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Applying Lean and Six Sigma Concept to Reduce Inventory Cost of SME in Thailand After Covid-19 Crisis : A Case Study of Takara Planning Company Limited

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Abstract

During COVID-19 lock down crisis, most of SMEs who are exporter, faced the problem of high inventory holding costs, especially the cost of warehouse space rental that tend to keep increasing, due to a sudden product halted and massive returned products leading to cause disorganised warehouse and improper inventory control. For SMEs, warehouse space has a significant impact on their operational cost. Once the shipment arrives at the warehouse, it becomes the warehouse's responsibility to manage the movements and transfers of the goods. The purpose of this paper is to analyse and improve the warehouse space resulting in reducing of the inventory cost of the company by applying the 5S tool and ECRS principle for Lean, together with applying Six Sigma (DMAIC) technique for problem analysis and improvement. The result showed that applying Lean Six Sigma techniques, as described in this paper, can reduce the warehouse rental cost from 8,140,000 Baht to 5,816,400 Baht by lean warehouse space from 92% to 62% occupancy. After implementing the proposed methodology, the business owner and managers saw an improvement in their warehousing operations in terms of inventory cost saving by 2,323,600 Baht and the potential of the production line expansion after COVID-19 crisis utilising the available space gained. This study illustrates that Lean Six Sigma can be applied as a 'quick-win' solution for the SMEs in Thailand after the COVID-19 Crisis.

Keywords: SMEs, COVID-19 Crisis, Lean Six Sigma, DMAIC, 5S, ECRS, Inventory Cost, Warehouse Management

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Introduction

Rationale and Significance of the Study

For the first time since the Great Depression, both advanced and emerging market economies will be in recession in 2020. The epidemic of COVID-19 is considered as a major global crisis. Aside from its unprecedented scale, the Global Lockdown is playing out in ways that are very different from past crises. The June World Economic Outlook Report 2020 was likely to show negative growth rates even worse than previously estimated by the International Monetary Fund (IMF) reported in the 2020 World Economic Outlook Report 2020, expecting that growth in Emerging and Developing Asia could decline from 5.5% to 1.0% between 2019 and 2020, projecting a sharp 'V-Shaped' recovery up to 8.5% in 2021 (International Monetary Fund, 2020). Small and medium-sized enterprises (SMEs) are significant contributors to economic activity and employment worldwide, and Thailand is no exception. In Thailand, SMEs represent most firms and employ the bulk of the domestic workforce. According to the Office of SMEs Promotion in 2018, approximately 3 million companies were classed as SMEs in the country, comprising 99.8% of all companies. SMEs also accounted for 14 million jobs, or 86% of total employment. Although SMEs contribute as much as 45% (or $215 billion) to Thailand's gross domestic product (GDP), their participation in international trade and global value chains (GVCs) remains limited. In 2018, the export volume of SMEs comprised only 29% (or $76 billion) of total exports and grew only 0.5% from the previous year. In contrast, large domestic firms and multinational enterprises dominate GVCs and therefore benefit greatly from the new opportunities that arise because of their participation. During the coronavirus disease (COVID-19) pandemic, both SMEs and large firms are experiencing disruptions in Global Value Chains (GVCs). However, SMEs are among the most vulnerable as they are relatively more labor-intensive and financially less liquid. SMEs are finding it more difficult than ever to participate in value chains. Moreover, although some SMEs are managing to engage or remain in GVCs, it is unlikely that they are fully benefiting from their participation under the current situation. According to the Office of SMEs Promotion (OSMEP, 2020), approximately 1.33 million SMEs, accounting for 44% of the GDP generated by SMEs, are affected by COVID-19, while 4 million people are at risk of being unemployed. If the situation is prolonged until the end of the year, SMEs are expected to lose more than $110 million in revenue, especially in the services sector. One of the challenges that most of SMEs who are in "made-to-order" business are facing during COVID-19 crisis is the fact that they use the Just-In-Time method of inventory management and the constant communication with their suppliers to ensure they have material inventory ready on-hand for the orders to avoid the delays to the customer. In combination with the non-systematic way of managing the warehouse and inventory system, they end up with over-stock of raw materials and bear the burden of the inventory cost. The more time passes, the more it accumulates and became causing a cash flow problem and other financial issues.

