CONTENT

Executive Summary

Airbus is an important airlines company in the world and its product Airbus A380 is the largest passenger aircraft in recent years. The Airbus A380 project is designed to against American Boeing aircraft. However, there are several issues happened during the implementation of the Airbus A380 project. This report starts with the problem definition of technology, communication, culture, and management. Moreover, after the problem definition is the analysis of issues. The following part after the root cause analysis is the possibility of solutions and makes a project proposal, and project plan with SWOT and stakeholders analysis. At the end of this report for a conclusion is going to combine with all analysis and will make recommends for this project.

The various obstacles like cultural barriers, negative management, and lack of communication have been addressed in this report. The report has also provided solutions and intends to tackle these obstacles.

1.Introduction

Airbus A380, which is the most complex aircraft in recent years with two full desks and the space for carrying 850 passengers. A380 is the largest passenger aircraft and plays a major role in the aerospace industry. There were 4 countries such as Germany, Span, England, and France joined Airbus 380 projects. Throughout the cooperation between these countries, this project was delivered profitable in the end. However, there were several issues and failure decisions during the implementation and production route. The main issues which we will address in this report are the gap of technology problem, the difficulties of communication, the differences of culture between countries, and management problem. These problems caused the Airbus A380 program delayed and over budget.

2.Problem Definition

Besides the negative influences of the projects themselves, the project unfinished time occasioned serious social problems. Here, we will identify the problems and explain them.

2.1!Delay!the!schedule!of!the!project! !

Airbus A380 construction will ease the traffic pressure, and Airbus A380 is the most aircraft flying today. However, delivery of Airbus A380 delayed leads to not improve the traffic problems. For example, originally schedule for delivery of this project in 2006. However, entry service of the aircraft was delayed by almost two years. Airbus announced the first delay in 2005 and noticed other aircraft companies that deliveries would be delayed for six months because of the difficulties of production speed. And in June 2006, Airbus announced the additional delay that deliveries would be delayed by six to seven months. In October 2006, new Airbus CEO Christian Streiff announced a third delay. The delay increased the earnings shortfall projected by Airbus through 2010 to 4.8 billion.

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2.2 Snowballing costs and over budget

Airbus A380 construction delay causes a significant economic loss. Such as the previous example, the project was finished after four years of delays. The project manager focuses on the atmosphere in different parts of the organization rather than how to build the aircraft in the best way. Overly aggressive schedule caused the time pressure of the schedule. Moreover, at the end of this project was several billion over budget. Moreover, Airbus A380 construction generally belongs to the government investment. The government finance deficit could affect social welfare programs.

2.3 HighAlevel Resignation and employee turnover

The deliveries delay several times and the incorrect decision making during the project caused a 26 percent drops in the share price of Airbus' parent. EADS. The huge financial burden leads to the employees turnover and the high-level managers punished. For instant, these issues caused the departure of EADS CEO Noël Forgeard, Airbus CEO Gustav Humbert, and A380 programmer manager Charles Champion.

2.4 Several companies had to cancel order forms and be implicated.

Related companies were directly or indirectly involved in this project delayed. For example, Air Transport Word states Malaysia Airlines and International Lease Finance Corporation (ILFC) canceled the order forms because of the deliveries delay. Moreover, in November 2006, FedEx canceled 10 A380-800F aircraft order forms and steering Boeing ordered 15 Boeing 777-200 Freighters. UPS announced they were considered to cancel 10 A380 aircrafts in March 2007.

3. Root Cause Analysis

Although this project was successful in the end, Airbus A380 project was delayed and over budget. It had several issues during the implementation and production phase to

