

INLAND TRANSPORTATION COST REDUCTION OF AUTOMOTIVE SERVICE PART CO
MPANY

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A Thesis Submitted in Partial Fulfillment of the Requirements
for the Degree of Master of Engineering in Engineering Management
(CU-Warwick)

Faculty of Engineering
Chulalongkorn University
Academic Year 2018

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เป็นแฟ้มข้อมูลของนิสิตเจ้าของวิทยานิพนธ์ที่ส่งผ่านทางบัณฑิตวิทยาลัย

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การลดต้นทุนการขนส่งภายในประเทศของบริษัทอะไหล่ยานยนต์

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วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาวิศวกรรมศาสตรมหาบัณฑิต
สาขาวิชาการจัดการทางวิศวกรรม ศูนย์ระดับภูมิภาคทางวิศวกรรมระบบการผลิต
คณะวิศวกรรมศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย
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E SERVICE PART COMPANY
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Field of Study Engineering Management
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5971201721 : MAJOR ENGINEERING MANAGEMENT

KEYWORD: Inland transportation cost, Risk management, Change management

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INLAND TRANSPORTATION COST REDUCTION OF AUTOMOTIVE SERVICE PART COMPANY.

Advisor: Assoc. Prof. Jeerapat Ngaoprasertwong, Ph.D.

Regarding company's current situation, the case studied company has been encountered with a large amount of inland transportation cost for both inbound and outbound logistics increasing year by year. This research aims to reduce inland transportation cost for both inbound and outbound logistics operation at process of transporting empty imported container after loading cargos to shipping line and process of transporting empty container from shipping line for exporting purpose by using concept of "container round use system". To conduct container round use system which required many organisations both internal and external to involve, change project management, risk management and resistance of change management are applied.

For change management, there are two areas of study which are; first, current situation for both inbound and outbound logistics process and cost. Second, to study in Project management frame work for change management. Project management frame work for change management chapter includes team formation, project Initiative, project planning, resource management and project registration.

For risk management, there are steps including risk identification, Measure risk, Potential Risk matrix, Risk management, Examine solution, Implement solution & Monitor solution. All the process in this chapter aims to capture potential risk and how to management in order to eliminate all the risk that could occur and harm to process and operators which could interrupt the objective of the project.

Lastly is cost evaluation, this chapter illustrate how inland transportation cost for inbound and outbound operation are decreased comparing between current process and container round use process. In summary, the total inland cost for inbound and outbound could be reduced by at least 6.7 percent or 4,722,300 BAHT per year and maximum is 12.24 percent or 8,583,300 BAHT per year (if inbound container could be used 100 percent).

Field of Study: Engineering Management

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Academic Year: 2018

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ACKNOWLEDGEMENTS

The accomplishment of the dissertation would not have been possible unless the support, guidance and encouragement of the following individuals.

First, I would like to express the deepest appreciation to my thesis advisor, Associate Professor Dr. Jeerapat Ngaoprasertwong, Ph.D. for his valuable advices, suggestions and enormous knowledge throughout my research project. Without his kind support and guidance, this thesis would not have occurred.

Second, I would like to express my thankfulness to my thesis committee, Professor Parames Chutima, Ph.D. (Chairman), Associate Professor Dr. Pisit Jarumaneeroj, Ph.D. (Examiner) and Associate Professor Vanchai Rijiravanich, Ph.D. (External Examiner) for meticulous comments which has been an enormous help in my research project.

Third, I would like to thanks toward my supervisor and all of the participants of the studied company who help support the useful information, guidance and technical knowledge which are able to apply in this thesis.

Fourth, I am very thankful to all WMG tutors for teaching invaluable knowledge and experiences.

Finally, I would like to express my gratitude to my family, friends and especially myself who gave me the encouragement and timeless support throughout the time of my dissertation.

Kanokwan Gloyglom

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Chapter 1 Introduction

As the rise of globalisation, products and services flow and move internationally with lesser barriers as the past. As well as the business of importing and exporting products from one country to another country which become simpler. With the international trade activity, it gives opportunities to Thailand. Thailand is one of the main country in South East Asia that being chosen by many international companies to be a hub for exporting products that being manufactured in Thailand to other countries.

Toya Motor Corporation in Japan has selected Thailand to be a centre of spare service part distributor in Asia Pacific, which called Toya Part Asia Pacific (TPAS). TPAS as being an automotive service part centre, it involves in procurement products from Toya affiliates (Import) and supply products to Toya distributors all over Asia Pacific (Export).

It means that company has to manage the import and export activity and its cost. The cost in import and export activity that company has to mainly manage is inland transportation cost which is getting higher year by year. TPAS has been working to find new way for inland transportation cost reduction. One of the method is to implement container round use system in organisation which it has never been introduced to service part industry before. However, it has been successful in other firms but different products with the company.

Therefore, it is a great challenge for TPAS to implement round use container system under automotive spare part industrial and its conditions and its relevant organisation. Because, this project brings the change to organisation and relevant parties. The massive challenge for project owner is to bring everyone to positively agree and collaborate with the project and work together under positive environment. However, if TPAS can successfully implement container round use system in the company, it will definitely help company in cost reduction and reduce environmental issue as a whole.



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1.1 Problem Statement

Currently, the process of unloading cargos from imported-container and loading cargos to container for exporting are operated independently. At the import operation side, the empty containers after unloading cargos from imported-containers are returned back to shipping line's yard. At the same time, export operation side, empty containers are called from shipping line's yard for cargos loading.

Keep doing current operations can result in increasing inland transportation cost of the company.

In summary, there is an opportunity for automotive service part company to introduce container round use system. However, to implement container round use system, there are many obstacles in implementing. The greatest problem is to cope with the change of current operations which require relevant parties to collaborate and agree to follow the new processes. This problem requires robust of Blueprint of change, in order to shows how this change could contribute to the company profit as a whole. As mentioned earlier, change in the process could have great resistance from other parties because there will be some party have unfavourable outcome. Also, the blueprint of process will be changed, therefore, project owner has to cope with the change and manage the working procedure for smooth operation. Therefore, project owner has to also research how to manage incentive every party to join this project. Another challenge is to make plan to handle and eliminate the risk of the process that could occur during agreement process and implementing container could use process. Lastly, project owner has to look into the contract between TPAS and its relevant suppliers for the barriers in implementing container round use project.

1.2 Research Objective

1) To do research on management of change which will be used to apply in container round use project. In order to obtain the agreement from relevant party to develop the appropriate solutions.



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2) To do research the academic theory about risk management which will be used to consider when doing the project. In order to capture and eliminate the incident that could occur during processes of container round use.

1.3 Research Question

1) Will management of change framework enhance the well completion of the project and generate the ultimate continuous improvement to the project?

2) Will every organisation and party involve in round use of container system project obtain WIN-WIN solution and agree to join this project?

3) Will risk management could help to prior predict the potential incident that could occur in the process and help project owner to address the risk?

1.4 Hypothesis Development

Regarding above research questions, those three questions could be developed as hypothesis with existing knowledge and experiment evidence as followings;

1) The development of management of change framework with container round use system will enhance the well completion of the project and generate the ultimate continuous improvement to the project.

2) The development of risk management will enhance the plan to handle the potential risk that could occur during process.

1.5 Research Scope

1) This research only focuses on haulage cost for inbound and outbound operation within Thailand which having the highest cost in Inland transportation cost category.

2) This research will be done base on existing and nominated resources without changing nominated parties.

1.6 Expected Outcomes

1) Omitting of calling empty container for exporting can result in cost reduction.



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2) Container round use system is settled with win-win solution and incentive management for all related parties and project is done with the advantage of change management.

3) The potential problems during container round use system will be identified and planned to address beforehand by using risk management.

4) Able to apply this project to Toya World Wide as “Horizontal deployment”



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Chapter 2 Literature Review

To set up the container round use system, which including many parties from different organisations, it is essential to study the knowledge and practical process from academic literatures and public information in order to learn the key factors and important suggestions from previous scholar academic researchers.

2.1 Inland Transportation cost

According to WWCF (2018), incoterm of shipping is internationally defining the responsibility of each party whether cost, risk associate and task will be done by which party. This incoterm could refer to the contract that both buyers and sellers agree together in responsible in handling the cargos. Each incoterm will describe the task, cost and risk associated from the shipper until consignee. In additional, Fretlog (2018) state that Inland transportation is referred for Carriage to port of export and Unloading of truck in port of export at shipper side and Loading on truck in port of import and carriage to place of destination at import side. The responsible in cost and risk of inland transportation are absorbed base on the agreed incoterm.

2.2 Container round use system

In order to promote logistics cost savings and CO2 emission releasing reduction. Many businesses have introduced container round use system within their organization. Figure shows the process of transferring from non-container round use to container round use.

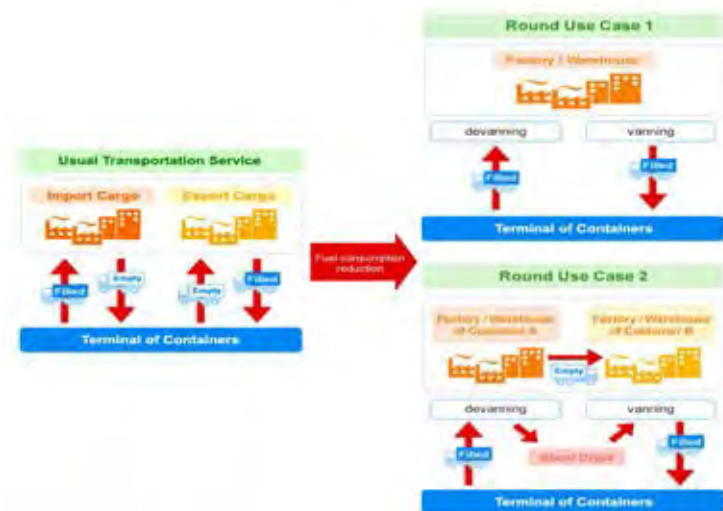


Figure 1 Process of transferring from non-container round use to container round use
(Nyk, 2008)

According to Nisseigrp (2018), the container round use system enables the cost-down activity which provides great amount of cost reduction to the organisation from the shorter transportation distance. Because, there is no need to return empty container after unloading cargos back to the shipping line yard but can keep the empty container at container depot instead. This round use container also gives solution in environmental issue such as air pollution from CO₂ and noise of truck and haulage. Similar to Nyk (2008), who is shipping line company also promotes the container round use system to their customers who have both import and export operations. Nyk allows container from import to be reused as export without needing to return empty container to their yard. This activity can help reduce the use of truck and haulage which result in decrease of cost and CO₂ emission as well. Also, Kyoceradocumentsolutions (2018), state that doing container round use can benefit in helping to reduce environmental issues, logistics cost reduction and build up a better company image. All of above case study of implementing container round use, they use the container depot service to keep stock of empty container after unloading cargos from import operation.

2.3 Management of Change

According to Prosci (2018), there are three phases of change management process which need to be done. First is preparing for the change which include define the strategy of change management, prepare the team of change management project and develop the model. Second is managing the change which include development of change management plan and implement the plan. Third is reinforcing change which include collect and analysis the feedback, address the gap and manage the resistance and implement countermeasure. According to UKEssays (2018), the company Coca-cola had implemented three phases management of change and obtain the successful outcome. The important point that being highlighted in management of change is “communication” which project owner needs to ensure that right communication is in place by inform employee the benefits of change, this will allow employee to welcome change with positive attitude.

2.4 Resistance management

According to Prosci (2018), whenever change occur there is always a resistance as it changes the way it has been used to be. Therefore, it needs factor to abolish the old version of what it used to be. According to UKEssays (2018), when coca-cola had implemented the change in organisation, there are employee defiance occurred. The opposition of change is considered as common behaviour of employees in organisation when the change comes. However, there six strategy that being useful for company to apply to reduce employee resistance behaviour which are 1) to allow employee participate in change process, 2) communicate and educate to employee about the benefit of change, 3) build consensus with stakeholders on important issues, 4) understand and support employee that has issue with change emotional, disability and phycological issue, 5) if fours strategies are fail, company should cope with the leader of employees about this change and 6) force the employees to comply with the change.

2.5 Change management blueprint

According to Prosci (2018), change management blueprint is one-page paper which allow project owner to communicate the change detail to management and



executive team in company. The benefit of change management blue print to convey the critical point of change and how to manage them in summary way and understandable.

2.6 Project management framework

According to First Principle Consulting (2018), to conduct a project, the project management frame work is needed from the start of the project until the end of project. Project management framework allows owner to control and monitor the progress of the project. The successful project management framework includes five steps which are 1) Initiative, 2) Planning, 3) Execution, 4) Closure and 5) Monitoring and control.

According to Symonds, M (2018), the project management framework helps project owner to keep the right track of the project and be able to complete project successfully within specified time frame. Normally, to get the project done successfully, it takes the understanding of the project by project owner. To enhance effective of project management, following elements could be introduced and applied.

- 1) Always enhance the development of a team – keep the team work and task going as a plan
- 2) Ensures a common language is used for communication within the project team
- 3) Try to make the fundamental project management procedures simple and understandable by team members
- 4) Draw project management processes that everyone can understand
- 5) Maintains focus while getting a project off the ground.

Another factor that can drive the successful to the project is project environment. One of the theory that can make better project environment is Belbin theory. According to Belbin (2018), Belbin theory describes and defines the personality of person that reflects to other people when working in group. There are nine types of personalities that are proved it can balance the team work and keep work environment active.



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2.7 Win-Win solution theory

According to Ingthanesh, M. (2018), in order to obtain the highest benefits, negotiation is one of the important keys to success. Negotiation leads to the best deal that being agreed from both buyers and sellers. Negotiation that only focuses on one side to win without caring another side could be called "Aggressive negotiation" which usually happens in Western culture. But of Eastern culture, people tend to prefer "Assertive negotiation" where the negotiation is not too shape and more in compromise. The technique of win-win negotiation is to listen to another side in order to learn their preference and limitation. Steps of negotiation could start from approach another side and make them feel that we are in the same team and agree to the common goals, show enthusiasm to give the opportunity to another side to get the benefits as well, listen to another side to learn from and share information and knowing how to do positive deny and reject. Similar to The Positive Encourager (2018), to solve the problem and find solution, the conditions of each party must be identified, because, everyone is having their own agendas to work. Therefore, the most important question to start before working together is "Are people ready to work together?" and ready to be common ground in order to solve the problem and achieve the common target together. Once solving the problem, the creativity is also needed for this process. To solve problem together, it requires clarity of the problem solving, is the problem is challenge and controllable. Second is creativity which includes the optional of the solutions, the consequence after making solution and solution is creative or not. Finally, concrete results which includes the conclusion and its plan of how to achieve it, the contracts that need to be made in order to keep everyone on track and concrete result that showing specific action plan to achieve to the result. Another case study from NLF player's contracts according to Shonk, K. (2018), suggests that if want to move from win-lose to win-win negotiation in contract follow steps could should be done; 1) Look for trade-offs across issues, 2) Take a long-term perspective and 3) Sell deal to your constituents. In additional according to Diori, G. (2018), to win negotiation the critical factors of



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negotiation, which need to understand, are Interests, Knowledge, Timing, Leverage, and Relationships. Finally, negotiation in high-level in business requires high skill and complex experiences. To get familiar with negotiation situation and be a better negotiator, the practicing, training new skills and attitude are needed.