Takara Planning Company Limited is a small SME with 21 employees and executives. Its business is taking orders from overseas customers, mainly from Japan to re-packs various balloons-sets and selling to customers, as per the orders. The company exported a total of more than 400,000 sets per month, which is

worth the sales value of more than USD$1,000,000 per year, since started in December 1999 with a registered capital of 2,000,000 Baht (USD$65,000) until the beginning of 2020, the company faced the problem of a sudden stop of the orders due to the COVID-19 Crisis lock-down. The customers are more rigorous with the quality of the product. They started to emphasis on the product's quality auditing and pointed out that the company's warehouse is under the standard by mean of the warehouse layout and warehouse organizing which could impact the quality of the product and services. The company lacks a systematic warehouse management system. This results in a lack of work efficiency and further impacts on the cost of inventory due to product waste, out of date, including inventory loss, which leads to a high total cost of operation. Therefore, a quick-win solution for Takara Planning Company Ltd. focusing on improving the warehouse operation to reduce inventory cost is indeed needed amid the situation of COVID-19 where everyone is struggling for survival.

Review of Related Studies

In the development of an integrated LSS framework, the focus is on ensuring the simultaneous development of both the Lean and Six Sigma phases with the aim that the company simultaneously tackles the 'waste reduction' element. Myerson (2021) said that Lean Six Sigma is a synergized managerial concept of Lean and Six Sigma. Combining Six Sigma methods and tools with the lean manufacturing philosophy strives to eliminate the waste of physical resources, time, effort, and talent, while assuring quality in production and organizational processes. The Six Sigma methodology used for process improvement is the Define-Measure-Analyse-Improve-Control methodology, also known as DMAIC. Murray, M. (2019) pointed out that the DMAIC problem-solving method can produce significant improvements for an organization that is using the Six Sigma methodology and tools to solve existing issues by eliminating waste and improve efficiency very quickly. For SSME's businesses, the Six Sigma Strategy's DMAIC Problem-Solving Method is the ideal with to create a competitive edge that will help SSME to succeed. The DMAIC problem-solving method of Six Sigma methodology is used to solve existing issues by eliminating waste and improve efficiency very quickly by the following steps: Define: to identify problems of the company. The Fish bone diagram is used at this step to emphasis the cause-and-effect analysis, Measure: to measures and collects data regarding current process performance, Analyse: to identifies the difference between the current and desired process, this comparison shows defects in the current process, Improve: to implements solutions to remove identified defects, Control: to implements the change management procedure to ensure the changes are controlled, so the improvement is at its best (Salah & Rahim, 2019). explained how lean compares to the Six Sigma and outlines the benefits for integrating them, also discussed the existing models that describe how Six Sigma and lean fit together. The conclusion of this research confirms that Six Sigma and lean are related and share common grounds in terms of striving to achieve customer satisfaction and their integration is beneficial. The result of this study is the proposal of a new lean Six Sigma (LSS) approach and provides a detailed description of its phases developed to provide an improved approach for Continuous Improvement (CI). Regarding the use of Lean Six Sigma (LSS) in the SMEs business, Lande et al. (2016) explained in their research paper which was purposely to