result in the plan unfinished on time. There are 4 main reasons for this project: communication, technology, culture, and individual. The fish-bone diagram will show the possible roots, and each reason will be explained deeply as follows:
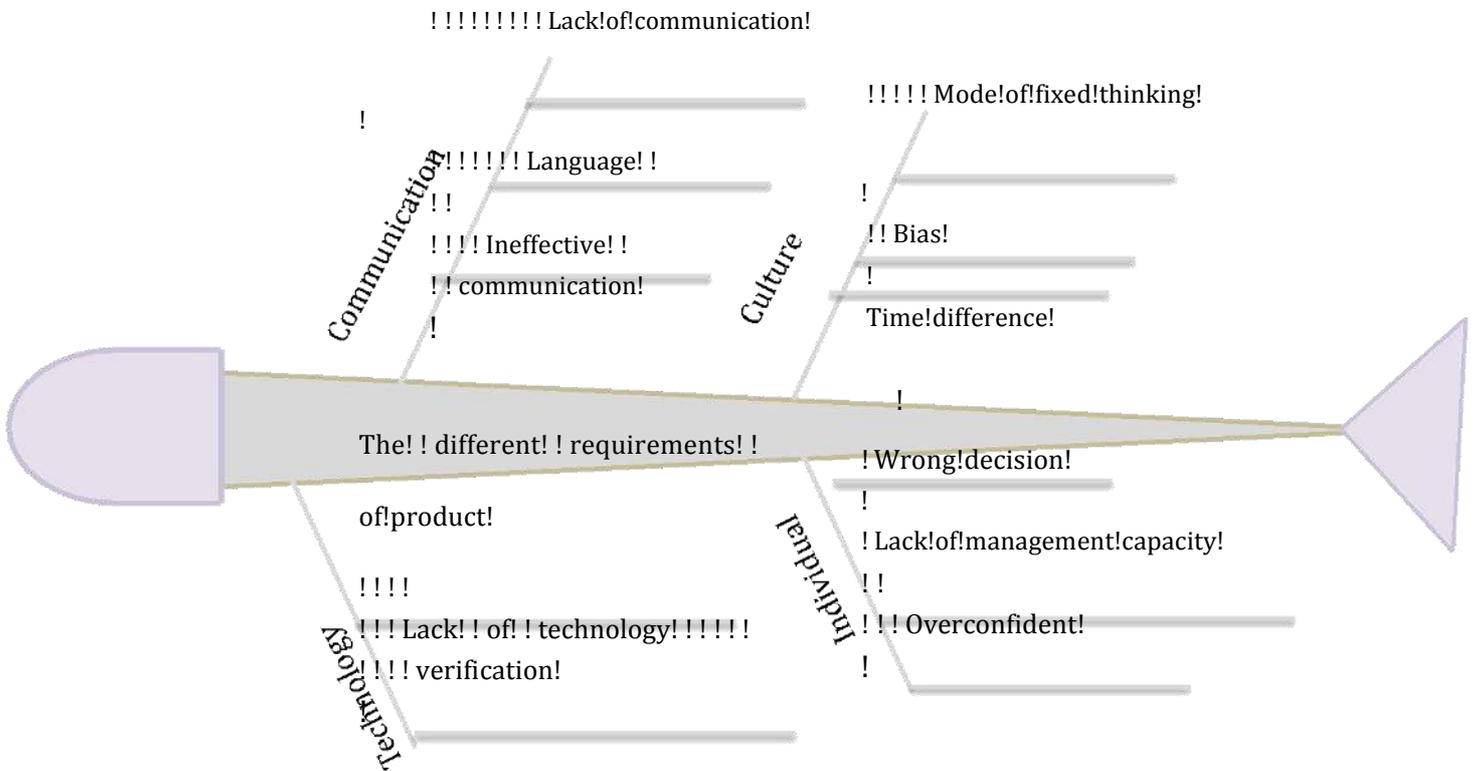
3.1!Communication! !

Ineffective communication and lack of communication are the first primary problem to lead the project delay.! All! departments! in! Organizational! structure! are! too! independent.! It! led! to! reducing! communication! opportunity.! A380! manufacturing! for! the! global! tender! parts! production! including! over! 40! countries!and!hundreds!of!manufacturers.!Each!aspect!of!Airbus!is!independent! and! different! work,! but! if! one! part! existed! a! little! error,! it! will! affect! the! entire! project!chain!and!delivery!time.!The!four!main!countries!were!allocated!different! task,! and! they! have! their! own! independent! supplier! of! technical! personnel,! accounting,! legal! adviser,! which! led! to! difficult! to! carry! out! effective! communication! between! members! of! different! work! even! if! under! the! same! project.! Firstly,! it! led! to! inefficient! communication! and! the! project! extension! of!

the!development! cycle.! Secondly,! it! also! restricts! technological! communication,!

so!that!engineers!in!different!countries!even!use!incompatible!software.!

