unlimited supply on hand, for a number of different reasons. Many businesses simply don't have enough money to keep excessively large inventories. There are costs associated with purchasing the items as well as keeping them, and having too many products leads to further losses when they don't move off of the shelves. [1]

During the same time, there are issues with inventory control when there isn't enough stock on hand. One common problem is running out of inventory, which is caused by trying to reduce inventory costs too much. This is something that no business wants to have happen, but it happens to virtually all of them at some point. Even the largest stores run out of certain products from time to time when they sell or use more than they expected. This can cause financial losses when inventory is not available for customers to purchase. Part of inventory control is trying to minimize shortages so these are rare

occurrences. Most businesses expect they will have shortages on occasion and they have calculated that the small loss is worth the money saved by not having an overstock. [1]

Important element of inventory control is called reorder point. Businesses need to think ahead and calculate the best time for reordering products. Doing so too soon may cause financial difficulties or running out of space. On the other hand, waiting too long to reorder will result in a shortage and running out of inventory before the next shipment arrives. When figuring out a reorder point, it's necessary to calculate how long it will take the shipment to arrive and the amount of demand for a particular item. The overhead costs, fees, and shipping expenses of ordering large versus small quantities should also be looked at. [1]

Inventory control is an ongoing process that is rarely, if ever, executed perfectly. Experience, expertise, and practice help people to make the best decisions regarding stock, but there are always unknown circumstances and variables. Stores can make good estimates about how many of a specific product they will sell, but they get things wrong from time to time. This is unavoidable. Inventory control can break a business if it is executed poorly, because either expenses will be too high or customers will get tired of dealing with shortages and find another place to spend their money. [1]

2.10 PERIODIC PHYSICAL INVENTORIES

A physical inventory is the process of counting all inventories in an organisation or company and reconciling the counts with the stock records. This activity requires shutting down warehouse and manufacturing operations for the duration of the count and reconciliation process. Physical inventories are done periodically (annually, semi-annually, quarterly, or monthly) based on organisations principles or policy, with the much-maligned annual physical inventory being the most common. [3]

2.10.1 The problems associated with taking a physical inventory are well known:

They occur too infrequently to contribute to continuous improvement process.

Interruptions to operations result in capacity and customer service issues

Physical inventories are rarely accurate.

“Infrequent physical inventories are not only an ineffective means of maintaining accurate inventory records, they are also frequently a source of inventory accuracy problems. This is one of those rare occasions where virtually all of the experts are in agreement.”[3]

It is the responsibility of accountants for providing an accurate accounting of the value of the company’s inventory for tax purposes and financial reports provided to owners, shareholders, and financial institutions .Though they are responsible for accurately reporting the inventory value, they rarely have much control for accurately reporting the inventory value, they rarely have much control (despite the title “controller “some of them carry) over the day-to-day operations that affect the accuracy of inventory records. [3]

2.10.2 Inexperienced, poorly trained counters

The resources needed for conducting a physical inventory often results in the need to employ staffs throughout the company regardless of their skills levels. These staffs may not have much, if any, experience handling the inventory. Counting errors, misidentification of inventory, misunderstanding of units-of –measure, and confused over storage locations are much more likely when using inexperienced counters. [3]

2.10.3 Inadequate time and resources to investigate discrepancies

There isn’t much time and resources to perform recounts or determine the correctness of the adjustment (is this really a variance), yet alone try to determine root cause. [3]

2.10.4 Confusion over orders and allocations

It can be disaster in a physical inventory when there is confusion over orders and allocations of cycle counts. [3]

2.10.5 Accumulations of unidentified inventory

As counters proceed through the inventory they come across items that are not properly identified; since there is rarely adequate time or resources available to identify the materials, they just tend to accumulate .If they are not identified prior to the adjustments being made, assumption is made that you just deduct this entire unidentified inventory. [3]

2.10.6 Incorrect adjustments

Physical inventories are plagued with incorrect adjustments .These are the results of all of the problems mentioned above as well as simple data entry errors that result from the often-massive number of transactions. These are some of the hindrances identified by [3] as problems associated with taking a physical inventory.

2.11 CUSTOMER SATISFACTORY

Customer satisfactory includes providing what is needed by the customer and when it's needed. It's the responsibility of the customer to inform the supplier with requirements. Satisfying the customer some factors clients perceived to be appropriate are considered which means it's not a single factor rather combination of those factors. [4]

Customer service level measures how often the organisations have the items it has committed to stock when customers want them. If you don't have what customers want, they will look for it elsewhere. The organisation competitors won't make sales calls rather customers will seek them. The customer service level is calculated with the following formula: [6]

$$\frac{\text{Number of line items for stocked products shipped complete in one shipment by the promise date}}{\text{Total number of line items for stocked products ordered}}$$

2.12 CUSTOMER SATISFACTION ANALYSIS

Customer service level can be identified as great tool for determination of how well an organisation is servicing its customers. Some companies have noticed that just having a product in stock does not ensure a satisfied customer. The organisation wants to ensure that each order completely meets the customer's expectations. Customer satisfaction analysis reflects the percentage of customer orders that are filled correctly and completely. In addition to inadequate stock, the customer satisfaction analysis reflects situation where: [6]

- The customer received the wrong item even though the correct item was listed on the packing slip and invoice
- The wrong quantity was shipped even though the correct quantity was listed on the packing list and invoice
- The material was delivered to the wrong address
- The customer received damaged material
- The paperwork was incomplete, or necessary documentation, such as Material Safety Data Sheets (MSDS), was not sent with the shipment

2.13 SUPPLY CHAIN MANAGEMENT

Supply chain management is a business system of enterprise, business processes and information technologies for improving the planning, execution and collaboration of material flows, information flows, financial flows and workforce flow in the supply chain. [10, 9]

“The network of manufactures and service providers that work together to convert and move goods from the raw materials stage through to the end user. These manufactures and service providers are linked together through physical flows and monetary.” [2]

2.14 GOALS OF SUPPLY CHAIN MANAGERMENTS

The supply chain management has certain target to achieve in the cause of its work. These are written by [8,10] as:

- 1) To reduce inventory cost
- 2) To increase sales
- 3) To improve the coordination and the collaboration with suppliers manufactures and distributors.

2.15 FORECAST

Forecast is a prediction of future level of demands or some other criteria, such as capacity, available supply, or price. Forecasting is often the very first step organizations must go through when determining long-term capacity needs, yearly business plans, and shorter-term operations and supply chain activities. [2]

2.15.1 Forecast Types

Organisations need to consider the various types of demand.

2.15.2 Time series forecasting models

Quantitative forecasting models use statistical techniques and historical data to predict future levels. These forecasting models are considered objective, rather than subjective, because they follow certain patterns or rules in calculating forecast values. The two main types of quantitative forecasting models are time series and causal models. [2]

A time series consists of observations arranged in chronological order. Time series forecasting models, then, are quantitative forecasting models that analyze time series to develop forecasts. With time series model, the chronology of the observations, as well as their values, is important in developing forecasts. [2]

2.15.3 Randomness

This is where the context of forecasting, unpredictable movement from one time period to the next.

2.15.4 Trend

This is the long-term movement up or down in a time series.[2]

2.15.5 Seasonality

It is a repeated pattern of spikes or drops in a time series associated with certain times of the year. [2]

2.15.6 Moving Average

Moving average models derive a forecast by taking an average of a set of recent demand values. By basing the forecast on more than one observed demand value, the moving average model is less susceptible to random swings in demand. The model is stated as follows:

$$F_{t+1} = \frac{\sum_{i=1}^n D_{t+1-i}}{n}$$

Where:

F_{t+1} = forecast for time period t+1

D_{t+1-i} = actual demand for period t+1-i

n = number of most recent demand observations used to develop the forecast. [2]

2.15.7 Weighted moving average model

It is a form of the moving average model that allows the actual weights applied to past observations to differ [2].

2.15.8 Exponential smoothing model

This is a special form of the moving average model in which the forecast for the next period is calculated as the weighted average of the current period's actual value and forecast. [2]

2.16 SOURCING DECISION

The sourcing decision is also called the make-or-buy decision. Supply chain managers often make a distinction between sourcing decisions and purchasing activities, which are more tactical in nature. The sourcing decision is critical to operations and supply chain managers because it defines their responsibilities. [2]

2.16.1 Outsourcing

This is the use of supply chain partners to provide products or service for an organisation. Outsourcing typically increases a firm's flexibility and access to state of the art productions and processes. If markets or technologies change, lots firms find changing supply chain partners easier than changing internal processes. [2]

2.16.2 Advantages

- 1) High strategic flexibility
- 2) Low investment risk
- 3) Improve cash flow
- 4) Access to state of the products and service. [2]

2.16.3 Disadvantages

- 1) It is possible of choosing a bad supplier
- 2) The organisation can lose control over the process and core technologies
- 3) There can be communication or coordination challenges
- 4) The organisation can increase risk of supply chain disruption. [2]

3 GOALS OF THE STUDY

- 1) To propose optimum strategies that will enable the organisation to save the cost of managing the distribution centres.
- 2) To develop tactics that distribution centre personnel's will use to reduce time been spend in the course of their operation in order to meet the demand of customers.
- 3) To determine problems customers encounter and recommend appropriate strategies to improve customers service levels.

4 METHODOLOGY

These are the methods and procedures adopted by the researcher to collect data for the research.

- Analysis
- Identification of problems
- Breakdown to the root causes
- Synthesis – proposal of solutions focusing on elimination of root causes
- Discussing results of data collected on customer service of the organization
- Use of matrix diagram to prioritized problems
- Fishbone diagram to identify problems of low service level
- Moving average forecast method
- Reorder level formula
- Series and linear graphs
- Service level formula

5 ANALYSIS OF CURRENT STATE

5.1 BASIC CHARACTERISTICS OF THE COMPANY

Parmart Pharmaceutical Company is a wholesaler of pharmaceutical products. It is a middleman between manufactures and retailers'. It stocks over 1500 items from various suppliers and manufactures. This company has a workforce of 35 employees and is a sole proprietor organisation own by Mr Patrick Martey.

Parmart Pharmacy is a Main Distribution Centre (MDC) which all supplies are delivered and the MDC also delivered to other centres in the country.

The information systems of the various Distribution Centres are not linked to each other. All the Distribution Centres are autonomous from the MDC. The organisation owns three (3) trucks which supplies all the DCs as well as routing to manufacturing companies to transport goods to MDC before it goes to other Local Distribution Centres (LDC) by the same trucks.

