

**FACTORS THAT AFFECTED THE IMPLEMENTATION OF
NEW INFORMATION TECHNOLOGY AT A THAI
AIRCRAFT MAINTENANCE COMPANY**



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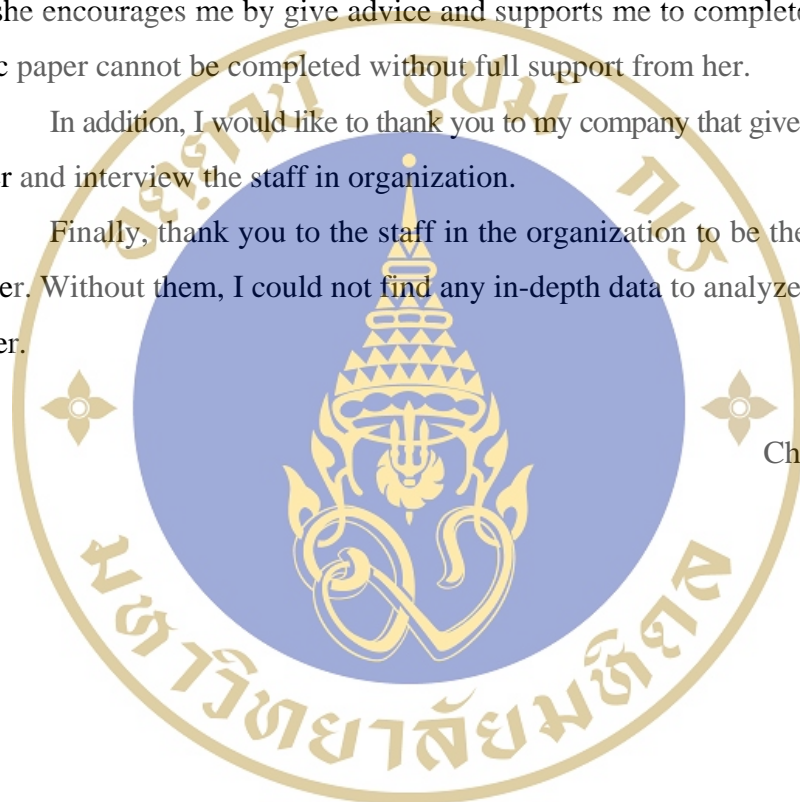
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ABSTRACT

The purpose of this study is to find out the hypothesis of what are the factors that obstructs the successful in change management of implementing the new aircraft maintenance software in the aircraft maintenance company. Hypotheses were test by in-depth interview and collect data from 8 staff in company.

The result of this study if found 4 issue that this company should be improved. Recommendations to this company have been provided to the conclusion part.

KEY WORDS: 8 Steps of Change/Aircraft Maintenance Software

43 pages

CONTENTS

	Page
ACKNOWLEDGEMENTS	ii
ABSTRACT	iii
LIST OF TABLES	vii
LIST OF FIGURES	viii
CHAPTER I INTRODUCTION	1
CHAPTER II LITERATURE REVIEW	4
2.1 Definition of Change	4
2.2 The eight stage of successful large scale change	4
2.2.1 Step 1: Increased urgency	4
2.2.2 Step 2: Build the guiding team	5
2.2.3 Step 3: Get the vision right	6
2.2.4 Step 4: Communicate for buy-in	6
2.2.5 Step 5: Empower action	7
2.2.6 Step 6: Create short-term win	7
2.2.7 Step 7: Don't let up	8
2.2.8 Step 8: Make change stick	8
2.3 Manage Successful Change, Industrial and Commercial Training	10
2.3.1 Prepare for change	11
2.3.2 Reaction to change	11
2.3.3 Training for change	12
2.3.4 Change management Buy-In	12
2.4 A new framework for managing change	12
2.4.1 Trigger for change	12
2.4.2 Preparing for change	13
2.4.3 Implementing Change	13
2.5 Case study on change in aircraft maintenance organization	14
2.6 Conclusion	17

CONTENTS (cont.)

	Page
CHAPTER III METHODOLOGY	19
3.1 Primary Data Collection Method	19
3.2 Interview Method	19
3.2.1 Sample Selection	19
3.2.2 Develop open-ended question	20
3.2.3 Develop Probing Technique	22
3.2.4 Conduct the interview	22
3.3 Research framework	22
CHAPTER IV DATA ANALYSIS	24
4.1 Successful in Large Scale Change	24
4.1.1 Increase Urgency	24
4.1.2 Get the vision right	25
4.1.3 Communicate for buy-in	27
4.1.4 Empowered Action	28
4.2 Unsuccessful in large scale change	29
4.2.1 Build the guiding team	29
4.2.2 Create short-term win	30
4.2.3 Don't let up	32
4.2.4 Make change stick	32
4.3 Summary of the Data	33
CHAPTER V RECOMMENDATION AND CONCLUSION	36
5.1 Conclusion	36
5.2 Recommendations	36
5.2.1 Create more short term win	37
5.2.2 Do more training and get the feedback from staff	38
5.2.3 Make some adjustment	38
REFERENCES	40

CONTENTS (cont.)

	Page
APPENDICES	41
Appendix A: Interview Questions	42
BIOGRAPHY	43



LIST OF TABLES

Table	Page
3.1 Interview list	20
3.2 Open-end question list	21
4.1 Successful in change management	34
4.2 Unsuccessful in change management	34



LIST OF FIGURES

Figure	Page
1.1 Changes in management that lead to success and failure	2
2.1 Source; the Eight steps for successful large scale change, Kotter, The heart of change, 2002.	9
2.2 Form guiding team by gather two groups of staff in organization	11
2.3 Factors that influence to change in organization	12
2.4 Change management process	14
2.5 Aircraft maintenance level and maintenance process	15
2.6 Maintenance process and work flow	16
2.7 Summaries for change management process	17
3.1 Research frame work	23
5.1 Change management step which required improvement	36

CHAPTER I

INTRODUCTION

In the past, most companies relied on only man power with a manual process of paperwork to run the business. As time passed by, bunches of technology has been developed to ease the companies not only in terms of work process but also reduce paperwork. Today's businesses need Information Technology (IT) and it has become a major part to manage business activities to be more efficient. The company can save cost, improve production capabilities and lead the company to enhance its profit margin. Most companies try to implement modern information technology to be more competitive in their business. Information technology becomes a powerful tool for all companies in this decade. It facilitates not only operation- level staff resulting in less time consumed in their daily responsible tasks but also support the management team to manage the company. The information technology has capabilities to collect huge amount of data, analyze and generate a report for the executive. To implement the information technology, the executive or top management team should consider the importance and the reason for the implementation of the new software program. To implement the new software, the company has to invest a lot of money. In addition to financial investment, the top management also has to deal with a lot of changes in many aspects. In other words, change management will come into a picture and become an important approach that the key personal need to focus. The scope of this study is to focus on change management at one of the major aircraft maintenance centers in Thailand. The company was established in 2008 with 4 maintenance centers which are Head Quarter Maintenance Center located at Bangkok, and the rest located at central region of Thailand. During 2013 the Managing Director of this company announced a new policy to lift up the maintenance standards and processes for the company. The first priority was to implement an Aircraft Maintenance Program in the company. The top team management at that time researched and selected the aircraft maintenance program which fitted the company. Finally, the top management team made a decision to implement the program named "Pentagon

SQL 2000”. Pentagon SQL 2000 is a broad program which most Aircraft Repair Overhaul (MRO) centers around the world have implemented. From 2008 to present, there has had no sign of development with the Pentagon SQL 2000 and the company has faced many problems in operating the system. This raises the question about the change management process that this company has installed.

This case study will focus and find out “which steps of change management that this company needs to improve” and “how to overcome problems which obstruct the company from the success in changes”.

The below figure shows the changes management and the results of changes, both successful and unsuccessful.



Figure 1.1 Changes in management that lead to success and failure

Referring to the change management in figure 1.1, it shows the change management processes which lead the company to either success or failure. For the successful changes, the company needs to retain. For the unsuccessful ones, the company should arrange to turn them to become successful.

