ABC Analysis: A Qualitative Case Study on Inventory Management in Giant Superstore Taman Connaught, An Outlet Of GCH Retail (Malaysia) SDN. BHD.

Shamani Jayakumaran\textdagger, Wong Zi Shan\textdagger, and Dazmin Daud\textdagger*$

1Faculty of Business and Information Science, UCSI University, Jalan Menara Gading, 56000 Cheras, Kuala Lumpur, Malaysia

*Corresponding author’s e-mail: dazmindaud@ucsiuniversity.edu.my

Abstract. This study aimed to understand the inventory management of Giant Superstore Taman Connaught. The study was a qualitative study that explored the ABC analysis efficiency of inventory management in Giant Superstore, Taman Connaught, an outlet of GCH Retail (Malaysia) SDN. BHD. ABC analysis was one method to manage the inventory management who good position was arranged according to the category such as A category product was high in value but low in quantity and C category product was low in value and high in quantity. The elements that were selected as significance included the product consumption rate, carrying cost and replenishment product lead time which contributed toward ABC analysis of inventory management efficiency in Giant Superstore. The study indicated dissimilarities in controlling the inventory in Giant superstore. The study found Giant had used POM.net in their inventory management since this software from ABC tool. HR manager needs to recruit quality skilled workers that have proper qualifications and acceptable for particular job duties.

1. INTRODUCTION

Inventory management refers to the methods to organize, store and replacement of list of products which are in stock. The inventory also refers to hold stocks that are held for sales in a business. In retailing industry, inventory is referring to finished daily requirement product and supplies. Inventory management’s role is balance in relation to the minimization of total cost and expansion of customer satisfaction [1]. The poor inventory management causes sales decreasing and leads business failure.

In terms of accounting, inventory is considered as liability or an asset. Meanwhile, cost is one most commonly consideration in the logistics. The tracking of the moving inventory is to prevent unnecessary costs such as inventory, maintenance and supervision cost due to the limited space in the supermarkets. The supermarkets may not have enough space to place the goods that are higher in demand within the consumer preferences within the area or the demand of the trend. Short lead time reduces the demand forecasting risk exposure [2].

For centralized warehousing, the ABC analysis decides which products should be taken into consideration [3-6]. In many instances, transportation costs increase when a company merge product that move slowly at a centralized location. However, the costs can be balanced out by lowering the stock out penalties and inventory carrying costs.

An outside inventory management agency will assist to manage inventory and handle the stock for an efficient inventory manage. Managing and controlling the inventory helps to keep the stock costs under a control and enables to manage the company’s operating capital efficiently. In additions, most
appropriate supplier selection for each material or product as the supplier needs to work closely with the agency or department that manages the company inventory.

ABC analysis is a technique for prioritizing inventory management [7]. ABC analysis consists of separating the inventory items into three groupings by considering their annual cost volume usage [8, 9]. ABC analysis is most widely used technique in the inventory management to categorize large number of inventory items into three predefined and ordered categories such as category A contains very important items, category B includes moderately important items and category C contains relatively unimportant items [10]. ABC analysis referred as the 80/20 rule, a method of classifying products as specified to their respective importance. This method is often used in inventory control to categorize stock products into classes based on the total yearly use for products or total stockholding expense of each product. There are several factors that contain specific measures to support the usage of ABC method in inventory management. Thus, the three possible factors possessing the efficiency of ABC approach on inventory management are consumption rate, carrying the cost of product and replenishment product lead times. Hence, these factors would be the variables to control the efficiency subject.

Giant superstore has a weekly circular that contains deals and holds bargains for that week and that is a huge budget saver for the consumers. Even though most students are consuming a considerable measure outside over at home, some students prefer to buy groceries from Giant superstore which may be an intriguing improvement in the consumption rate. Consequently, there is a climbing pattern as far as on-the-go consumption and demand for good-for-me products. Students are more pressured for time; thereabouts Giant puts a considerable measure under that specific focus. This study aimed to understand the inventory management of Giant Superstore Taman Connaught.

2. METHODOLOGY
The study is used ABC analysis of inventory management and methodology was carried out by using qualitative case study. The data was collected from store manager and department heads of Giant Superstore whom in charge of inventory of good which inventory, management and procedures data was extracted for study purpose. Non-probability sampling design was used and data collected was used to analyse the inventory through ABC analysis. The judgment sampling is used which the data were collected only from selected few persons who expertized on field obtain first-and information required.

