

MANAGING INVENTORY IN THE SMALL AND MEDIUM ENTREPRISES FOOD AND BEVERAGE INDUSTRY

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ABSTRACT

Small and Medium Enterprise (SME) has been recognized as a platform in the economic development in Malaysia where it contributes to more than one-third of the Malaysian economy. SMEs industry help to fulfil the market demand and create more job opportunity. However, many SMEs companies faced a common challenge on their business which disrupted their performance and business continuity. Disruption in maintaining the efficiency of inventory management contribute to significant loss to business performance. Therefore, this research has observed some inventory problems faced by purchasing department at Rasa ABC Enterprise, proposed a solution and evaluated the usefulness/ease of use by using project management steps of initiation, planning, evaluation and analysis. This research has also identified the main issue at Rasa ABC Enterprise using the Ishikawa Diagram and found that the root cause is lack of efficiency in inventory management system. Thus this paper has proposed a solution to use a simple interface, user-friendly, convenient, and cost-effective software. Based on the questionnaires that has been distributed, the workers find the software as useful and easy to be used.

Keywords: inventory management, SME, F&B manufacturing, case study, Microsoft Excel

INTRODUCTION

Small and Medium Enterprises (SMEs) business in Malaysia contributes to the growth of the nation in term of value-added, employment opportunities and exports activities This contribution gives a big impact to the overall economies in Malaysia. SMEs contributed 37.1 per cent of the Gross Domestic Product (GDP), 66.0 per cent of overall SMEs employment and 17.3 per cent of the total exports activities. Therefore, the failure and success of SMEs businesses greatly affect the overall economy of Malaysia (Department of Statistic Malaysia, 2017).

However, SMEs successes were developed with many challenges. Among the major challenges are poor business knowledge, lack of resources, bad financial management, and lack of marketing plan. According to Stokes and Blackburn (2002), enhance the knowledge and understanding of the business challenges in all SMEs business owner would help reduce the number of failures as they know how to manage the resources and plan for the future. Plus, Agyei-Mensah (2010) reported that financial management in term of cash flow and inventory control is the biggest contributors to business performance. Other than financial matter, management skill and lack of marketing plan activities also prevent them from success in the business (Abdul Rahman, Yaacob, & Mat Radzi, 2016).

Most researchers have agreed that the failure of SMEs industry occurred in the first five years of their business (Abdul Rahman et al., 2016; N. H. Ahmad & Seet, 2009). Based on a report recorded by Department of Statistic Malaysia (2017), Malaysia has invested 10.5 billion to conduct 167 SMEs development programs which aimed to help 600,000 SMEs business owners across all sectors. In Malaysia, even though government always assist them and conduct several support programs to expose them in the business world, yet still 60% of them are unable to survive in their business (Azmin, Nordin, & Woon, 2011; Chong, 2012).

Therefore, an increasing number of failures in SMEs industries due to the different factors, have motivated us to conduct this research in identifying problems faced by SMEs industry, especially in the food and beverage industry (F&B) in Malaysia. Previous studies on SMEs industries were either focusing on automotive industries (Lazim, Ramayah, & Ahmad, 2008; Md Deros, Mohd Yusof, & Salleh, 2006), electrics and electronics industries (Agus, 2005; Bin Abdullah, Ahmad, & Ismail, 2009) or SMEs in general (Rahman & Tannock, 2005; Thiagaragan, Zairi, & Dale, 2001).

Hence, this paper will be focusing on F&B manufacturing sector with aims to identify the major problem at Rasa ABC Enterprise, propose a solution, and finally evaluate the effectiveness of the solution. The recommended solution can also be implemented in other SMEs companies who are struggling with the same issue.