This paper gathers information of the change management in implementing the new aircraft maintenance software. The interviewees that I chose for the data collection are strategic manager, IT manager, the manager of each maintenance center, the staff who can use the program, the staff who cannot use the program, the mechanics, the planners and the new staff working at TAI for less than 1 year. The reason I chose a

wide range of interviewees is different points of view from the top management to the program operator and the mechanics should be taken into account. The diversified points of view will help me find the root causes of problems and endorse the recommendations to my company for improvements.



CHAPTER II

LITERATURE REVIEW

This paper focuses on the change management. To understand and gain more information about the change management, the literature review on related journals and articles has been selected as a primary data. For the secondary data, the case studies are referred as practical knowledge with useful examples. The data from the primary data and secondary sources are set as a guideline. However, the data need to be arranged and adapted to be appropriate for the real case, i.e. Aircraft Maintenance Company in Thailand.

2.1 Definition of Change

To understand more about change management, the definition of change in people is also important to be clarified and comprehended. Kotter (2002) mentioned that change is “The new feelings change or reinforce new behavior, sometimes very different behavior. People act much less complacently. They try much harder to make a good vision a reality. They don’t stop before the work is done, even if the road seems long”. What Kotter mentioned is about the change that has been carried out. However, to make change a success there are the steps for successful change management.

2.2 The eight stage of successful large scale change

2.2.1 Step 1: Increased urgency

The first step to make change is to create a sense of urgency among people in the organization. Before the organization creates a sense of urgency, the organization needs to examine and study the market place and their competitors. To understand which part of the company should be changed, the SWOT analysis can be a useful application.

“SWOT analysis is a precursor to strategic planning and is performed by a panel of experts who can assess the organization from a critical perspective” (Gibis et al. 2001). In addition, the Five Force analysis can be other tools to identify the required changes. “The five forces focuses on business concerns rather than public policy, it also emphasizes extended competition for value rather than just competition among existing rivals, and the simplicity of its application inspired numerous companies as well as business schools to adopt its use” (Wheelen & Hungerl, 2000). After the organization realizes their weaknesses and opportunities, the organization should set the competitive change strategy. Creating sense of urgency is the starting point or kick off step to signal people to be ready for changes. An insufficient urgency may result in the organization encounters a tough period of time to work on change. In building the sense of urgency, it is also important to identify the relevant group of people. The sense of urgency is sometimes the path to encourage people in the organization to be brave, to initiate new things and ready to move forward to the future. Increase urgency is the step to raise awareness to the staff to know and be ready of the new change in upcoming future.

2.2.2 Step 2: Build the guiding team

After the sense of urgency has been generated in the organization, it will attract people in the organization to show their leadership skills and to work as a team. Leadership can be defined as a process whereby a person influences and directs others to accomplish certain objectives or achieve a common goal (Northouse, 2007). There are 5 practices for leadership which are modeling the way, inspired a shared vision, challenging the process, enabling others to act, and encourage the heart (Kouzes and Posner, 1995). Even if there is no reward, the groups are still working as a team. Just setting up a group in the organization is not sufficient to make change. The factor to concern to enable the group to work as a team are trust, emotional commitment and teamwork. The factor which is also important for changes is the guiding team. The selected guiding team in the organization should possess the trustworthy or credibility, skills and knowledge, have good connections with people within the organization and also outside the organization, and formal authority to expedite change leadership. The guiding team works as a part of the top management team to support the people in the organization to make changes. The guiding team needs to keep in mind that one man

show will not give any good results but rather teamwork will achieve the best. If the group is led by one person, there is a greater chance of failure. Also, there are other factors such as weak task force and complex governance structure that have the negative effect on the success of changes. The guiding team is a group of influence staff in organization. They will act as a representation of top management team. Their role is to guide the staff to understand about the new changes.

2.2.3 Step 3: Get the vision right

The vision that the organization set should be Specific, Measurable, Ambitious, Realistic and Time based (SMART). For the Specific, it means to give the direction to the people in the organization to know where they will go and where to focus. Measurable is the way to measure a vision that organization has set up. Ambitious is to motivate the people in organization to follow the vision. Realistic means the vision that the organization set should be practical and adaptable to the organization. Time Based means the organization should set the specific timeline for vision to be achieved. After the vision is set, the next step is to develop the strategy to achieve the vision. Among choices of strategy, Balance Scorecard is another interesting strategic tool. The balance scorecard is a system which can help organization to manage product, process, customer and market improvement (Capland and Norton 1993). The vision is normally launched by the top management team but to make it more powerful, it should be a shared vision. Shared vision is developing from an idea that the leader and follower in the organization are thinking in same way (Slavitt et al., 1986). The reason behind this logic is when the vision is shared among all members; they will buy and determine to gain achievement. However, the organization should also aware of the vision that is not suitable for the organization and the business situation. The vision should be set up inside the organization, not by the external parties. In conclusion, this step of change is about the vision that the organization has set. The change should relate with the vision. Also the guiding team needs to develop strategy to support the linkage between changes and the vision.

2.2.4 Step 4: Communicate for buy-in

To best way to spread out the vision to the people in the organization is the communication through the guiding team. The guiding team is the group that is close

and has positive influence on people within the organization. This approach will help the communication of the vision widely and smoothly spread out. The major responsibility of the guiding team is to communicate the vision and make sure people in the organization have the same understanding and also the group should encourage people in the organization to willingly buy the idea. The most important thing for the guiding team is to clarify the vision to people. Without clarification, the vision communication possibly fails. Before communicating the vision, the organization should look back to step 3 and make sure that they have clarity about the vision. The communication strategies can be, for instance, a use of simple but heartfelt messages, set up meetings to communicate vision, make memos and arrange seminars, etc. The goal of communication is to reconfirm the understanding, develop commitment among people, and energize of people in the organization. In conclusion, the guiding team should affirm that each staff clearly understand the reason of changes and make sure that they commonly agreed. Moreover, the team should explain the benefit of changes for the individuals.

2.2.5 Step 5: Empower action

After the organization's vision is clear among the organization's members, it means the direction and the responsibility are now acknowledged. They now open their mind and trust to follow the direction of the organization. The next step to take action should be the empowerment. The empowerment is to remove the barrier between people and the authority. For this step, the organization tries to let their people to initiate new things by working as a group and provide them trainings to handle changes. Moreover, the group decision making session for the employees to express their ideas and communicate to each other is another activity to support the empowerment. The guiding team also plays a vital role in this step. The team can monitor each department and give support to people in such department to feel more self-confident with the changes. By allowing the staff to learn, do and act for the new changes. It will give staff more confidence and well-equipped for the new changes.

2.2.6 Step 6: Create short-term win

By empowering people, it can create short-term gains. The organization should focus, on each step, the staff that keeps doing better during the changes. To motivate

the changes, the guiding team and organization should give them a reward as a compliment on their achievements. The reward should be given both in private manner to create self-motivation and in public to create the sense of inspiration and an enthusiastic atmosphere in the organization. The change should be a short-term because it will help the people in change process to keep focus. Starting small and build up step by step, it will finally lead to success in long term. The guiding team must act as a coach, follow-up and support people in this step. The organization should trade off change implementation into phase. From trade off, the organization can monitor each change more easily. At this stage, the company should give the reward to the staff that implements change successfully. The rewards also increase motivation to the staff to maintain their behavior.

2.2.7 Step 7: Don't let up

After the short-term gains, the organization needs to maintain and increase the change effort and holds the direction and momentum of change. Moreover, the changes that have been worked out in step 1 to 6 should be adaptable and applicable to the organization. The vision that was set in the first place is achievable but it needs some gap to adapt to be fit the organization and more realistic in the business world. Keep trying to make an early change after first change such as system change, structure change and policies change. Keep trying to make change until the organization feels that the vision that had been set and adjusted is within the bounds of reality. The top management needs to explain people in the organization about the reasons to make early changes because some staff may be confused that the organization keeps changing too many times. At this stage the organization can hire, promote and develop employee who work well with the organization's vision. Don't let up is the step to do little change, modify and improve the change to match with organization culture and work process.