The scope and nature of this study focused on the case study of the efficiency of ABC analysis of inventory management of Giant Superstore, Taman Connaught. The study is focused on Giant Superstore of Taman Connaught, Cheras. The interview was conducted with an interviewee at a time which total up at least 5 interviews. The data was collected with conducted face to face interview using semi-structured interview questions.

The data analysis is completed which included research question, theoretical sampling, data collection, coding on the concepts, constant comparison by categories, saturating the categories and explored relationships between categories to construct the proportional development.

The interview guide was divided into three parts included demographic profile, inventory management of Giant retail superstore and benefit of ABC analysis in inventory management to the organization. The interview questions had been distributed for answer through written way by four respondents along with a short question and answer session and secondly, semi-structured face to face interview with inquiry was conducted with remaining one respondent according to the respondent time convenience.
3. RESULT AND DISCUSSION

3.1. Result
In this quantitative case study, appointments with the respondents were made through communication tools such as phone calls and text messages and also by walk-in at Giant Superstore, Taman Connaught. Ms. A, HR manager was helped in obtaining the respondents for interviews.

For first respondent, Mr. B, a division manager who had worked in Giant retail for over 10 years, had agreed to be an interviewee and selected to be respondent to provide views and facts as an experienced worker in this industry for many years. An hour interview session was conducted on 9th of March 2017 at office in Giant Superstore, Taman Connaught.

Meanwhile, second respondent was inventory management, Mrs. C, a division head in Giant with 20 years of working experience and had 50 subordinates was chosen as respondent. Phone calls and walk-in appointments were made with second respondent for whole data collection process. The interview answers collection was 28th March 2017. Meanwhile, Mr. D was head of body care department in Giant and fourth respondent was Mr E, an assistant head of the fresh market department in Giant. The fifth respondent is Mr. F, the head from electrical department who had 40 subordinates.

In second part with first question, respondent 1 had claimed that demand for certain product was high at specific outlet which the order quantity was increased in the system. Respondent 2 did not answer interview questions as the department did not related to the inventory. Besides, respondent 2 did mentioned that typical involvement were handling the cashiers which were point of sale system (POS), the location where the merchant and cardholder completed a transaction, handling customer service requests and issues and managed security risks.

| Respondent | Explanation |
|------------|-------------|
| Respondent 1 | The system used in Giant Superstore is POM.net (Process Order Management) system, which is a type of web-based Store Ordering System (SOS). POM.net was able to determine daily and weekly sales, managed receiving goods |
and return of merchandises. SOS was a file that generated data on the on-hand balance systems and the system was updated daily at 11.00 am. Respondent 2 stated that the system used in Giant Superstore to manage its inventory was POM.net (Process Order Management) system and followed by fully web-based which gave an effortless interface that can be station and maintained cost effectively. Respondent 3, 4 and 5 indicated that the system was used POM.net system to manage Giant inventory, stocks and products.

Respondent 1 claimed that the product expiry dates were being tracked by manual stock take. The workers were being allocated to different departments and required to check expiry dates and product freshness before filling up the shelves with new ones. Respondent 2 had planned and forecasted with division operations manager to produce more responsive orders for superstores on fast-moving consumer goods (FMCG) as these items required more frequent replenishment. Respondent 4 mentioned that very important to be alert and aware of freshness of goods to ensure only freshest been sold to the customer. Meanwhile, number of goods sold was checked by end of day in POS at cashier counter. Respondent 5 mentioned that consolidation of several types of goods was applied on stock.

Table 2. Respondent answer toward the procedures and activities involved in managing in controlling product consumption rate.

| Respondent | Explanation |
|------------|-------------|
| Respondent 1 | POM.net was widely used in the operation, product consumption rate was being recorded upon checking out at POS which was cashier counters. Each and every product had its own sales units. |
| Respondent 2 | Product consumption rate can be controlled by calculated physical quantity consumption for each product type. |
| Respondent 3 | Product consumption pattern in body care department may vary from other department but similar to the electronics department. |
| Respondent 4 | Consumption rate was varying in each product in the fresh market. High perishable goods tend to have shorter shelves time than other goods. |
| Respondent 5 | The goods such as television, audio and other slow moving products only had limited number of stocks. |

In Taman Connaught, the customers mainly consisted of students, families, office workers and restaurants nearby the area. Hence the goods were sold mostly in smaller quantities. The duty roster is produced and assigned with share jobs, tasks and shifts were typically reduced compensation and increased productivity. For instance, the fresh foods were marked down at a lower price to clear off while still at the consumable stage to reduce the number of wastage and minimize the loss on spoil goods.