LITERATURE REVIEW

Inventory Management

Inventory could be a component, semi-finished products and complete products which is a part of a business's assets that are ready to be sold (Singh & Verma, 2018). The inventory in the warehouse can be categorized into three groups: 1) Raw materials or component which is the stock ordered by the firm and supplied by the supplier to produce finish product; 2) Work-in-progress goods which categorized as semi-finished goods that have partially manufactured and have a value; 3) Finished products which are complete goods that is ready to be shipped to the retailer and sold in the market. this research is primarily focused on the areas of the finished product.

Finished goods inventory are the biggest assets in a business. Inventory management is a process of monitoring the product that has been supplied and stored and also observing the availability of products to ensure there are no shortage and oversupply products. Inventory management is also part of supply chain management process that plans, implements and controls the efficiency and effectiveness of the process flow, storing of products and all related activities from the initial point to the endpoint until it meets the customer's demand (Kruger, 2005; Singh & Verma, 2018).

Therefore, the efficiency of inventory management is the biggest factor that contributes to business performance (Koumanakos, 2008). The good inventory management can help an organization to manage their stock efficiently, reduce the inventory lead time, improve competitive advantage and gain trustworthy from the customers (Wallin, Johnny Rungtusanatham, & Rabinovich, 2006). Efficient inventory management also helps to eliminate problems

including decreasing workers' productivity, overproduction, reduction of customers commitment, costly physical inventories and frustration (Meyer, 1991). As a result, a company would be able to achieve its goals with the lowest possible cost through efficient inventory management.

However, Rajeev (2008) stated that the failure of controlling the inventory efficiently would lead to the significant loss faces by the organization where non-value adding activities need to be performed which cost organization money without earning any benefits. According to Benwell (1996), the process of managing the inventory is started from the suppliers and once there is a problem in the supplying process, it would result in a delay in receiving the goods, longer lead time, sometimes the goods will be stored without any records and affect the stock accuracy in the warehouse.

Rasa ABC Enterprise Supply Chain Process

The life span for all Rasa ABC Enterprise products is within one year. All the products must be sold one month before reaching the expiry date. Hence, the efficiency of every level in the supply chain process is important to ensure that everything is going smoothly and all products will be sold before the expiry date. The whole supply chain process is provided in Figure 1.

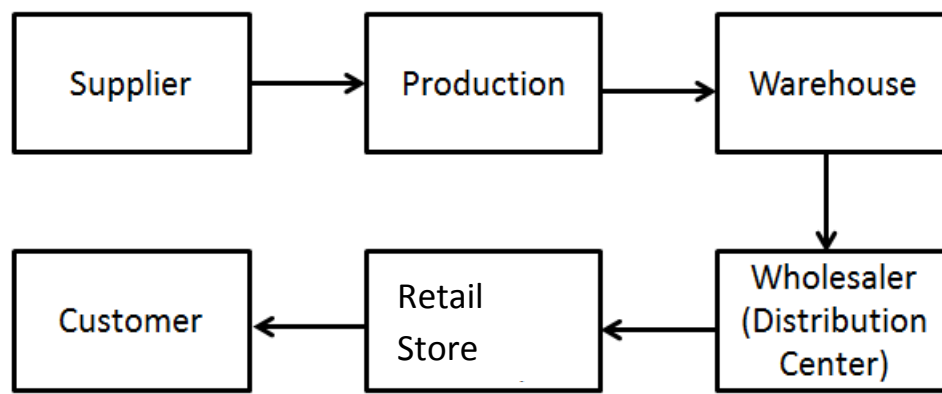


Figure 1: Supply Chain Process in Rasa ABC Enterprise

Production

Rasa ABC Enterprise is producing their products in bundles where each bundle might consist of 30 to 50 set of packs depending on the types of products. The maximum number of bundles that they can produce in one day is 10 bundles, with the quantity of 500 sets of packs. This production is aimed to fulfil the demand from the whole retails stores south of Malaysia and Singapore. As the enterprise is manufacturing almost 25 types of products, thus they are focusing on different products every day. This means that Rasa ABC Enterprise would not produce the same product twice a month. But for a certain period where there is a festival or any celebration that might have a high demand for certain types of products, Rasa ABC Enterprise would produces that particular product twice a month. This is to ensure they're able to fulfil all the customers' demand.