3.2!Individual!

As for the individual aspect, wrong decision and overconfident were all the frequent weaknesses of the leaders, which result in the project facing many difficulties in the implementation stage of the Airbus A380 project. In fact, for the cultural side, a project manager should more effectively opt team members that match both the team culture, the project, roles and responsibilities when he or she better to understand the human nature and personalities of these individuals. However, there is a real story: the project manager of Airbus A380 attempted to move the German designers on to the same CAD system as the French, however, the manager did not consider the cross-culture problem. It led the manager met a wall of resistance and the designers had a conflict when they designed the aircraft. Besides, this issue led to losing his job at a later time. In addition, for the technology field, the project manager believed that electrical system designed in Germany would be compatible with the air-frame components designed in France. However, he did not consider that CATIA version 4 which Germany used was not matched with version 5 which France used. This issue caused the project delay and engineers needed to design the electrical system again. Failure management from project managers will cause project delay, over budget, or a fail the project. Project managers have to manage project team members effectively.

3.3!Culture!

The third main problem comes from the different culture. At first, Airbus A380 project was implemented by four countries. Different cultural background brings the conflict of communication and lack of interactivity. Multiple languages and time difference will produce risks when they transform some important information to other countries. In addition, narrow-mind thinking of different units set up a culture within the organization, which led to isolation among groups. Therefore, there was no

effective communication between project teams and numerous processes and exercises were unchallenged.

According to the reading from the course, culture is a fuzzy set of attitudes, beliefs, behavioral norms, and basic assumption and values that are shared by group of people, and that influence each members' behavior and his/her interpretations of the meaning of other people's behavior. In Airbus A380 project case, in the early period, European governments cooperated all aerospace industries in every country in Europe to compete with the US based Boeing Commercial Aircraft Company. Because of their different backgrounds, different parts of the organization inherit different corporate cultures, management styles and systems. The cultural differences could be caused serious irreversible consequences for Airbus A380, even if only a little difference could be still deeply entrenched. The personal rivalries and national pride from project team members caused the project implementation difficulties and delay the project schedule.

3.4!Technology!

The fourth main reason is about the technology field. To operate the aircraft with the mental airframe. Engineers need to integrate the complex wiring system which threading through the aircraft. Airbus A380 is the most complex electrical system with 530 kilometers wires, cables and wiring harnesses weave throughout the airframe. And more than 100,000 wires and 40,300 connectors operating 1,150 separate functions. After the first prototype completed in France, engineers found a problem and it is not an isolated problem. After the installation of the wires, they found out that the wires were too short even though they had been manufactured to specification the wires and harnesses. It is hard to pull cables to make them suitable even though cables are only a few centimeters short. Engineers realized that the problem of short wires will influence the whole design of the airplane. In addition, the Computer Aided Design (CAD) software which design group working on the project was different in every country. The designers of German and Spanish had

used CATIA version 4, however, British and French design teams had used CATIA version 5. The difference between CATIA Vision4 and vision5 was not a simply evolution. Vision 5 was a complete rewrite software. Unfortunately, drawings of electrical system that Germany designed did not suitable with the air-frame components designed in France.

4. Possible Solution

Based on the root causes analyzed before, there were some corresponding measures to solve the problems. Each problem is provided several solutions, which are related to communication, culture, technology and individual separately. Then sum up these one-sided solutions to contribute to a finial systematic solution.

4.1!Solutions for communication problems

For the large multinational project, using second languages or hiring translators is inevitable. However, in this case, it is likely misunderstanding in communication because there are at least four languages. To reduce the probability of misunderstanding, using a unified language like English could be a solution. However, it does not need everyone speaking English. As long as there are no less than two staffs that are good in English in each department, the language obstacle is not a problem. In this way, the staffs could understand the stakeholders from other countries and explain to their internal members. Moreover, they know more professional knowledge than translators, so they can convey information more easily.