Table 3. Respondent answer toward the procedures and activities involved in managing in cost reduction.

| Respondent | Explanation |
|------------|-------------|
| Respondent 1 | Cost reduction in terms of inventory which the product was purchased at lower price when ordered in bulk from headquarter (HQ). |
| Respondent 2 | Cost reduction is reduced labour costs, maintained a stable worker permanent is an effective cost-cutting strategy and helpful in reducing worker turnover as well. |
| Respondent 3 | The body care product is coming in bulk but not all products are slow moving goods in this department. |
| Respondent 4 | The number of good minimizations has been practiced which were sent to the disposal. |
| Respondent 5 | The goods such as televisions, audio and other slow moving products only have limited number of stocks. |

Respondent 2 mentioned tracking shelf life needs planning as some perishable needs extra care and protection. The supervisor had performed some outlined procedures to ensure correct tracking was done to avoid any oversight. Respondent 4 claimed the system has determined number of good lefts on
the shelves by 11.00am. Once the number of goods reached a certain level (safety stock), the system is triggered to purchase the goods from the HQ. Meanwhile, respondent 5 mentioned that bigger scale electronic products such as televisions, audio, oven, blender is triggered by POM.net to replenish when the stock level reached a certain level set in the system.

Table 4. Respondent answer toward the procedures and activities involved in managing in lead time when products stock out.

| Respondent | Explanation |
|------------|-------------|
| Respondent 1 | Each product has its own lead time and required reordered. Three methods which are set in POM.net, second method is forecast by previous record and experience. |
| Respondent 2 | Inventory shelf life tracking as estimate the particular product batch remained in inventory. |
| Respondent 3 | The audit typically conducting by weekly or monthly and inventory and stock are note down as record to understand lead time on when the product was out of stock. |
| Respondent 4 | POM.net has all goods number are synchronized to the POS for every few hours. |
| Respondent 5 | For electronic products depend on good types which have different lead time. |

In Table 5, Respondent 1 claimed that existing of conflict between management and systems on the product price markdown which the goods need approval from manager and headquarters. Respondent 2 mentioned there are several types in gap labelling such as white label indicate store associated cause, red labelling means non-store associated reasons and the store is removed the shelf label for discontinued items or if no shelf stock in for gap scan. Meanwhile, Respondent 3 mentioned managers lost control over the inventory system during operation which resulted inaccurate stock count and increased in the stock storage.

Respondent 5 mentioned human resource plays an important role to make sure there are enough workers available to maintained operation running effective and efficiently while POM.net help on ensuring enough stock to fulfil customer’s demand.

Table 5. Respondent answer toward the management and system influence the inventory.

| Respondent | Explanation |
|------------|-------------|
| Respondent 1 | Management is focused on sales and people while system focused on tracking processes of the goods sent from distribution centres to the outlets and disposal of expired goods. |
| Respondent 2 | Gap scan is used as measurement to drive action and typically routine for the superstore to improve availability and eliminate any extra cost. |
| Respondent 3 | Department managers in Giant typically used gap scan system to optimize the inventory control as to drive each department profitability. |
| Respondent 4 | Management refer to the workers and system refers to POM.net which allocation of workers played an important role in stock. |
| Respondent 5 | Management and system is refer to the operational management of the goods by workers and the system is refer to POM.net. |

In Table 6, Respondent 1 claimed there are unlikely to have additional workforce available during operation hour to optimize the cost. Hence, the workers are high in flexibility on their job scope. Respondent 3 determined the staffing needs of body care department and necessary for rostering or weekly scheduling on the store department procedures and supervise on the floor workers work output. Meanwhile, Respondent 4 stated number of customers was determined by forecasting based on previous sales history on POM.net which the managers were able to forecast and informed HR manager.

Table 6. Respondent answer toward the workers and resources.

| Respondent | Explanation |
|------------|-------------|
| Respondent 1 | Giant superstore is considered as average in scale as compared to other Giant retails outlets. |
| Respondent 2 | Worker allocation decision was made by HR manager. The proper workers allocation and supplies need a strategic plan to avoid any delays, overruns and over costing. |
Respondent 3  
There is less need for more workers to carry out the responsibilities as body care products are slow moving inventory.

Respondent 4  
Worker numbers required for certain shift which duty roster was set up to make sure enough workers stationed on operation hour.