identify and list critical success factors (CSFs) of Lean Six Sigma (LSS) framework affecting and influencing quality, operational and financial performance of small and medium enterprises (SMEs). The conclusion of this study was that it is important for researchers to understand the importance of CSFs and focus on vital CSFs in their studies and implementations. The study drastically reduces implementation hassles and simplifies execution for empirical studies. The findings are not restricted to India but are generalizable and can globally utilized in deciding determinants of LSS framework. The DMAIC problem-solving method of Six Sigma methodology is widely used to solve existing issues by eliminating waste and improve efficiency very quickly as presented by Smetkowska and Mrugalska (2018) in their research of how to implement the DMAIC cycle as an element of continuous improvement in practice of using Six Sigma DMAIC to improve the quality of the production process. The conclusion they had was nowadays, Six Sigma is getting more and more popular among organizations from various industries. It focuses mostly on improving production processes what leads to an increase in profitability for the company. Achieving Six Sigma level requires organizations understanding the reasons of processes variability, performing their analysis of cause and effect and the assessment of their costs. The application of DMAIC, which is one of the methods of quality improvement used in Six Sigma concept, can increase effectiveness while adequate reacting for the appearing problems. With the fact that the inventory cost has an important impact on the production cost as it includes both the raw material and the semi-finished parts in the manufacturing process. Applying Lean Six Sigma to control the inventory cost effectively was described by Hong (2017) in his study of “Implementing Lean Six Sigma to achieve inventory control in supply chain management”. This paper reports the inventory control from the perspective of manufacturing process by using statistical techniques including DMAIC, Control Chart, and Statistical Process Control. The demonstration in power meter production shows the inventory is decreased from 25% to 0.4%, which indicates the inventory control can be achieved with Lean Six Sigma philosophy and the inventory cost in production can be saved for future sustainable development in supply chain management.

The 5S Method (Sort, Set in Order, Shine, Standardise, and Sustain).

5S concept was developed in Japan and was identified as one of the techniques that enabled Just in Time manufacturing (Osada, 2017). The 5S method is a Lean strategy that helps accomplish one of the basic objectives of Lean: making problems visible and therefore able to be solved quickly. The 5S method is a Lean strategy that helps accomplish one of the basic objectives of Lean: making problems visible. Having a clean and organized warehouse makes the operation more efficient, excelling at training, communications, habits, and discipline. At the end, it helps saving time and money. A warehouse that has implemented 5S is able to identify or surface issues quickly and address the root causes and solve the problems in the short term to prevent recurrence. Rizkya et al. (2021) described in their research related to implementation of 5S methodology in warehouse that the 5S is a proven concept that able to eliminate waste in one of the Oil Packaging Industries, which has a low spare part area and is not well maintained. The development of the evaluation shows that the 5S application in the warehouse area is more suitable with the actual concept and it is necessary to improve by the 5S implementation principles. As a result, there are problems such as damaged

spare parts, which require special handling in storage, due to crushed by metal materials. Besides that, the warehouse area looks dirty, unorganized, has no clear storage boundary, and items are not stored in the right place. As a result, it isn't easy to find the things you need. The assessment is carried out on the warehouse area based on the 5S criteria, using a questionnaire containing questions to determine the condition of the warehouse department. Moreover, the application of 5S method in the SMEs was proven with the case study in India, research carried out by Dwivedi et al. (2021) for "Application of 5s Methodology in a Small-Scale Enterprise". This study showed that a very known 5s technique (lean manufacturing method) is applied in one of the small industries. After applying this technique, the results and the final effects of this technique were analyzed based on the wastages of materials, time, and other miscellaneous items. Finally, the results are concluded by comparing costs incurred before and after applying this 5s technique.

Waste reduction through ECRS principle

ECRS is one of the motion study techniques used to analyse processes in a production line. ECRS analyses processes and activities using the following core principles: E = Eliminate unnecessary work C = Combine operations R = Rearrange sequence of operations S = Simplify the necessary operations. ECRS is not only used with processes in the production line, but also used to improve warehouse operations to improve efficiency in warehouse operations. Thus, ECRS can be used as an improvement tool in administrative processes given the fact that the main aim of this method is to reduce the non-value adding activities. It enables us to determine the excess or inefficient space and time by using the simple principle of observing to find out which area or task is unproductive because there are some 'waste-of-spaces' used or 'waste-of-time' activities. Step by step according to the general principles of good management to improve work processes with the principles of ECRS, resulting in a more efficient outcome and meeting the real needs, as referred to in the research carried out by Krajungduang et al. (2021).