Parmart Pharmaceuticals customers can be divided into two groups: international customers and local customers. Most of these customers are located in West Africa. Some are from other parts of Africa like Mali, Senegal, Togo, Niger, Nigeria, Ivory Coast; etc. These international customers are the main customers for the organisation. They buy in large quantities.

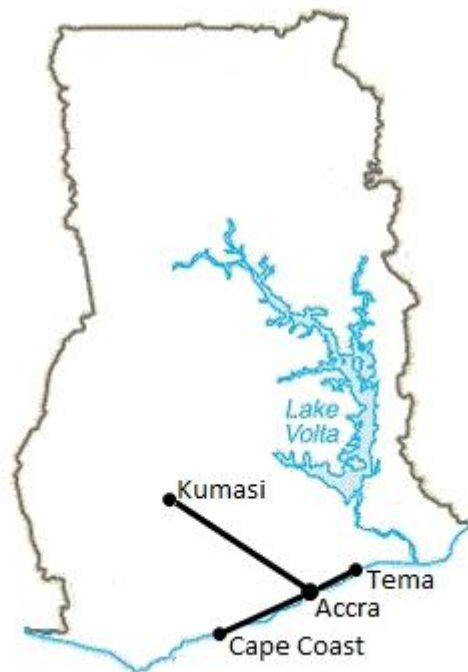
5.2 MODE OF TRANSPORTATION TO THE MAIN AND LOCAL DISTRIBUTION

Road is the only means of transportation for this company which is used to transport goods from the manufacturers premises to the various centres within the country. The same means of transport is used from the manufactures premises to the MDC .The company operates 3 trucks providing the distribution from the manufactures s premises to the MDC and also responsible for the transportation to the other LDCs in the country. Capacities of

these trucks are 5 tonnes and can satisfy a LDC at a particular time. Delivery at these LDCs must be done one after the other.

By this process LDC fall short of some items which make selling difficult for both customers and staffs. Therefore some customers have to wait for long hours or even the whole day for goods to be delivered before they purchase their goods.

Figure 1 map of GHANA indicating towns and roads leading to MDC and LDCS.
Map Scale = 1:500 000



5.3 DISTRIBUTION SCHEDULE

Distribution of items to the LDC is the responsibility of the supervisor in charge of the MDC. All stocks in the warehouse are computerised and replenishment order are placed based on gut feelings instead of monitoring the stock movements in the DCs. Computerisation of the items in the LDC is decentralised from the MDC which makes it difficult for the MDC supervisor to easily monitor the stock level of all LDC. The MDC is located in Accra and Kumasi 73.09 miles or 117.63 kilometres away from MDC. Tema is

25kilometres or 16miles from Accra while Cape Coast is 78.29 miles or 126 metres from Accra. Tema is closer to the MDC but it takes longer time to reach since the road is congested with traffics.

Based on the workload of the LCD supervisors, they sometimes forget to check the level of the stocks in order to place order from the MDC. Since the computerisation of the stocks lacks stock level requirements, they rely on their intuition to place an order. Sometimes there is an increase in demand expected and then the LDCs are not able to meet the demand of the customers. This also affects total sales of the day and poor customer service when unexpected increase in demand.

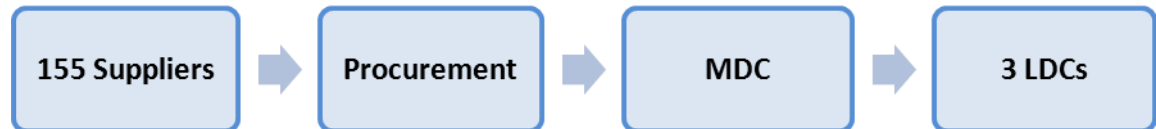
5.4 INVENTORIES

The MDC is where all items or supplies are kept before they are transported to other Local Distribution Centres (LDC). Company has over 1500 items in the MDC value equal to \$USD 108,577,311.60 and \$USD 108,801,945.60 for 2008 and 2009 respectively at the end of each year. Local Distribution Centres consist of items less than MDC. In some parts of the country some drugs are very expensive for the local people therefore those drugs do not move very fast and they can expire when they are not properly monitored or purchased. An LDC stores about 1200 items which is at least \$USD 15, 666,595.04.

These inventories in the various centres have certain pattern of consumption. Consumption of inventories is in three categories as fast, medium and slow. This movement could have given the MDC supervisor to place an order for inventories based on which items needed to be purchased in large quantities. This category of consumption needs to guide all the DCs Supervisors but due to improper use of the information system, it makes placement of order to replenish stock very difficult. It leads to under supply of items to customers and shortage inventories sometimes within the LDCs.

5.5 ORDERING/PROCUREMENT

Figure 2 flow of stocks from the manufacture to LDCs.



Procurement of inventories is done by the manager. Orders are placed immediately as the procurement manager is given the list of items that reached re- order levels. The company trucks are also dispatched to the various manufacturers to load these items to the MDC. The procurement department faces certain problems of inadequate trucks to supply MDC if all trucks are on schedule to supply LDCs. Due to these problems, the department has to hire another truck at a higher price to be able to supply the MDC as soon as possible to prevent shortage .More lead-time is needed to fulfil these objectives if they are not within the locality.

5.6 SALES

Parmart Pharmaceutical sells in large quantities and amount. Based on 2008 and 2009 records the total sales for all distribution centres were USD 74,045,760.66 and USD 78,197,169.69 respectively. Considering items sold a day in the various distribution centres and the type of items bought indicates a pattern in the movement of materials. It will be appropriate to monitor the movement of items in the Distribution Centres and identify its flow.

5.7 INFORMATION SYSTEM

Parmart Pharmaceuticals Company is an organisation that has computerised its stock. The organisation uses tally software. This programme (Tally) determines the movement and flow of stocks, it can calculate reorder level of stocks, it is also accounting software used to calculate total cost of managing the company and revenue got at the end of the year. This computerisation is in different folds. The MDC is decentralised from other LDCs therefore it is difficult for the MDC to monitor the movement of items in all the LDCs. It could have been the best information system management if all the LDCs are linked to the MDC which will enable the Supervisor to see what is going on in various LDCs. In this way he would be able to plan in advance to take care of unexpected increase in demand and budget for problem that may arise.

5.8 PROCESS OF CUSTOMER ORDER (WORKFLOW)

This is the organisations order chat from customers.

Figure 3 flow chart of order.



The first is the stage at which the customer places the order by identifying his needs. These needs are sometimes written on paper which makes it simply for the sales person to easily see and process for him or her. Sometimes the customers go round the shelf and pick samples for the salesperson if the customer has not made his list. The order of the customer is process and his needs are printer out to be severed.

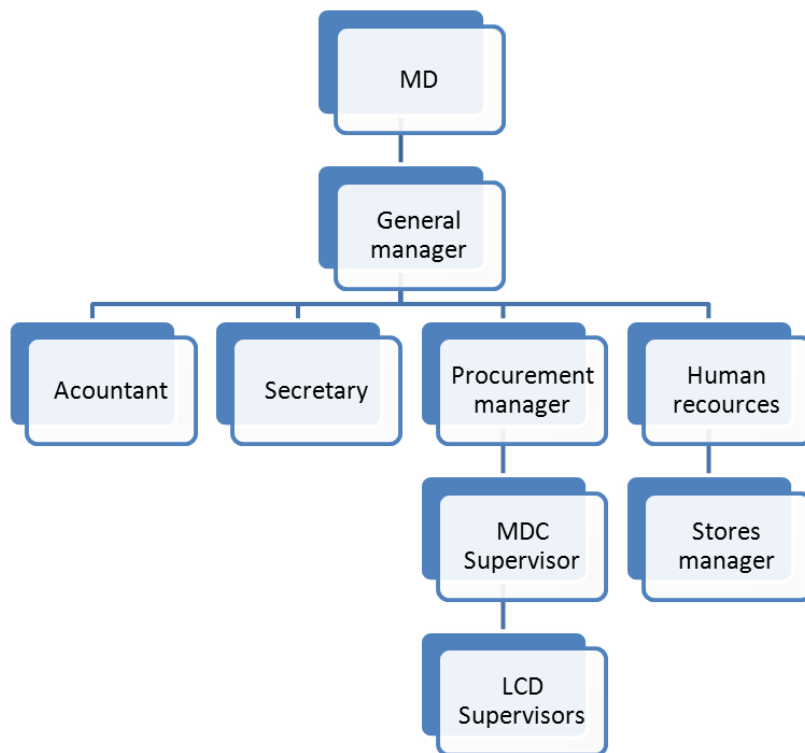
The printed invoice goes to the cashier and she collects the money from the customer on behalf of the company. The cashier also checks if the exact amount tallies with the items bought. After this stage it goes to the staffs responsible to supply the items printed on the invoice. The staff upon taking the invoice goes round the shelves and pick the items one after the other. Through these processes some of the staffs responsible for supplying do supplies wrong items since some of them are not able to identify the right items. After this

stage it goes to the final person on the workflow chart which is responsible for the cross checking of the items supplied by his colleague. This person's main responsibility is to reconcile the items on the invoice and the physical items and he is to parcel the items for the customer. This is how the workflow of the organisation works.

5.9 ORGANISATIONAL STRUCTURE

The organisational structure of the company illustrates the flow of information from upward to downward and verse versa.

Figure 4 organogram of the company.



5.10 DISCUSSION OF THE CURRENT STATE

According to sale figures of 2008 and 2009 records, there are indications that sales fluctuates upwards and downwards which makes it difficult to predict what the next months and year sales will be. It has been identified from the calculation of service level how many percentages of sales was lost from the tables below:

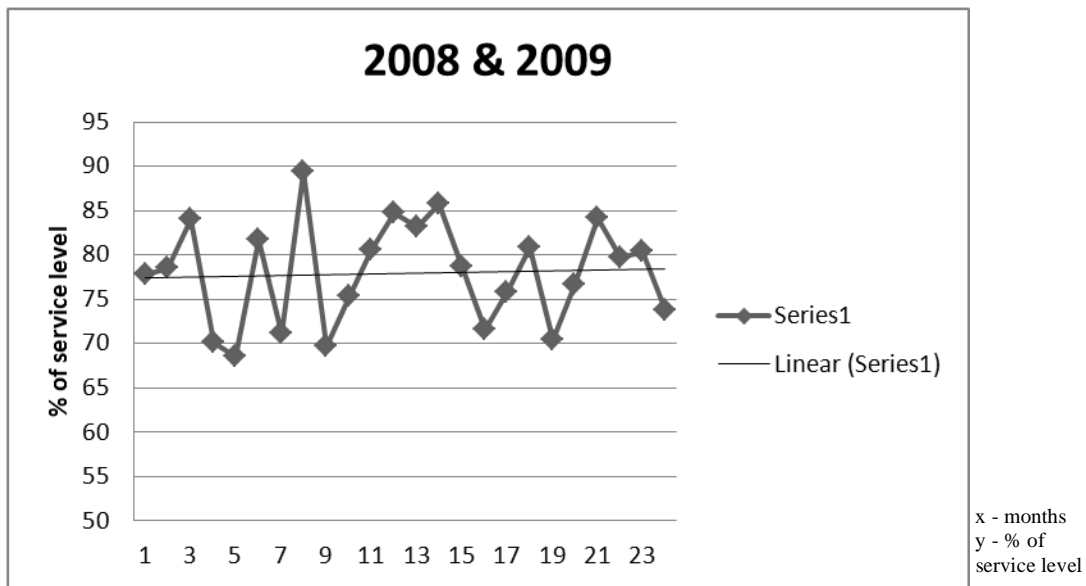
Figure 5 indicates months, customer orders, sales, unsatisfied orders and service level of 2008 sales.