Respondent 5  
Number of the workforce are limited and need the workers are required to be flexible and helped in different departments that required extra attention.

In Table 7, there are several strategies have discussed by Respondent 1 which included retail branding, retail format development and customer service. The information flow in the retail between vendor and distribution centre and distribution centre with stores. In additions, Respondent 3 mentioned that important to undertake regular stock takings to identify under stocking, overstocking and access which products in that department were going missing. Respondent 4 claimed worker allocations plays an important role in stock taking to ensure the goods on shelves were tally with POM.net and POS. Furthermore,

Table 7. Respondent answer toward strategies in managing retail inventory.

| Respondent | Explanation |
|------------|-------------|
| Respondent 1 | Retail branding which customer trust was built with expectation on the product quality, range and price. Retail format developments which Giant retails around Klang Valley and Kuala Lumpur are different scale depend on market demand. Customer service also important factors which the workers are often allocated and disperse around the retail store. |
| Respondent 2 | Unsure the strategies being used in managed retail inventory since respondent did not related to inventory. |
| Respondent 3 | The sales strategies are developed to push the goods according to the product classifications. |
| Respondent 4 | Management is referred to the workers while system is referred to POM.net. |
| Respondent 5 | Customer service is important especially in digital department which customer often had an enquiry on product specification. Customer demand and purchasing pattern also important to decide the product quantity and types to be replenished. |

Based on Table 8, Respondent 1 claimed that third parties such as suppliers and merchandisers usually interact with outlets manager which only check the shelves and sales condition. Respondent 2 claimed clear communications with third parties such as suppliers and others are influenced inventory operations and better staged inventory for the product packaged, shipped and stored. Meanwhile, Respondent 3 stated body care product need new ways in term of packaging and giving deal offers to draw customer forward to purchase and drive revenue as slow moving goods. There were several factors were required to be taken consideration which included shelves cleanliness, exact product quantities and expiry date to prevent good wastages.

Table 8. Respondent answer toward interaction with third part to improve inventory management.

| Respondent | Answer |
|------------|--------|
| Respondent 1 | The goods are ordered through POM.net and shipped directly from Giant’s distribution centre in pallets. |
| Respondent 2 | Interaction with suppliers throughout the process was important. |
| Respondent 3 | There are interactions with third parties to offer a product bundling to puss the goods for sales. |
| Respondent 4 | The stock-taking practices to determine the quantity and monitor freshness and expiry date of goods. |
| Respondent 5 | Digital goods are considered as high-value goods which important to contact the suppliers if any product was found faulty and unable to be sold. |

In Table 9, Respondent 1 mentioned high demand during festival promotions which additional specific product volumes are added and the products were available during festive season only.
Respondent 2 claimed temporary price reduction, special advertising and creativity on displayed the product has influenced the inventory. Respondent 5 mentioned that goods are sold during festivals such as lighting bulb especially in Chinese New Year, Diwali and Christmas.

Table 9. Respondent answer toward festival and event promotions influence inventory management.

| Respondent | Explanation |
|------------|-------------|
| Respondent 1 | Additional of specific product volumes are added and product availability during festive season only. |
| Respondent 2 | Festive promotions are designed to increase sales which important to calculate demand forecast beforehand. |
| Respondent 3 | Body care department did not fully contribute to fast selling inventory during festival promotions. |
| Respondent 4 | Goods are divided into different categories which each of department managers had. |
| Respondent 5 | Electronic products are not affected during festive season as these are not consumable goods. |

In Table 10, there are two methods practiced which the replenishment was determined by POM.net or based on an experience of the workers on specific product. Respondent 2 claimed wrong transaction had affected on-hand balance (OHB) and leads a negative inventory balance. Meanwhile, there are also times which additional quantity of goods was required; manual ordering was done. Meanwhile, Respondent 5 mentioned that network service was important which affected POM.net in synchronized with POS.