Central Warehouse

The distance between the production plant and the central warehouse is 65 km. The role of the central warehouse is to receive, store and distribute products based on retails stores demand. There are several sets of activities that the warehouse did which are: 1) collecting order from wholesalers; 2) issued order to production based on the order list from wholesalers in case the product is out of stock, especially for high demand products; 3) performing the collecting process, and 4) managing the delivering process until it reaches the distribution centre.

Distribution Centre

Usually, the distribution centre will issue an order to the warehouse once a month. The order would be sent through email. The things that would be considered in making an order is the remaining product's stock in the storage, the sales in the retail stores and order recorded from last month demand. Wholesalers also required ensuring that their orders fit in a 20-foot container as they need to fully utilize the container space. The delivering process would take around one week to arrive at the retail stores depending on the geographical factor and distance from wholesalers store to retail

stores. As there is no agreement between Retail Store X and distribution centre, thus they can simply send products without considering the expiry date. There is a case where the products reach the retail stores with only two months before the expiry date. It's really difficult for staff to ensure that the products are sold before reaching the expiry date in a short duration.

Retail Store X

There are several problems recognized in Retail Store X. The critical problem is related to their sales where almost 12% to 15% of the stock they unable to sell it. This is due to the lack of an inventory management system and them unable to forecast future demand. The other problem in Retail Store X is due to the short lifespan of products. This problem occurs due to the inefficient inventory management process where they didn't manage products efficiently. Therefore, Retail Store X requires skilful workers to overcome this issue by doing aggressive promotion, so that they able to sell the products in a limited time. Experienced workers also have a great impact on their sales where they understand how the business works and able to convince people to buy their products. However, Retail Store X suffers from high turnover. Most of the staff resigned due to the salary rate given by employers because they cannot survive with that level of salary. Hence, Retail Store X needs to invest money and time to train new workers.

METHODOLOGY

Research Framework

In conducting this study, developing a research framework is the first step to ensure that all objectives can be achieved. Research framework plays a role as a reference to see how far the works have been completed and give direction on the next tasks that should be resolved. It also helps to improve clarity and reduce confusion about the proper sequence of steps to be followed (Yusuf & Mohamad Yusof, 2019). The research framework for this study is shown in Figure 2.

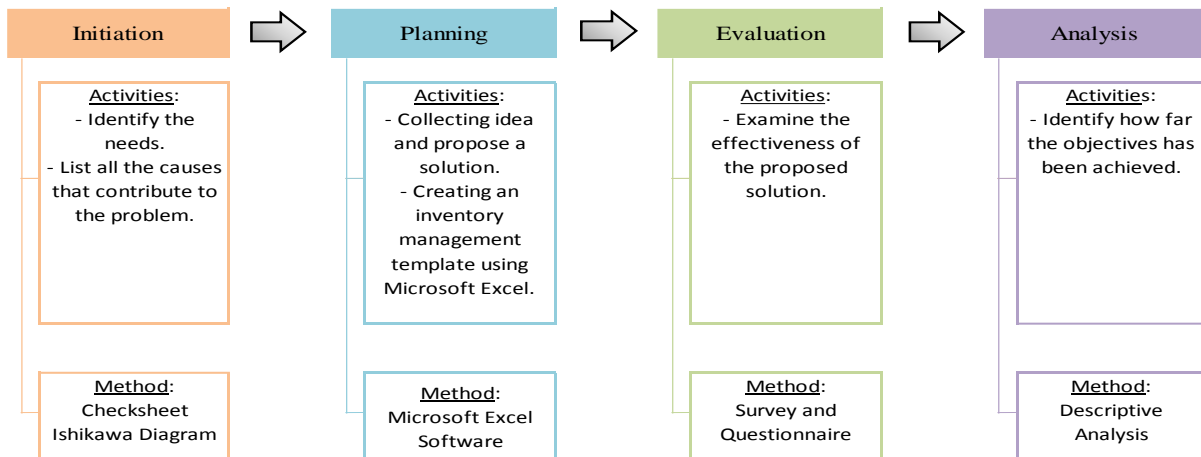


Figure 2: Research Framework (Harvard Business Review, 2016)