ACCRA 2009				
months	customer orders USD \$	sales USD\$	unsatisfied orders USD\$	service level %
JAN	2308591.84	1921130.84	387461	83.21656547
FEB	2191734.39	1879093.18	312641.21	85.73544261
MAR	2245145.71	1766033.3	479112.41	78.66007503
APR	2339555.28	1673712.51	665842.77	71.53977187
MAY	2460781.91	1864069.84	596712.07	75.75111929
JUN	2399871.25	1939791.95	460079.3	80.82900072
JUL	2649271.58	1866079.47	783192.11	70.43745474
AUG	2312399.37	1771116.93	541282.44	76.59217318
SEP	2285536.12	1923155.04	362381.08	84.14459186
OCT	2367543.1	1886083.27	481459.83	79.66415775
NOV	2416862.33	1941849.72	475012.61	80.34589707
DEC	2669961.4	1967625.29	702336.11	73.69489649
	28647254.28	22399741.34	6247512.94	78.38426217

Figure 6 shows the various parameters of 2009 sales.

ACCRA 2008				
months	customer orders USD\$	sale USD\$	unsatisfied orders USD\$	service levels %
JAN	2157966.5	1678290.49	479676.01	77.77185095
FEB	2338488.88	1837288.87	501200.01	78.56735543
MAR	2346320.48	1969917.48	376403	83.95773283
APR	2311726.06	1620299.03	691427.03	70.09044272
MAY	2587279.38	1774867.97	812411.41	68.59978028
JUN	2062631.02	1685731.57	376899.45	81.72724805
JUL	2004019.19	1424876.14	579143.05	71.10092294
AUG	1983972.24	1774560.25	209411.99	89.44481249
SEP	2683113	1868322	814791	69.63262449
OCT	2191387.69	1650421.69	540966	75.31399841
NOV	2160431.7	1741521.4	418910.3	80.60987996
DEC	2260956.37	1914745.04	346211.33	84.68739448
	27088292.51	20940841.93	6147450.58	77.62533692

Figure 7 show series graph with linear trend indicating the percentage increase or decrease in service level of Accra.



From figure 5 and 6 there has been an increase in January sales of 2008 and 2009 data in Accra. The total customer orders for 2008 and 2009 was USD 27,088,292.51 and USD 28,647,254.28. Total sales for both years were USD 20,940,841.93 and USD 22,399,741.34 and unsatisfied orders for the two years under comparison were USD 6,147,450.58 and USD 6,247,512.94. The average service level of the first year was 77.6% while the second year average was 78.4%. Considering these figures there has been an increase in the service level from the past year to 0.8% which has brought significant increase in sales.

The figure 7 shows series of graph with linear line. It elaborates the upwards and downwards movement of service level in the two years which tells us how services has been provided for the past two years. The linear line in the series shows the exact level comparing the two years. Indications from the linear line show there was an upward increase in 2009 which led to increase in sales.

There could be some factor which could contribute to this increase in service level of the company. These could be, providing the right items at the right time, meeting the delivery time of the customers, meeting demand of customers, skilled and unskilled labours are available to help to speed up with process and providing the right quantity at the right time.

Figure 8 indicates the various parameters of sales during 2008.

KUMASI 2008				
months	customer orders USD \$	sales USD \$	unsatisfied orders USD \$	service level %
JAN	1659989.64	1419657.61	240332.03	85.52207651
FEB	2229079.86	1747968.53	481111.33	78.41659518
MAR	2199424.82	1587016.7	612408.12	72.15598758
APR	2015203.22	1698014.01	317189.21	84.26018742
MAY	1820496.58	1363576.47	456920.11	74.90134752
JUN	1985067.86	1398615.85	586452.01	70.45682811
JUL	2225235.7	1892748.59	332487.11	85.05834191
AUG	1892696.62	1674248.49	218448.13	88.45836529
SEP	2141848.16	1933915.09	207933.07	90.29188558
OCT	2197303.41	1785875.27	411428.14	81.2757702
NOV	2038678.54	1800754.26	237924.28	88.32948524
DEC	2432527.89	1845113.87	587414.02	75.85170462
	24837552.3	20147504.74	4690047.56	81.2482146

Figure 9 represents various steps of sales in 2009.

KUMASI 2009				
months	customer orders USD \$	sales USD \$	unsatisfied orders USD \$	service level %
JAN	2158815.65	1587703.47	571112.18	73.54511581
FEB	2001919.46	1549126.45	452793.01	77.38205662
MAR	2178452.81	1736070.07	442382.74	79.69280133
APR	2122843.59	1739921.87	382921.72	81.96184958
MAY	2416327.44	1771664.24	644663.2	73.32053639
JUN	2072012.9	1710184.72	361828.18	82.53735872
JUL	2004120.82	1479331.62	524789.2	73.81449288
AUG	1972913.97	1640431.2	332482.77	83.14762959
SEP	2099819.92	1606537.81	493282.11	76.50836125
OCT	2181426.89	1739684.6	441742.29	79.74984667
NOV	2059809.68	1596596.3	463213.38	77.51183595
DEC	2212808.41	1657515.23	555293.18	74.9055012
	25481271.54	19814767.58	5666503.96	77.83978217

Figure 10 indicates series graph and linear line of service level of Kumasi for 2008 and 2009 of Kumasi.

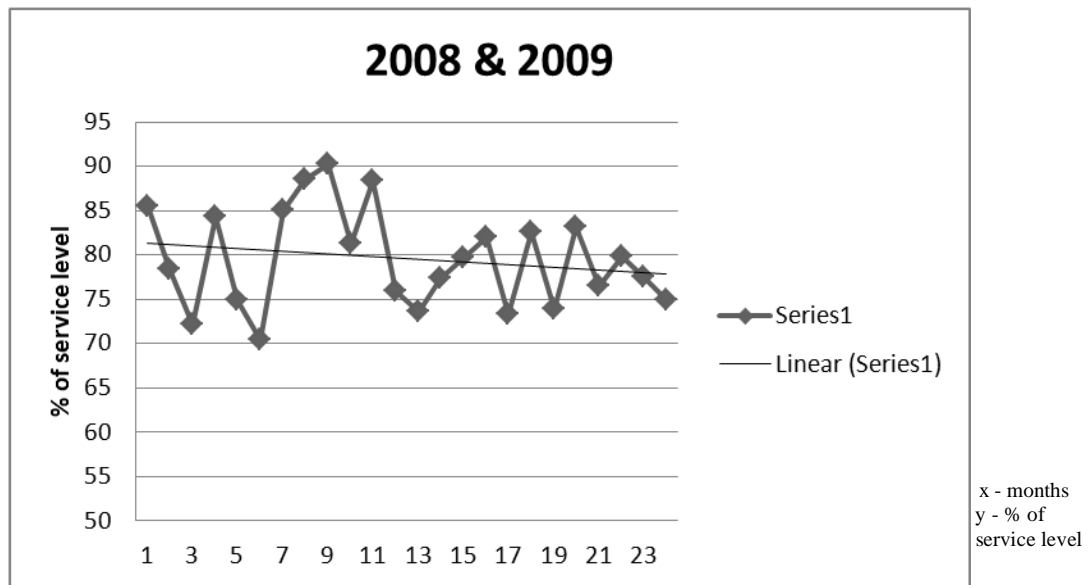


Figure 8 and 9, there are some changes in figures which led to reduction in the service level from the previous year of Kumasi. In both years customers proposed orders in the first year was USD 24,837,552.30 and USD 25,481,271.54 respectively. Actual sales of both years were USD 20,147,504.74 and USD 19,814,767.58. It was identified that during the past two years the unsatisfied orders of USD 4,690,047.56 and USD 5,666,503.96 were calculated from the data.

The total average service levels in percentage of the years were 81.2% and 77.8% for Kumasi in both years starting from 2008 and 2009. The graph in figure 6 inform us as to the trend of service level in both shops during the past two years. Linear line in the graph shows the movement of the service level for both years.

Considering the graph, it can be identified that during 2008 year the highest average service level for the year was 90% in September while lowest was 70% in June recorded in the same year. In 2009 the highest was 83% in August and 73.5% being the lowest in January. The lowest for 2009 was better than 2008, in all total average service level is less than the current year.

Reduction of service level in the local distribution centre can be associated with certain irregularities in its operations and will be look at in the next stage. Some of these could be processing time, low inventory, etc.