Objectives of the Study

1. To examine the cause of problems in work process of the warehouse which impact inventory cost of the SMEs in Thailand after COVID-19 Crisis.
2. To determine the 'quick-win' solution to reduce inventory cost of the SMEs in Thailand after COVID-19 Crisis.

Definition of Terms:

1. SMEs in this study refers to the enterprises with value of fixed asset less than THB 200 million or number of employees less than 200 persons for Manufacturing and Services SMEs or enterprises with value of fixed asset less than THB 100 million or number of employees less than 50 persons for Wholesale SMEs.
2. COVID-19 Crisis in this study refers to the impact of COVID-19, the disease caused by SAR-CoV-2, the coronavirus that emerged in December 2019, on the world caused millions of deaths around the world as well as lasting health problems in some who have survived the illness.

3. Lean in this study refers to a process improvement approach that identifies and minimizes wasted time and effort or a way of thinking about creating needed value with fewer resources and less waste.

4. Six sigma in this study refers to a process that makes use of statistics and data analysis to analyze and reduce errors or defects.

5. Inventory cost in this study refers to the costs to a business associated with the warehouse operational cost of Takara Planning Company Limited.

6. Warehouse in this study refers to a place where raw materials and finished goods of Takara Planning Company Limited are stored. It is a planned space for the efficient storage and handling of goods and materials.

7. Warehouse process in this study refers to the six fundamental warehouse processes in warehouse operation comprise receiving, put-away, storage, picking, packing, and shipping.

Research Methodology

The methodologies included both detailed analysis and basic descriptive statistics. The data collected was gathered by means of survey, interview, and observation at the warehouse of Takara Planning Company Limited in 2021, followed by data analysis and determining the solution by applying Lean Six Sigma concept with the 5S method and ECRS principle as the tools for Lean. In this study, a systematic approach of DMAIC technique of the Six Sigma is adopted to improve organisation of the warehouse layout and operations. The findings from data collection process, by means of survey, interview, and observation, showed that the warehouse was disorganised due to a poor designed layout and lack of proper warehouse management such as, there was no tag/sign to indicate where material items/goods stored. There was no boundary between materials in the material warehouse. The raw material (RM) and finished goods (FG) were stored together in the warehouse without separate location. Moreover, there were items not relevant to production were kept mixed-up with FGs and RMs and took up the space of the warehouse non-productively whereas some inventory items found left scattering around the office area without proper process of inventory control. There was no workflow process was not defined properly to handle returned materials back to stock inventory. The physical inventory count was not done regularly. The result of data analysis using DMAIC technique and Fishbone diagram found that the root cause problem was summarised that the warehouse was disorganised and not properly designed layout. It's found that the cost of warehouse space rental is increasing because there was not enough space to store materials/goods, whilst the current warehouse space was disorganised and not properly utilised. The production area was not separated completely from the warehouse/ store area. The warehouse space utilisation (Before improvement) can be presented in the table below.

Table 1 Warehouse space occupancy (Before improvement)

Floor	Total Space (Sq.m.)	Used by*			Total Used (Sq.m.)	% Total Used
		RM**	FG***	Others		
1	300	104	104	52	260	87%
2	300	56	140	84	280	93%
3	300	135	81	54	270	90%
4	300	145	58	87	290	97%
Total	**1,200**	***440***	***383***	***277***	***1,100***	**92%**
		37%	32%	23%		

**The proportion of used space is estimated by a holistic survey.*
*** RM = Raw Material ****FG = Finished Goods*

As shown in table1 above, the total occupancy in the warehouse was 1,100 Sq. m. from 1,200 Sq. m. (92% used-up). The unavailable space of 440 Sq. m. was used to store RMs (37% used-up by raw material). The unavailable space of 383 Sq. m was used to store FGs (32% used-up by finished goods). The unavailable space of 277 Sq. m. was used for other purposes, including for storing other items that were neither RMs nor FGs, including the non-productive items. This is equal to 23% of the total used space.