2.8 Risk Management

According to Eg.mahidol (2018), the definition of risk are 1) incident that occur and lead to chance of loss in business, 2) incident that could lead to possibility to the loss in business, 3) uncertainty of the event and 4) the event that occur with dispersion of actual result. According to Continuing Professional Development (2018), when conducting any project, there is always possibility of failure to occur during process. All the risk management commonly follow the same basic five steps. First step is to identify the risk which to find any event that has possibility to occur in any process. Second step is to analyse the risk where team has to determine the likelihood and consequence if problem of occur. Third step is to evaluate the risk, team has to evaluate the level of the risk if it occurs whether it is acceptable or need to be treated. Forth step is to treat the risk where it can be reflected from Risk response planning, team has to find the solution of how to minimise the chance of occurrence, and fifth step is to monitor and review the risk.

2.9 Incentive management

According to Harvard Business Review (2018), to have motivation along the supply chain, partners have to be paid fairly. Also, the risks, costs and rewards in business have to be distributed fairly across the network. One suggestion that business could do to keep positive incentive is to rewrite contract with partner firms. To amend the contract could give the rewards or penalty to partner firms in case company find there are some unfair even occur. For example, Whirlpool modified the contract with their partner by specific the penalties to the partner in case, they do not put enough effort in selling Whirlpool's products or give a reward to partners in case they can increase the sales.

Chapter 3 Research methodology

In order to achieve round use of container system with agreement of all parties, a set of methodology as following is needed to be followed. Research methodology included totally six steps.

3.1 Description of the Research Approach

For research approach, there are five major steps which are 1) studying the current operation of inland transportation for both import and export process, 2) studying contract of each party that will involve in container round use system, 3) studying academic theory of management of change and risk management, 4) write a complete thesis book.

3.1.1 Study the current operation of inland transportation for import and export activity.

This step of studying operation is to deeply understand the current operations which involve by many organisations and parties. First, this step is to see the overview of whole chain of process flow and opportunity to omit the non-value-added process. Then, costs occur in each process and operation of whole process flow is studied and will be used for cost reduction calculation.

3.1.2 Study contract of each party that will involve in container round use system

This step is to study current term of contract that TPAS has made with suppliers and relevant party. Therefore, TPAS can capture the barriers that could have during the project. The barriers will be used as constraints when project come to decision making. Also, the contract detail could be use when conduct a plan for incentive management.

3.1.3 Study academic theory of management of change and risk management

This step is to study and do research on academic theory that will be used to applied in the project in order to solve the problem that TPAS has in set up the project which are management of change, incentive management and risk management. In management of change, research will be on 1) project management framework which is

one of the tools in management of change, 2) resistance management and 3) change management blue print.

3.1.4 Write a complete thesis book

3.1.4.1 Outline the thesis

The thesis will follow guideline and be outlined the contents base on the standard of thesis book. This step is to ensure that every required topic and item are included in thesis book. Also, to ensure that the thesis contents will follow the thesis's requirements.

3.1.4.2 Create draft thesis

During the process of implementing the container round use, the thesis will be written in draft. At this process, the contents can always be revised, added and deleted in order to make the contents understandable for the readers.

3.1.4.3 Finalise the complete thesis book

After finishing the research and project, the complete thesis book will be finalised into final version and ready to obtain signature from Dean of Faculty, thesis examination committee. Lastly, to submit complete thesis book to Graduate school.

3.2 Gather required data, information and requirements

The data and information that need to be considered as requirements or barriers during the research and project set up. These set of data and information will be counted to input as constraint in management of change process, risk management, decision making process, and controlling process.

3.2.1 Cost of Inland transportation for import and export

The costs of inland transportation for import and export operation are specified and collected based on actual cost occur in the process. The costs in the whole process of inland transportation will be used for cost calculation and compare before and after implementing container round use system. The inland transportation costs that need to be collected are divided into three categories which are inland transportation for import operation, inland transportation for export operation and additional cost as detail below;



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Inland transportation for Import Operation costs are Transportation by haulage, Lift on charge at Port terminal, Lift off charge at Port terminal, Terminal Handling charge and Gate Charge.

Inland transportation for Export Operation costs are Transportation by haulage, Lift on charge at Port terminal, Lift off charge at Port terminal, Terminal Handling charge, Gate Charge and Seal charge.

Additional costs are storage charge at private container depot and additional route that out of standard agreement route charge.

3.2.3 Agreement and contract term with nominated shipping line and Haulage company

This step aims to gather all the requirements and conditions within an agreement that made between company and nominated shipping lines and nominated Haulage company.

Shipping lines' requirements are the container that able to be used as container round use must be a container from the same shipping line agency, free time of detention and demurrage must be renewed again, and rental containers type must be checked before using as container round use.

Haulage company's requirement the quotation of haulage transportation cost for container round used container needs to be renewed in order to comply with container round use price policy.

3.2.4 Import and export process, its daily schedule and its requirements

As both import operation that calling full container from Port Terminal and export operation that calling empty container from shipping line are having their own conditions and criteria. Therefore, this step is to collect the conditions in calling full containers from Port Terminal and empty containers from shipping line yard. After learning the criteria and conditions of operation, the schedule can be arranged in the most appropriate time slot in order to eliminate opportunity lose in doing container round use for particular container. The conditions to match container for import and export are defined as follow.



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- Shipping line of the container (Container's owner)
- Container size: 20ft, 40ft
- Container Height: Standard height, High Cube

3.3 Conduct management of Change

At management of change method, there are totally three phases needed to be follow which are Phase1) Preparing for Change, Phase2) Managing Change and Phase3) Reinforcing change.

3.3.1 Conduct Project management framework

Once the management of change is designed and conducted, the project management framework will also be done in order to control and monitor the project.

3.3.2 Conduct Resistance management

This process the resistance management tool and techniques will be conducted and by manager and executive in company to address the resistance from employees when change in operations and processes happen.

3.3.3 Conduct Change management blueprint

This step will conduct change management blueprint in order to communicate the summary of all the important information and how project contribute to the company as a whole to management and executive team. This step will include the critical changes and how to manage the change both people and process.

3.4 Conduct Risk management

Before starting the implementation of the project, risk management will be done. In order to identify the potential problem that could happen in the project. After pre-notice the risks, they will be prevented and controlled.

3.5 Conduct Incentive management

The incentive management will be done in order to get every party to have attention on the project. The incentive plan will be done in effective way for both tangibles which is a return as money and intangible which is the feeling.



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3.6 Propose container round use system

3.6.1 Propose container round use system and its process flow

This step is done after studying and understanding process and collecting all the requirements from each process. Then, the process of container round use will be introduced to related organisations and get the final agreement and approval using Project management framework method.

3.6.2 Calculate cost reduction using container round use system

This step is to summarise how much of percentage the cost of inland transportation is reduced after implementing container round use system by comparing before and after implementing.



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3.7 Planned activities

Table 1 Gantt Chart illustrations plan of activities and its estimated duration of research

No.	Activity	June'18				July'18				Aug'18				Sep'18				Oct'18				Nov'18				Dec'18			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
1	Study current process of inland transportation of import and export operation																												
	1.1 Understand inland transportation of import and export operation process																												
	1.2 Collect data and information of requirement and condition of each process																												
	1.3 Draw value stream mapping of inland transportation of import and export operation process																												
2	Study contract of each party that will involve in container round use system																												
	2.1 Gather all the contract of relevant parties																												
	2.2 Identify the limitation in contract term of each party																												
3	Study academic theory of management of change and risk management																												
	3.1 Study theory of management of change																												
	3.2 Study theory of risk management																												
4	Gather required data, information and requirements																												
	4.1 Cost of Inland transportation for import and export																												
	4.2 Agreement and contract term with nominated shipping line and haulage company																												
	4.3 Import and export process and its daily schedule and its requirements																												
5	Conduct management of change																												
	5.1 Conduct management of change																												
	5.2 Conduct project management framework																												
	5.3 Conduct resistance management																												
6	Conduct risk management																												
	6.4 Conduct risk management with team																												
7	Propose and implement container round use system process																												
	7.1 Propose container round use system																												
	7.2 Implement container round use system																												
	7.3 Check and evaluate the container round use process and operation schedule																												
	7.4 Correct and Improve the process																												
	7.5 Evaluate cost																												
8	Write a thesis book																												
	8.1 Outline the thesis booking																												
	8.2 Draft the thesis book																												
	8.3 Finalise the complete thesis book																												


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Chapter 4 Change Management

First of all, before any change start, the current process and situations are needed to be studied. In this chapter, the current situation of warehouse operation will be explained for both inbound operation and outbound operation. Both inbound and outbound operation will show its own process flow. In this process flow, reader will find relevant party that have to involve in process. Also, this chapter will show the relative of country that TPAS import part from and export part to using similar and different shipping lines to carry product.

4.1 Current process

Currently, the inbound operation and the outbound operation inside organisation are working individually in separate department. Both inbound operation and export operation are having different working team, working process, working standard, working criteria and working KPI. The working area of inbound operation and outbound operation are also separated to prevent product mixing.

4.1.1 Inbound operation process

Imported containers were transported from Laem Chabang port to TPAS according to the container calling plan. This plan is made based on two criteria which are container's arrival date. This means any containers that arrived first will be called to warehouse first. Another criterion is, TPAS's customer demand. For example, part no. 'A1' is in high demand and being short from stock, purchasing team will inform inbound operation team the container no. that part no. is in and import operation team will make a plan to call container in. and Actual Time Arrival (ATA). Normally, the container will be coming to TPAS warehouse on the next day after purchasing's request.

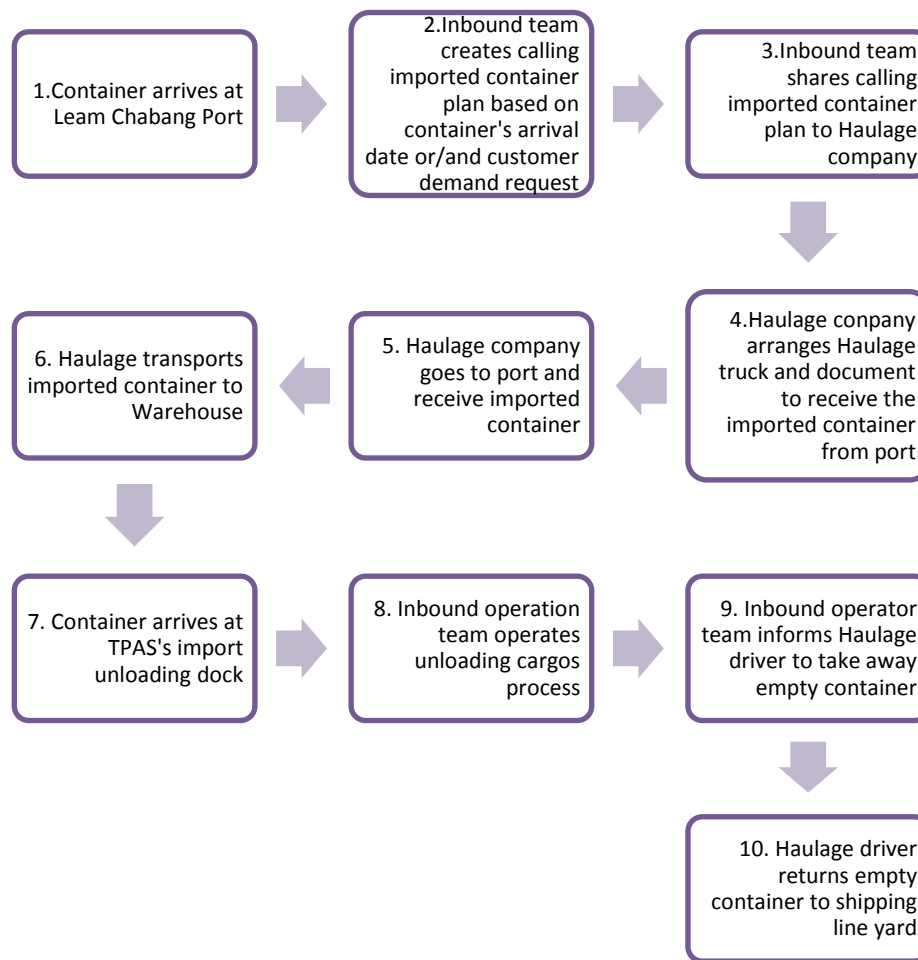


Figure 2 Inbound operation work flow (TPAS's Work Instruction, 2018)

4.1.1.1 Inbound Container Volume

The countries that company imports products from and containers volume are shown as below. The data of container volume of each exporter are recorded from April 2018 – March 2019 or also called as Fiscal Year 2018 (FY2018). The container volumes are only container size 40FT with only Standard type as TPAS only imports 40 FT standard size container. The volume of imported container of each year is increasing or decreasing depends on sale target provided by marketing department. According to past history over last 10 years, sale target has been increasing 2% per year.

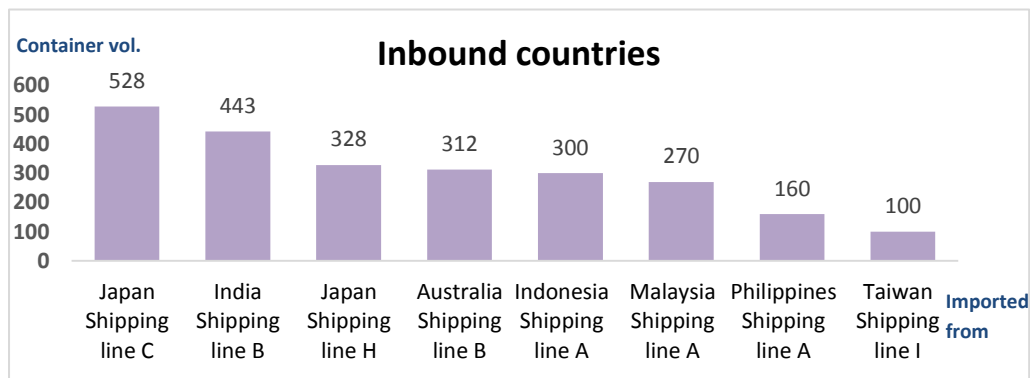


Figure 3 List of exporters that company imports products from and container volume (40FT) from April 2018 – March 2019 (FY2018) (TPAS's container round use system project, 2019)

4.1.1.2 Inland cost for inbound operation

For inland cost that occur by inbound operation, TPAS will pay from imported container arriving at port including detention and demurrage cost until returning empty container after unloading cargos to shipping line yard. The inland costs that being calculated per one container are listed and shown as below table.