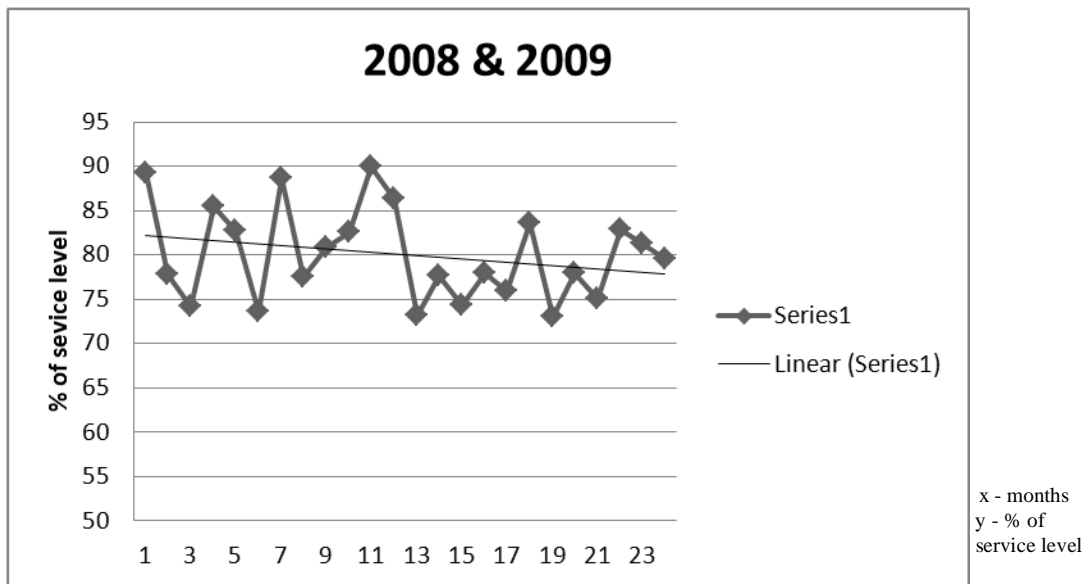
Figure 11 shows parameters of customer orders, sales, unsatisfied orders and service level in percentage.

TEMA 2008				
months	customer orders USD \$	Sales USD \$	unsatisfied orders USD \$	service level %
JAN	1684617.29	1502140.21	182477.08	89.16803947
FEB	1774571.46	1381091.25	393480.21	77.82674753
MAR	1860677.21	1380828.8	479848.41	74.21108791
APR	1896521.99	1620063.26	276458.73	85.42285661
MAY	1831086.54	1515426.47	315660.07	82.76105126
JUN	1697900.19	1250628.37	447271.82	73.65735497
JUL	1625727.32	1441344.87	184382.45	88.65846395
AUG	1457139.75	1128956.96	328182.79	77.47760364
SEP	1734186.72	1403074.01	331112.71	80.906744
OCT	1693908.18	1398129.18	295779	82.53866393
NOV	1778086.8	1600078.59	178008.21	89.98877839
DEC	1934176.25	1669056.98	265119.27	86.29291048
	20968599.7	17290818.95	3677780.75	82.40919185

Figure 12 shows parameters of customer orders, sales unsatisfied orders and service level in percentage.

TEMA 2009				
months	customer orders USD \$	sales USD \$	unsatisfied orders USD \$	service level %
JAN	2147009	1569880.62	577128.38	73.11942428
FEB	2063615.63	1602317.63	461298	77.64612783
MAR	2175311.88	1615780.67	559531.21	74.27811547
APR	1913543.38	1490122.37	423421.01	77.87241123
MAY	2003739.27	1522454.9	481284.37	75.98068884
JUN	2086759.99	1744371.57	342388.42	83.59234308
JUL	2307404.67	1684593.62	622811.05	73.00815682
AUG	1950651.61	1519391.43	431260.18	77.89148109
SEP	2188850.76	1644072.76	544778	75.11123143
OCT	2053555.44	1701950.13	351605.31	82.87821682
NOV	2111568.63	1715147.3	396421.33	81.22621617
DEC	2147402.71	1709190.99	438211.72	79.59340752
	25149412.97	19519273.99	5630138.98	77.68315171

Figure 13 indicates graph of series and linear with service level of both years of Tema.



Based on the figures on 11 and 12, there has been reduction in total sales of Tema distribution centre. The total customer orders for 2008 was USD 20,968,599.70 while that of the following year was USD 25,149,412.97. Actual sales for 2008 was USD 17,519,273.95 and 2009 was USD 19,519,273.99 considering these two amounts we can identify unsatisfied orders as USD 3,677,780.75 and USD 5,630,138.98 respectively. Average service levels in percentages of these two years were 82% and 77.8%.

Figure 13 is a representation of both service level of 2008 and 2009. This is a series of graph and linear with the x-axis indicating months on x-axis and y-axis is service level in percentage of orders.

There was a reduction in service level in the last year. The highest service level for 2008 was 90% and 84% in the following year. Lowest for 2008 was 74% and 73% in the next year. It was a drastic reduction in service level from the two years. The reduction can be attributed to certain factors which can be stock out, lack of improper IT management, etc.

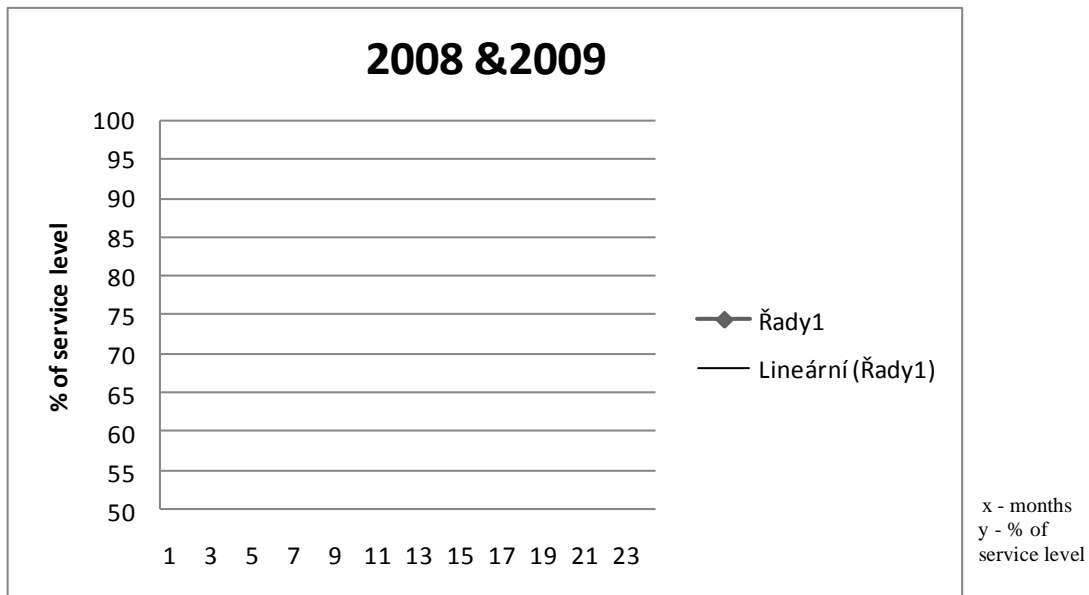
Figure 14 represents months, customer orders, sales, unsatisfied orders and service level in percentage.

CAPE COAST 2008				
months	customer orders USD \$	sales USD \$	unsatisfied orders USD \$	service level %
JAN	1575552.02	1246764	328788.02	79.1318842
FEB	1494008.61	1187495.8	306512.81	79.48386589
MAR	1632975.21	1359379.1	273596.11	83.24554419
APR	1506160.44	1313382	192778.44	87.20067033
MAY	1513704.88	1225283	288421.88	80.94596352
JUN	1469215.14	1361015	108200.14	92.63551422
JUL	1322520.58	1225649.17	96871.41	92.67524366
AUG	1739023.27	1527990	211033.27	87.86483921
SEP	1456837.27	1334796	122041.27	91.6228619
OCT	1308317.11	1220910	87407.11	93.31911894
NOV	1462028.77	1340840	121188.77	91.71091756
DEC	1535824.37	1323090.97	212733.4	86.14858547
	18016167.67	15666595.04	2349572.63	87.16541743

Figure 15 shows months, customer orders, sales, unsatisfied orders and service level.

CAPE COAST 2009				
months	customer orders USD \$	sales USD \$	unsatisfied orders USD \$	service level %
JAN	1783569.45	1335455.62	448113.83	74.87544822
FEB	1982276.31	1428054.5	554221.81	72.04114244
MAR	2078865.92	1317432.9	761433.02	63.37267292
APR	1760510.13	1515949	244561.13	86.10850765
MAY	1702491.52	1370680.1	331811.42	80.51024536
JUN	1865277.81	1285400.6	579877.21	68.91201906
JUL	1978751.34	1327369.78	651381.56	67.08118161
AUG	1763226.61	1338045.29	425181.32	75.88617835
SEP	1749906.43	1321617.52	428288.91	75.52503936
OCT	1885705.46	1342394.25	543311.21	71.18790704
NOV	1834754.98	1398273.8	436481.18	76.21038314
DEC	2034526.15	1482713.42	551812.73	72.87757987
	22419862.11	16463386.78	5956475.33	73.71569209

Figure 16 shows 2008 and 2009 service level of series and linear graphs of Cape Coast.



According to figure 14 and 15 in January, there was total reduction in service level Cape Coast. Service level in percentage for the first month in 2008 was 79% and 75% for the next year. Total orders from customers in 2008 were USD 18,016,167.67 and USD 22,419,862.11 in the next year. The actual sale for the first year was USD 15,666,595.04 and USD 16,463,386.78 for the last year.

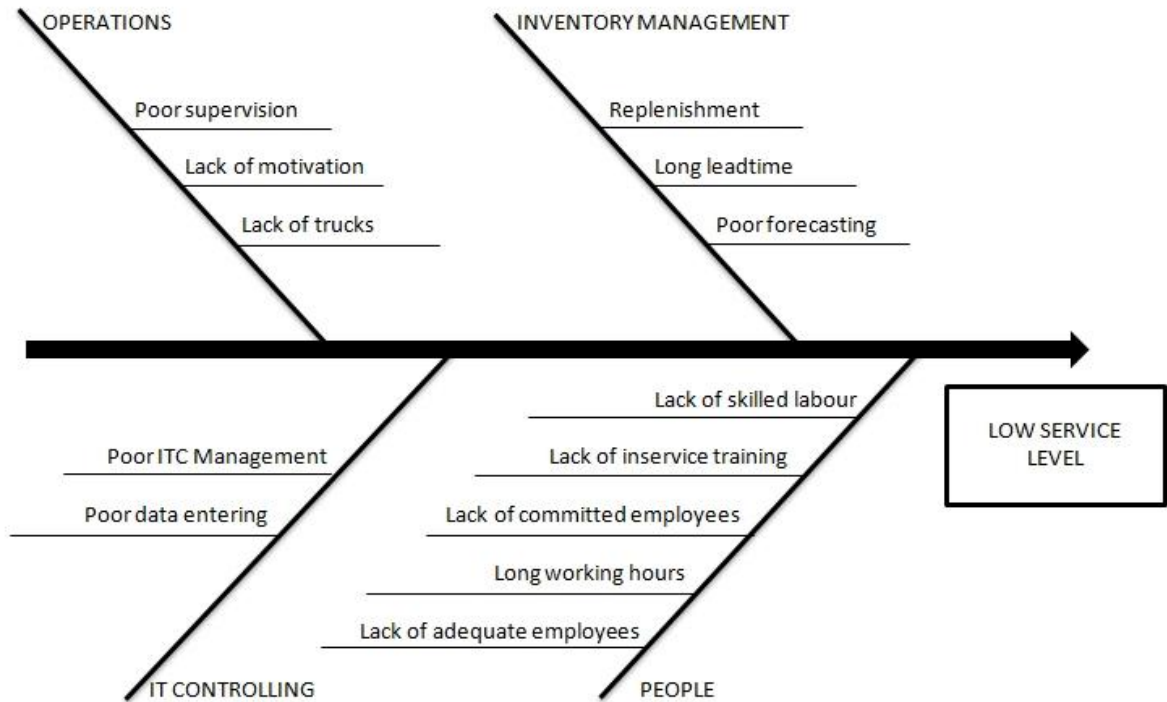
According to the two figures, unattended sales were USD 2,349,572.63 and USD 5,956,475.33 respectively. The average service level in percentage for the 2008 was 87% while 74% for 2009. There was great decrease in customer service for the second year of 13% which reduced the total profit margin of the organisation.