DATA ANALYSIS

Initiation

The first step for this research is the initiation phase. The initiation phase is the process of identifying the needs and problem in the business operation at Rasa ABC Enterprise. It was decided that the best method to adopt for this project analysis was to use Ishikawa Diagram often called as Fish Bone Diagram. The Ishikawa Diagram is one of the more practical ways of visualizing all the possible cause that contribute to the problem at Rasa ABC Enterprise which is a high volume of unsold products. Commonly, it is prepared by collecting all the potential causes and rating it using several processes (Perry, 2006).

After the interviewing process, all causes and contributors to the problem are listed in small bones under various categories. The category that has been identified includes Material, Machine (Equipment), Method, Mother Nature (Natural Phenomena), Manpower (People) and Management. In the process of completing the fishbone, observation, survey and interview have been performed for different objectives and goals (Perry, 2006). The complete picture of the Ishikawa Diagram can be seen in Figure 3.

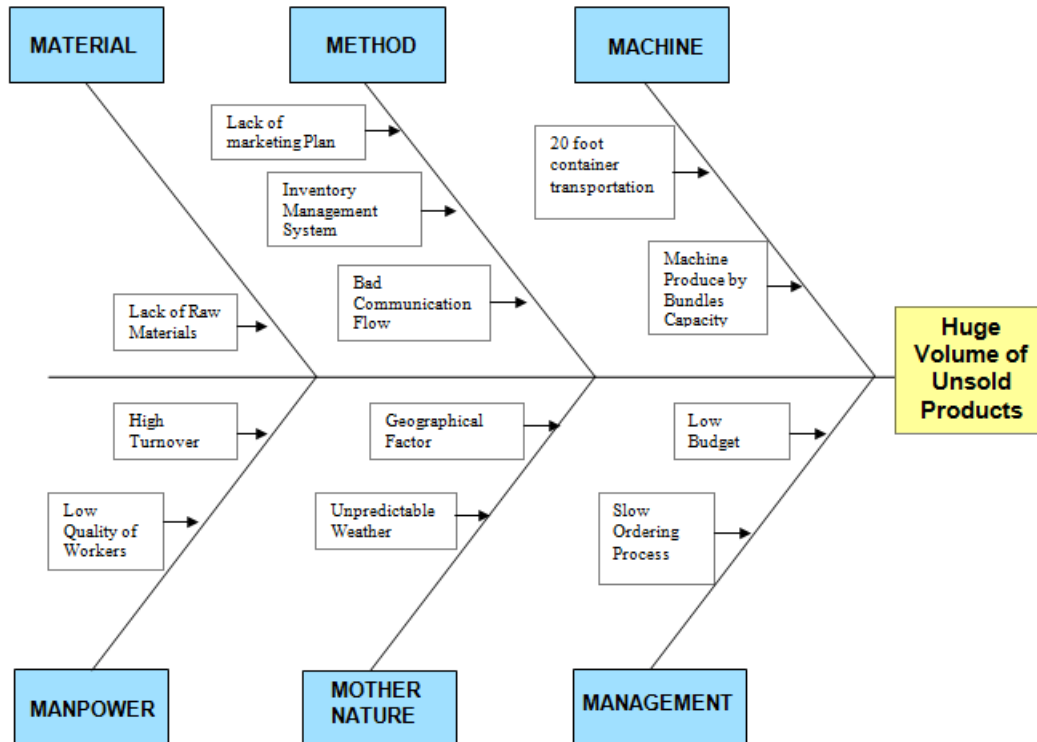


Figure 0: Fishbone Diagram

Category 1: Material

Firstly, the cause that contributes to the huge volume of unsold products at Retail Store X of Rasa ABC Enterprise is due to the lack of raw materials supplied by the supplier. Based on the interview that has been conducted with their manager, he said that their company produced more than 20 types of products every month. The issue occurs if there is a high demand for a certain type of products; if they are lacking certain raw materials, it leads to longer waiting time and slow production process. Consequently, production is unable to complete the high demand of certain products on time and also fails to fully utilize the space of containers. For this kind of cases, commonly the production would fill up the free space in the container by putting the other type of products even there is no demand for that. Thus, stores will have an overstock of low demand products.

Category 2: Machine/Equipment

The challenges in this category are where they only able to produce on bundles capacity. For every production process, Rasa ABC Enterprise would produce the products in the range of 10 to 15 bundles, depending on the types of products. Each product has a different structure, thus it would have different weight for every different type of products. The weight of one bundle is in the range of 5 kilograms to 7 kilograms. In considering the economies of scale, Rasa ABC Enterprise decided to produce each type of product once a month and the packaging process is by bundles. By implementing this idea, it would have an overstock for certain products that have low demand. It's because the order that they received is not based on the bundles where 1 bundle consists of 30 to 50 packs. The distribution centre will only deliver products based on the order list and all the remaining stock of products will be stored at distribution centre storage. Thus, it would affect the life span of products. Based on the interview with their manager, there is also a case where the overstock of product is been transferred to retail stores, and already expired once it arrives; usually, it's happened for products that have low demand.