2.2.8 Step 8: Make change stick

After the change is successful, try to make the new changes and vision to be the supportive culture of the organization. A supportive culture in this case means new culture for which norms and values need to be developed and make changes stick. The promotion is also the key to retain all personnel who works well with the new changes.

Unfortunately, there will be some turnover at this stage. Some staff who feels that their value does not fit the organization will leave.

Step	Action	New Behavior
1	Increase urgency	People start telling each other, "Let's go, we need to change things!"
2	Build the guiding team	A group powerful enough to guide a big change is formed and they start to work together well.
3	Get the vision right	The guiding team develops the right vision and strategy for the change effort.
4	Communicate for buy-in	People begin to buy into the change, and this shows in their behavior.
5	Empower action	More people feel able to act, and do act, on the vision.
6	Create short-term wins	Momentum builds as people try to fulfill the vision, while fewer and fewer resist change.
7	Don't let up	People make wave after wave of changes until the vision is fulfilled.
8	Make change stick	New and winning behavior continues despite the pull of tradition, turnover of change leaders, etc.

Figure 2.1 Source; the Eight steps for successful large scale change, Kotter, The heart of change, 2002

To make successful change in organization, the eight step of change should be done accordingly from step one to step eight. Increase urgency is to raise awareness among staff in the organization for the new changes. The guiding team acts as a key player in the change implementation by giving the information, supporting and guiding staff in organization to the right direction. Moreover, the guiding team should guide

staff to follow the change strategy. The selection of change strategy should be based on the organization vision. Then, explanation of the benefits and reasons about new change to the staff to let them buy in and willing to change is another step to complete. From step 1 to step 4 are the steps to prepare staff to be ready for changes by raising awareness, urging idea and create common understanding.

Step 5 to step 8 is the step of change implementation. Empowered action is the step that allows the staff to act and try for the new changes. Create Short term win is a key step that bring success to the change implementation. To create short term win, the guiding team need to set up short-term goals and prepare the rewards to increase the motivation among successful staff. This is the step that can boost up the change implementation. Don't let up is a step of modification in the change implementation. There are some parts of change implementation that are done in a wrong direction. To make change successful, the mistake should be resolved and corrected in this step. The last step is making changes stick after the organization and staffs have put a lot of effort to make change implementation successful. All staff should maintain new things and new behaviors in the company as long as possible. The changes would not be successful if the organization failed in the 8 steps of change. Each step of changes is linked and directly affects one another. To be successful in changes, the organization should focus and work carefully on 8 steps of change.

2.3 Manage Successful Change, Industrial and Commercial Training

Apart from the study of Kotter 8 steps of change, this paper also analyzes and gathers information from literature to find out which criterions or factors have relation to the change management in the business.

The literature defines the reasons of changes in organization which include change of government or legislation, mergers and requisitions, challenges growth into global markets, structural change, exit strategy, introduction of new processes and strategic re-organization. To handle changes, Edmonds (2011) indicated that “a business has to develop the capability for change through establishing project management and stakeholder engagement before leading the transition to change end, finally realizing and managing the benefits”. There are factors to concern for changes described as follows;

2.3.1 Prepare for change

Readiness is an important factor for change management. It's important to select the change team that has both change management skills and leadership skills to prepare for changes.

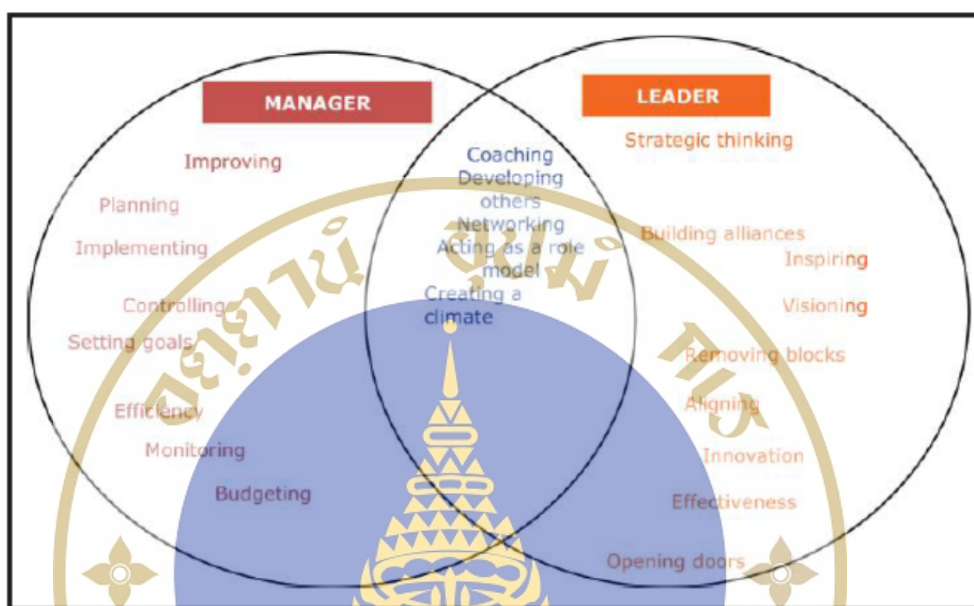


Figure 2.2 Form guiding team by gather two groups of staff in organization

This figure shows two important groups which are the manager and the leader. The manager is a group of people who have authority in organization and the leader is a group of people who have social influences within the organization. Combining 2 groups' skills together will increase the ability to guide the implementation for new changes.

2.3.2 Reaction to change

When change occurs, there will be an effect from change which is "fear". Fear can make people resist changing because they don't know the direction after change and they are also comfortable with their present position. To manage change, the change management team should know and categorize the group of people in the organization. The group can be divided into 4 groups which are Blockers, this is the group that tries to avoid and resist changing. Sleepers, the group that does not want to take action in change and are not aware of it. A preacher is the group that wants to be a part of change

and wants to show their power. And Champions, the active group of people those are ready and willing to change.

2.3.3 Training for change

From training in change management, it can help everyone in the organization to have knowledge of change and how to implement the change.

2.3.4 Change management Buy-In

Most of the staff in the organization normally tries to resist changing rather than embracing it. The organization needs to make the staff buy-in. The factors that can make changes successful are start from management and employees are work closely together, share the experience about the project, credible to project team members, a well-planned and organize approach, and inform every single details about the reason and benefit of changes. For more successful, The organizations should select the change strategies based on staff life style, organization cultrue and organization infrastructure.

2.4 A new framework for managing change

2.4.1 Trigger for change

For the organizations that are willing to change, the management team needs to find out which factors should be considered for change. The factors can be classified into 2 groups which are External and Internal.

External drivers	Internal drivers
Customer requirements	Improving operational efficiency
Demand from other stakeholders, such as the Government	Need to improve the quality of products and services
Regulatory demand	Process improvement
Market competition	
Shareholders/city	

Figure 2.3 Factors that influence to change in organization

2.4.2 Preparing for change

- Leadership and direction: The senior management should identify and prioritize the issues for change. They then need to try to develop the alternative scenario and select the best scenario. After the senior manager figure out the change scenario, they should communicate within the organization by using the top-down approach.
- Preparing for change: most organizations try to specify the clear target on the change planning process. In addition, the organization should try to set up the objectives for change both in the Long-Term and Short-term.

2.4.3 Implementing Change

- Preparing for change: most organizations try to specify the clear target on the change planning process. In addition, the organization should try to set up the objectives for change both in the Long-Term and Short-term.
- Organization and resources: The organization should implement a new change through considering the relations between staff competency and organization structure. The organization should match the people skill with new changes. The skill matrix can be applied to find out the staff weaknesses in terms of their competency and set up an appropriate training to fix the problems.
- Systems and Controls: During the change implementation, the organization should set up a system to measure and control the outcome of change.
- Behaviors: The organization should communicate formally and informally to the staff. Communication is the method to change the behavior of staff to support the new change.