The figure16 diagraph shows the service level of both years which indicates greater reduction in service level. Difference between the years is 13% and has decrease the profit margin of the local distribution centre. The diagrams show an increase in service level of the main distribution centre (Accra) and total decrease in various local distribution centres.

Inventory values of the company for 2008 and 2009 were USD 108,577,311.60 and USD 106,801,945.60. Total sales made during the past two years were calculated to be USD 74,045,760.66 and USD 78,197,169.69. There was an increase in the sales of 2009 but there were opposite reactions in terms of service level reduction in that particular year.

5.10.1 Causes of decline in service level in the local distribution centres

Figure 17 fishbone diagram of problems that led to low service level of Idcs.



This is a fishbone diagram used to identify the causes of low service level of the company. Four (4) main problems were identified on the fishbone diagram as operations, inventory management, IT and controlling and people. Various root causes were identified under these main problems.

5.10.2 Operations

5.10.2.1 Poor supervision

The organization does not monitor the work rate of staffs responsible for order picking since they cannot perform effectively without monitoring. These staffs normally are responsible for picking items from shelves. Parmart do not have proper mechanism in place to check day to day performance of these staffs or even appraise their output at the end of every month.

5.10.2.2 Lack of motivation

The organisation do not show any form of motivation towards employees. Considering this, employees do not put in much effort to increase the performance of the organisation. The organisation needs to motivate them by paying for extra work done, paying the correct salaries, salaries advance to encourage them to do their best for the organisation.

5.10.2.3 Inadequate number of trucks

The organisation has three (3) trucks to supply all distribution centres at the right time. With LDCs and MDC totally four, the company has 3 trucks which are used simultaneously and sometimes cannot meet the demand of the organisation .When goods or items are needed at the same time at the various centres, performing those task are always difficult since these truck are small and can't satisfy two depots at the same time.

5.10.3 Inventory management

5.10.3.1 Replenishment

The supervisors of the Local Distribution Centre do not take adequate measure to replenish stock as and when the stock reaches its re-order level due to improper management of the IT systems. Stock out of these centres leads to reduction of service level since customers' demands are not met. This problem has some consequences on the organisation such as:

- Loss of profit
- Loss customers (goodwill)
- Additional cost (buying from competitor)

5.10.3.2 Picking time

Parmart staffs spend longer time in picking of orders from the shelves. Most employees are unable to identify the correct items on the shelves and it takes them a longer time to perform their task. Some employees lack the technical know-how on how to perform their duties and their output is not encouraged. It also takes an average of ten working (10) days for suppliers to deliver. Suppliers who are not in Accra take one and half to two months to supply to Parmart Pharmacy.

5.10.3.3 Poor forecasting

Though there are supervisors at various Local Distribution Centres, appropriate measures are not considered to check stocks and fix reorder levels to avert stock out of these centres. The systems are not well managed based on that improper forecasting are done and that led to poor identification of actual needs of the customers. If good monitoring of stock is implemented, it will be easy to identify the trend of purchase and correct forecasting will take place to increase sales and profits as well as increasing service level of all the centres to appreciable levels.

5.10.3.4 Poor counting of stock

During stock counting, employees are engaged in the process and these leads to over counting and undercounting because they are not up to the task. With these, it makes delivery of service level quality reduces since adequate records of stocks are not kept. System will be indicating stock whiles physically items can't be traced in their locations. This practice delays customer's time as well as lower service delivery in terms with respect to time.

5.10.4 IT and Controlling

5.10.4.1 Poor ITC Management

Parmart Pharmacy is ITC based but lack of proper management of the system due to personnel has affected the efficiency level of the company. All local distribution centres are not linked with the main distribution centre. This makes it difficult for both local distribution centres and main distribution centre supervisors to effectively monitor the flow of materials in the systems in order to adequately replenish stock at the right time. Due to these, it affects the performance of the company and reduces service level of the organisation.

5.10.4.2 Incorrect data record into the system

Since counting wasn't properly done, the data entered into the system won't be correct since it's always said garbage in garbage out will be the final result. It leads to stock out

quickly without replenishment at the right time to meet the demand of customers. Performances at the LDCs reduce and affect the total delivery of the company.

5.10.5 People

5.10.5.1 Lack of skilled labour

Parmpart Pharmaceuticals employed lot of unskilled labour which represent 60% of the total workforce. These employees do not have any technical know-how which needs to be directed or guided all the time. Lack of guiding these employees do not generate into effective usage of company time.

5.10.5.2 Lack of in-service training to educate employees on the importance of service

The organisation does not do in-services to the employees to educate or equip them on the basic operating principle of business operation tactics and how to attend to customers. This service is provided with the intension of giving the staff adequate knowledge on the important of service in an organisation. Employees with appropriate knowledge on the importance will help to improve the service level of the company.

5.10.5.3 Lack of committed employees

Employees in the organisation do not show any seriousness towards work. They seem to be working just because they must work. Monitoring of these employees are not done effectively therefore attitude towards seems to be very slow which affects productivity hours and finally reduces service level.

5.10.5.4 Long working hours without rest

Staffs perform their duties whiles at work without resting time. They do not enjoy free time to enable them to eat or rest to gain energy lost back. They eat in-between working hours which at the long run they do not do meaningful work. Based on these lots of mistakes are committed and rather leads to wasting of time of customers.

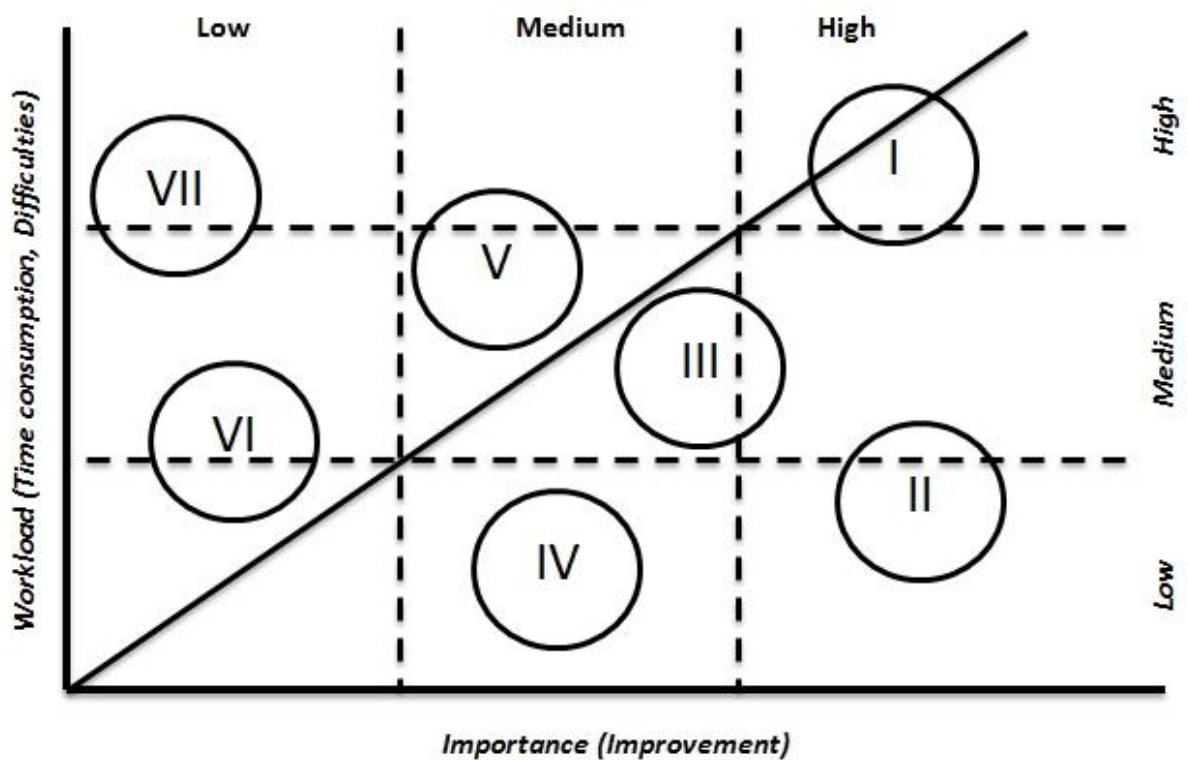
5.10.5.5 Lack of adequate employees

Parmart Pharmaceuticals does not have adequate staffs to manage all the sectors within the various distribution centres. There isn't division of labour; therefore a person performs two or more roles at the same time. Based on these it turns out to delay some customers which needs to attend to other things gets angry and has to leave to our competitors.

5.10.6 Prioritising of problems on the matrix

These problems among others when solved will increase the service level of the company and also brings positive impact into the organisation.

Figure 18 is matrix with most important causes of low service level.



5.10.7 Priority of problems

- I. REPLENISHMENT**
- II. POOR FORECASTING**
- III. POOR ITC MANAGEMENT**
- IV. INADEQUATE TRUCKS**
- V. POOR DATA RECORDS**
- VI. POOR SUPERVISION**
- VII. LACK OF HUMAN RESOURCE**

All these problems in the matrix are very important but the researcher is taking a closer look at most important one which takes less workload and gives higher benefit when solved. Therefore, the researcher's concentration is on the first four (4) main problems as replenishment, poor forecasting, poor ITC management and inadequate trucks.