Table 2 List of inland costs from 2010 to 2018 (TPAS cost structure, 2018)

Inland Cost	Pay to	Amount (THB)
Transportation by Haulage cost	Haulage company	7850
Terminal Handling Charge	Shipping line	4300
Lift on charge at Port terminal	Port Authority of Thailand	800
Lift off charge at Port terminal	Port Authority of Thailand	1000
Gate charge	Port Authority of Thailand	120
Demurrage charge after free time	Shipping line	Avg. Day 1 - 5: 400BHT/container/day Avg. Day 6 -10: 800BHT/container/day Avg. Thereafter: 1,6000BHT/container/day
Detention charge after free time	Shipping line	Avg. Day 1 - 5: 400BHT/container/day Avg. Day 6 -10: 800BHT/container/day Avg. Thereafter: 1,6000BHT/container/day
Storage charge time inside terminal	Port Authority of Thailand	Avg. 500 BHT/container/day
Re-location/moving charge inside terminal	Port Authority of Thailand	Avg. 1,500 BHT/container/day
Container Fixed	Port Authority of Thailand	1,000 THB/container

For last 5 years, inland cost that being charged by Port Authority of Thailand and demurrage and detention fee are not changed but transportation cost that charged by Haulage company and Terminal Handling Charge by shipping line has been changed over 5 years. Especially, Transportation by Haulage cost, it has been adjusted every three months. But, average Transportation by Haulage cost is increasing year by year, refer to below transportation by haulage cost below;

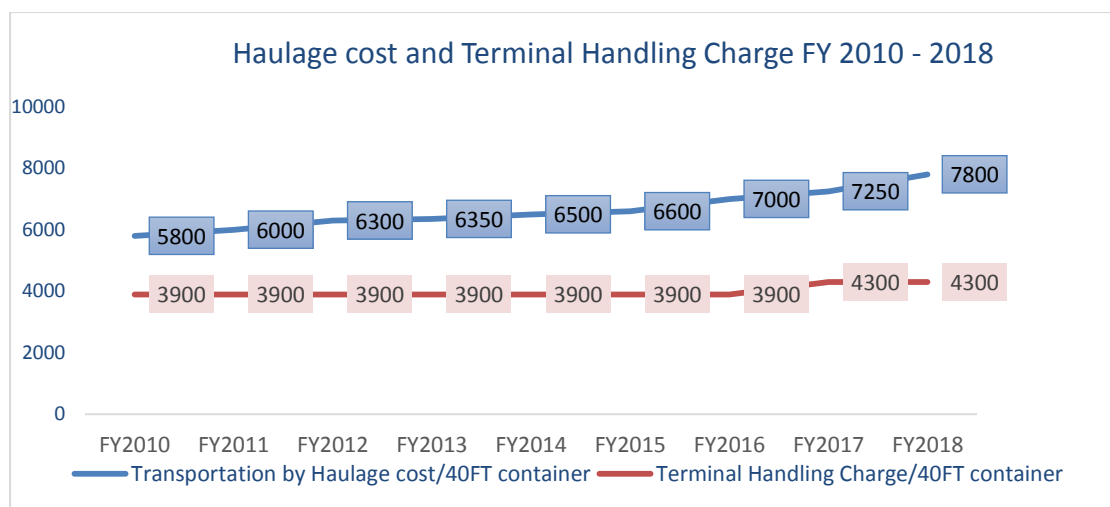


Figure 4 Transportation by Haulage cost from Year 2010 - 2018 (TPAS's cost structure, 2018)

It can be seen that in each year, costs of transportation are increased slightly year by year. This inland cost is a fixed cost and cannot be avoided. For Terminal Handling Charge, it is charged by shipping line. It also can be seen that the charge remains steady from 2010 until 2016. However, from 2017, shipping line adjusted their charge to be higher from 3,900 THB/container to 4,300 THB/container. According to Lichtenstein (2019), in 2017, three of the greatest Japanese shipping lines which are Kawasaki Kisen Kaisha (K Line), Nippon Yusen Kabushiki Kaisha (NYK), and Mitsui O.S.K. Lines (MOL) finally decided to merge together and found new shipping line called ONE (Ocean Network Express) due to the decline of their profit. Not only these three shipping lines but other shipping line from Europe lines also do this kind of

combining and taking over in order to survive in the market. With this situation, it impacts directly to TPAS where we will have very low bargaining power as there are lesser shipping lines compete in the market. TPAS can notice that with all the merging and taking over shipping lines, it means many shipping lines are in trouble with their profit margin. Therefore, currently, there is no merit to consignee as TPAS that shipping line used to waive extra cost. And shipping lines are trying increase the cost that they can to meet with their profit goal. This factor impacts both for inbound and outbound operation.

4.1.2 Outbound operation process

Outbound operation starts from the outbound loading diagram which already being designed by outbound operation team. The loading diagram is crated base on two criteria. First, the customer's order volume. For example, customer "Saudi Arabia" places high volume order every week which estimate of container exporting to Saudi Arabia is about 60 containers per week. Therefore, containers of customer "Saudi Arabia" will be operated as first five containers every morning. Then, outbound operation team will recognise that he has to create calling empty container plan by calling empty container to load customer "Saudi Arabia" first in the morning. Second, it is created bases on invoice cut-off schedule, where each working day, the invoice cut-off schedule will show when to return full loaded container to port in order to load onto vessel and depart. Therefore, container of each country has to be loaded before 'cut-off date and time of return full loaded container'.



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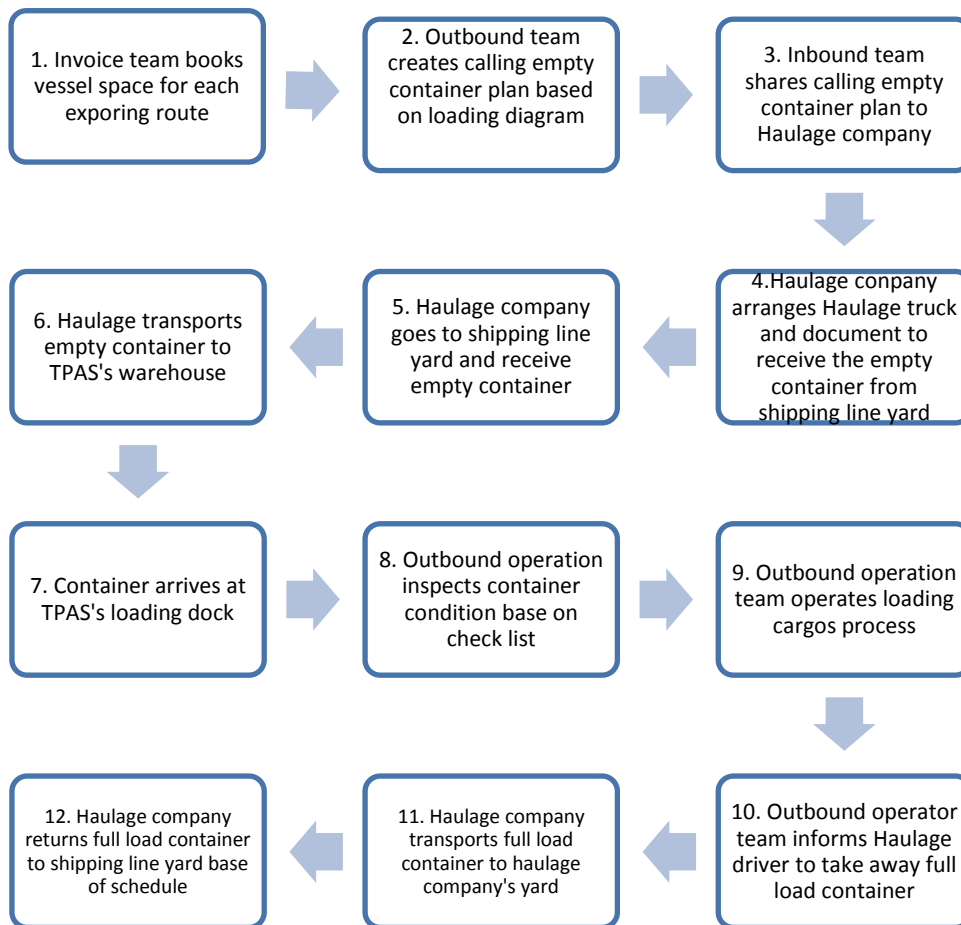


Figure 5 Outbound operation work flow (TPAS's Work Instruction, 2018)

4.1.2.1 Exporting container volume

The countries that company exports products to and containers volume are shown as below. The data of container volume of each importer are recorded from April 2018 – March 2019 or also be called as Fiscal Year 2018 (FY2018). The container volumes are only container size 40FT with both Standard type and High Cube type. The volume of container of each year is increasing or decreasing depends on sale target provided by Marketing department. According to past history over last 10 years, sale target has been increasing averagely 2% per year.

Table 3 List of exporters that company exports products to and container volume (40FT)
from April 2018 – March 2019 (FY2018) (TPAS's container round use system project,
2019)

Shipping Line	Country	Volume
A	ARGENTINA	400
	MALAYSIA	399
	UAE	282
	SOUTH AFRICA	252
	BRAZIL	117
	YEMEN (Hodeida)	74
	ARGENTINA	66
	SINGAPORE	49
	TAIWAN	36
	CHINA	18
	SRI LANKA	14
B	JAPAN	558
	INDIA	377
	INDONESIA	234
	AUSTRALIA (Sydney)	206

	BAHRAIN	156
	KUWAIT	141
	QATAR	103
	PAKISTAN	33
C	JAPAN	458
	BELGIUM	264
	AUSTRALIA (Melbourne)	109
	AUSTRALIA (Brisbane)	96
	AUSTRALIA (Fremantle)	60
D	PHILIPPINES	745
	MALAYSIA	399
	INDONESIA	234
	VIETNAM (Haiphong)	147
E	VIETNAM (Ho Chi Minh)	199
F	NEW ZEALAND	95
G	SAUDI ARABIA (Jeddah)	922
J	Timor	49
	BRUNEI	3
K	United States	2

Regarding above table, it can be seen that there are three shipping lines that both Inbound and Outbound operation are having in common which are shipping line A, shipping B, and shipping C. The total export volume of shipping line A is 1,713, shipping line B is 2,266 and shipping line C is 529. As there are some common shipping lines between inbound and outbound, TPAS can apply container round use system bases on both shipping line-based and country-based. For shipping line-based, container round use will used regardless the inbound country and outbound country but focus only, it has to have same shipping line. For country-based, it has to consider both same country and shipping line for inbound and outbound.

4.1.2.2 Inland cost for outbound operation

For inland cost that occurs by outbound operation, TPAS will responsible from transports empty container from shipping line yard until returning full loaded container to Laem Chabang port. The inland costs that being calculated per one container are listed and shown as below table.

Table 4 List of inland costs from 2010 to 2018 (TPAS's cost structure, 2018)

Inland Cost	Pay to	Amount (THB)
Transportation by Haulage cost	Haulage company	6980
Terminal Handling Charge	Shipping line	4300
Lift on charge at Port terminal	Port Authority of Thailand	800
Lift off charge at Port terminal	Port Authority of Thailand	1000

Gate charge	Port Authority of Thailand	120
Demurrage charge after free time	Shipping line	Avg. Day 1 - 5: 400BHT/container/day Avg. Day 6 -10: 800BHT/container/day Avg. Thereafter: 1,6000BHT/container/day
Detention charge after free time	Shipping line	Avg. Day 1 - 5: 400BHT/container/day Avg. Day 6 -10: 800BHT/container/day Avg. Thereafter: 1,6000BHT/container/day
Storage charge time inside terminal	Port Authority of Thailand	Avg. 500 BHT/container/day
Re-location/moving charge inside terminal	Port Authority of Thailand	Avg. 1,500 BHT/container/day
Container Fixed	Port Authority of Thailand	1,000 THB/container
Bunker surcharge, Low sulphur surcharge	Shipping line	Included in Freight rate

Above is table showing the list of inland cost that shipper has to absorb. Those costs are fixed and variable cost. For fixed cost, there are transportation by haulage cost and Terminal handling charge, Lift on charge at Port terminal, Lift off charge at Port terminal and gate charge. However, this fiscal year (year 2018-2019), Bunker surcharge and low sulphur surcharge became fixed cost which forced to be included in freight rate.

For Bunker surcharge low Sulphur surcharge that are included in freight rate which cannot be specifically defined. For Low Sulphur surcharge which is a new regulation from IMO which could be refer to Imo.org. (2019), start from 1st of January 2020, all the cargos vessel needs to use low Sulphur fuel oil to travel in the ocean in order to control the emission release by reducing to 0.50% m/m (mass by mass) outside designated emission control areas. According to TPAS's cost structure (2018), low Sulphur surcharge will be added up in freight rate and freight rate will surely increase as low Sulphur fuel oil cost is higher than current bunker fuel type.

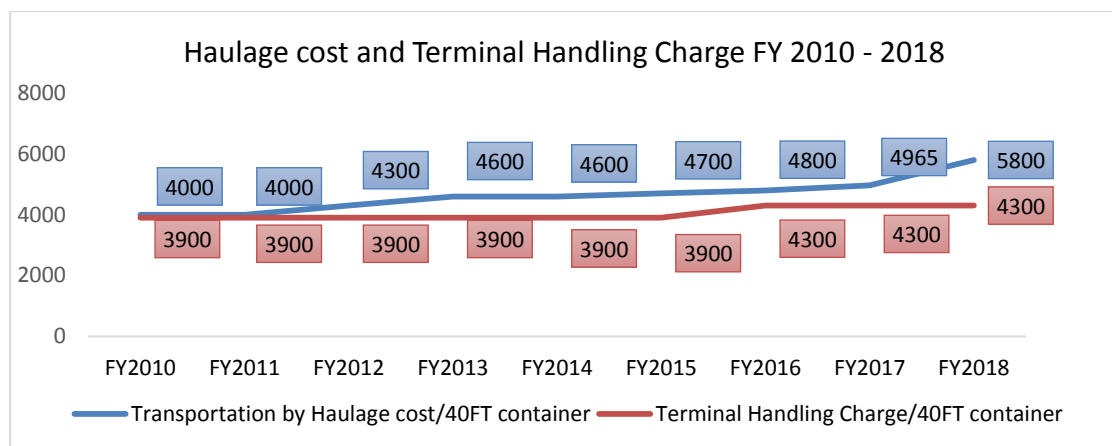


Figure 6 Transportation by Haulage cost from Year 2010 - 2018 (TPAS's cost structure, 2018)

Figure above is showing how fixed costs which are transportation by haulage cost and Terminal handling charge are continuously increasing year by year.

4.2 Problem

4.2.1 Unfamiliar process

There is an opportunity to apply container round use system inside organisation with support from current relevant party. However, as this system is new to organisation and will change the current working processes of organisation itself (inbound and outbound

operation), shipping line and Haulage Company. The issues during change will have to be managed and resolve appropriately.

4.2.2 Risk issue

As this is new process, all the possible issues that could happen to harm to operations and operators need to be listed and addressed in appropriated way.