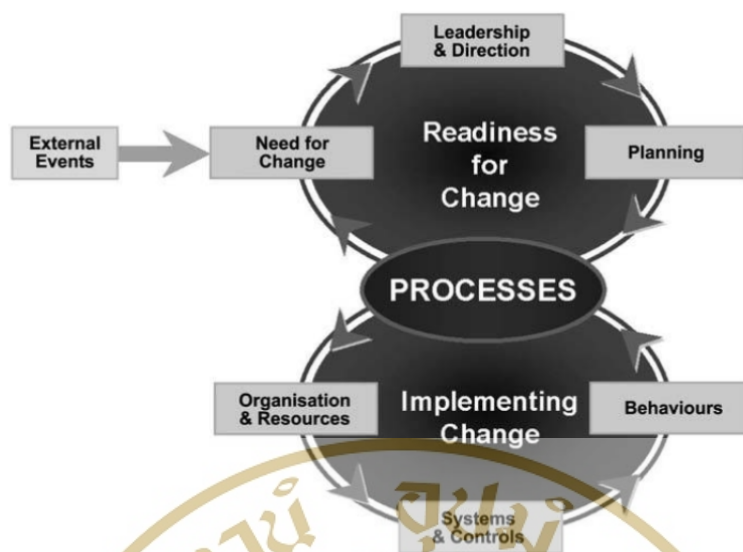


Figure 2.4 Change management process

This figure illustrates the methods and steps for change implementation. Change implementation is divided into 2 parts. First is readiness for change, this is the step to prepare for change. The organization should at all time observe the external factors or external events that will impact the organization. The organization should list out the critical impacts and prepare itself to implement the changes. The organization should set up a direction and set up a team to guide and spread information about the new change. The team should also create a plan for the new change. The second is the implementation part. It is the step to match the organization structure with resources to handle the new change. To prevent mistake in change implementation, organization should launch a system to monitor and control the staff to implement change in the right direction. Training and communication can help the staff in changing their behaviors to be ready for the new change.

2.5 Case study on change in aircraft maintenance organization

Aside from the study of theory and literature review has been demonstrated in this paper, there are also case studies of other aircraft maintenance companies which also applied the change management in ICT or software development.

The first case study is SAAB Company in Sweden. The company that applied the information system to manage the whole maintenance program in their company together with their clients. To be more familiar with this industry, some general information are disclosed in this paper. Aircraft maintenance can be divided into 3 levels. The first level is Depot Level or “Echelon 3” named by SAAB Company. For the first level, the aircraft needs to be thoroughly inspected and repairs required to perform to their structure and major components. It normally takes time around 1 to 6 months to complete the tasks. The second level is called Intermediate Level or Echelon 2 This level is for a heavy maintenance for the aircraft and its takes around 15 to 30 days to complete the tasks. For these 2 levels, the aircraft owner or operator must send the aircraft for maintenance at the Maintenance, Repair and Overhaul (MRO) only. The last level is the organization level or Echelon 1. Echelon 1 is a maintenance level where the operator can conduct maintenance by themselves. To describe more about the process of aircraft maintenance, the maintenance process consists of phase for management; support planning, preparation, execution, assessment and improvement (IEC, 2004). Other than the maintenance process there are the maintenance supports which consist of resources such as documentation, personal, support equipment, materials, spare parts, facilities, information and information system (IS) (ISO/IEC, 2008). To manage the entire maintenance system effectively, the company has to make decision in selecting and developing the ICT to manage many large complex systems for the military services.

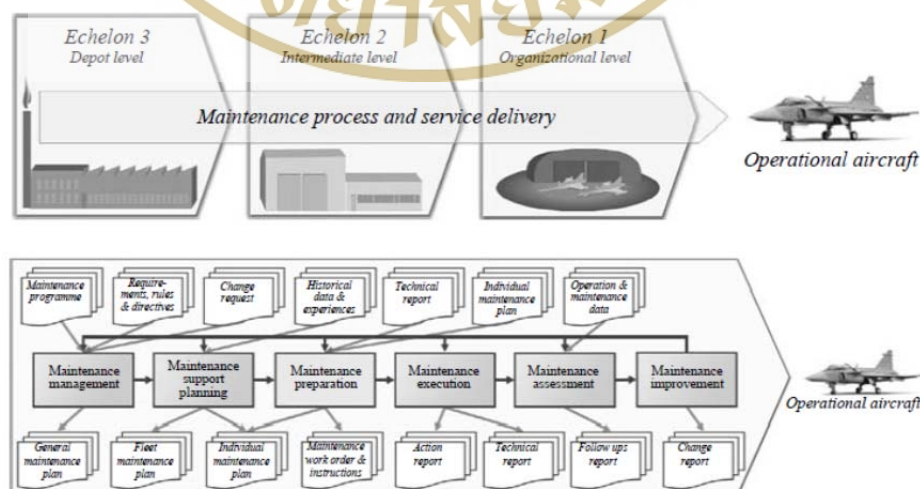


Figure 2.5 Aircraft maintenance level and maintenance process

The above figure depicts the level of aircraft maintenance which includes field maintenance, heavy maintenance and depot maintenance. To carry out the aircraft maintenance, the organization needs the maintenance management which includes organizing all maintenance documents, planning the maintenance tasks, preparing the staff and maintenance equipment, reviewing and assessing maintenance outcome, and gathering all data from the beginning to improve maintenance process.

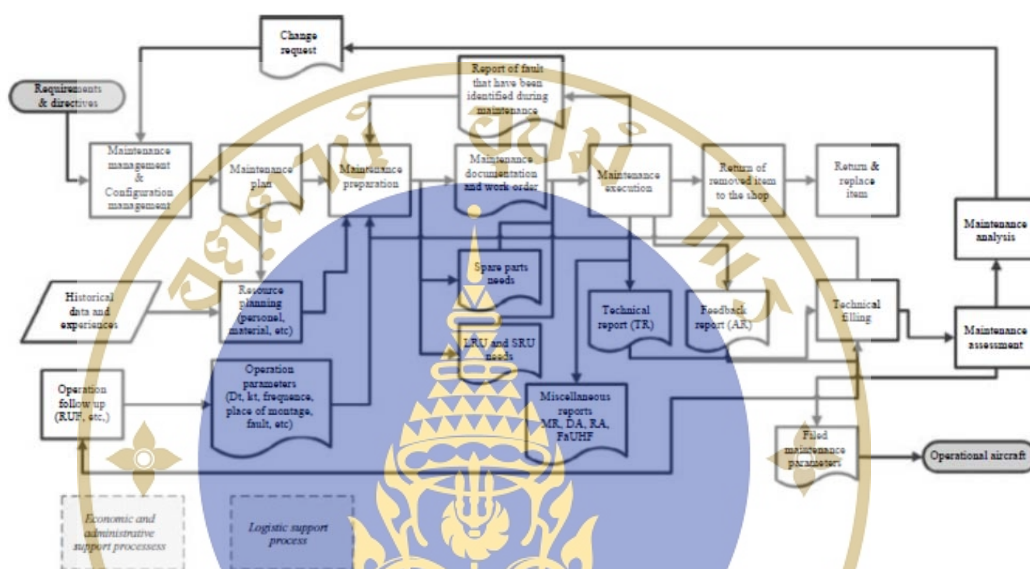


Figure 2.6 Maintenance process and work flow

Source: Ramin Karim Peter Soderholm Olov Candell, (2009) "Development of ICT-Based maintenance support service"

This figure shows all activities related to the aircraft maintenance. The process starts from the requirements from customer. The key factors that aircraft operator has to prepare for the aircraft are management data such as aircraft history and records, aircraft maintenance manuals, maintenance planning and maintenance activities, aircraft spare parts and tools, man power, documentations, maintenance reports, maintenance analysis and aircraft delivery protocol to customer.

For the SAAB case study, it reveals that to manage a huge aircraft fleet, the organization needs to use the information technology with efficient and effective software to manage the maintenance operation, spare parts, logistics, database and all

relevant activities. The efficient software will improve the capability and potential to respond the customer's requirements.

2.6 Conclusion

After analyzing the literature review of change management in the organization, the summary of the literature review can be described and shown in the diagram below.