5.10.7.1 Replenishment

Importance (benefits) = high

Workload = low

The root cause of this problem can be identified as:

- Improper IT management
- Human resource (no skilled labour)
- Swapping of items by staffs
- Lack of effective communication between sectors
- Lack of signal from systems to prompt supervisors of reorder levels.

Appropriate measures must be adopted to eliminate replenishment problems. It is good for Parmart Pharmacy since it needs stock to satisfy its customers. Lack of stock will render the company useless. Looking at the priority of the problems, replenishment of stock is the most important one which needs to be solved.

These root causes can be explained as:

5.10.7.1.1 Improper IT management

The organisation lacks the effective use of the information technology which rendered the firm not up to the task. Issues relating to requesting of items to replenish stock do not flow as it's supposed to be. The main distribution centre is not linked together with other local distribution centres to monitor the stock levels and replenish appropriately to meet demand of clients.

5.10.7.1.2 Human resource

The organisation lack human resources in terms of skilled labour or staffs with technical know how to manage the process of replenishment of stock in various depots. Skilled staffs are needed to work on the information technology to monitor the flow of the items to identify there trend of purchase. Replenishment can be done to meet the demand of customers at the right time which will increase the profit margin and service level if skilled labours are employed to monitor demand of items.

5.10.7.1.3 Swapping of items

This problem is caused when these staffs pick different items in place of other once. By these, it affects other products which are not to be served. It brings discrepancy between the physical stocks and the computerised stocks. The items are indicated in the systems as available whiles physically they can't be traced and replenishment of these items are not done. Therefore, these affect the output of the company and unable to meet the demand of clients of the company.

5.10.7.1.4 Lack of effective communication

All sectors within the organisations and depots needs to communicate to achieve the same objective by meeting the demand of their clients. Staffs at those sectors are not up to the task therefore they aren't able to communicate among themselves correctly to replenish stock when it reaches it reorder level. Good communication between all sectors increases the organisation work rate and free flow of information among them to meet the need of clients and increase profit and sales of the company.

5.10.7.1.5 Lack of signals from systems to prompt supervisors of reorder levels

The systems are not well managed to prompt users as to what is the reorder level of stocks of both MDCs and LDCs. Poor management of the system has led to this, therefore it appropriate to adopt correct measures as to effective use of the system to allow the system to inform various user what the reorder level is and adequate means should be taken to replenish stocks.

Considering the past history of these items, the reorder level can be calculated based on the formula of calculating reorder level.

Example 1: Capital O2 living bitters capsules

Minimum monthly requirement = 600 units

Time required to receive emergency supplies = 2 days

Time required for fresh order or supplies = 15 days

Calculate re-order level

$$\begin{aligned}\text{Re-order level} &= \text{monthly usage} \times \text{lead time} \\ &= 600 \times 15\end{aligned}$$

Re-order level = 9000 units of living bitters capsules

Example 2: syrup dynwell

Minimum daily requirement = 1000 units

Time required to receive emergency supplies = 4 days

Time required for fresh order or supplies = one week (7 days)

$$\begin{aligned}\text{Reorder level} &= \text{Minimum daily requirement} \times \text{lead time} \\ &= 1000 \times 7\end{aligned}$$

Reorder level = 7000 units of syrup dynwell.

According to these calculation of reorder levels of living bitters capsule and syrup dynwell, it indicates that at 9000 units of living bitters capsules and 7000 units of syrup of dynwell an order must be placed to meet the demand of customers at the right time.

Replenishment of stock according to the matrix shows that its workload is very high with high benefit when addressed will help in the free flow of materials and increase service level in the business. Therefore much time needs to be used in solving this; it's difficult to

be solved as well as it gives greater influence on the organisation in terms of positive outcome. By eliminating this problem, the company increases its sales and profit margin. Lots of time and sacrifices are put in place to achieve the greater output of the organization and increase service level.

The consequences of stock out such as loss of profit (margin), loss of customer (goodwill) and additional cost (buying from competitors) are minimized.

5.10.7.2 Poor forecasting

Importance (benefits) = high

Workload = low

Main causes of poor forecasting:

- Ineffective management of stock
- Lack of skilled labour
- Lack of communication between procurement and supervisors
- Poor monitoring trends of past figures

5.10.7.2.1 Ineffective management of stock

Supervisors are unable to manage stock effectively because they lack the know-how skills to manage items. They are unable to identify the flow of items based on customer demand which makes it difficult to forecast or predict market trend at any particular time.

5.10.7.2.2 Lack of skilled labour

Staffs do not have the requisite educational knowledge to be able to read into the future of the organisation. The performance of the organisation in terms of predicting is left in the hands of only the supervisor and this makes it difficult for one person to perform. Most employees in the organisation work in various sectors such as picking of items to customers and it will be best if these staffs can identify items which are limited. Lack of skilled has made it difficult for these staffs to perform this role to assist supervisors.

5.10.7.2.3 Lack of communication between procurement and supervisors

This is the process where all sectors within the organisation need to communicate among them to foster a common goal. They are unable to pass on information about limited items to procurement for onward request to meet demand at time of need. For better forecast, it's appropriate for better communication among all departments with procurement to enable them to procure to meet demand of clients at all time.

5.10.7.2.4 Poor monitoring trends of past records.

Past records are not available for monitoring to identify the trend of purchases and even when available it's difficult to be used for good forecast. Systems are not well activated to keep correct records of forecast trends to ease method of forecasting to meet customer demands.

Analysing the matrix of problems, forecasting has high importance and low workload and provide greater impact to the increase service level of the organisation. Time taken to address it cannot be compared to the result. The matrix shows that it takes less time consumption and difficulties whiles greater importance (improvement) are derived from it. Adequate solving of the forecasting gives much improvement in the running of the company. The biggest result from the matrix is got from the solution of this problem. The y axis indicates workload whiles the x axis represents importance (improvement) level of these problems.

An organisation uses forecasting to predict and manage their future performance. When conducted rigorously, forecasting can be a critical management capability that enhances the competitiveness and value of an organisation. Reliable forecasting is a management discipline. It needs to involve the right people and be practice into the organisations culture. Supervisor needs to be held accountable for incorrect forecasting.

5.10.7.3 Poor ITC Management

Importance (benefits) = high

Workload = medium

Root causes of IT management:

- Mis aligned expectation
- Confusion

- Loss of momentum of employees
- Lack of commitment of employees

5.10.7.3.1 Mis-aligned expectation

This is where staffs have a different expectation on how stocks are supposed to be managed and they have mis-aligned expectations. This is because of over roles, responsibilities played by staffs. Due to this problem no matter how hard a supervisor tries, they just can't seem to get together. There will be communication between them but understanding will be difficult to get.

5.10.7.3.2 Confusion

Over roles and responsibilities of staffs in the organisation lead to this problem of confusion. Staffs aren't sure what they are supposed to do, it leads to lose productivity, there is also problem as staffs move around trying to figure out how things are supposed to work. If a decision is made but no one understands how it is supposed to be implemented, then staffs will end up implementing different solutions and it appears to be poor communication.

5.10.7.3.3 Loss of momentum of employees

This is when staffs in the organisation are not facing the same direction and rowing toward the success, the business loses momentum. When staffs are more frustrated, the more loss of momentum they will have. The frustration is caused when the staffs goes forward but keeps getting pulled back. Poor communication switches to finger-pointing and causing more loss of momentum.

5.10.7.3.4 Lack of committed of employees

Staffs are not really committed to the success of the business and this has led to slack on the part of employees. It means that, the organisation staffs are not focused on what it will take to succeed. Inadequate resources also cause slack. Employees of the organisation lose interest that they cannot achieve higher service level and poor communication is usually the result.

The third most important problem is poor information technology management. This is very important ingredient in management of any organisation which helps in the free flow of information backwards and upwards. The matrix shows high importance (benefits) and medium workload. Less time consumption is used in the solving of these problems and gives better reward after resolving it. Rewards derived from solving this problem gives better benefit to the organisation than time spend in it. It is prudent to spend few times on solving problems of information technology and maximize greater yield from them. Tracking it from the y axis to the x axis gives better result which indicates the need for eliminating it because of its output.

5.10.7.4 Inadequate number of trucks

Importance (benefits) = medium

Workload = medium

Root causes of the problem above:

- Lack of maintenance (cost of maintenance)
- Lack of personnel to drive (salary cost)
- Lack of space (garage) to keep truck

5.10.7.4.1 Lack of maintenance (cost of maintenance)

Acquiring an additional truck won't be the end of the problem but rather increase another. If trucks are bought there should be budget for maintenance of this truck to keep on moving. The organisation has no budget towards maintenance of this truck and it makes it difficult for the company to buy an additional truck to help and effectively move goods from one point to its point of importance.

5.10.7.4.2 Lack of personnel to drive (salary cost)

After a truck has been bought, it's the responsibility of the organisation to employ additional personnel to drive this truck. This employee must be paid salary and fund must be made available for this course. This will cost the organisation a huge sum of money and plans has not been made for that.

5.10.7.4.3 Lack of space (garage) to keep the truck

The organisation lack space to keep additional truck, therefore it will be difficult to acquire new one. According to unavailability of garage the organisation has failed to be able to meet the number of trucks needed for the effectively administration of the company.

Trucks are very important in the running of this business since stocks needs to be transported from one point to the other, especially from the main distribution centre to all distribution centres. Assessing from the matrix, it shows that it's the fourth most important problem and its importance (benefits) are medium with workload also medium level. The organisation currently has only 3 trucks which are used to satisfy all the centres. Solving this problem will bring much greater improvement into the organisation and help to reduce or eliminate certain difficulties in the operations of the business. At least a truck at the disposal of every centre will influence the effective movement of items from one point to the other without hindrance.

All these problems in the matrix are very important to be solved but attention must be given to the most pressing ones which will give greater benefit than the others. It's therefore reasonable in every situation to give priority to most important ones which leads to better result in improving service level of the company.

6 PROPOSAL OF SOLUTIONS

Taking cognition of all importance of the problems, certain measures must be taken to avert them. By eliminating these problems, good result will be achieved in increasing the service level of the company. These are some proposal of solution for the four main problems and their root causes.

6.1 IMPROVING REPLENISHMENT PROCESS

6.1.1 Lack of IT Management

Parmart Pharmaceuticals has to manage its IT sector correctly to foster good replenishment level of stock. The organisation needs to link all local distribution centres with the main distribution centre to enable the supervisor to identify and replenish appropriately. In addition to the main distribution centre and local distribution centres can also be linked and place at the disposal of the procurement department for easy monitoring. This can be done to reduce the workload on the main distribution centre supervisor if he has lots of work to do.