Table 10. Respondent answer toward any products when to replenish each of product.

| Respondent | Explanation |
|------------|-------------|
| Respondent 1 | Each product was categorized by product type which there was specific worker in charge on these. |
| Respondent 2 | On-hand balance (OHB) system being used to ensure the product quantity physically in stock based on the inventory. |
| Respondent 3 | The product order and replenish department regarding on hand balance (OHB) stock. |
| Respondent 4 | The orders were placed on POM.net which managed by the manager with HQ through system. HQ is liaised with the suppliers on the order quantities. |
| Respondent 5 | Replenishment of each product can be done by determining the stocks balances on hand and check the quantity in POM.net. |

In Table 11, Respondent 1 stated there are 2 factors that affected inventory efficiency. The good qualities were one of factor which influenced the customer on buying goods. Meanwhile, manpower has committed and focused to have sharp eyes on the goods. Respondent 2 shows POS system included cash register consisted of computer and other technologies. The product code was taken by POS which reduced inventory count and went to distribution centre for new ordering count to the head office on the decision making on what product to keep in the stock. Respondent 3 mentioned inventory was influenced by companies which responsible for declined of their products sales.

Table 11. Respondent answer toward factors that affected inventory efficiency.

| Respondent | Explanation |
|------------|-------------|
| Respondent 1 | Good quality and manpower. |
| Respondent 2 | Inventory software programs that used in tracking usage and compute when to reorder and analysed item-by-item basis on inventory levels. |
| Respondent 3 | The price point of body care products in other stores was top factor which influenced the inventory sales in Giant. |
| Respondent 4 | The important in having enough workers to top up the shelves, at the cashiers and attended to customers in the weighting station. |
| Respondent 5 | Network service is main obstacle that affected inventory efficiency. |

Meanwhile, Respondent 1 and 2 understood on ABC analysis but mentioned that the products could categorized based on ABC category. In actual operation, difficulty in applied theory especially...
extra inventories for certain goods that kept by considered on freshness factors of goods. Furthermore, data reveal from POM.net was against with their policies for consumption rate.

For ABC analysis contribution to product carried cost of retail inventory management, Respondent 1 mentioned that transhipment is practiced which the goods are ordered and delivered from the headquarters (HQ) distribution centre at Balakong with bulk order and daily deliveries are done to reduce the cost. In this process, the workers relied on POM.net which ABC analysis is indirectly applied without aware as the orders were generated by the system daily at 11.00am.

The goods are separated by categories instead of ABC categorization, which different division heads or head of departments were assigned to manage accordingly and leads to difficulties and unclear on the application of ABC Analysis. Besides, the respondents tend to rely a lot on POM.net and POS on replenishment of goods, hence not required to manually apply the ABC analysis into their operation.

4. CONCLUSION

In conclusion, the study indicated dissimilarities in controlling the inventory in Giant superstore. The study found Giant had used POM.net in their inventory management since this software from ABC tool. HR manager has to recruit quality skilled workers that have proper qualifications and acceptable for particular job duties.

ACKNOWLEDGMENTS

The author would like to thank Giant Superstore, Taman Connaught for their unconditional support.

References

[1] Sham, R., Wahab S.N., & Hussin, A.A.A. 2018. Smart Trolley Apps: A Solution to Reduce Picking Error. International Journal of Supply Chain Management, 7(5), 294-302.
[2] Jian, M., Fang, X., Jin, L. & Rajapov, A. 2015. The impact of lead time compression on demand forecasting risk and production cost: a newsvendor model. Transportation Research Part E, 84, 2015, 61-72.
[3] Stock, J. R., & Lambert, D. M. 2001. Strategic Logistics Management. New York: McGraw-Hill Companies.
[4] Wahab, S.N., Bahar, N. & Mat Radzi, N.A. 2019. An Inquiry on Knowledge Management in Third-party Logistics Companies. International Journal of Business Innovation and Research, DOI: 10.1504/IJBIR.2020.10024101.
[5] Wahab, S.N, Olugu, E.U., Lee, W.C., & Tan, S.Y. 2018. Big data analytics adoption in Malaysia warehousing industry. The 32nd International Business Information Management Association Conference, IBIMA 2018, 2349-2365, 15-16 November, Seville Spain.
[6] Ravinder, H. and Misra, R.B. 2014. ABC analysis for inventory management: bridging the gap between research and classroom. American Journal of Business Education, 7, 3, 257-264.
[7] Waniitwattanakosol, J., Attakomal, W. and Suriwan, T. 2015. Redesigning the inventory management with barcode-based two-bin system. Procedia Manufacturing, 2, 113-117.
[8] Muchaendepi, W., Mbohwa, C., Hamandisch, T. and Kanyepe, J. 2019. Inventory management and performance of SMEs in the manufacturing sector of Harare. Procedia Manufacturing, 33, 454-461.
[9] Douissa, M. R. and Jabeur, K. 2016. A new model for multi-criteria ABC inventory classification: PROAFTN method. Procedia Computer Science, 96, 550-559.