4.3 Need for change

The container round use system is the collaborative between internal organisation (inbound operation and outbound operation). The container round use system changes the way relevant parties use to work. In term of process, instead of returning empty container after unloading at inbound operation to shipping line yard, that empty container could be used to export cargos. Therefore, TPAS does not have to pay for returning empty container back to shipping line yard and can eliminate cost of transporting empty container from shipping line yard for export. In term of management, there are concern points that will be used to design process work flow which are, the container round use system's free time, container quality inspection, where to get the container seal lock for exporting (when exporting container, the container seal lock comes along with empty container to outbound operation), new agreement contract between shipping line yard, haulage company and TPAS, size of container between inbound and outbound operation, and how to control the container round use.

4.4 Collect relevant data from relevant parties

In order to create appropriate container round use system, the below information and data from relevant parties are needed for studying. The lists are listed up bases on the process that will be changed.

1. Agreement between shipping lines and organisation
2. Container Round use system quotation



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3. Container seal lock stocking method
4. Document management
5. Free time of detention and demurrage condition
6. Container yard for container round use stocking
7. Work flow between shipping line, haulage company and organisation (Inbound and outbound operation)
8. Organisation's operator skill in container inspection
9. Container size synchronization
10. Communication process flow



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4.5 Expected container round use system process flow

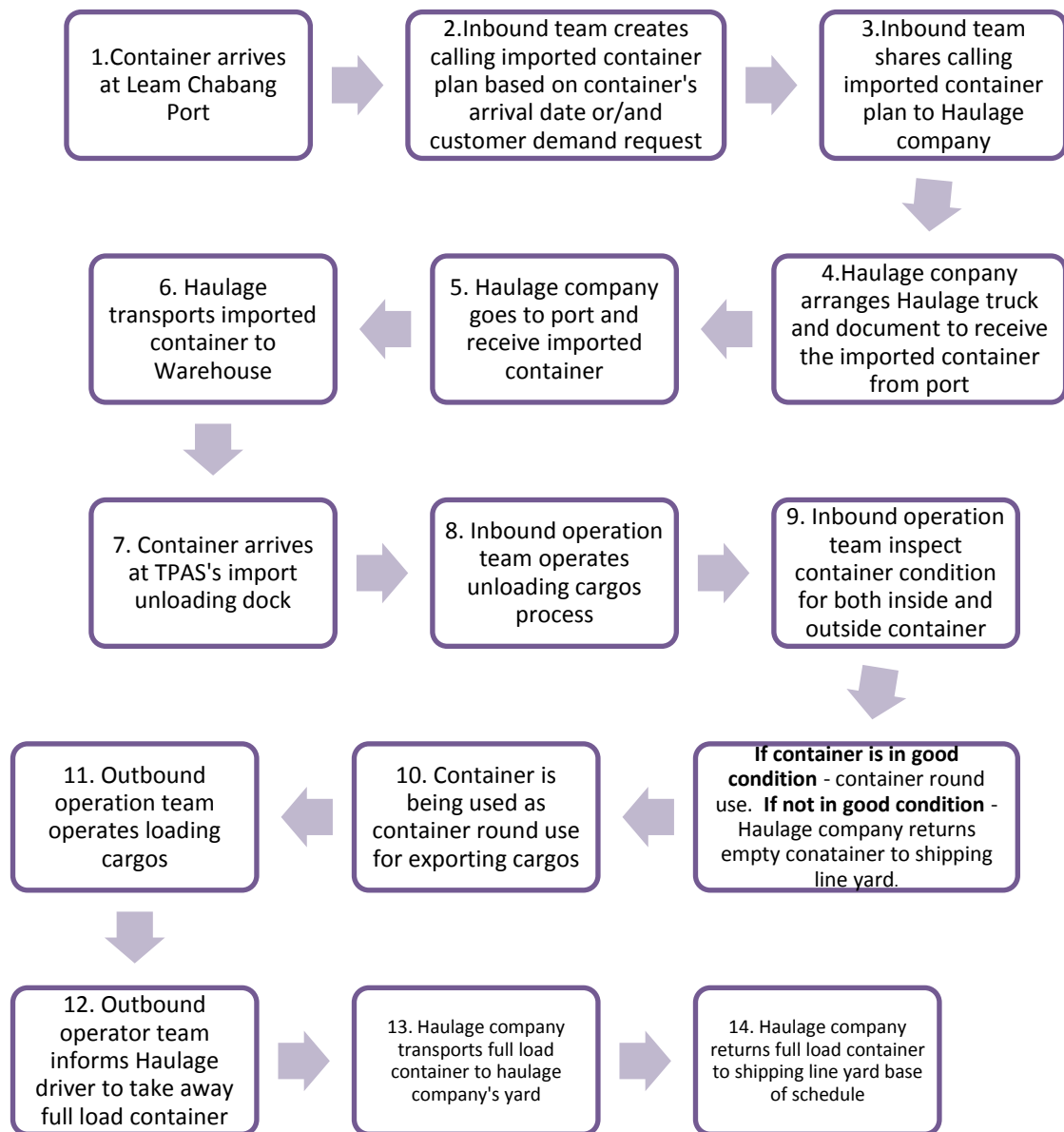


Figure 7 Expected container round use system process flow (TPAS's cost structure, 2018)

Conclusion

In order to conduct change management, first of all, the current processes and information are needed to be understood. In addition, the ideal process of container round use system is drawn in order to use as an overall picture and concept reference when doing project management and risk load management. All the information needed has been listed down as a reference for decision making and design appropriate process

flow. To seek for the required information, we need people who has experience and skill in particular work area. Therefore, project management framework is required to shape the direction of project.

In additional, to deal with change in organisation, the resistance of change is needed to be recognised. If there is any resistance that could impact to the overall picture of project, they have to be addressed and managed.



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Chapter 5 Project management frame work for change management

5.1 Team formation

Regarding to TPAS's container round use system project (2019), the team formation is done based on the work experiment and authority of each person. In project team, it consists of Project sponsor, project manager, project secretary and project members. The project team includes people from varies functions which are Regional customer service (RCS) department, Inbound operation section, Outbound operation section, and Haulage company. For shipping line company, it is not considered as team member, however, TCPAP will directly negotiate and contact with them for condition and requirement.

Table 5 Team formation (TPAS's container round use system project, 2019)

Team title	Work Experience	Organization	Work Authority
Project sponsor	20 years in warehouse operation and customer service	TPAS	General manager
Project manger	15 years in customer service and 2 years in warehouse operation	TPAS	Deputy general manager
Team secretary	5 years in customer service	TPAS	Senior specialist
Team member (TPAS)	Up to 10 years in warehouse experience both in inbound operation and outbound operation	TPAS	Manager, Assistance manager and group leader

Team member (outside)	Up to 30 years in haulage company	Haulage company	General manager, manager and supervisor
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5.2 Project Initiative (Business assessment)

- Project Sponsor

According to Pmi.org. (2019), project sponsorship is one who always ensure that the project works well for both result and working environment. In order to achieve the company's benefits and goal. Project sponsor also has to be a representative of organisation, leader of the project and able to take overall responsibility for the project. Project sponsor could be in the manager position or executive position where being able to;

- Able to decide whether project should be started or terminated
- Give recommendations and advices as a guidance to project manager and team members
- Be able to sponsor "funding" and provide the needed capacity and resources
- Having authority to make final decision and judge when there is an issue that beyond project manager's scope area
- Able to make decision and facilitate in case of any change
- Able to resolve the problem that beyond project manager's supervision, for example, political issue and conflict objectives
- Act as the link between the project, business community, high management level, strategic level decision-making unit
- Be able to observe the project and support in communication between project team, management level, and other stakeholders, for example, supplier, distributor and head office

All above are the expected project sponsor should be in project team. For container round use project, the project sponsor is assigned to General Manager level who now working in Service Part Strategy Planning Department. He used to work in both warehouse operation department and customer service department. Therefore, he has wide range of knowledge and experiences. He also grasps the function of each job in deep detail. He is having good bond with internal organisation and good connection with external organisation such as haulage company. Importantly, his position as General Manager is having authority to make final decision when there is any issue and able to cope with the conflict.

During the project initiative stage, project sponsor communicates the project proposal to strategic level decision-making group to hear their comments and feedback. At the same time, project sponsor notices to the high management level team that there will be change coming to organisation and what benefit TPAS could get out of this activity. Therefore, the high management level team can suggest name list of project manager candidates. It is a responsibility of project sponsor to choose an appropriate project manager with suitable working background and level of authority.

- Business case

According to Atap (2019), business case is used for decision-maker to see problem clearly. Creating business case should be done since project initiative, in order to allow decision-maker to decide that this problem should be resolved and go on for the project or not. To effectively present business case, creator should use standard format to illustrate merit and benefits organisation would have when problem is solved. In this project, Toya Business Practice (TBP) paper is used to report to decision-maker. According to Miller, J. (2019), TBP report composes of eight steps which are 1) Problem clarification, 2) Problem break down, 3) Target setting, 4) Root cause Analysis, 5) Develop Countermeasure, 6) See countermeasure through, 7), Result and process evaluation and 8) process standardisation. Normally, TBP report is being used globally in Toya Global and being applied in other organisation in Thailand such as Electricity

Generating Authority of Thailand (EGAT). TBP report is only A3 paper size which contain all of eight items in one paper. The concept of TBP is to allow reader to read though and understand it all even he or she is not in the familiar field of writer. It implies that TBP report already includes everything decision-maker needs to know about business case.

- Strategic alignment

Regarding TPAS's Hoshin Kanri (2018), there are three main strategies that apply in TPAS in 2018. There are 1) Cost reduction, 2) Innovative and 3) collaborative. These three strategies are how TPAS will improve and sustain the business in long run. For container round use system project, it focuses on cost reduction and collaboration. As a result of this project, it is expected to reduced total inland cost by collaboration among shipping line, haulage company and TPAS.

- Initiate funding approval

According to TPAS's container round use system project (2019), additional process that desirable to be funded is container's condition inspection at TPAS. TPAS normally does not have high level of container inspection because of empty container for exporting is being transported directly from shipping line yard and shipping line yard operator does inspect empty container already.

However, Haulage company's inspection work instruction (2017), the processes are very delicate and too difficult for TPAS to follow. For example, operator goes on the roof of container to inspect container's roof condition, this process requires to have on-the-roof walk-way which need to be built if TPAS would like to do the same as Haulage Company. Also, inspection tools that very expensive and special for container inspection that needed to be invested.



Figure 8 Haulage company's operator inspect roof of container with safety device at his back (TPAS's container round use system project, 2019)

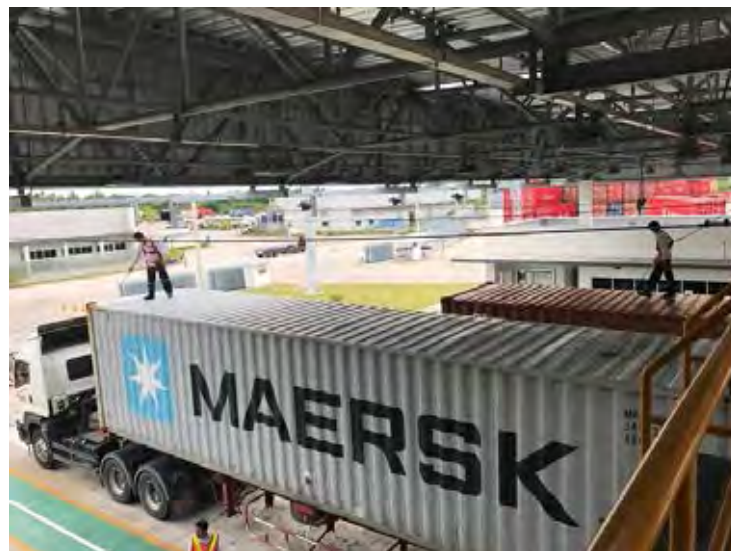


Figure 9 Haulage company's operator get on the roof of container by using yellow bridge that have a ladder to go down to roof of container (TPAS's container round use system project, 2019)

5.3 Planning

- Project manager

In order to set up project, the project manager is required as a leader of project who will control and monitor how project goes. In this case study, project manager is selected from person who has work experience in inbound and outbound admiration over 15 years.

- Strategic contribution

This project contributes to reduction cost for overall logistics cost. The strategic for this project is to collaborate among internal and external organisation to work together.

- Scope framework

Scope of the project is to focus only in inland transportation cost for inbound and outbound operation.

- Work plan and Project control

Table 6 Work plan and Project control (TPAS's container round use system project, 2019)

No.	Job	Dec 18	Jan 19	Feb 19	Mar 19	Apr 19	May 19	By when	PIC
1	Create project proposal							17-Dec	Secretary
2	Kick-off meeting							21-Dec	Project Manager

3	Gather concern points from relevant party							21-Dec	Secretary
4	Request container round use transportation quotation							25-Jan	Secretary
5	Prepare free time detention and demurrage and request to shipping line							20-Jan	Team member (RCS)
6	Risk management process (1 st meeting)							11-Feb	Project manager
7	Risk management process (2 nd meeting)							28-Feb	Project manager
8	Agreement and contact sign off							25-Apr	Project sponsor
9	Preparation meeting							29-Apr	Project manager



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Above table is an overall work plan that used to control the project. In each work item, there is sub-work plan that will use to control and monitor if work is done correctly base on timeline. Sub-work plan will have work element in detail which allow team member to follow. In each work plan item, the minute of meeting will be created as an evidence of agreement among parties.

5.4 Resource management

The additional resource requires in this project are;

- Inspector who is able to do container inspection
- Person who can control and check container rental condition with shipping line
- Person who can collaborate with haulage company and shipping line about the use of container to be container round use

5.5 Project registration

In order to give green light to the container round use system project, the project proposal has to be approved by project sponsor. After that, the kick-off meeting is conducted to announce that this project will be officially started. In TPAS, there is department that responsible for Continuous Improvement and cost reduction. As container round use project is in cost reduction scheme, therefore, the team secretary will register the project with that department. Once project is being registered, the project must be done and cannot be abandoned as project will have to report the monthly cost reduction to administrative of Continuous Improvement and cost reduction department.



Chapter 6 Risk Management

6.1 Identify risk

According to Aiemsri, A. (2019), Risk assessment is how to find the possibilities that something dangerous could happen. And those dangerous possibilities could be danger to human, animal and objective. Risk could be vividly found with naked eyes, for example, there are electrical cable on the wet floor which could cause short circuit. However, there are also risk that could not be seen with naked eyes but needed the feeling and experience to predict that danger could happen particularly the complicated work unit, for example, circuit design that require only expertise to validate the correctness. This kind of work could cause harm if the responsible person does not have enough knowledge to complete the job. Therefore, to find out the risk in each process requires on-the-job employees, supervisors and experts. Also, the risks are categorized into three types which are 1) Dangerous working area, 2) Dangerous working activity and 3) Dangerous working environment.