Lean Six Sigma and DMAIC problem-solving method.

In this study, applying Lean Six Sigma by using the five phases of DMAIC to identify the root cause of inefficient work process in the warehouse, inventory control and cost accounting. This tool is a synergized managerial concept of Lean and Six Sigma used for this research study to eliminate the waste of the inventory cost, especially the holding cost occurred by warehouse utilisation while assuring quality in production and organizational processes. The Fishbone diagram was used as a tool for implementing the first-three steps of Six Sigma (DMAIC), “Define, Measure, Analyse” to define the problem and identify the root causes of the problems in the warehouse that affect the inventory cost of the company were identified as shown in a diagram below.

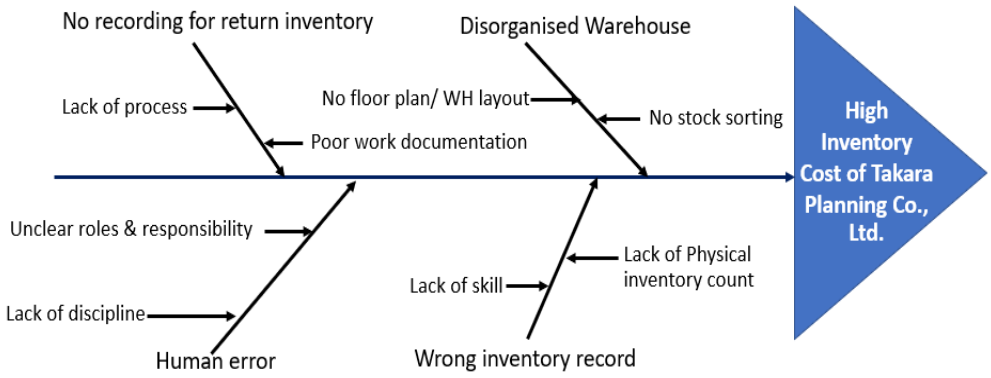

Figure 1 Fishbone Diagram

At “Improve” step of the Six Sigma (DMAIC), the 5S Method and Lean (ECRS Principle) were applied to improve the above problems related to warehouse disorganization.

The 5S Method was applied in this study in the following steps.

1) Sort (seiri) By exploring the area where raw materials are stored and sort all the company's raw materials, which are divided into 2 groups, viz.: (1) a group of raw materials that can be used in production, and (2) a group of raw materials that cannot be used in production.

2) Set in order (seiton) After finishing the tidy up process, determined the storage area for both groups of raw materials by the following steps: (1) Determined the area of raw materials that cannot be used in production in the same area. (2) Determined the area of raw materials that can be used for production according to the types of raw materials that have been defined, i.e., main raw materials and spare parts. (3) Located the raw materials with a high turnover rate in the areas that are convenient for storage and retrieval. (4) Provided labels showing details of raw materials to be clear and convenient to use.

3) Shine (seiso) This step is part of cleaning the warehouse/ raw material storage area and work area which were used by all employees within Takara Planning Company Limited.

4) Standardize (seiketsu) After completing all 3 steps above, it was considered that the company had achieved a hygienic storage environment. In addition, since the company's employees had to keep social distance according to the national standard procedure under COVID-19 situation, all employees were strictly required to wear masks and wear gloves for health safety and to prevent danger that may happen during work.

5) Sustain (shitsuke) Created a schedule of 5S activities in the workplace area of each employee and in the raw material storage area. This was meant to create work habits for employees. It was done by assigning duties, caregivers and responsible for cleaning, storing, and counting raw materials on a regular basis.