In addition, the distribution centre is using a lorry with 20-foot container for the delivering process. Commonly, the distribution centre is considering the space of the container and will be issued an order in a huge quantity for products that have high demand to fully utilize the transportation's space. However, most of the time they would face the shortage of stock and they would supply any products that still have stock even there is no demand on that. This action causes an overstock of product in Retail Store X. Finally, the products reach their expiry dates without able to sell it.

Category 3: Method

The major issue is due to lack of communication between people in the entire supply chain that include supplier, production, warehouse, distributor, wholesaler and retailer. The issue of communication breakdown is a critical problem where it would slow down the entire supply chain process. It's usually happening because they didn't work as a team as some of them only focus on their own goals without thinking about organization goal. Effective teamwork helps the organization to achieve its goals. The problem of a huge volume of unsold products cannot be avoided because of the production didn't consider the products lifetime. Besides, warehouse unable to satisfy the high demand for a certain type of products and supplying the product which has low demand to fully utilize the containers. Once it's happened, the distribution centre would push the retail store to sell the products as they have an overstock of low demand product. Retailer, especially from Retail Store X, will be blamed when they were unable to sell the products before the expired date. In the end, almost 15% of the product expired at the retailer stores. In the long term, the company is facing a big loss due to the miscommunication, inefficient inventory management and egotistical attitude of members in the supply chain process.

Category 4: Management

The main issue in this category is where Rasa ABC Enterprise facing a low budget issue. As mention by the manager, their company is producing more than 25 types of products. The company decides to supply those products once a month. The company need to fully utilize the space of the container to make their transportation cost cheaper. Thus, they supply all type of products even there is no demand on that as they think to have multiple logistic processes in a month lead to more money to be invested. However, implementing this idea make the company faces a huge volume of unsold products as retailers especially from Retail Store X unable to sell the products before the expiry date. Almost 30% of the overstock products facing an expiry date and damage.

Category 5: Manpower/People

Based on the interview that has been performed with their production managers, Rasa ABC Enterprise is facing high turnover in Retail Store X. This problem arises due to the salary didn't meet their worker's needs. Some of the workers feel that they are unable to survive with the living cost nowadays. As a result, it's disturbed the marketing process as they need to spend more money and time to train their new employees in the marketing skill. The training is important to maintain customer perception. Once the perception is drop-down, it would affect the brand name and directly reduce the number of customers.