According to Bdn (2019), risks are categorized into four types which are 1) Strategic Risk means any activities that could against company strategies and company policies. 2) Financial Risk, means risk that occurs by lacking budget during the project or money lost during project. 3) Operation risks, means any risks that occur during the process, including, machines, processes, human resources, and technology. 4) Compliance Risk means risk that occur by not able to comply with laws and regulations which become obstacle of the project. Therefore, all the potential risks must be listed and grouped into each category for person in charge to acknowledge and take action easily. Plus, at this process the factor of risks also being identify in each item. The risks factors come from two types which are internal factors and external factors. Internal factors could be, for example, management policy, company strategy, loyalty,

organization behaviour, human skill, lack of knowledge sharing, lack of quality control, and not follow company regulations. For external factors, there are, for example, national and international laws, regulations, changing of technology and market, weather climate, economic crisis, political conditions and factors that company could not control. All above conditions are used for categorizing the risk in risk identification process in order to systematically identify the possibility of risk occur and how to address them.

According to Bdn (2019), risks are categorized into four types which are 1) Strategic Risk means any activities that could against company strategies and company policies. 2) Financial Risk, means risk that occurs by lacking budget during the project or money lost during project. 3) Operation risks, means any risks that occur during the process, including, machines, processes, human resources, and technology. 4) Compliance Risk means risk that occur by not able to comply with laws and regulations which become obstacle of the project. Therefore, all the potential risks must be listed and grouped into each category for person in charge to acknowledge and take action easily. Plus, at this process the factor of risks also being identify in each item. The risks factors come from two types which are internal factors and external factors. Internal factors could be, for example, management policy, company strategy, loyalty, organization behaviour, human skill, lack of knowledge sharing, lack of quality control, and not follow company regulations. For external factors, there are, for example, national and international laws, regulations, changing of technology and market, weather climate, economic crisis, political conditions and factors that company could not control. All above conditions are used for categorizing the risk in risk identification process in order to systematically identify the possibility of risk occur and how to address them.



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Table 7 Risk identification and grouped into category (TPAS's container round use system project, 2019)

Potential risk/hazardous identification survey sheet for					
Container round use system project					
Risk Type	No.	Potential risk/hazardous	Detail	Risk Factors	Working Area/Person in charge (PIC)
Strategic Risk	1	Delay shipment	Cannot load cargo into container on schedule due to spared container damage and being rejected to load cargo for export. Or container cannot come to export operation area on-time due to no spared container available.	Internal Factor	Working Area: Export operation area PIC: Export team
	2	Container that deliver to customer is damage	Company concerns about the quality of products that being sent to customer because it relates to quality	Internal Factor & External factor	Working Area: Import & Export operation area, shipping line and port authority

		assurance to the products and quality warranty claim process.		PIC: Import&Export team, shipping line and port authority
3	Haulage company do not work at the same day as company	There is some working day during holiday which some suppliers are closed and cannot support company's operation.	Internal Factor & External factor	Working Area: Import & Export operation area, Haulage company, shipping line and port authority PIC: Import&Export team, shipping line and port authority
4	No shipping line match between import and export in each fiscal year	As shipping lines are nominated by Purchasing which criteria are based on the most competitive in schedule, transit lead time and quotation. Therefore, it is possible that there might not be	External Factor	Working Area: Import & Export operation area PIC: Import&Export team



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			same shipping line between import side and export side		
	5	Relevant parties does not agree to implement container round use system	It is possibility that some relevant parties might not agree with container round use project	External Factor	Working Area: Shipping line yard and Import & Export operation area PIC: Haulage company, shipping line, Import and Export team
Financial Risk	6	No container inspection tools	No budget to invest container inspection tools	Internal Factor	Working Area: Import & Export operation area PIC: Import&Export team

	7	Haulage company collect wrong charge	Company loses money from wrong charge collect by customs broker	Internal Factor	Working Area: Haulage company PIC:Haulage company
	8	Extra charge	Some invisible charge occurs	Internal Factor & External factor	Working Area: Haulage company and shipping line PIC: Haulage company and shipping line
Operational Risk	9	Miss internal operation	Unsmooth operation for import and export operation due to no working instruction for container round use system	Internal Factor	Working Area: Import & Export operation area PIC: Haulage company and Import&Export team
	10	Haulage miss operation	Haulage operation management - when and how to transport container	Internal Factor	Working Area: Import & Export operation area PIC: Haulage company

	1	Document miss	How to handle	Internal	Working Area:
	1	operation	document from import to export and how to notify container round use	Factor	Import & Export operation area PIC: Haulage company
	1	Container	Container was not	Internal	Working Area: -
	2	cleanliness quality	cleaned by shipping line as it comes directly from cargo unloading operation at import working area	Factor	PIC: Import&Export team
	1	Container	As container round use	External	Working Area: On
	3	damage during transit	system, shipping line will not take responsible for container damage as shipping line did not do the container inspect before loading cargo for export	Factor	board (Vessel) PIC: Project team and Shipping line
	1	No container	As it is difficult to control	Internal	Working Area:
	4	match in a day	import container calling. Therefore, import	Factor	Import & Export operation area

		container could not be used for export in a day		PIC:Project team and Import&Export team
1 5	container rain (humid inside container)	Having liquid on the walls and roof of the container due to change in temperature during transit. And, there is no cleaning process as it comes directly from cargo unloading operation at import working area	External Factor	Working Area: - PIC: Shipping line
1 6	Container quality (damage)	Container was not inspected any damages by shipping line as it come directly from cargo unloading operation at import working area	Internal Factor	Working Area: Import & Export operation area PIC: Import&Export team
1	Use wrong size of	Some import-country	Internal	Working Area:



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	7	container	accept only container 40FT standard.	Factor & External factor	Import & Export operation area PIC: Import&Export team
	1 8	Miss inspection critical points	Employees are lack of inspection knowledge and inspection tools	Internal Factor	Working Area: Import & Export operation area PIC: Import&Export team
	1 9	Miss communication when to start	The start implement project date relates to how to collect payment and charge	Internal Factor & External factor	Working Area: Import & Export operation area PIC: Import&Export team
	2 0	No haulage available enough	No haulage available enough to transport container from yard to loading area	Internal Factor & External factor	Working Area: Haulage yard of haulage company PIC: Haulage company
	2 1	No haulage's tail available enough	No haulage's tail available enough to leave container	Internal Factor & External	Working Area: Haulage yard and container yard of



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		overnight at yard	factor	haulage company PIC: Haulage company
2	No space at stocking container area available enough	No space at stocking container area available enough	Internal Factor & External factor	Working Area: Container yard of haulage company PIC: Haulage company
2	Over free time (detention and demurrage) from shipping line has allowed	Keep container in stock area for too long until it is over freetime available	Internal Factor & External factor	Working Area: Container yard of haulage company PIC:Haulage company
2	Dangerous Good (DG) sticker peeling off	Dangerous Good (DG) stickers are attached on container wall when import container to identify Dangerous product. But when container is being used for exporting the DG sticker need to be	Internal Factor	Working Area: Import & Export operation area PIC: Import&Export team

			peeled.		
	2 5	No container seal lock available	Container seal lock is used to lock container door	Internal Factor & External factor	Working Area: Import & Export operation area PIC: Export team, Haulage company and shipping line
	2 6	Accident during container inspection	Employees are lack of inspection skill	Internal Factor	Working Area: Import & Export operation area PIC: Import&Export team
Compliance Risk	2 7	Over free time (detention and demurrage) from shipping line has allowed	Free time of import and export container are divided individually. There was no container round use system free time set between company and shipping line yet. Because, doing container round use, it takes longer time of	External Factor	Working Area: - PIC: Port authority, Shipping line and project team

			detention free time more than normal operation.		
	2 8	Container cannot be shipped due to rental condition	Normally, shipping line has rental container which only valid during specific period of time	External Factor	Working Area: - PIC: Shipping line and project team

Above table shows the potential risks that being listed down by relevant parties including, on-the-job employees, supervisor and management team. The risks are divided by type of risk which are strategic risks, financial risk, operation risk and compliance risk. Also, potential risks are divided whether it is internal or external factor. For internal factor, it tends to be easier to control and address the problem. But, external factors are more difficult to control by project team which means some risk potentials are needed to be accepted. However, project team members will not only allow external factors to impact the project flow and project benefits. Therefore, the negotiation with external parties needed to be done. For example, the potential risks that control by external which is "Over free time", the free time is defined as standard for all shipper and importer. This free time is set by port authority which is under the government work. Therefore, it is difficult for only shipper or importer to negotiate. We need shipping line to support and help negotiation with port authority for us. To enhance shipping line to support negotiation, project team might need to encourage shipping line with what benefits shipping line can receive in return

6.2 Measure risk

According to Curkovic, Sime & Scannell, Thomas & Wagner, Bret. (2013), in order to know how high and critical the risk is, rating the risk is needed to be developed and applied. Once the degree or level of risk is stated, the risk can be address accordingly to its level. The severity from risk occur that could impact to process, people, product and customer; and likelihood of risk to occur will be examined and rated regarding the set rating scale.

In this case, the impact of risk occurs and likelihood of risk to happen will be ranked upon the settle raking scale as below.

Risk rating scale

Degree of severity ranking		
Degree	Description	Rating
Extreme	When a potential failure effects safe operation of the products and/or involves non-conformance with government regulations. This potential risk may endanger to people, animal or product.	5
	- Assign "4", if there will be a warning before failure. - Assign "5", if there will NOT be a warning before failure.	4
High	When a high degree of customer dissatisfaction is caused by the failure. But this rank, the failure does not involve	3



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	safety of people, animal or product. Also, failure does not compliance with government regulation. This failure may cause disruption to subsequent processes/operation and/or require rework.	
Medium	When a moderate degree of customer dissatisfaction is caused by failure. Customer is made uncomfortable or it annoyed by the failure. May cause rework or result in damage to equipment.	2
Low	When a failure will cause only slight annoyance to the customer. The failure is not likely to cause any real effect on subsequent process/operations or require rework. Most customers are not likely to notice any failure. Any rework that might be required is minor.	1

Figure 10 Potential Risk assessment scale : Degree of severity ranking (Curkovic, Sime & Scannell, Thomas & Wagner, Bret, 2013)

Degree of occurrence ranking		
Degree	Description	Rating
Extreme	Failure is almost inevitable -Assign "5", if it will always happen or probability of happening is 90-100%	5
	-Assign "4", if probability of happening 76-90%	4
High	High rate of failure -Assign "3", if probability of happening is 51-75%	3
Medium	Occasional failure -Assign "2", if probability of happening is 26-50%	2
Low	Isolated failure or no known failure -Assign "1", if probability of happening is 0-25%	1

Figure 11 Potential Risk assessment scale : Degree of occurrence ranking (Curkovic, Sime & Scannell, Thomas & Wagner, Bret, 2013)

Above figures are potential risk assessment scale that being applied from reference of Curkovic, Sime & Scannell, Thomas & Wagner, Bret (2013) to inside organisation. The scales are originally from the risk severity and risk occurrence raking

of FMEA document which found to be useful for risk measurement process in this project. Therefore, in container round use project, team members agree to apply and adapt risk raking standard to internal risk raking version. For degree of Severity ranking figure, it is applied as impact of risk when it happens. And degree of occurrence raking figure, it refers to how likely the risk would happen by referring from the records in Toya's Logistics Quality Problem Report (LQPR) from year 2000 – year 2018.

6.3 Potential Risk matrix

According to Dzone (2019), the risk matrix can be known in other names which are Probability Matrix and Impact Matrix. The purpose of risk matrix is to help evaluator to consider if the risk is in which level and degree. After complete scaling the risk in each potential risk items, the risk score of each item will be plot in this risk matrix to find out risk level. The matrix is divided into four levels which are low risk, medium risk, high risk and extreme risk. Each stage of risk level will be used in next process which is risk management action.

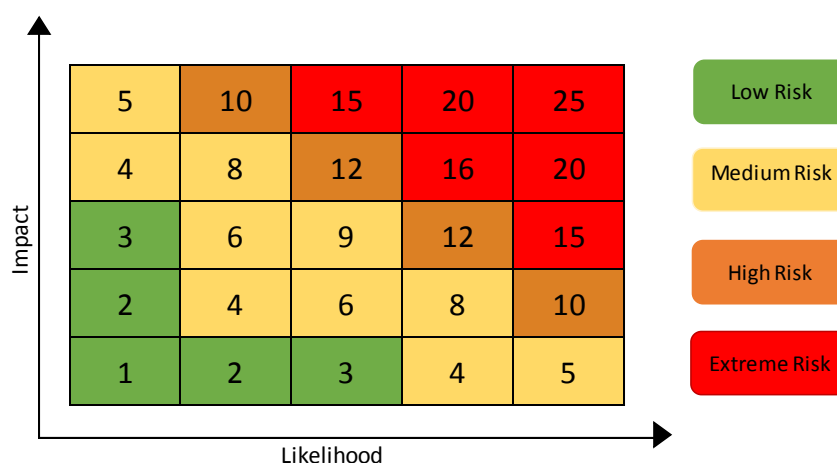


Figure 12 Potential Risk matrix (Dzone, 2019)

Above figure is potential risk matrix which use to find the degree of risk. The degree of risk is formulated as Degree of Risk = Degree of severity ranking x Degree of

occurrence ranking. The degree of severity ranking will be generated to axis “impact” and Degree of occurrence ranking will be generated to axis “Likelihood”.

6.4 Potential risk assessment

After listed up risk potential, the ranking of risk will be scaled. The potential risks are evaluated based on impact of risk and likelihood that risk could occur, refer to racking score from degree of severity raking and degree of occurrence ranking. After that, impact and likelihood will be plot into degree of risk using potential risk matrix. With potential risk matrix, it helps user to filter only extreme risk and high risk to be prioritised and address for solution first. The potential risk evaluation is done with the team member that including relevant parties which are inbound operation, outbound operation, regional customer service, haulage company and shipping line yard.