6.1.2 Human resource

The organisation needs staffs with technical know how to manage stock problems, therefore its best to employ good and qualified personnel to manage replenishment level of the organisation. Otherwise the company needs to outsource this duty to a specialist who will work on this twice or once a week to recommend good replenishment level for the company. It will be less expensive for the organisation in terms of outsourcing the work of this sector.

6.1.3 Swapping of items

This problem can be minimized if well-educated are employed by the organisation and in-service training also giving to staffs of the company. This guides staffs to identify the differences in the products and know which ones are needed at a particular time. Through this, the swapping stops and the system really tally with physical stock to prevent artificial shortage of items and appropriate replenish made at the right time.

6.1.4 Lack of communication between sectors

The various sectors need to communicate among themselves to foster a common goal. The order pickers and supervisors need to communicate to help in the replenishment process. Through this, stock out will be prevented immediately since monitoring is done by those who are involved in order picking.

6.1.5 Lack of signals from system to prompt supervisors re-order level

The system needs to be activated to inform supervisors of stock levels and when to replenish stock to avoid stock out. The reorder levels need to be calculated and activated for all stocks to prompt supervisors in the various distribution centres.

Replenishment needs to be eliminated from the management of inventory in the organisation if customer satisfactory is the prime objective of the company in other to increase the service level and increase profit margin. The Information system should be activated to do these automatically once is correctly calculated.

The system is also expected to calculate the movement of the items to enable the various supervisors to identify the fast moving items and replenishment of stock can be planned in that manner if it's been used correctly. Therefore it is good to have the right staffs to be able to check the stock level of the company after work every day to prevent the stock out problem. It will be one of the greatest responsibilities for the person since he or she has to stay for longer hours after work to correct all the anomalies in the stock level. Lots of time will be spent in solving this problem but the reward from this is so high compared to the input.

Therefore it's good to spent money to eliminate stock out and meet demand of customers at the right time.

6.2 IMPROVEMENTS IN FORECASTING

6.2.1 Ineffective management of stock

Parmart Pharmacy needs to management stock effectively to increase customer satisfactory. The company must educate staffs as to their roles and responsibilities which will then help various supervisors to plan good forecasting methods for items at the right time. Effective stock management guides procurement to identify which items are fast, medium and slow movement items.

6.2.2 Ineffective skilled labour

The organisation has to employ good and qualified labours to help the organisation to achieve its objective. Staffs must be taught how to identify items which are being bought frequently and this information must be passed onto the one responsible to prepare good forecast of these stocks to meet demand and increase service level of the organisation.

6.2.3 Ineffective communication between procurement and supervisors

The best method of good forecasting is to encourage effective communication between all sectors of the organisation especially between procurement and supervisors. Effective communication is the most reliable means of achieving organisational goals if demand of customers is the primary aim which lead to increase in profit margin and service level. Therefore, staffs must be educated on the importance of communication and encourage them to do so among themselves.

6.2.4 Poor monitoring trends of past records

Monitoring of past figures or records is good to help to better forecast the demand of the organisation. Past records guides supervisors to better understand the need of customers

and predict correctly to meet their demands. It's the only means which alert supervisors to check the trend or movement of stocks to identify their demand as to fast, medium and slow.

Poor forecasting needs to be corrected since lack of these has led to total reduction in sales and lower customer satisfactory. The company needs to assess the trend of purchase on daily, weekly, monthly and yearly and based on this analysis the various supervisors can really recognised which items are fast ,medium and slow moving items also known as the ABC analysis. It guides the procurement manager to identify which items are most purchased and most pressing needs of the customers of the organisation. Therefore monitoring of purchases should be done at least weekly to help for better forecast and meet the need at the right time and in right quantity to increase service level of the various local distribution centres.

The current state of forecasting is based on gut feeling which has not past records to accurately identify the needs of customers. It is therefore accurate to combine some factors such as common sense, experience, comprehension and judgment. All these must be combined with mathematical approach to give an appropriate prediction of the future. Objective forecasting methods such as averages, moving averages (average demand in the past), exponential smoothing, seasonal coefficients (indexes) and trends (regression, least squares methods) are recommended approaches which the organisation needs to look at and adopt a particular one. My recommendation on these forecasting methods, the company must adopt the moving average method to predict the future demand of customers.

Considering the average demand of customers of capsules cod-liver oil of 2008 for the first 6months.This past records can be used to calculate the demand for the next month and subsequent once with the use of the moving average.

Figure 19 indicates moving average of Parmart Pharmacy for some months in 2008.

months	Jan	Feb	Mar	Apr	May	Jun	July	Aug.
sales	200pc	179pc	207pc	233pc	267pc	199pc	217pc	217pc
Moving average up to June								
Average in June	1285/6	214.2pc						
Average in July	1302/6	217pc						

With this method is easy to calculate the average demand of customers for the following month and simple to predict the future demand of customers. Through this means achieving the demand of customer will be met and increase the service level. From the calculation above, it shows approximately 217pc of capsules cod-liver oil will be an average demand of customers in August.

6.3 IMPROVEMENTS OF ITC MANAGEMENT

6.3.1 Mis-aligned expectation

Roles and responsibilities of staffs need to be well spelt out to avoid over responsibilities played by staffs through this there won't be different expectation from workers. Defining roles of staffs will drive a common understanding between them and supervisors will get together with other staffs with good communication and achieving the same goal for the organisation. Good understanding and better understanding can be seen among them to foster good result.

6.3.2 Confusion

In other to prevent confusion in the Parmart pharmacy, it's appropriate to make sure the supervisor takes leadership positions of managing the organisation and staffs are assigned to a particular role. Without clear leader and clear responsibilities, there will be lack of direction and clarity. This will lead to clear leader and trust imposed in him by staffs. If

staffs trust the leader, then they feel they have a choice to be a part of the team. The supervisor can offer clear direction, problem-solving and decision-making as needed.

6.3.3 Loss of momentum of employees

The organisation must see to it that everyone in the organisation has the same objective and working towards a common goal to increase profit and increase service level of the company. However, issues must be resolved quickly and the momentum slightly diminished and the staffs must continue to move forward and achieve the main aim. It is therefore imperative that you have a clear process for resolving issues quickly. This process needs to be known by all and used. One such process is to agree to disagree on an issue and then empower a new set of staffs to look at the issue so they can offer their ideas for resolution.

6.3.4 Lack of commitment of employees

Some staffs are just along for the ride and are not really committed to the success of the organisation. This causes enormous stress on the other of committed staffs. Sometimes you can't do much to get rid of the lack of commitment, therefore is good to monitor and manage the level of stress that the staffs encounter. Employees come together to accomplish something. Planning celebrations along the way (perhaps at each milestone) will aid an accomplishment.

Poor information management is the one which needs to be corrected to aid better co-ordination between the various centres and mainly the main distribution centre. In order to eliminate this lapses to enhance adequate use of it. It's therefore necessary to link all Local Distribution Centres of the organisation together with the Main Distribution Centre for easy monitoring of stock levels of the centres. It's advisable for the company to employ two ITC specialists for all the centres while each will be responsible for two centres.

6.4 INADEQUATE OF TRUCKS

6.4.1 Insufficient maintenance resources

The entire organisation needs four (4) trucks to perform its distribution effectively. After acquiring one more truck in addition to the existing three (3) trucks, the company has to make funds available for its maintenance. It is true that cost of maintenance in the long run is more expensive than the cost of acquiring therefore, if measures are not taken to ensure the safety of these trucks it will cost the organisation in the end. The cost of ownership includes, the cost of purchases (fixed cost), cost of fuel, cost maintenance, wages and salaries and lock up capital. In terms of renting, the user only pays for the usage price. Comparing these two situations, it obvious renting will be less expensive than acquiring whiles outsourcing could be the best method. It will be appropriate to hire a truck at time of need to perform the supposed function. Due to this, cost of acquiring and maintenance will be avoided. Responsibilities of managing this process will be solely managed by the owner of the truck and the organisation pays for the usage for that particular day.

6.4.2 Lack of personnel

If this problem is outsourced to a third party (external provider), the cost of salary for the driver will be absorbed by the service provider and won't be the burden of the company. Therefore, outsourcing this service will help to reduce the financial burden on the organisation and help to effectively supply items to various departments to meet demand of customers at the right time.

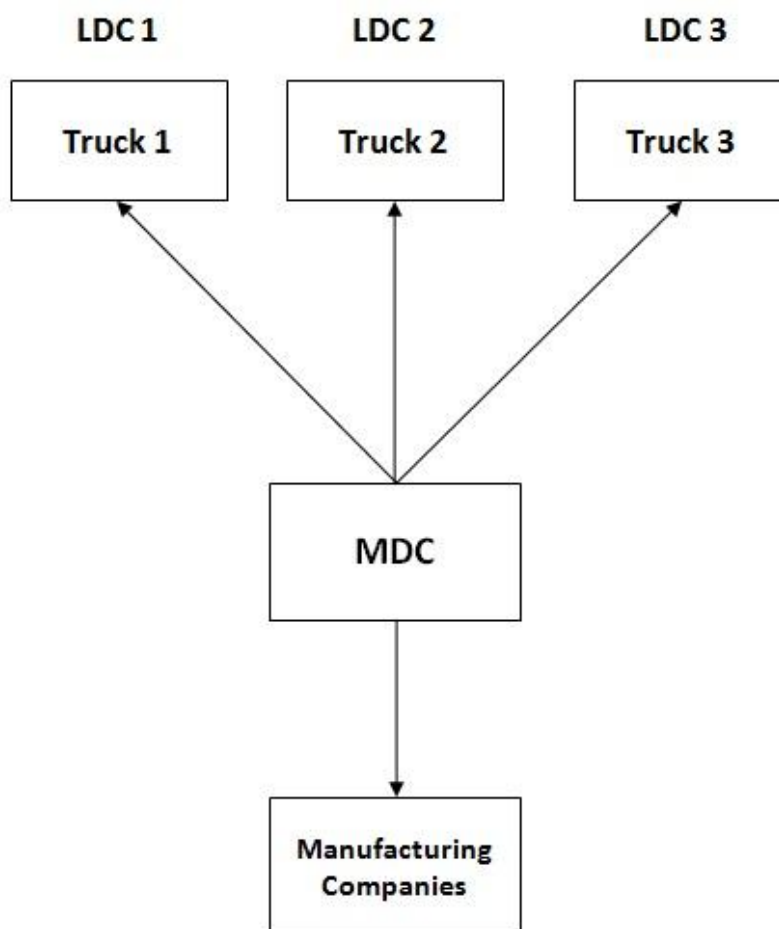
6.4.3 Lack of garage (space)

Outsourcing this function is the best method for the organisation since all cost relating to the truck will be the responsibility of the service provider. It could have being the responsibility of the organisation to bear the cost of space or garage but since it's outsourced, the responsibility lies with the service provider. Therefore, the appropriate means is to outsource this and pay for the usage of the truck at any particular time being used.