Category 6: Mother Nature/Environment

In this category, the factor that contributes to the huge volume of unsold products is due to the geographical factor. Rasa ABC Enterprise use land transportation to distribute their products. Commonly, the issue is regarding damaged roads. The damaged road will threaten the safety of products being carried. It's also would affect the movement of transportation where a driver needs to slow down their speed. There is also another issue of traffic problem such as road accidents, road repairing process or roadblocks by police where it disturbs the delivering process. Hence, the result is where it will drag the delivering time and affect the life span of the products itself.

Planning

The second step for this research is the planning phase. The planning phase is the process of collecting ideas and prepares a solution to be proposed to Rasa ABC Enterprise to minimize the volume of unsold products. This study has identified the weakness of using manual inventory management record as practice at Rasa ABC Enterprise. There are several problems arise due to the lack of a proper system to manage the inventory such as product shortage, slow ordering process and communication breakdown in the entire supply chain. As a result, the company suffered a lot of losses. Therefore, this study suggests Rasa ABC Enterprise use the software on controlling its inventory.

The recommended software to be used is generic software which is Microsoft Excel. It is because Microsoft Excel provides various tools that help them to record and generate accurate data faster and easier. Figure 4 is the process flow of using Microsoft Excel software to manage the inventory.

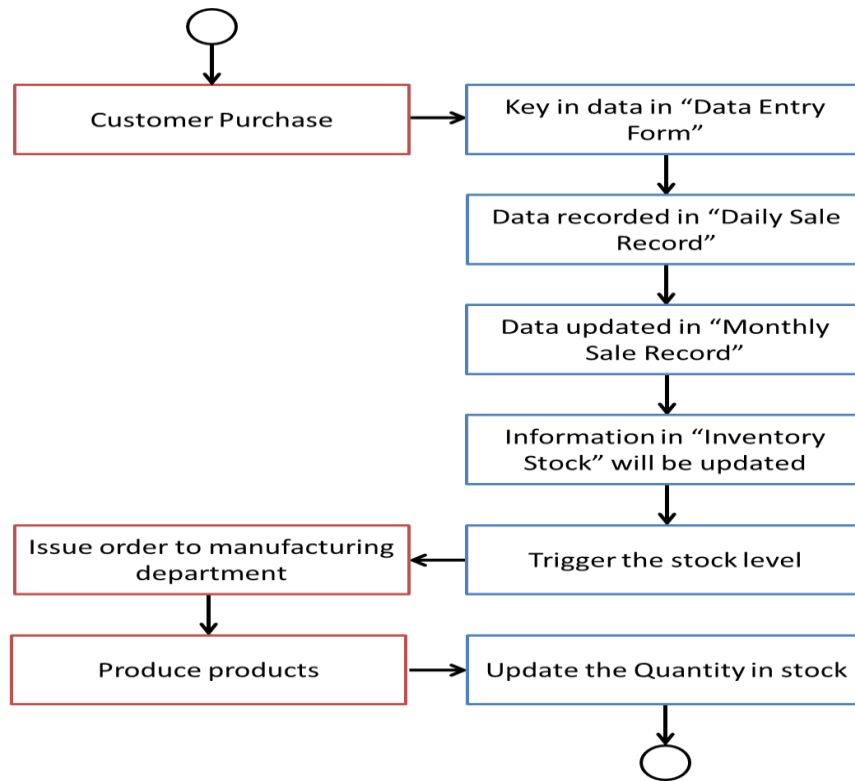


Figure 4: Process Flow of Microsoft Excel Template

Based on the process flow of using Microsoft Excel template, it can be seen that this software can help them to increase their performance as they have a structured inventory management system. This system helps on improving the consistency of data entry, boosts the customer services, reduce the possibility of human error and shorten the time on generating a report to forecast the future demand.