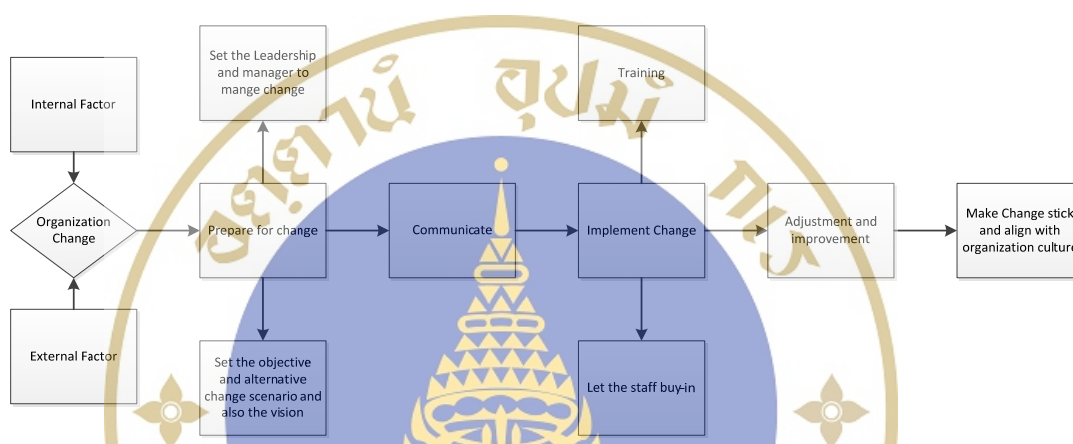


Figure 2.7 Summaries for change management process

From the theories elaborated in this chapter, there are some parts of change management that contain the similar school of thoughts while some parts are different. To make it clear, I link and summarize all theories together as shown in figure 2.7. Figure 2.7 illustrates how to implement change in the organization. Starting from assessing the organization and finding out which part of the organization that needs to be changed. By gathering the data from the external and internal, the organization can utilize the information retrieved in setting up the goal and vision. After that the organization needs to explain the reasons for change to all members in the organization through formal announcement in the meeting or the written messages. The selection of the change team is also a vital part of the change; the team should consists of the influential person and the talented person. This team will assist every staff in the organization to implement the change. More communications are also required to ensure the staff understands that the change will help them to work better and help the company to be competitive. After all staff have a good attitude about the change, then the change should be implemented

step by step including provide training and get the feedback from them. The change that has been implemented in the first stage can be considered as a demonstrative model and it needs to have more changes and adjustments to make the changes become successful. This change will be a part of organization and last until the organization finds a new reason to change.



CHAPTER III

METHODOLOGY

3.1 Primary Data Collection Method

The data in literature review focused on the theoretical aspect. To support the theoretical in literature review, this paper has to gather more practical data and concrete example to support theory in change management. To gather the practical data, this paper focuses on the real life and work experiences. This data could support the theory and help the analysis to be more tangible and reliable. To make the data more tangible, the qualitative research to examine attitude, feelings and motivation of people in the workplace. The method to gather and collect data is in-depth interview. Moreover, this paper will derive benefits from the author's 10 years work experiences in the aircraft maintenance industries with the position of business development and also have experiences on change in the organization. The experiences are essential factors that help the author to understand and conceptualize the change management in Aircraft Maintenance Company. Moreover, the experiences can support the author in analyzing the collected data.

3.2 Interview Method

To collect data findings, the author used the interview method as a tool. The interview method can help to collect in-depth data from the questions and answer session. The method of interview can be described as follow:

3.2.1 Sample Selection

In this research, 8 interviewees were selected as sample. The selected interviewees will be focus only staff in aircraft Maintenance Company and have experiences about changes in the organization. The reason to focus the staff in the Aircraft Maintenance Company is because most staff is ex-staff from the Military Service and they have passed a lot of changes during their career life. The change that directly

affected them was the change in work process by implementing the new aircraft maintenance program in organization. 8 interviewees will be classified into 2 groups. First is 3 top management staff. Second group is 5 from the mechanic staff in maintenance section and the indirect staff such as Logistic department. The work experience with the Aircraft Maintenance Company is 4 to 10 years.

Table 3.1 Interview list

Code	Position	Work Place	Experience	Gender
A	Director	Bangkok	8 Years	Male
B	Deputy director or manager	Lopburi	6 Years	Male
C	Project Manager or Supervisor	Bangkok	5 Years	Male
D	Engineer	Kampangsan	5 Years	Male
E	Planner	Takli	5 Years	Male
F	Staff in logistics division	Bangkok	4 Years	Female
G	Staff in business development division	Bangkok	4 Years	Male
H	Staff in finance division	Bangkok	4 Years	Female

3.2.2 Develop open-ended question

To find out the effects of changes from the sample's work experience the author will use the open-end questions to interview the interviewee. From the open-end question the interviewee will have freedom and feel comfortable to answer the questions related to their experiences. The open-end question will be listed in sequence which will link to the 8 steps of change as shown in 3.1.

Table 3.2 Open-end question list

Topic	Group	Interview Questions
Successful and improvement in change management	Top management level with change	(1) Why do you have to implement change in organization, especially the ERP software?
		(2) What is your role in change committee? Who is involved in this change?
		(3) How do you manage change to the organization?
		(4) Why do you think implement change in software can lead organization to achieve vision?
		(5) What is the current situation with Pentagon software? Do you need some changes or adjustments?
		(6) Do you consider Pentagon as an organization culture? And Why?
	Operation level with change	(7) Does anyone inform you about the implementation of Pentagon program? Do they communicate or give you some reason?
		(8) What do you think about this change?
		(9) How do you manage yourself with this change?
		(10) Do you need some assistance or guideline of this change?
		(11) Which factor do you think to organization should change or adjust to make to program fit to work process and organization?
		(12) How do you think about the Pentagon program? Can it be main program in organization?

3.2.3 Develop Probing Technique

The probing technique is to confirm that the data that has been gathering is valid. This technique has been derived from McDaniel & Gate (2013). The interview has been carried out on-site which is considered as 2-way communication. From on-site interview, the interviewer can see the direct answer and reflection from interviewee and can be as further more questions related to the topic.

3.2.4 Conduct the interview

The interview method used to collect the data is the interactive conversation interview. The group of interviewees focused only the staff that work in aircraft Maintenance Company and live in Thailand. The interview was conducted in the face to face conversation in order to make interviewer and interviewee feel more comfortable. The venue used for the interviews was the rest area and coffee shop. The reason to select these places was the mood and tone can help the interviewee feel comfortable to share information. The duration of interview took approximately 8-15 minutes including interview and question probing. After gathering all the information needed. The last step was to analyze the answer by grouping the answer related to the topic and framework.

3.3 Research framework

From the data and information gathered from literature review and in-depth interview the final conclusion applied the primary data and categorize them into group. The change management applied in the organization for which some parts relate to the theory while other parts did not follow the theory and need improvement. The relationship of the literature review and in-depth interview is shown in research framework in figure 3.1

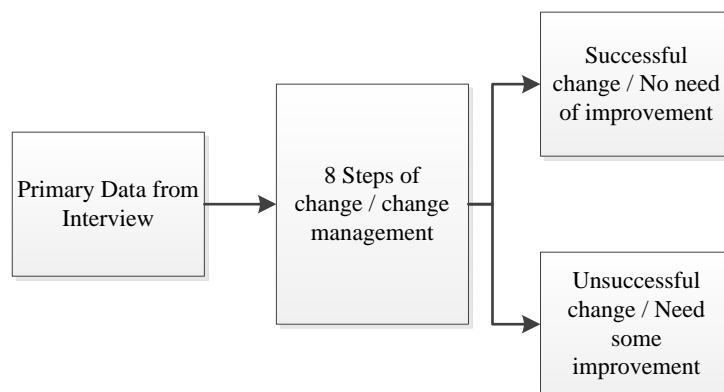


Figure 3.1 Research frame work



CHAPTER IV

DATA ANALYSIS

After the process of qualitative research has been carried out, the data and information was analyzed and summarized by dividing it into 2 groups. The first group is the case of the successful steps in the change implementation while the second is the unsuccessful steps along the implementation

4.1 Successful in Large Scale Change

By gathering the information about change in the aircraft maintenance company. There are 4 steps of change that this organization has applied correctly and made the change successful. The steps are Increase Urgency, Get the vision right, Communicate for buy in and Empowered Action. The change management steps will be describe in detail as follows;

4.1.1 Increase Urgency

Every interviewee provided good comments and response about the increase of urgency in implementing the Pentagon SQL 2000 in the organization. They feel ready and interested to implement this software. The increase urgency has been successful because the top management team focused on the weak points of the organization and found the alternative choices to solve the problems. It is the beginning step to create urgency among the team to prepare for the changes. The IT director, Mr. A gave the reason to implement the Pentagon SQL. His comment was *“It is the managing director’s vision to change and develop information technology. The organization needs the information technology to gather, monitor and manage a very large scale of data in the organization. The data that need the systematic management are the aircraft spare parts, maintenance manuals, maintenance records and work hour records. My job is to find out which program is suitable and fits the work processes in the organization”*.