The ECRS Principle

In this study, the ECRS principle was applied to reduce the inventory cost in the following steps:

1) Eliminate : Eliminating the waste space in the warehouse.

2) Combine : Grouping materials type; RM, FG, Others

3) Rearrange : Rearrange is the organization of the items in an orderly manner to be easy to use.

4) Simplify : Simplify the process for staff to record and control the inventory quantity in the warehouse.

At “Control” step of the “DMAIC”, the following activities to ensure that the above improvement are maintained continually were conducted. They were (1) training staff to understand the process and act. (2) training staff to do the physical inventory counting. (3) preparing inventory physical counts and recorded them in the system. (4) performing the physical inventory count.

Results

After improvement with 5S Method, the warehouse area was organized and cleaner and tidier. Items in the warehouse were categorised and grouped to be stored in the same area, for example, finished goods were stored together in separate areas and not mixed-up with raw material. The unpacked raw materials were grouped and stored tidily. The packed raw materials were grouped and stored separately. The use of pallet-based to store the items that were in the same categories to facilitate the moving activities when using the MHE (machine handling equipment). This helps to make the place tidy and easy to access, instead of leaving them on the floor. After improvement with ECRS activities, the results of implementing the ECRS principle to improve the warehouse can be summarised in the table below.

Table 2 Applying ECRS Principle for Warehouse Improvement.

	Action taken	Results
E	Eliminate the waste space in the warehouse after implementing 5S method.	Eliminating waste items, non-use tools, scraped RMs, damaged packaging, damaged FGs. This results in warehouse space optimization. Resulting in gaining warehouse space available of 26% (Before - After: 92% - 66% = 26%). This is determined from the difference between space occupied before improvement (see Table 3) and the space occupied after improvement.
C	- Categorizing the items i.e., RMs, FGs, tools, supplies, sundries, office stationery. - Grouping the items by category. - Defining the code for location and item i.e., Location-ID# for stored items by item-type.	- The clean and organized warehouse made it easy to access location for inventory physical counting. - This results in inventory accuracy.
R	Rearranging the layout of the warehouse. Arrangement of the RMs, FGs, tools, supplies, and office stationery in an orderly manner to be easy for physical inventory counting.	Re-arranging the warehouse layout made it properly organized, easy to pick up the RMs, FGs and smooth workflow, easy access to tools. Resulting in an increase in productivity. Gain more space for production line. This results in an increase in the safe working environment for staff.

	Action taken	Results
		A comparison of the re-arranged warehouse layout of Floor-1, Floor-2, Floor-3, and Floor-4 Before – After improvement gained more available space by 26% (92% - 66%).
S	Placing the noticeable sign and tag to identify the location. Simplify the process of picking raw material from the storage location by defining the document to be used for recording the quantity of picking raw material from the warehouse. Established a form to be used to record the returning raw material back to the warehouse.	This results in reducing mistakes in picking wrong RMs or FGs. This results an increasing of inventory accuracy rate from 7.69% (before improvement) to be more than 80%.

After improvement, the warehouse space utilisation can be presented in the table below.

Table 3 Warehouse space occupancy (After improvement)

Floor	Total Space (Sq.m.)	Used by*			Total Used (Sq.m.)	% Total Used
		RM**	FG***	Office/Utilities Production		
1	300	52	120	12	184	23%
2	300	0	150	30	180	23%
3	300	80	80	80	240	31%
4	300	170	0	12	182	23%
Total	**1,200**	***302***	***350***	***134***	***786***	**66%**
		25%	29%	11%		

**The proportion of used space is estimated by a holistic survey.*
*** RM = Raw Material *** FG = Finished Goods*

From the table above, the result of using principle of ECRS (Eliminate, Combine, Re-arrange, Simple), the available space gained from eliminating ('E') was rearranged ('R') to utilise the space of 134 Sq. m. for office area, utilities area, production & WIP area. This is equal to 11% efficiently utilised for operation purpose.