Table 8 Potential Risk assessment (TPAS's Container round use project, 2019)

Potential risk assessment

No.	Potential risk/hazardous	Detail	Degree of severity (Impact)	Degree of occurrence (Likelihood)	Risk level (Risk matrix)
1	Delay shipment	Cannot load cargo into container on schedule due to spared container damage and being rejected to load cargo for export. Or container	4 (Extreme)	2 (Medium)	Medium Risk

		cannot come to export operation area on-time due to no spared container available.			
2	Containers that export to customer are damage	Company concerns about the quality of products that being sent to customer because it relates to quality assurance to the products and quality warranty claim process.	5 (Extreme)	3 (High)	Extreme risk
3	Haulage company do not work at the same day as company	There is some working day during holiday which some suppliers are closed and cannot support company's operation.	4 (Extreme)	4 (Extreme)	Extreme risk

4	No shipping line match between import and export in each fiscal year	As shipping lines are nominated by Purchasing which criteria are based on the most competitive in schedule, transit lead time and quotation. Therefore, it is possible that there might not be same shipping line between import side and export side	5 (Extreme)	4 (Extreme)	Extreme risk
5	Relevant parties does not agree to implement container round use system	It is possibility that some relevant parties might not agree with container round use project	4 (Extreme)	3 (High)	High Risk
6	No container inspection tools	No budget to invest container inspection tools	5 (Extreme)	3 (High)	Extreme risk



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7	Haulage company collect wrong charge	Company lose money from wrong charge collect by customs broker	5 (Extreme)	2 (Medium)	High Risk
8	Extra charge	Some invisible charge occur	4 (Extreme)	4 (Extreme)	Extreme risk
9	Miss internal operation	Unsmooth operation for import and export operation due to no working instruction for container round use system	5 (Extreme)	2 (Medium)	High Risk
10	Haulage miss operation	Haulage operation management - when and how to transport container	5 (Extreme)	2 (Medium)	High Risk
11	Document miss operation	How to handle document from import to export and how to notify container round use	4 (Extreme)	3 (High)	High Risk

12	Container cleanliness quality	Container was not cleaned by shipping line as it comes directly from cargo unloading operation at import working area	4 (Extreme)	4 (Extreme)	Extreme risk
13	Container damage during transit	As container round use system, shipping line will not take responsible for container damage as shipping line did not do the container inspect before loading cargo for export	5 (Extreme)	2 (Medium)	High Risk
14	No container match in a day	As it is difficult to control import container calling. Therefore, import container could not be used for export in a day	3 (High)	5 (Extreme)	Medium Risk
15	container rain (humid inside)	Having liquid on the walls and roof of the container	5 (Extreme)	3 (High)	Extreme risk



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	container)	due to change in temperature during transit. And, there is no cleaning process as it comes directly from cargo unloading operation at import working area			
16	Container quality (damage)	Container was not inspected any damages by shipping line as it come directly from cargo unloading operation at import working area	4 (Extreme)	3 (High)	High Risk
17	Use wrong size of container	Some import-country accept only container 40FT standard.	5 (Extreme)	3 (High)	Extreme risk
18	Miss inspection critical points	Employees are lack of inspection knowledge and inspection tools	5 (Extreme)	4 (Extreme)	Extreme risk

19	Miss communication when to start	The start implement project date relates to how to collect payment and charge	5 (Extreme)	2 (Medium)	High Risk
20	No haulage available enough	No haulage available enough to transport container from yard to loading area	4 (Extreme)	4 (Extreme)	Extreme risk
21	No haulage's tail available enough	No haulage's tail available enough to leave container overnight at yard	5 (Extreme)	4 (Extreme)	Extreme risk
22	No space at stocking container area available enough	No space at stocking container area available enough	4 (Extreme)	4 (Extreme)	Extreme risk
23	Over free time (detention and demurrage) from shipping	Keep container in stock area for too long until it is over free time available	4 (Extreme)	4 (Extreme)	Extreme risk

	line has allowed				
24	Dangerous Good (DG) sticker peeling off	Dangerous Good (DG) stickers are attached on container wall when import container to identify Dangerous product. But when container is being used for export the DG sticker need to be peeled.	4 (Extreme)	3 (High)	High Risk
25	No container seal lock available	Container seal lock is used to lock container door	5 (Extreme)	4 (High)	Extreme risk
26	Accident during container inspection	Employees are lack of inspection skill	5 (Extreme)	3 (High)	Extreme risk
27	Over free time (detention and demurrage)	Free time of import and export container are divided individually.	3 (High)	3 (High)	Medium Risk



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	from shipping line has allowed	There was no container round use system free time set between company and shipping line yet. Because, doing container round use, it takes longer time of detention free time more than normal operation.			
28	Container cannot be shipped due to rental condition	Normally, shipping line has rental container which only valid during specific period of time	5 (Extreme)	4 (Extreme)	Extreme risk

6.5 Risk management

After done with potential risk assessment and knowing the degree of potential risk of each item. The priority risk could be managed and addressed regarding to the above figure of risk management action. As mentioned earlier, the risk that is in extreme risk and high risk, refer to risk level (risk matrix), they will be taking care first. The advantage of risk management action is to allow user to arrange which job, task and risk should be done first and be done by whom. Also, to allow user to distinguish which item of risk is important and need management team to involve for corrective action or just

monitor. Even, it can tell user which risk can be accepted. Therefore, it guides user to go to correct direction and not wasting time trying to solve problem when that problem actually could/has to be accepted. Below figure will show how to manage and cope with the risk using the scale from degree of severity (impact) and degree of occurrence (likelihood).

Risk Level (Risk Management Actions)

Impact	Significant	Considerable management required Risk Level 7	Must manage and monitor risks Risk Level 8	Extensive management essential Risk Level 9	
		Moderate	Risks maybe worth accepting, with monitoring Risk Level 4	Management effort worthwhile Risk Level 5	Management effort required Risk Level 6
			Minor	Accept risks Risk Level 1	Accept, but monitor risk Risk Level 2
		Low		Medium	High
		Likelihood of adverse outcome			

Figure 13 Risk Level (Risk Management Actions) (Department of Justice Canada, 2019)

In container round use system project, the degree of severity and degree of occurrence is translated into risk management action as detail below;

Impact axis:

Table 9 risk management action : Impact axis (TPAS's Container round use project, 2019)

Degree of severity (Impact)	Risk management action
Low risk	Minor
Medium risk	Moderate
High risk and Extreme risk	Significant

Likelihood axis:

Table 10 risk management action : Likelihood axis (TPAS's Container round use project, 2019)

Degree of occurrence (Likelihood)	Risk management action
Low risk	Low
Medium risk	Medium
High risk and Extreme risk	High

Table 11 Example of risk action management (TPAS's container round use system project, 2019)

No.	Potential risk/hazardous	Detail	Degree of severity (Impact)	Degree of occurrence (Likelihood)	Risk level (Risk matrix)
1	Containers that export to customer are damage	Company concerns about the quality of products that being sent to customer because it relates to quality assurance to the products and quality warranty claim process.	5 (Extreme)	3 (High)	Extreme risk

Containers that export to customer are damage is evaluated in risk level Extreme risk, therefore, it is the first one to address the issue. After that, the degree of severity (impact) is in Extreme and degree of occurrence (Likelihood) is in High. Then, risk management action for impact will be Significant and likelihood of adverse outcome will be High. As a result, this concern falls in to level 9 which means "Extensive management essential".

6.6 Examine solution

After knowing which potential risk is in high risk and needed to be addressed, the examine solution will be conducted. To find out the solution of the problem, it first needs to know what the root cause of the problem is. In order to know the root cause, there are two methods that container round use project team members used which are Fish bone diagram and 5-why analysis. For Fish Bone diagram, the factors that being used to analyse are 1) Man, 2) Machine, 3) Method, 4) Environment and 5) Material. For,

5-why analysis, the question is being asked why the problem occurs and why so and so on until can find the true root cause.

To examine solution, the approval of project manager is required. In additional, in case of beyond project manager authority, the team sponsor is required to involve in decision making. Because, some solution needs to have additional budget to invest. For example, to find a place to keep empty container in case container round use quality is rejected and there is no empty container to stuff cargos for exporting. If fail to stuff cargoes on time, it has high possibility to ship cargos delay and service rate will be low.

Risk level and risk management action:

Extreme

1. Containers that export to customer are damage

Action: Extensive management essential (Risk Level 9)

As the policy of company is that products must be delivery on-time with good condition. Therefore, to any factors that could harm products have very high concern. In this case, project sponsor suggests 1) review current inbound operation and outbound operation working standard and apply to new working standard for container round use system project. 2) Send current inbound operation's operator and outbound operation's operator to train at Haulage Company who expert and have long experience in container inspection. 3) Create check sheet to inspect container round use. 4) Clarify with Haulage Company and shipping line about quality assurance.



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Figure 14 TPAS operators were sent to Haulage company to train for container inspection (TPAS's container round use system project, 2019)

As a result, Haulage company is doing container inspection in very level and using many special tools where TPAS does not have and too difficult of TPAS operator to follow. Therefore, project manager decided to follow only some critical points from Haulage Company and do container inspection base on TPAS's version. Haulage Company also suggests and highlight inspection critical points that must not miss when inspect. For example, it must not be any hole on the container and no rusty in any place.

2. Haulage company do not work at the same day as company

Action: Extensive management essential Risk Level 9

In case TPAS is having Over Time on holiday and there is container round use, it requires all relevant parties to support in order to control container round use. Especially, Haulage Company that have responsible in container round use control.

TPAS requests Haulage Company to open on holiday. Haulage company cannot open on holiday; however, haulage company will internally manage and prepare the document for container round use during holiday and give all the document to TPAS beforehand. TPAS would like to try this way first and see if it works or not. If it does not work, Haulage Company will have to open on holiday.



Figure 15 Meeting between TPAS and Haulage company (TPAS's Container round use system project, 2019)

3. No shipping line match between import and export in each fiscal year

Action: Extensive management essential Risk Level 9

This problem is beyond the authority of project sponsor. Because, the shipping line is being yearly selected by purchasing department. The bidding process is done based on route schedule, requirements and price. Purchasing will only select the shipping line that having the most competitive. Therefore, it is possibility that shipping

line between inbound and outbound are different. However, moving further, if container round use project's benefit is more than competitive price, project sponsor will consider negotiate with purchasing department.

4. No container inspection tools

Action: Must manage and monitor risks Risk Level 8

TPAS creates our own inspection method which no need to require special tool. The container inspection is only done based on haulage company suggestion with TPAS's capability.

5. Extra charge

Action: Extensive management essential Risk Level 9

All the charge is specified prior start the project. Plus, all party will keep the memo of charge with themselves as evidence.

6. Use wrong size of container

Action: Must manage and monitor risks Risk Level 8

Currently, outbound operator is using only 40FT high cube. After checking with importer, there is no limitation of using 40FT standard. However, to use 40FT High cube could have more fill rate utilization. Therefore, inbound team will contact to exporters if they can supply container in 40FT high cube.



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7. No haulage available enough and o haulage's tail available enough

Action: Extensive management essential Risk Level 9

It is Haulage Company's responsibility that they have to manage haulage to be enough to support TPAS. In case Haulage Company is lack of haulage, the investment additional haulage is required.

8. No space at stocking container area available enough

Action: Extensive management essential Risk Level 9

Haulage Company studies to find alternative yard to keep container round use for TPAS. As a result, Haulage Company informs that current yard is able to put empty container for totally 120 containers especially for TPAS. And up until now, there are only 50 containers that TPAS put in the yard. Therefore, haulage company have space for 70 containers left for TPAS. But, normally, TPAS only put container at haulage company around 20 containers per day. The fee of rental stocking container area per one container is 500 BAHT per night. However, if container is being left in stocking area during day time only, cost is 100 BAHT.

9. Over free time (detention and demurrage) from shipping line has allowed

Action: Extensive management essential Risk Level 9

Negotiate with shipping line about free time for container round use process. Shipping line should give free time base on container round use system. Because, free time for both inbound and outbound is normally having same condition. Detention and demurrage free time are combined totally 21 days for each leg.



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However, when doing container round use project, TPAS requests combination of inbound and outbound free time to 42 days (detention and demurrage combine). As a result, there are no shipping line agrees. Below figures are free time that each shipping line offers for container round use system.

(Day)																																											freetime charge					
Carrier	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42						
A	ETA																																													Outbound side		
B	ETA																																															Outbound side
C	ETA																																															Outbound side

Figure 16 Free time demurrage and detention for container round use system (Container round use system project, 2019)

In summary:

Shipping Line A: Free time (detention and demurrage) is still based on current condition of non-container round use system.

Shipping Line B: Free time of Inbound (Demurrage + Detention) should not exceed 21 days. But, if free time is used lesser than 21 days, the remaining free time from inbound can top-up to outbound (detention). For outbound demurrage, it has to be 7 days only.

Shipping Line C: Free time of shipping line C is similar to shipping line B, accepted once container becomes container round use, the free time remaining from inbound cannot be top up to outbound.

10. No container seal lock available

Action: Extensive management essential Risk Level 9

As a result, TPAS requests haulage company to control container seal lock for TPAS. However, normally seal lock comes along with exporting container (empty container) from shipping line yard. But, with container round use system, seal lock is needed to be stocked at TPAS's office. Shipping line yard request TPAS to issue official letter to shipping line yard for seal lock stocking.

11. Accident during container inspection

Action: Must manage and monitor risks Risk Level 8

Personal Protective Equipment (PPE) is specified in container inspection check sheet.

12. Container cannot be shipped due to rental condition

Action: Extensive management essential Risk Level 9

As a result, Regional customer service (RCS) who normally responsible for container booking will check the condition of container before usage.

13. Container cleanliness quality and Container rain (humid inside container)

Action: Extensive management essential Risk Level 9

It is agreed by shipping line that if any container damage occur after container is returned into port for exporting, shipping line will take responsible for that. As a result, in container inspection check sheet, the cleanliness inside container and container rain are specified.



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14. Miss inspection critical points

Action: Extensive management essential Risk Level 9

Container round use inspection check sheet is created. Both inbound and outbound operation needs to create skill matrix to catch up with operator skill and what skill that operator need to be improved.

6.7 Implement solution & Monitor solution

Before implementation, the agreement for container round use system between shipping line and TPAS is required to be signed. The agreement is provided by each shipping line. But the content of each shipping line is the same. However, before TPAS sign the agreement, legal department and project team member involve in reviewing the content. There are some points that TPAS requests shipping line to revise and add up in order to have clearer understanding. Especially the responsible party in case of container damage that needed to be clarified. Therefore, TPAS requests shipping line to add flow charge of responsible in, and in item no.7 under “Duties of the Operator and the User”, previously, only TPAS that has to responsible for unseen damage at destination. But, actually after container is returned back to port, there is shipping line responsible. Therefore, if there is any unseen damage found at destination “it must be investigated by importer, shipping line and any relevant parties to find out the root cause before assigning responsible party.” needs to be said in agreement.

The solution from potential risk that being concerned are agreed to implement and monitor by each department supervisor. Container round use system is being implemented from container that arrival Laem Chabang port on June 10, 2019. All concern points from risk identification are solved and drawn as below process flow.

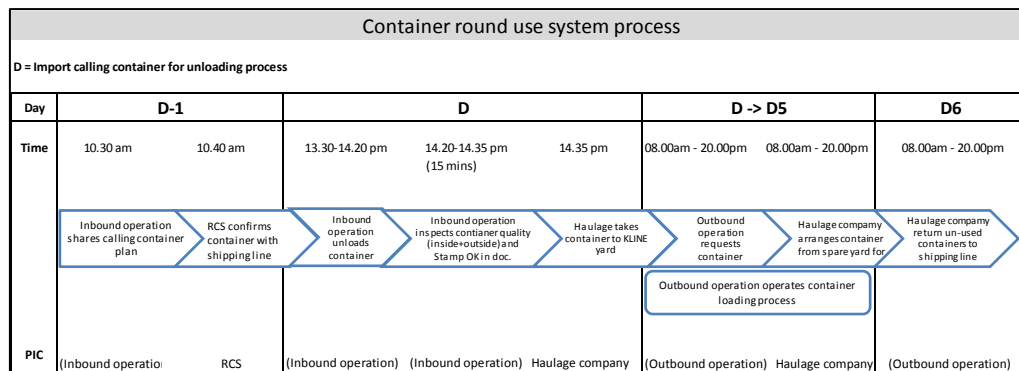


Figure 17 Container round use process flow (TPAS’s Container round use system project, 2019)

Regarding process flow, for container round use system both inbound and outbound operation is combined. With the comment from management that it is risky that there might be very less container to be able to do container round use as the schedule of import and export operation are not synchronised perfectly. Therefore, solution of finding stocking container round use area after unloading cargos at inbound operation is applied. To optimise the container round use system cost, container round use can be stocked at stocking area not more than five nights only. If exceed five nights, the container must be returned to shipping line.