The operational staff have also been informed by the top management about the upcoming changes. They have positive feedback to support the changes. They also show their interest to work with the new software and have prepared themselves for the new changes. This is confirmed by Mr. C, the supply support program manager. He was recently informed by the top management team about the implementation of the new software. He said *“The top team management informs me that there will be the new software to implement my project. I actually have my customized software for my own project but I have to enable my program to work in parallel with the new software. I also have to prepare my team and myself to be ready before the implementation of the new program”*. Mr. E, the aircraft engineer and planner also prepared himself for the new software. He informed that *“At my maintenance center, we already have our own in-house aircraft maintenance management software. I was noticed by my director that there will be new maintenance software imported from the United State of America to replace the current software. I’m excited and look forward to knowing more about the new program and how it can enhance my work process”*. Move to the administration team, start from Mrs. F, the logistic and procurement staff, another position directly deals with the changes. Mrs. F said *“my manager informed me that I have to change my current work process which normally based on Microsoft Office. I have to change to work with the new aircraft maintenance program. At first I’m curious that how aircraft maintenance program relate to my work basically the RFQ, purchase order, spare part receiving and etc. I have to search the name of this program by myself to know more about this program. Mr.G is the one who has urgency about the implementation of the new software. He said “My manager informed me that the new software will help the work process in company to become more systematic and traceable. I’m kind of person who fond of the new technology. When I was informed about the new software, I’m looking forward to learning and operating this software”*.

4.1.2 Get the vision right

From interviewing 8 staff in the organization about the changes and the vision, all of them agreed and believed that the implementation of the new software will help organization achieve the vision. The vision of this company is to be a high standard aircraft maintenance center in ASEAN. They trust that introducing and implementing

the new software from USA which is well-known in the aviation business can improve the work standard in the company. Mr.A, the IT director, is a person who supports this change. He said *“I’m confident that implementing the new software can lift up the standard in the organization. The program that has been selected has long-term operation in the aviation business for more than 30 years. The most reputable aircraft maintenance companies and the aircraft operators are also implementing this program in their company too. I fully support that the implementation of the new software in this organization can lead us to achieve our vision.* Mr. D is another person who believes and supports that the implementation of the program will lead to the achievement of the company’s vision. He said *“the old aircraft maintenance software can only be used at their maintenance center. To increase the standard of the maintenance process, we need the software that can sync and manage the maintenance system to be one standard. I believe that implementing the new aircraft maintenance software can lift up the standard and we can achieve the organization vision”.* Mrs. H who is working in finance department also supports the new software. *“I think implementing the new software can support the organization and can improve the current work process. It can also manage and can help me to trace and audit the cost of the company”.* For Mr.B, the manager at flying training aircraft maintenance center who gave the feedback about the implementation of the software and the vision. Mr.B said *“By implementing the aircraft maintenance program, it helps me to handle and manage the maintenance tasks at my division. I can retrieve the historical data to analyze and convert into statistics. The statistic figures help me to predict the maintenance tasks in the future. If we can predict the future, it means we can prepare ourselves in time to achieve the future’s tasks. From the statement that I explained, I think implementing the aircraft maintenance software helps the company to achieve their vision but the organization should develop other aspects as well”.* The technology is the factor that facilitates the organization to achieve its vision. Implementing the new software is the right choice to accomplish the organization vision. It will improve the organization standard and work process. This is the successful step that this organization has been carried out and the staff has agreed with this change. Mr. G supported that to achieve the vision, the organization should elevate the work standard by implementing the new software in the organization. Mr. D also as agreed with Mr.G. He believes introducing the new technology to organization will help staff to work more efficiently

and finally attain its vision. The same sort of benefits are also witnessed by Mr. C, he stated that the technology helps the staff in the organization to work more easily with less paperwork. The new software helps the company in gathering, managing a huge amount of data in the organization and generating the final report for the management. I think the key personnel's in the organization have the same direction in terms of how to achieve the company's vision. I also believe that by implementing new software, it will enable the organization to develop to be leading aircraft maintenance in the industry.

4.1.3 Communicate for buy-in

For communicate for buy-in, the organization has done well in this stage. By spreading the information about the program through the word of mouth and publications, the staff in organization feels interested about the program and willing to implement the program. Mr. A commented that *“To make people buy in we need to inform them. At first, we set up the floor to inform staff that we will implement the program and explain them how the new program help them work better. I also told them a story about why we bought this program. We chose this program because it is reliable and gain trust from worldwide operators. I also informed them not to be worried about this new change, I told them that at the beginning the change would be very tough but I would prepare a service team to assist and support them to work through this change together”*. Mr.E, the planner confirmed that *“The director and also the manager of the company have informed me about the change and the communication has done via documents and verbal statements. Besides the communication, the IT division also sent staff from their division plus the program consultants to support and give information about the program. In addition, they also requested for the feedback from our center to adjust the program to fit the current work process”*. Ms. F, the logistic staffs, also informed that *“the pentagon team communicated and supervised the program. They also explained and trained me each function of pentagon. Their supportive actions made me feel more interested in this program because the function in this program is actually related and useful for my work tasks. I think this program will help me work better in the future”*. Mr.C made comments about communication for buy-in *“The IT director has passed the vision and the concept to me through communication. He described how the program works and the benefits of the program*

to our organization. The project I handled at that time was directly related to the program. I think it is interesting and exciting to merge the pentagon software with my in-house software". Mr.G, the business development staff, also expressed his opinion about communication "My director informed me and my colleagues in the meeting room about the implementation of the new program. When I heard that, I felt excited and interested because I like change especially the change in program and information technology. I have dreamt one day the organization will operate using a single software as a core program and now it comes true. I will do my best to learn and operate the program". The key success of this step comes from the official letter from MD to inform about the new change to implement the new software. This top-down communication was repeated and supported by the top management of each maintenance center who spread about the new change among their subordinate. Also the "Pentagon Team" or "guiding team" was selected and assigned to communicate and assist the staff in each maintenance center. Mr.C, Mr.E, and Mr.G assured the ongoing through their same tone of comments that their director and manager clearly informed them about the changes and also the vision of the MD. Mr.E and Ms.F has the same opinion about the "Pentagon Team", the team playing an important role to communicate staff to buy-in the new change.