Evaluation

The third step for this research is the evaluation phase. The evaluation phase is a process to examine the effectiveness of the proposed idea to the overall enterprise performance. The method that has been used to make an evaluation is by distributing a questionnaire to all employees in Aneka Rasa Enterprise. All 20 employees have the experience to use this software before answering the questionnaire.

According to the questionnaires created by Davis (2006), it divided into two main topics which are perceived usefulness and perceived ease to use. Each part consists of six questions. Based on the perceived usefulness question, it tends to measure how far the Microsoft Excel software can help to carry out their daily tasks better. After the perceived usefulness part has been completed, the question goes further to the second part which mainly to identify whether the software that has been proposed is easy to be useful or not.

Although the software is useful, the difficulty level of using that software should also be measured to ensure that the effort given on running the software is comparable to the benefits that will be gained. Once all questions have been answered completely, all data and information will be collected and gathered. Then, calculations were made by finding the cumulative average for each question. The results of the calculations are provided in Table 5 for perceived usefulness and Table 6 for perceived ease to use.

Analysis

The final step for this research is the analysis phase and being discussed in findings.

FINDINGS

Based on result that has been generated for perceived usefulness, it shows that most of the workers agree by using software such as Microsoft Excel is quite useful in helping to enhance his or her job performance (Table 5).

Table 5: Result for perceived usefulness

	likely	←	extremely	quite	slightly	neither	slightly	quite	extremely	→	unlikely
Question 1				✓							
Question 2				✓							
Question 3				✓							
Question 4				✓							
Question 5				✓							
Question 6	✓										

In the part of perceived ease to use, it's to identify worker's level of believes that this software does not require a great effort. It is because the effort is a limited resource for everyone which they need to use it wisely to ensure they can complete all tasks that under their responsibility (Radner & Rothschild, 1975). Therefore, the easy-to-use software will be more likely to be accepted by workers (Davis, 1989). According to the result in Table , it is shown that workers agree that the software is quite easy-to-use.

Table 6: Result for perceived ease to use

	likely	←	extremely	quite	slightly	neither	slightly	quite	extremely	→	unlikely
Question 1					✓						
Question 2				✓							
Question 3				✓							
Question 4				✓							
Question 5				✓							
Question 6				✓							

In conclusion, Microsoft Excel is useful software in helping the company to enhance their performance. It also easy to use and does not require special training. Thus, the idea of controlling inventory by using Microsoft Excel software is suitable as the use of software in parallel with the effort given to use the software.

CONCLUSION

This research explores the issue faced by a small and medium-sized enterprise (SMEs) in F&B manufacturing in Malaysia. The fishbone analysis is being used to investigate and collect all the causes and the effects. Based on the observation, survey and interview that have been conducted, it shows that inefficient inventory management leads to the overstock of fewer demand products. As a result, the store unable to sell all products before it reaches the expired date. Thus, creating an inventory management template using Microsoft Excel is the proposed solution to assist in managing the inventory efficiently. According to the feedbacks and comments that have been collected from Aneka Rasa Enterprise's workers, most of them agree that this software is useful and easy to be used. The company does not have to invest a lot of money, time and effort to learn on using this software as it contain a simple interface that can be understood quickly without having special training.

This study contributes to the SMEs industry especially in highlighting factors that contribute to the problem in F&B SMEs using the Ishikawa Diagram. It further explains how controlling the inventory using generic software can be done. Thus, can be used to address other SMEs business facing the same problem.

Finally, most of the research only focus on the critical success factor of SMEs industry rather than to overcome the expiration date of products due to the manual inventory management. Thus, this study helps to fill the gaps where it focuses on improving to manage the inventory. Hence, can also be a reference for those who are researching inventory management system.

ACKNOWLEDGEMENTS

This research was partly supported by RDU182202 from Universiti Malaysia Pahang and FRGS/1/2019/SS03/UMP/02/2 from Ministry of Higher Education, Malaysia.

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