6.7.1 Current inland inbound and outbound transportation cost

Cost of inland inbound transportation: 7,850 BAHT

Cost of inland outbound transportation: 6,980 BAHT

Total cost inland inbound and outbound transportation: 14,830 BAHT

6.7.2 Cost of container round use system

Cost of container round use system: 9,050 BAHT

Stocking container area cost:

- During day 100 BAHT/day

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- Overnight 500 BAHT/night
- Cost of container round use system at stocking area:

During day - total cost is 9,150 BAHT (Fee is 100 BAHT/day – for transportation)

1 night – total cost is 9,650 BAHT (Fee is 500 BAHT/night)

2 nights - total cost is 10,150 BAHT (Fee is 500 BAHT/night)

3 nights - total cost is 10,650 BAHT (Fee is 500 BAHT/night)

4 nights - total cost is 11,150 BAHT (Fee is 500 BAHT/night)

5 nights - total cost is 11,650 BAHT (Fee is 500 BAHT/night)

According to TPAS's Container round use system project (2019), target of container round use profit should not be less than 3,000 BHT. Therefore, TPAS's profitable point of container round use system is to not keep container at container round use stocking area more than five nights.

For most concern point in container quality, operator at inbound operation was sent to Haulage Company for container inspection training. And container condition inspection check sheet is created.



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Version : June 2019

Container round use check sheet

Date : container no. :

Shipping line : A B C container size : 40'DC 40'HC
 DG : DG Not DG

Check Point	
Outside Check	Inside Check
1. Container number and alphabet <input type="checkbox"/> OK <input type="checkbox"/> No OK	1. Rubber seal at door is not tore off <input type="checkbox"/> OK <input type="checkbox"/> No OK
2. Door's handle <input type="checkbox"/> OK <input type="checkbox"/> No OK	2. Handle tighter <input type="checkbox"/> OK <input type="checkbox"/> No OK
3. Container number inside container <input type="checkbox"/> OK <input type="checkbox"/> No OK	3. Container floor is clean <input type="checkbox"/> OK <input type="checkbox"/> No OK
4. 4 poles are in good condition <input type="checkbox"/> OK <input type="checkbox"/> No OK	4. Container floor is in good condition <input type="checkbox"/> OK <input type="checkbox"/> No OK
5. Lock at lower side and upper side <input type="checkbox"/> OK <input checked="" type="checkbox"/> No OK	5. No bolt on container's floor <input type="checkbox"/> OK <input type="checkbox"/> No OK
6. Lock at Seal Pole no. 3 (from left side) <input type="checkbox"/> OK <input type="checkbox"/> No OK	6. Container wall is not exceed standar <input type="checkbox"/> OK <input type="checkbox"/> No OK
7. Is there sticker outside container? <input type="checkbox"/> Yes <input type="checkbox"/> No	7. No light in inside container <input type="checkbox"/> OK <input type="checkbox"/> No OK
	8. No smell <input type="checkbox"/> OK <input type="checkbox"/> No OK
	9. Air ventilation is in good condition <input type="checkbox"/> OK <input type="checkbox"/> No OK
	10. No rusty <input type="checkbox"/> OK <input type="checkbox"/> No OK
	11. Any dew and water drop? <input type="checkbox"/> Yes <input type="checkbox"/> No

Checker

Date : _____

Group Leader

Date : _____

confirm container condition :
 OK NG

Figure 18 Container condition inspection check sheet (TPAS's Container round use system project, 2019)

Chapter 7 Managing change

7.1 Resistance management

According to UKEssays (2018), there are six strategies that Coca-Cola used to manage the change resistance in organisation. Mainly, the strategies are dealing with people who are the employees in organisation that have strong attitude towards current work processes and not willing to face with any changes. As the strategic are used to be successful in the way that can decrease the resistance behaviors. Therefore, TPAS would like to benchmark the strategy and apply with Toya organisation.

Right after, the project team announces the container round use project to related party. There is feedback from some departments that have extra work from current operation. Especially, works that employees currently do not familiar with, for example, container quality inspection which they already believed that they will not be able to do it perfectly as haulage company or shipping line does. Below are six strategies that TPAS has adapted from Coca-Cola to TPAS's organisation.

Resistance management strategies:

- 1). Employee participation in change process
- 2). Sharing the benefits of change to employees
- 3). Build consensus with stakeholders on important issues
- 4). Understand and support employee that has issue with change emotional, disability and physiological issue
- 5). If fours strategies are fail, company should cope with the leader of employees about this change

6). Force the employees to comply with the change

As a result, TPAS did follow resistance strategy from item no. one to item no. five only. Mainly, the project manager is a compromise person where he always listens to team members and operator at front line for the difficulties and support to solve the problem. However, there are also some issues as mentioned earlier about container inspection that front line operators are not willing to do as they said they cannot take responsible if they did it wrong. With this concern, project manager suggests taking front line operator for the training and comfort him to do his best. As well as explain to them that in case they did it wrong, we still have some time to solve and there will always a solution. But, for now they should give their best try to do it first. Below will explain the result detail of each strategy after being applied for container round use system.

1) Employee participation in change process

Operator from each relevant parties and department are invited to join the project. Not only to allow them to have the involvement in change, but when they can give an idea and share the experience on their job. As a result, it will make them feel that they are one of the team. Once there is any issue, they are desirable to support and solve the problem together with the rest of the team.

2) Sharing the benefits of change to employees

During the project, the benefits of doing container round use system is distributed to all member. The most important benefit is cost reduction in inland transportation which result in TPAS will have higher gross profit. This means the bonus payment is going to be higher. As a result, when all employees recognise the benefit of project, they will have motivation to complete the project.



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3) Build consensus with stakeholders on important issues

To get approval in critical concerned points, stakeholders are required to agree and work out for solution together. As a result, before raising any important issue in the meeting, team will introduce the problem to stakeholders beforehand. Therefore, they can prepare and research for possible solution before coming to the meeting.

4) Understand and support employee that has issue with change emotional, disability and philological issue

Once container round use project is announced, there are some feedback and comment both in negative and positive. However, as project team member, we all listen to every comment. But, we try to share all of employee the benefit that we will have.

5) If fours strategies are fail, company should cope with the leader of employees about this change. Even though, everyone is finally desirable to join the project. But, at first stage of project, the conflict happed. Because, there is no one want to have additional job or new job that they are not familiar with. As a result, project manager cope with operator's supervisor and general manager of warehouse operation in order to explain how project could benefit cost reduction to the company. Once, high management level gave a green light and assign employee to join the project.



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Chapter 8 Cost evaluation

8.1 Inland transportation cost in current process

8.1.1 Inbound operation process flow

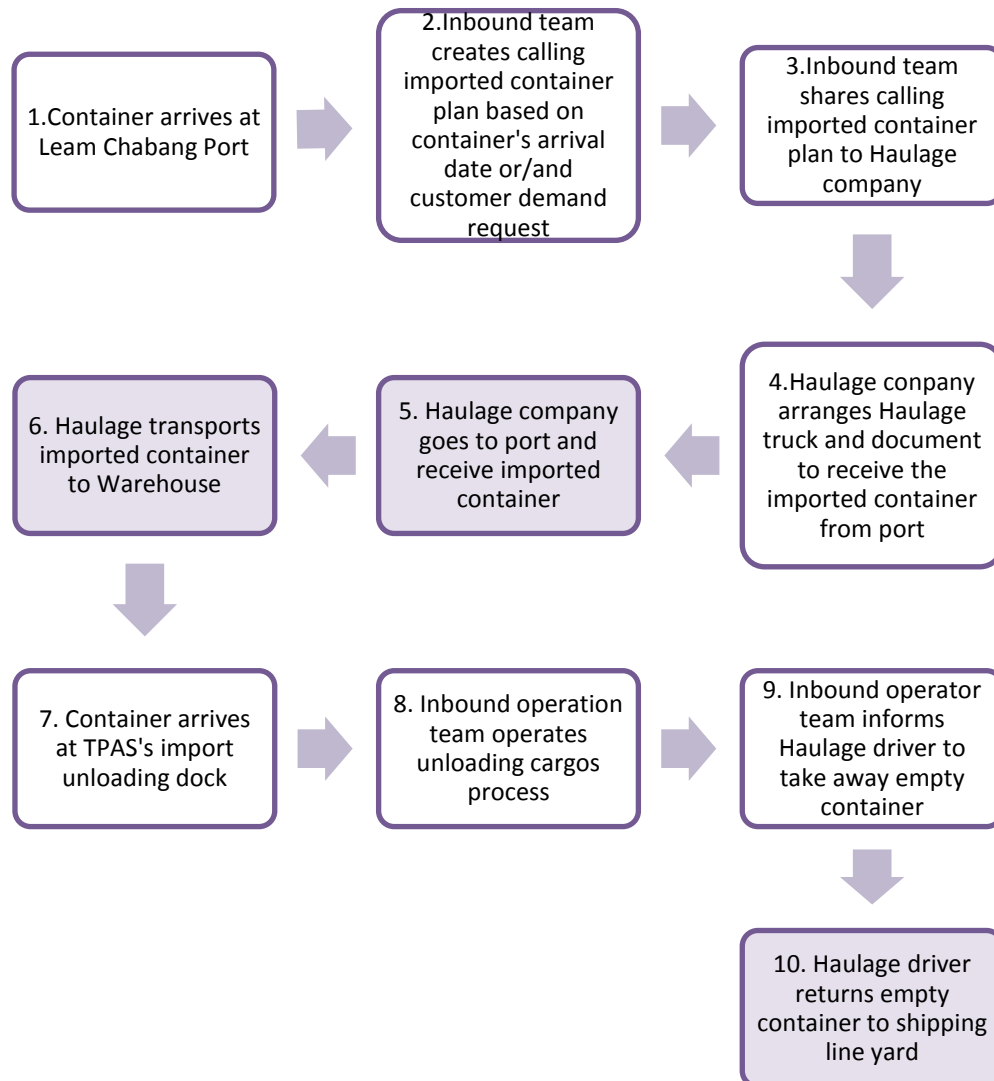


Figure 19 Inbound operation process flow (TPAS's Container round use system project, 2019)

Inland transportation cost for inbound operation occurs in highlighted process which are Process no. 5 Haulage company goes to port and receive imported container,

Process no. 6 Haulage company goes to port and receive imported container and

Process no. 10 Haulage company goes to port and receive imported container.

According to TPAS's cost structure (2018), inbound inland transportation total cost for each round trip is 7,850 BAHT. Therefore, total cost of inbound inland transportation per year is 19,161,850 BAHT. However, if focuses only cost of inbound inland transportation for container under shipping line A, B and C that having potential to do container round use system is 11,657,250 BAHT.

8.1.2 Outbound operation process flow

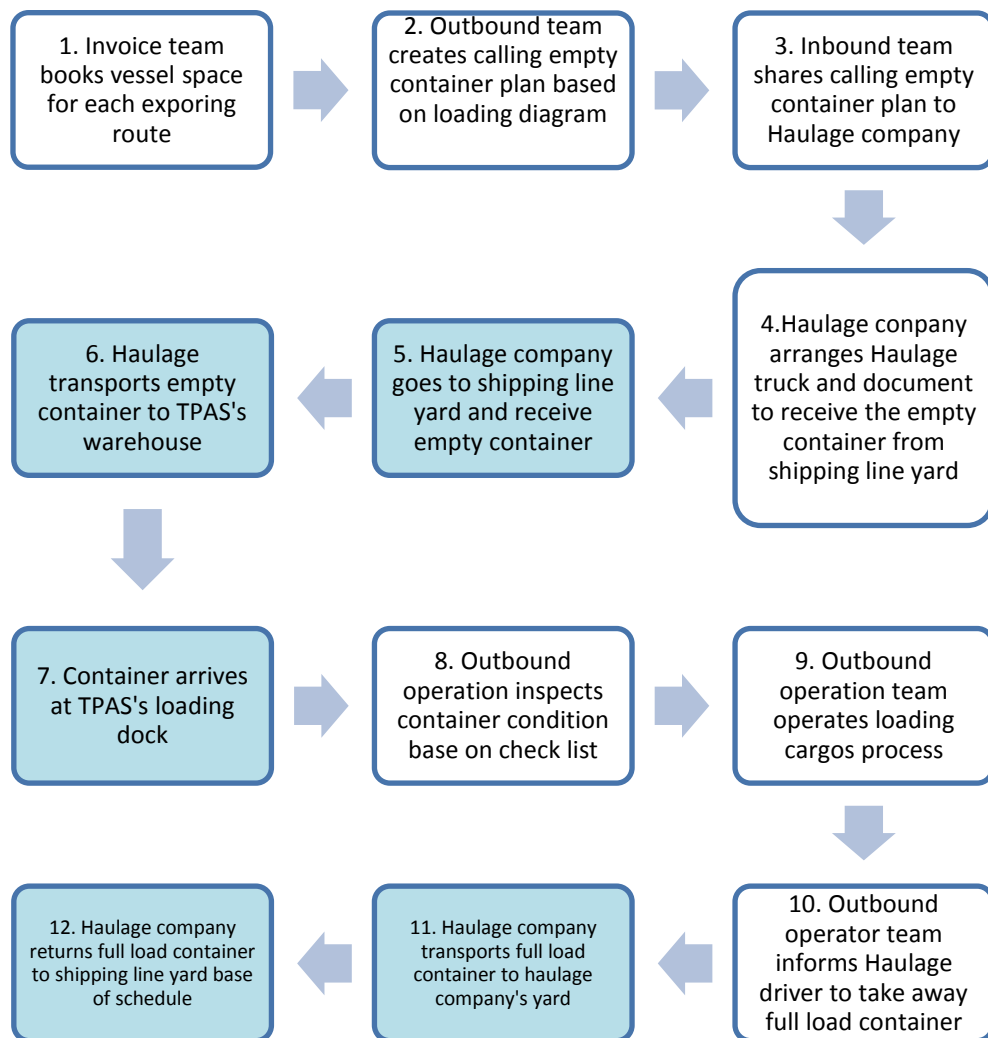


Figure 20 Outbound operation process flow (TPAS's Container round use system project, 2019)

Inland transportation cost for inbound operation occurs in highlighted process which are Process no. 5 Haulage company goes to shipping line yard and receive empty container, Process no. 6 Haulage transports empty container to TPAS's warehouse, Process no.7 Container arrives at TPAS's loading dock, Process no. 11 Haulage company transports full load container to haulage company's yard and Process no. 12 Haulage company returns full load container to shipping line yard base of schedule. According to TPAS's cost structure (2018), outbound inland transportation total cost for each round trip is 6,980 BAHT. Therefore, total cost of outbound inland transportation per year is 50,974,940BAHT. However, if focuses only cost of inbound inland transportation for container under shipping line A, B and C that having potential to do container round use system is 11,657,250 BAHT.