4.1.4 Empowered Action

Another key success factor for this change is the organization and the management team allows the staffs in the organization to learn and work on this program. The staffs have their own authority to make decision and operate the program. At this stage, the organization allowed staff members in each maintenance center to try the program in trial period. From this practice, the staffs have learned and enable them to fix problems. They also provided feedbacks about the program to adjust to fit with their jobs. Mr.D, the engineer, said "My maintenance center was the first center that implemented this program. It was initially hard for me and my colleagues because the program is new and there are a lot of functions. The input and output of program are available only in English. We have tried hard to implement this software to match with our work style. Sometimes we faced problems, but we tried to solve by ourselves but if the problem is too complicated the guiding team will cover and support us to solve the

problem together. Finally our center became the first center that can implement this program. It made my colleague and I feel proud about this success". Mr.E, the aircraft planner, also commented about the empowered action "Our maintenance center was tremendously affected by this change because we had to sync and transfer the data from current software to the new software. The data is huge and took a lot of time to transfer from old software to new software. It had taken 3 years to sync data and solve the problems incurred in the software issue. At first the guide team and consultants supported us in operating the program. After they felt we were ready to implement this program ourselves, they let us operate this program and backup when we were faced the problems. Mr.C also described about empowered action. "After the new program had been implemented in the organization, my boss told me that he wanted to sync my customized software with the new software. He gave me the authority to manage this situation and motivated me to make it successful". Mr.A said "to empower the action, I will focus with the maintenance center that has interest and readiness about program. From readiness and interest, I think it is the factor that can bring the motivation of the staff to try to face with the change and beat the change". By allowing the staff to implement the new software and resolve the problems themselves, the implementation of the new program has been finally successful in two aircraft maintenance centers. To work without pressure and give enough time to manage problem is the best choice for this step.

4.2 Unsuccessful in large scale change

On the other side of change, there are some parts that inappropriately applied. From the interview by asking questions to the interviewee, I have found out the change steps that have been carried out in a wrong direction and need improvements to be successful in change management. The steps that are unsuccessful and need to be changed are described as follows;

4.2.1 Build the guiding team

The guiding team is a core and key factor which can lead the changes to achieve success. The interviewer found some critical issues that occurred and might result in failing to change. Mr.C, project manager for supply support program, said

“before and during implementation the new software I was not invited to join in the guiding team. I think because my project is just kick off stage and the committee thought that it was not the right time for my project to get involve with this change”. Mr.B, the flying training aircraft maintenance center, also stated the similar tone as Mr.C. *“I’m not a member of the guiding team. In addition my maintenance center has just implemented this program for a couple years. I’m not sure why the committee did not select me as a part of guide team and not sure why the implementation of the new software took some time to started at my center. Maybe if I were in the team I could share my idea about the change in software”*. Mr.E is the one that supports the fact that he has no responsibility in the guiding team. *“The guiding team that the organization has set up has gathered only the staff in IT division and program consultants who are the expert in the software but have low experience about the maintenance tasks. The team has to survey the requirements, technical knowledge and work process from us. And, that’s why it had taken 3 years to implement the program”*. Mr.A, the IT director, gave me some information about how he set up the guiding team. *“The committee includes such as the director and deputy director of key maintenance center. For the operation level, I selected the key staff who are the program developer used to create the in-house maintenance program and also the IT staff to form the guiding team. There is only one guiding team and this guiding team has to provide each maintenance center an assistance to implement the program”*. The mistake in this step came from the selection of members in the guiding team. The team was formed by the top management team, they selected only the staff who are the programmers to be the guiding team. Another mistake is there is no idea sharing session with the middle manager to select the potential staff from each maintenance center to be members of the guiding team. The result was the implementation took a lot of time and a lot of problems incurred along the implementation process.

4.2.2 Create short-term win

For the short-term win, the organization needs some certain improvements in this step. The organization set up a short-term win by focusing on each maintenance center. The organization tried to approach each maintenance center to launch implementation one at a time. Once finished, the guiding team would leave the maintenance center and

moved to another center. There are no rewards and celebration to the staff in the maintenance center that performed well during the change. It shows there is a lack of treatment and motivation enrichment to the staff. Mr.D said *“my maintenance center is the first center that finished the implementation of this program. There are the rewards to boost the motivation. The reward is the promotion. With the criteria and job specification that has indicated for the staff that has the qualification about skill of pentagon software will have chance to be promoted. It means there are only small chance for people who will be promoted by the organization because most of staff at my center can use this software. I think the promotion cannot fulfill the definition of the reward and do not give the feeling of the success celebration”*. Mrs.H also has the opinion about the short-term win. She said *“The organization set up the short-term win in my division. The first phase started with the training from the guiding team by performing the demonstration. Then, they tried to make me feel familiar with the program by allowing me to operate the program. Finally, I can operate this program but during the period of training and implementation there was no reward or celebration for me and my division”*. Mr.G who is interested in implementing the program also gave some feedbacks about the short-term win. *“I think the process that the guiding team tried to approach each maintenance center and organized training by splitting the implementation tasks into phases were great idea. However, I think there should have been some other motivation factors to motivate the staff to pursue success in this change. The organization should have offered some rewards or organize party or outing trip to celebrate for the staff who carried out the changes successfully. The interviewer found that the reward was an issue that was raised up during the interview but it did not really concern the staff too much. With the organization culture in the military, subordinates will work strictly following the command and the order from their commanders”*. The reward that will be given to the staff is only promotion and there is small chance to be promoted. Lack of reward does not affect much on the motivation of the staff. The staff can work with the new change but there is little concern from Mr.D, Mr.H and Mr.G about some rewards such as organizing an outing trip or a party to celebrate the success for the staff.

4.2.3 Don't let up

This step is concerned as a very critical issue in the change implementation. As mentioned earlier, there was only one guiding team and they could approach one by one maintenance center. The problem is changes in each maintenance center could not be maintained after the guiding team left. Mr.D expressed his feeling *“I am an Engineer, I can access and learn only what relevant to my function which focus on the maintenance. In case I would like to check the availability of the spare parts I have to walk or call the warehouse to ask for stock checking. Sometimes it's really annoying and wastes of time. I would like the organization to organize the cross function training for me”*. Mr.G informed that *“After we successfully achieved the goals, the consultants leave us to handle the problems and try to solve the problems by ourselves. I believe it's better to have more backup support from the program consultants who possess an in-depth knowledge about the program. They should equip us with more advance techniques or provide more support when we are in trouble. Also another of big concern for me is the number of users. Currently, the pentagon software is widely used in the organization, so sometimes I can't access the system because the number of users are limit. I need to pause my work have to wait until other staff log out. All I need is to increase the number of users who can access the program”*. The critical issue for the change management is found in this step. There are no signs of continuous course of trainings organized for staff. A lot of staff demand the advance training course from the program representatives as mentioned by Mr.D and Mr.G. Another factor is the conflict of the program that the organization needs to resolve to avoid unnecessary halt on work.

4.2.4 Make change stick

With the unsuccessful in “Don't let up”, this change cannot fully become a part of organization culture. The staff in the organization stated that they need some change and development with the process related to the program. Mr. G gave some comment about this issue, *“I think this program can be considered as a part of the organization but it needs some improvements. This program focuses on the maintenance and warehouse activities. To make this change fully stick with the organization, I think the organization should implement in other functions such as finance function to make the whole process complete. I believe that from this change it will help the company to*

achieve its vision". Mr.C the Manager also expressed the same idea as Mr.G. *"Right now the pentagon program has become the backbone of the organization but to make this change stick with us we need to adjust some parts of the program. The program must gather all data in the organization precisely, and need to align the work process of every staff members in the organization. Once completing the whole picture, the program will be successful in delivering the perfect report to the top management team. The report will lead the organization to focus and drill down to the problem that must be solved"*. Mr.B also repeated the similar opinion that *"this program is good for the maintenance and spare parts control but it needs more development on the financial activities to make the whole process successful. This program is very good and I also consider this program as a part of my maintenance center. As I mentioned that this program needs some development in other parts. If the organization can continue working on this change, I'm confident that the implementation of the software will become the key part of organization"*. The staffs in the organization are willing and love to work with this program and consider this program as a core function to their work. But the change need an attempt to keep change going continuously for the organization to achieve effectiveness. Mr.B and Mr.G support the organization to keep introducing change in each division in the organization. This will enhance the reliability and accuracy of information that will present to the top management team.

4.3 Summary of the Data

After analyzing the data that has been gathered from the staff of aircraft Maintenance Company. There are some parts of the change that need to be improved as show in the table 4.1.