After improvement, total occupancy in the warehouse was reduced to 786 Sq. m. (= 66% used up in total). The total space in the warehouse that was used to store RMs (raw material) was reduced to 302 Sq. m. This is equal to 25% used-up by raw material. After improvement, the total space in the warehouse that was used to store FGs (finish goods) was 350 Sq. m. This is equal to 29% used-up by finished goods.

Conclusion, Discussion and Recommendations

Based on the research process conducted for the study of Applying Lean and Six Sigma concept to reduce inventory cost of Takara Planning Company Limited, the SMEs in Thailand after COVID-9 crisis by applying one of the Six Sigma models, DMAIC and by analysing with the cause-effect diagram to determine the causes of problems, the researcher can conclude that the causes of high inventory costs of the company are (1) Disorganised warehouse (2) Wrong inventory record (3) Human Error and (4) No recording for return inventory. The researcher reviewed the related literature and determined that DMAIC was a suitable model for identifying the root causes, solving, or mitigating those problems, and proposing sustainable solutions. The major causes of the high inventory cost of the company discovered during the research using DMAIC model were disorganised warehouse due to poor warehouse layout, and inaccurate inventory value due to invalid process of inventory control leading to lack of discipline. All of these contributed to the increasing inventory cost. The corrective actions were devised by the researcher to improve the working process and resolve problems using the 5S method and ECRS principle for Lean in combining with Six Sigma (DMAIC). These included the design of the new warehouse layout, implementation of storage allocations, employees training in inventory control using material dispatching / returning form, and physical inventory count. The data analysis results of the performance comparison before and after the improvement in terms of the warehouse space utilisation are shown in Table 4.

Table 4 Warehouse space utilisation comparison (Before-After the improvement)

Floor	Total Space (Sq.m.)	[BEFORE] Used by*						[AFTER] Used by*					
		RM**	FG***	Others	Total Used (Sq.m.)	COST valuation****	% Total Used	RM**	FG***	Office/ Utilities Production	Total Used (Sq.m.)	COST valuation****	% Total Used
1	300	104	104	52	260	฿1,924,000	24%	52	120	12	184	฿1,361,600	23%
2	300	56	140	84	280	฿2,072,000	25%	0	150	30	180	฿1,332,000	23%
3	300	135	81	54	270	฿1,998,000	25%	80	80	80	240	฿1,776,000	31%
4	300	145	58	87	290	฿2,146,000	26%	170	0	12	182	฿1,346,800	23%
Total	**1,200**	***440***	***383***	***277***	***1,100***	**฿8,140,000**	**92%**	***302***	***350***	***134***	***786***	**฿5,816,400**	**66%**
										Total Cost Reduction =>		**฿2,323,600**	

**The proportion of used space is estimated by a holistic survey.*
*** RM = Raw Material *** FG = Finished Goods*
*****Valuation cost calcualted by the Price value of the space at the warehouse located is 7,400 Baht / Sq.m. (Source:Property Valuation Standard Division, 2021).*

In conclusion, applying Lean Six Sigma concept has successfully achieved the purpose to reduce inventory holding cost, which played part of the inventory cost of the company. The application of Lean Six Sigma concept carried out in this study eliminated waste of space and gained more available space in the warehouse. The reducing of inventory cost of the company shown in the table that the space occupancy in total reduced from 92% to 62%, which means the available space in the warehouse increasing by 26%. In terms of space dimensions, the total used-up space was reduced from 1,100 Sq. m. to 786 Sq. m. It means the improvement using Lean Six Sigma technique and tools improved to gain more available space by 314 Sq. m. In terms of cost saving, the improvement reduced the inventory cost by saving the warehouse space value of 2,323,600 Baht.

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