8.2 Option of round use container system and its cost reduction

8.2.1 Inbound and outbound directly

This option could save inland transportation cost:

Per container round use: 5,780 BAHT or 39 percent

Per container round use/year: 8,583,300 BAHT or 39 percent

Per total container/year: 8,583,300 BAHT or 12.24 percent

8.2.2 Inbound and outbound on the same day

This option could save inland transportation cost:

Per container round use: 5,680 BAHT or 38 percent

Per container round use/year: 8,434,800 BAHT or 38 percent

Per total container/year: 8,434,800 BAHT or 12.02 percent



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8.2.3 Stocking container at stocking area

This option could save inland transportation cost:

1 night

Per container round use: 5,180 BAHT or 35 percent

Per container round use/year: 7,692,300 BAHT or 35 percent

Per total container/year: 7,692,300 BAHT or 11 percent

2 nights

Per container round use: 4,680 BAHT or 31.5 percent

Per container round use/year: 6,949,800 BAHT or 31.5 percent

Per total container/year: 6,949,800 BAHT or 9.9 percent

3 nights

Per container round use: 4,180 BAHT or 28 percent

Per container round use/year: 6,207,300 BAHT or 28 percent

Per total container/year: 6,207,300 BAHT or 8.85 percent

4 nights

Per container round use: 3,680 BAHT or 24.8 percent

Per container round use/year: 5,464,800 BAHT or 24.8 percent

Per total container/year: 5,464,800 BAHT or 7.8 percent



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5 nights

Per container round use: 3,180 BAHT or 21.4 percent

Per container round use/year: 4,722,300 BAHT or 21.4 percent

Per total container/year: 4,722,300 BAHT or 6.7 percent

According to TPAS's Container round use system project (2019), target of container round use profit should not be less than 3,000 BHT. Therefore, TPAS's profitable point of container round use system is to not keep container at container round use stocking area more than five nights.

8.3 Inbound unloading and outbound loading container statistic from December 2019 – June 2019

Researcher will simulate how container round use project could save cost in company by using container data from inbound and outbound operation from December 2018 to May 2019.

8.3.1 Total import and export country and container amount in December 2018 – May 2019

Table 12 Amount of Inbound container from December 2018 – May 2019 (TPAS's Container round use system project, 2019)

Inbound			
Country	Shipping Line	Container round use	Container amount from December 2018 – June 2019
PHILIPPINES	A	Yes	152
INDONESIA	A	Yes	148
MALAYSIA	A	Yes	140
INDIA	B	Yes	201
AUSTRALIA	B	Yes	160

JAPAN	C	Yes	250
JAPAN	H	No	120
TAIWAN	I	No	49

Table 13 Amount of Outbound container from December 2018 – May 2019 (TPAS's Container round use system project, 2019)

Outbound			
Country	Shipping Line	Container round use	Container amount from December 2018 – June 2019
ARGENTINA	A	Yes	180
PHILIPPINES	A	Yes	200
UAE	A	Yes	150
SOUTH AFRICA	A	Yes	220
BRAZIL	A	Yes	56
YEMEN (Hodeida)	A	Yes	40
ARGENTINA	A	Yes	33
SINGAPORE	A	Yes	24
TAIWAN	A	Yes	14
CHINA	A	Yes	8
SRI LANKA	A	Yes	7
OMAN	A	Yes	3
JAPAN	B	Yes	260
INDIA	B	Yes	160
INDONESIA	B	Yes	120
AUSTRALIA (Sydney)	B	Yes	100
BAHRAIN	B	Yes	75
KUWAIT	B	Yes	70

QATAR	B	Yes	50
PAKISTAN	B	Yes	15
JAPAN	C	Yes	225
BELGIUM	C	Yes	240
AUSTRALIA (Melbourne)	C	Yes	50
AUSTRALIA (Brisbane)	C	Yes	49
AUSTRALIA (Fremantle)	C	Yes	30
PHILIPPINES	D	No	370
MALAYSIA	D	No	200
INDONESIA	D	No	115
VIETNAM (Haiphong)	D	No	70
VIETNAM (Ho Chi Minh)	E	No	100
NEW ZEALAND	F	No	40
SAUDI ARABIA (Jeddah)	G	No	500
TIMORE	J	No	25
BRUNEI	J	No	2
USA	K	No	2

8.3.2 Decision Rule:

1. Container round use must be only shipping line A, B and C
2. Container round use must be;
 - 2.1 Use on the same day without stocking
 - 2.2 Use on the same day with one day stocking
 - 2.3 Use within 5 nights, if over 5 nights, must return container to shipping line yard
 - 2.4 Export to Japan must use only container size High Cube only

2.5 Export to South Africa must use only container size Standard only

Figure 21 Example of container round use report in Excel formula (TPAS's Container round use system project, 2019)

Table 14 The meaning for each excel data (TPAS's Container round use system project, 2019)

Column	Name	Meaning	Formula
A	No.	- <u>Serial number</u> User will manually type in serial no., this serial no. is convenience to control and communicate between reporter and user. Because, they can refer to serial no. only and no need to remember the whole alphabet and digit of container number.	-
B	Container no.	- <u>Inbound container number</u>	-

		<p>This cell, user will inputs the container number that being imported from importer to company.</p>	
C	Shipping line	<p>- <u>Container round use shipping line</u></p> <p>User will input shipping line that imported container belong to. This will help user to know if that particular container can be used for export or not. Because, only same shipping line is applicable for container round use system.</p>	-
D	Con. Size	<p>- <u>Size of container</u></p> <p>User will put size of container which now available in 40FT standard</p>	-



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		<p>size and 40FT high cube.</p> <p>With the condition of some buyers that cannot accept some particular container size, this cell will help user to know if particular container can be used as container round use to which destination and cannot be used to which destination.</p>	
E	<p>Date in TPAS Yard</p>	<p>- <u>Date of calling container to TPAS for unloading cargos</u></p> <p>User will input the date that container is being called to company. This date will be used in calculation to find the maximum days that container can stay within</p>	-

		company and still have benefit of doing container round use system.	
F	Loading date	- <u>Date of loading cargo for exporting</u> User will input the date that cargos will loaded into imported container. This date information will be calculated to find out how many day container stays with company. If more than 5 nights, this container has to be returned to shipping line yard.	-
G	Count date	- <u>How many days from calling inbound container until loading cargo for exporting</u>	=IF((F5-E5)<0,"ERROR",IF((F5-E5)>=\$H\$2,"ERROR",(F5-E5)))

		<p>This cell will be automatically calculated how many day container stay in company by using date information from 'E' Date in TPAS Yard and 'F' Loading date.</p>	
H	Checked	<p>- <u>Check if imported container that being called to TPAS stay in TPAS not more than 5 nights</u></p> <p>This cell will use information from 'G' count date that tell how many days that container stay in company. If container stay in company less than 5 nights the cell will show result as 'OK' with</p>	<p>=IF (G5<0,"ERROR",IF (G5>\$H\$2,"ERROR","OK"))</p>

		Green colour. But if container stays more than 5 nights, the result will show as 'NG' with Red colour.	
I	Seal no.	- <u>Seal no. for exporting container</u> User inputs seal no. that will be used for export container.	-
J	Destination	- <u>Buyer</u> User inputs the Buyer name that company will export container to.	-
K	Match booking	- <u>Booking no. for exporting container</u> User inputs vessel booking no. that export container round use will use as reference when export.	-

Above table is shown the meaning of each cell in Excel that will be used to control container round use by monitoring the condition and limitation of each container.

8.3.3 Trial container round use system by using data from December 2018 – May 2019

This research is using history data of inbound and outbound container amount from December 2018 – June 2019 to simulate the implementation of container round use system. In order to inspect how much container round use system can benefit company and enhance cost reduction. In this part, the simulation will be divided into seven scenarios which are Inbound and outbound directly, Inbound and outbound on the same day and Stocking container at stocking area from 1 night to 5 nights. For stocking scenario, researcher will suspect the potential of container that can be stocked at Haulage's yard by using imported container that can match with exported container in loading diagram.

Table 15 Trial container round use system by using data from December 2018 – May 2019 (TPAS's Container round use system project, 2019)

Option	Month						Cost save per container (Baht)	Total (Baht)
	Dec- 18	Jan- 19	Feb -19	Mar -19	Apr -19	May -19		
Inbound and outbound directly	19	20	22	23	19	18	5,780	699,380
Inbound and outbound on the same day	27	25	40	35	29	25	5,680	1,028,080
Stocking container at stocking area 1 night	30	35	33	40	35	33	5,180	1,067,080

Stocking container at stocking area 2 nights	19	30	18	20	20	21	4,680	599,040
Stocking container at stocking area 3 nights	12	30	15	20	21	19	4,180	489,060
Stocking container at stocking area 4 nights	31	10	30	20	15	25	3,680	482,080
Stocking container at stocking area 5 nights	19	12	10	11	15	10	3,180	244,860
Total								<u>4,609,580</u>

Regarding above table, option “Stocking container at stocking area 1 night” has the highest potential to do container round use system as there are totally 206 containers that can be container round used if company stock container at stocking area during a day. This option can help company save cost at 5,680 baht per container. For the lowest potential option to use container round use is option “Stocking container at stocking area 5 nights” that has only 77 containers. This option can save cost at 3,180 baht per container which is the option that can give lowest benefit of cost reduction as well. From December 2018 to May 2019, total container from Inbound that has potential to do container round use are 1,056 containers. However, there are only 961 containers that can be used as container round.

The total cost the can be saved by using container round use system from December 2018 – May 2019 is 4,609,580 Baht or approximately 12.8 percent.

However, when simulate the use of container round use system backward totally six months. There are about 90 containers that had to be discarded, due to the limitation of shipping lines available for import and export. Currently, there are only three shipping lines available to do container round use. In order to be able to use all of container from inbound operation. Company will have assign shipping line that is able to do container round use to more destinations. This solution will increase opportunity to match the shipping line between inbound and outbound. Another limitation is the size of container. When importing container, some containers are in 40FT standard size and some are 40FT high cube size. However, some buyer/destination does not accept container 40FT high cube size due to their warehouse/plant area limitation. Some buyer/destination does not accept container 40FT standard due to 40FT can carrier less container fill rate than 40FT high cube. Therefore, to eliminate this problem and able to use all of imported container, company will have to request all of company's supplier and buyer to use same container size which is container 40FT high cube because it can give more higher container fill rate than container 40FT standard size.

In conclusion, to apply container round use system in company, it could enhance cost reduction. And comment from management team and project manager are positive and encourage the team to continue with this project with continuously improvement during the project.

Chapter 9 Conclusion and Recommendation

Conclusion

Project management and risk management is useful essential for container round use system project is applied in automotive service part company. Because, it helps user to manage works and it is a guidance to user when doing new project that it has never done before. Project management framework allows user to recognise the element of project that user needs to complete project. In container round use system project, user starts start from project initiative, plaining,

For risk management, it helps user to seek the potential risk that could happen throughout the process. Potential risks are very important factors for project to fail if users cannot capture and eliminate it. In risk management process, first of all team members have to gather order to use team member's work knowledge and experiences to list up the potential risk together. In this process, it requires cross-functional department and organization to discuss and seek the true potential risk. The potential risks are defined whether risks are from internal or external factor. This will help user to categorised if potential risks are under control or out of control. After that, the potential risks are needed to be evaluated to see how risk level is. To assess the risk, user has to consider both how much impact that risk could cause and how likely risk could happen. The result of potential risk assessment could be from very low to extreme. Next process is how to take action with the risk. In container round use system project, the extreme and high-risk level is considered to be addressed first. For medium and low risk are considered to be addressed later. In some of high and extreme risk potential, the project sponsor is required for decision making and communicate with high management level for consensus building. In some potential risks that come from external factor and



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difficult to control, it must be accepted, and team member should find method to control internally. For example, free time detention and demurrage which offered by external party (shipping line), TPAS has to accept but TPAS can control by managing internal operation to meet with limited free time.

With container round use system project, it can reduce inland transportation cost for inbound and outbound at least totally 4,722,300 BAHT or 6.7 percent per year. This cost reduction meets with company policy and it is part of division's cost reduction target which merit to company sustainability. Plus, according to Imo.org. (2019), new regulation of low Sulphur fuel charge. The freight charge will be increased year by year, therefore, container round use is an opportunity that can help company to save total operation cost.

In further study, to enhance more utilisation of container round use system. Company will have to consider expanding to more variety of shipping line between import and export. This will increase the chance of more container can be done the container round use system. Presently, company selected shipping line for each lane base on cost competitive. However, company can compare the benefit between if company accept lesser cost competitive but higher cost saving from container round use system. It means that company does not have to select first nominated shipping line that have highest cost competitive, but company can select second or third nominated shipping line who might have higher shipping line cost (freight cost) but can be applicable with container round use system. According to TPAS's Container round use system project (2019), management team comment that if freight cost of second nominated shipping line, who is able to do container round use system, is 50 USD higher than first nominated shipping line, it is possible to consider to select any shipping

line that can give higher benefit to company. However, this point is still being discussed between Purchasing department and import & export department.

Problem in research

1. To sign in any agreement or contract with shipping line company and haulage company for container round use system, it is difficult to find authority person who is willing to sign. Therefore, the legal department is required to review each of the item and condition. In order to prevent benefit loss of organisation. However, to go through process of legal department, it takes up to one or two months to get it all done.

2. As the products of organisation is automotive service part which mean that products are in need of customer who their cars are broken and waiting for service part to repair their car. Therefore, delivery lead time could not be delay. therefore, the container round use system must be on-time and on schedule. However, with unexpected situation such as container is not in good condition.

3. Container size from inbound operation are only 40FT standard size. However, outbound operation is using only 40FT High cube. Project team needs to request inbound team to cope with exporters whether exporters are able to supply container 40FT high cube or not. Therefore, outbound operation is no need to re-simulate fill rate for container size 40FT when using container round use.

Recommendation and suggestions for further research

1. Project management framework and risk management process are useful and a must when starting any project. As, project management framework will give direction to project creator to have an idea and working systematically base on the project steps.

For risk management which is a MUST when doing new project or/and review current processes to find out potential risk.

2. Process of risk management should include safety person from safety department as well. As some safety policy is not known by ordinary workers.

3. In order to apply container round use system in automotive service part company to other type of organisations, the risk management is needed to be reviewed to comply with particular business.

4. Negotiation result of each condition that shipping line and haulage company agree with TPAS has been merited especially upon the reputation of TPAS. For example, free time of detention and demurrage. Shipping lines and haulage company would like to keep business with global organisation. Therefore, some conditions must be reviewed and negotiated base on type and size of business.

5. To apply container round use system in business and in case of having many suppliers (shipping lines), all conditions should be standardised in the same way in order to better control and monitor.

6. To apply container round use as the highest utilisation, the further study with Purchasing department is required. Company has to study the trade-off between using same shipping line for import and export to enhance round use container but lose the opportunity of competitive price. Or having competitive shipping line but lower container round use system. Company has to compare which approach can benefit company the most.

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