Table 4.1 Successful in change management

Successful in change management	
Literature review (Kotter 2002)	Primary Data
Increase Urgency	Explain the reason to implement a new program
Get the Vision Right	From implementing the new software is related to the vision.
Communicate for buy in	Describe the benefits and the story about the program via verbal communication and written note.
Empowered Action	Allow the staff to learn and resolve problems by themselves.

Table 4.2 Unsuccessful in change management

Unsuccessful in change management	
Secondary Data	Primary Data
Build the guiding	Team guiding does not cover all major staff in organization
Create short-term win	There is no reward to raise motivation and no short-term win
Don't let up	The staff can operate the program with the basic function. No evidence of advance training and development.
Make change stick	The organization cannot make this change stick because the organization need some change to fit with organization.

From table above shows that the aircraft maintenance company has done quite well in the change management but there are some areas that need to be improved to make changes successful. The table groups the steps into 2 groups, the one requires improvement and the other for which the company has already taken satisfied actions.

This part will be explained in detail in Chapter V. However, the interview also has the limitations. The limitations are the small number of selected sample and the Aircraft Maintenance Company is an only source of data.



CHAPTER V

RECOMMENDATION AND CONCLUSION

5.1 Conclusion

By gathering the data from literature review and in-depth interview, it shows that there are some steps of change management that the Aircraft Maintenance Company has not done in a correct way. To focus on the real problems, I decided to separate the change management into 2 groups. First is the steps that do not require any improvements and the second is the steps that require some improvements as shown in the figure 5.1.

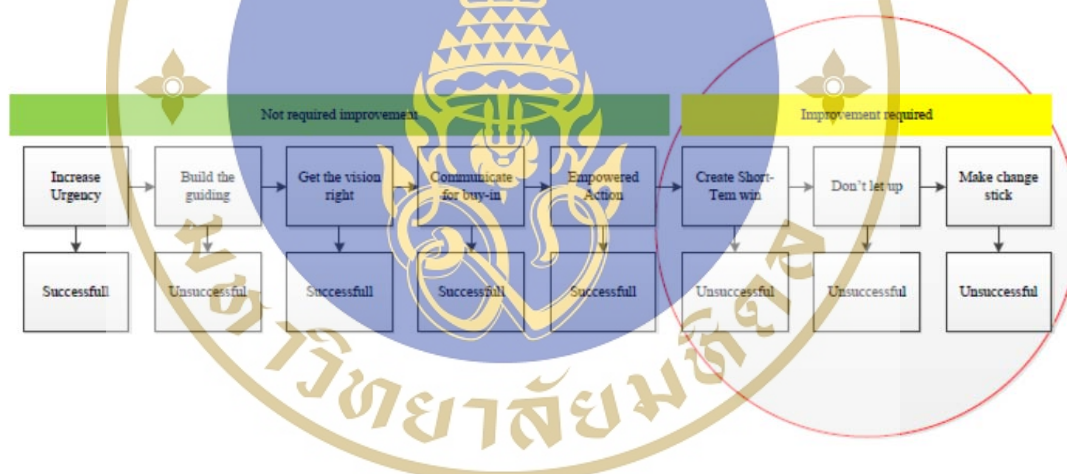


Figure 5.1 Change management step which required improvement

5.2 Recommendations

From literature review and data analysis, I have found steps that the aircraft maintenance company has worked out well while there are some certain steps that the company need to improve their way of practice. As shown in the figure in the step “Increase Urgency”, this organization informed the staff to prepare themselves for the change in the aircraft maintenance program. The second step, the “Building the guiding”,

is the unsuccessful step because the organization did not select the manager and the leader to be the guiding team. By the way this organization can pass this step. The main reason is because of strong organization culture which are seniority system and military culture. This means the staff can learn and apply the new change by follow the command. The responsibility of the staff with this change is to solve every problem by themselves. The third step, “Get the vision right” is another successful step because the change is related to the organization vision and it is linkable to the forth step which is “Communicate to buy-in”. The vision of the organization is to be a high standard aircraft maintenance center in ASEAN. This vision is challenging which help to encourage staff to buy-in and have commitment to the new change. For “Empowered Action”, this organization gave full authority to each maintenance center to self-study, have training program and operate the new program. This is the step that this organization has done in line with the theory. For Sixth, Seventh and eighth this organization cannot achieve these steps. The main reason behind the failure comes from the sixth step. The company has a lot of problems during implementation of the new program and the problems need to be resolved. The purpose of this paper is to help the company to attain success in the implementation of the program and to make it fully functional in the organization. The recommendations in this paper can help and guide the company to focus and make changes in the proper way. The recommendations in change management are as follow;

5.2.1 Create more short term win

The company should try to split the implementation of the new program into phases. This practice will enable the company to track and focus the process that needs to be improved. The company used to give a whole package of change to the staff to implement the new program at their maintenance center. The company may try to cut the long process into stage of activities such as the introduction of the program, the demonstration of the program, the comprehensive test, the stage of implementation, the stage to request for feedback from each maintenance center and the stage to adjust the software to fit work process. Timeline is also important, the company should plan to monitor the process time to time. If the implementation of the software takes too long, it can cause trouble to the organization.

Another factor that is important during this step is the motivation. New changes can make some staff suffer from chasing up the new work process or practices. To compensate that, the company should try to offer more reward to the staff who can cope well with changes. The reward may be given to the individual, the team and the maintenance center. The company also needs some sessions to gather all users of every maintenance center to celebrate the success and share their idea about the program. By trying these approaches, the company will gain more idea to develop the program in each maintenance center.

5.2.2 Do more training and get the feedback from staff

The situation of the implementation of the new software process is in a stable condition. The stable condition means the staff can operate the program only the function that they were trained at the beginning. No more training and development. The company should try to do more in-depth and advance training to the staff in every division. The company should also improve their capabilities by allowing them to work cross functional. For example, the aircraft maintenance planner normally has an authority to operate the issuing the task card function only. The company may try to give them training on the warehouse function area in case where there are an urgent issue, they will be able to finish the job by themselves. The cross functional will create more flexibility within the organization.

The feedback is also important and another key for the success in change implementation. Some staff commented about the complication of the program such as all applications are commanded in English and sometimes the program does not operate smoothly. It should be better if the organization provide the on-site team at each maintenance center to give a hand in solving problems and gather all the problems and feedbacks to improve the program.

5.2.3 Make some adjustment

The implementation of the software has not been in the same direction. With the different nature of the maintenance process and maintenance tasks that have been operated in each maintenance center. This makes the information and data that has been entered into the program without any consistency. For this reason, it effects

to the top management team. When they need their summary report from each maintenance center, the program cannot show the precise information to them. To solve this issue each maintenance center needs some more change, this change must be applied in every division of the organization. By gathering all directors, manager and the key men in every part of the organization to brain storm and find out the best solution to make the work process to be in the same direction.

The first things that need to be adjusted are the financial part. The finance factor is their major key those help the organization to operate the business. With the aircraft maintenance program which is strong in the maintenance and warehouse program. The organization need the financial program to link and support the weak function of the program. The second is the work process for the program. Try to set up one key team to teach every maintenance center and each division to work in the same work process and make some workshop to them. After these two parts are complete, this will be the core and key factor to make the change stick with the organization. The company needs to apply the backup plan for the human resources in the organization. The HR need to survey all the staff about the understanding of the program and also set up the method to teach the new recruited staff to operate the software properly. With these methods the software and technology will become the organization culture and will be a core part to drive the organization to achieve it vision.

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Appendix A: Interview Questions

No	Questions
1	Why do you have to implement change in organization, especially the ERP software?
2	What is your role in change committee? Who is involved in this change?
3	How do you manage change to the organization?
4	Why do you think implement change in software can lead organization to achieve vision?
5	What is the current situation with Pentagon software? Do you need some changes or adjustments?
6	Do you consider Pentagon as an organization culture? And Why?
7	Does anyone inform you about the implementation of Pentagon program? Do they communicate or give you some reason?
8	What do you think about this change?
9	How do you manage yourself with this change?
10	Do you need some assistance or guideline of this change?
11	Which factor do you think to organization should change or adjust to make to program fit to work process and organization?
12	How do you think about the Pentagon program? Can it be main program in organization?