Trucks are important in the management of a wholesale company since items will be carried from one centre to other. Three (3) trucks are at the disposal of the company. They are used to transport goods from the manufacturing companies to main distribution centres and onwards to local distribution depots. These trucks are not big enough to transport goods to two destinations at the same time. The various depots are not closed together. As funds are not available to procure additional truck it's recommended to outsource this service to a third party.

For the problem of truck to be eradicated from the operation of the company, outsourcing needs to be encouraged to allow effective operation of the company and meeting the demand of customers at the appropriate time and increase their service level.

Figure 20 a diagram of movement of trucks in the organisation.



To summarize the movement of trucks in the diagram, it shows how these trucks move from the main distribution centre to local distribution centres and manufacturing companies within the country. If all these trucks are dispatched to local distribution centres it leaves no truck at the disposal of main distribution centre. The negative effect of this is, as demand comes from the LDC shop in Accra which is closer to the MDC, the company is not in position to order items from the manufactures if the main distribution centre has less items in stock. This is because all trucks are dispatched to local distribution centres. The company in the case must wait for trucks to come back from their duties before this assignment can be performed. The problem this situation leads to is, customers get angry and can't wait for longer hours and they must leave to look for alternatives for the needs. This activity ends up in reducing the market share, profit margin and service level of the company. In other to prevent this problem an outsourcing strategy will be adequate since the company will avoid the fixed cost and rather pay for usage price as the organisation has no budget in acquiring an additional truck.

An Iveco truck of 180e24 cost 35,000 EUR as the fixed cost. This is truck with 800x639 sizes. An average maintenance cost for a year is 2,500 EUR for the existing trucks if all things being equal.

The net salary of the employee responsible for the truck for a month is 1,300 EUR. Therefore yearly net salary of the driver is

Monthly = 1,300 EUR, A year = 1,300 EUR X 12 = 15,600 EUR

Therefore, 15,600 EUR + 2,500 EUR = 18,100 EUR for a year. This amount does not include the fixed cost of acquiring the truck.

The total cost of outsourcing the truck from third party a day is 100 EUR. The truck problem do not occur day in and out. At most it happens on average 4 times in a month when demand increases.

Therefore if 4 X 100 EUR = 400 EUR, A year = 12 X 400 EUR = 4,800 EUR.

To consider cost of running the truck internally and outsourcing its:

Total cost of managing the truck for a year – a year cost of outsourcing.

18,100 EUR - 4,800 EUR excluding fixed cost.

Therefore total money saved is 13,300 EUR a year.

Lastly, it's important to outsource the additional truck for the organisation since there aren't budget towards acquiring one. Comparing factor like overhead cost, demurrage cost, fixed cost, cost of depreciation, cost of maintenance, etc. It's appropriate to outsource to meet efficiency of time of delivery, etc. Comparing the cost of acquiring and outsourcing:

In all Pharmacy Parmart Pharmacy has a vision to become one of the major distributors in the country in 2015 by which it will own at least 10 distribution centers in the whole country. Considering this vision it's the aim of the researcher to assist the organization to achieve its objective in the next 5 years. To attain this vision it's important for the organization to satisfy its customers in other for the clients to build confidence in the company. With these reasons the research decided to find out the level to which customers are being satisfied and recommend appropriate solutions to stop the decrease in service level of all local distribution centers and increase them in the long term.

A critical analysis was carried on the company and certain phenomenon was noticed based on 2008 and 2009 records. Data on customer orders were collected for those years and total service levels were calculated based on satisfied and unsatisfied orders. A graph was drawn with the entire datum collected to determine the percentage of service level achieved by all distribution centres. The graph and the linear were drawn with both years' data. The researcher noticed changes in the service level of all distribution centers. Comparing service level of Accra and all local distribution centers for 2008 and 2009, there was an upward increase in the main distribution Centre (Accra). On the other hand, local distribution centers were decreased.

After releasing these declines in all local distribution centers, the researcher decided to find out the causes of these problems. A fishbone diagram was used to identify four main causes of the decline in service level. These main problems are operations, low inventory, people and IT and controlling. Root causes of these main problems were identified under the main causes. These root causes were plotted in a matrix to identify the most once and which can be solved. According to the matrix, priority is given to those problems that brings higher benefits and takes less workload to execute. With these, seven problems were identified on the matrix as, replenishment, poor forecasting, poor ITC management, inadequate trucks, poor data records, poor supervision and lack of human resource.

For critical analysis of Parmart Pharmaceuticals, the researcher adopted some methods to collect data. Some of these methodologies are, analysis of current state of the organization, identification of problems, breakdown of the root causes, synthesis-proposal of solution focusing on elimination of root causes, discussion results of data collected on customer service of the organization for 2008 and 2009, use of matrix diagram to prioritize them, fishbone diagram to identify problems of low service level, moving average forecast method, formula for reorder level, series and linear graphs, tables were used with months, customers' orders, sales, unsatisfied orders and percentage service level were indicated within and service level formula was used.

Effective management of stock, good communication between procurement and supervisors must be enforced to eliminate poor forecasting and implement moving average formula method to meet clients demand. On ITC there should be aligned expectation, prevention of confusion and encourage commitment of employees. There should be clearly definition of roles and responsibilities to enforce a common goal of the organisation. Outsourcing of an additional truck will save a lot for the organisation since resources are needed for other pressing needs. The money saved in the course of outsourcing can be used to increase salaries of staffs as form of motivation to encourage them to work effectively

7 CONCLUSION

The motivation of the researcher to write about this company was, the researcher worked with the company for three and half years and had practical experience with the company. Clients have complained about low service level of the organization due to these complaints, the researcher decided to research into the organization to find out causes and provide adequate recommendations to eliminate these problems. It is the interest of the researcher to help the organization to broaden its market internationally and locally to meet demand of customers and increase its service level.

Taking all these factors into account, it's very important to adopt adequate strategies to enable the organisation to perform in order to achieve optimum service level of the company. Parmart Pharmacy needs to identify key drivers of the company and solves them to pave way for better service level of customers and maximise higher profit margins.

Parmart Pharmaceuticals is in competitive business and the consequences of unable to eliminate these problems lead to more reduction in sales and profit margin. These consequences can lead to loss of market share and eventually total collapsed of the business since needs of clients are not met. When needs of customers are not looked at, they always go in for alternative suppliers to satisfy them.

In Accra 2008 the average service level was 77.7% and 78.4% which indicates an upward increase of 0.8% of customer satisfactory. The graph of local distribution centers shows decline in service level of customers. In 2008, average service level of Kumasi was 81.2% and 77.8% for 2009. This indicates totally decrease of 3.4% of customer satisfactory. The service level of Tema was 82.4% and 77.7% respectively. This shows a decline of 4.7% in service level. 87.2% and 73.7% for the last local distribution Centre. Between 2008 and 2009 Cape Coast service level reduced by 13.5%.

The first four problems are the most pressing once and will add a lot of value to the organization when eliminated. On replenishment, it was noticed that qualified personnel needs to be engaged by the company to calculate stock levels of various distribution centers to avoid stock out, meet demand of customers and increase their service level. This is the only means which the organization can satisfy its customers, increase market share

and profit margin. Looking at the poor forecasting, it was noticed the need for the company to monitor the trends of past records, effective management of stocks, engage skilled labour and allow effective communication between various sectors. Thirdly, it was identified for the organization to encourage aligned expectations, prevent confusion of staffs, encourage momentum of employees and enforce commitment of employees. On the last problem, it is important for the organization to outsource the truck issue to avoid the initial cost of acquiring and pay for the usage when it is used. This is the only means the company will not pay for maintenance resources, employing personnel to drive and paying for garage.

Parmart Pharmaceuticals adopted some methods to analysis data collected. Based on the result the researcher recommended method of calculating reorder levels for all stocks in various distribution centres. Two items of the company were used to illustrate calculation of reorder levels. These products are capital O2 living bitters capsules and dynwell syrup. The calculation indicates reorder level of them as 9000units of living bitters capsules and 7000units of dynwell syrup. This method will guide supervisors to monitor replenishment levels of stock. It helps the organisation to order items and meet the demand of customers at the right time, supply the right quantity and deliver the right quality. Reorder level of stocks must be implemented into the system to prompt supervisor to replenish on time to satisfy its customers and increase service level of the organisation.

On forecasting, it was noticed that gut feeling was the main source of forecasting for the organisation. This method does not meet the demand of customers which leads to unsatisfactory service level, based on this, the researcher recommended moving average method to predict the demand of customers based on pass record of their demands. The cost of employing skilled labour to monitor the trend of demand is lower than the profit derived by the organisation. Therefore it's appropriate for the organisation to acquire the services of skilled personnel to monitor and use moving average method to calculate the demand and predict correctly to meet their needs. If the organisation resources can't afford permanent employee, outsourcing this to qualified personnel is good since monitoring can be done once a week to determine the demand of clients.

The organisation must employ addition ITC personnel to assist the already existing one. This will reduce the workload on him and improve efficiency in the organisation. In addition to this linking all centres is important to help in monitoring stock levels and increase service level of clients and satisfy them. The cost of acquiring skilled labour won't exceed the profit the company derives from him. Meeting the demand of customer's increase their confidence level in the company and makes them to place more orders for items which end up increasing profit margin of the company.

Based on the calculations of owning one more truck, it is appropriate for the organisation to outsource this service to third party. The benefit of outsourcing will help to save lots of money for the organisation. There are benefits in terms of outsourcing to meet on time delivery of customers. The organisation only pays the usage of the truck.

However, the researcher will like to recommend the organisation to employ qualified personnel to take care of the ITC, gives staffs in-service training and encourage staffs to communicate effectively among various sectors to achieve effective replenishment levels of the company and increase service level of all local distribution centres.

In the course of the research, the researcher faced lots of challenges in terms of gathering data for the work. The researcher will like to recommend anyone who will like to do more research on this organisation to gather data for 4 years of the company and analyse them. It will be appropriate for the next person to visit all local distribution centres and interview customers and supervisors. This will help to identify the concern of clients and appropriate suggestion will be received from them. The input of clients to the research will be good advantageous to the company.

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