Language is neither the only problem of communication nor the significant problem. Ineffective communication or lack of communication is more serious. Because the purpose of communication is sharing information and understanding each other, how to achieve the purpose is the key point of solving the communication problem. Expressing ideas clearly are the basis of sharing information. Some programmers are good at programming but do not know how to express their thoughts. This kind of

employee could improve communication skills by practicing or joining training. In addition to the efforts of their own, organizations could hire a supervisor to discover and listen to their problems. Supervisors could not only provide help to the employees that initiatively seek help, but also discover the ignored problems then solve them. Moreover, supervisors could collect all problems, analyze the common features and find solutions. Then they could be publicly a help manual including the common problems and solutions to all internal members. Another responsibility of supervisors is supervising and reminding all employees pay attention on communication issues. If an employee makes a mistake, the supervisor could correct it in time.

4.2!Solutions for individual problems

Individual problems also cannot be ignored, which includes both personal ability and personal attitude. For personal ability, before start a project, it is necessary to measure the ability of all employees. Then the managers will know their levels and put them at the accurate positions. Another solution is training them to raise their ability to meet the work requirement. Personal attitude is difficult to change; no matter it is positive or negative. However, it can be controlled or limited to ensure the attitude will not cause bad effects on the project. For example, training employees how to relieve stress, how to work with team members, how to negotiate with stakeholders and so on. In addition, rules and regulations are required to quantitative all tasks. If employees cannot finish their work in time, they will be punished.

4.3!Solutions for cultural problems

Culture is another kind of language, so understanding the culture from other countries or organizations is required. Because culture and belief are difficult to change, the only way of avoiding cultural conflict is understanding the culture from each other. All managers and staffs have to know the culture difference among four countries. Therefore, it is necessary to implement a cultural training for everyone. In the

training, all members will know the different cultures firstly, then they have to accept the difference and know how to avoid conflict. Because the members from different countries have to work together, if someone ignores the difference of culture or do not know how to handle it, there will be contradictory in a team or organization. To solve this problem, there have to make policies to avoid culture resistance and prejudice, which include norms of behavior and punishment. If all members are asked to follow the policies, then cultural conflicts will be reduced.

4.4!Solutions for technology problems

Technology is the core of the project, so the unmatched technology has to be solved. To a certain extent, using unmatched technology is also a problem of lacking communication. But if there is no communication problem, some issues may still occur related to technology, for example, outdated technology or low production efficiency. The solutions are not complete without communication skills and management methods. The outdated technology from one country could be replaced by other country's advanced technology and low efficiency country could learn the efficient methods from other countries. As long as they can effectively communicate and correctly manage technology transfer and technical training, it will increase the effectiveness of the project. Moreover, in a project, everything is important even an electric wire or screw. Therefore all information required to be shared with each other. Although it looks too much trouble, it will avoid mismatching technology.

4.5!The systematic solution

Summarizing all solutions above, there are two main solutions to address all issues. One is set up a department of supervisor, which could make policies to avoid cultural conflict, estimate ability of each organization and employee, ensure employees' work efficiency, support help for employees and understand stakeholder dynamics condition. The other one is training for all level internal members. The training includes technology coaching, communication skills, culture knowledge and so on.

The two solutions are both benefits to the project. Only choosing one of them could increase project efficiency. Certainly, they can be applied together, which is more effective to optimize the project.

5 Proposal and project plan

5.1 Vision and Purpose

Airbus a380 is a large and complex project that is related to many countries, including four countries in project planning and implementation and some other countries in products purchasing. Meanwhile, it is also a high-tech project that requires employees having high level technology skills in producing a product. Therefore, it is a big challenge for the project manager to effectively and efficiently implement the project in the expectation of all stakeholders and controlling it in the schedule, while to ensure the quality of the airplane in security and establish good relations among the cooperators. According to the failure experience of Airbus a380 in the past, there are some problems in terms of interpersonal communication and leadership of project management, so some strategies should be proposed in this aspect, in order to reduce the problems being result of chaos and ineffective human resource management and promote the project success.

Firstly, a new structure of management should be established instead of the old one. Division of Supervisor system and Project Manager Training system are the two core departments should be built and added in the project system, which can be looked as a hub of four countries communication being given a lot of vital functions in project execution process to help project manager manage the project. Secondly, some methodologies will be used in feasibility analysis. The methods of SWOT analysis, stakeholder analysis, motivation, negotiation, team building, communication plan are in order to give the reasons why the two system could be in operating.

In summary, Division of Supervisor system includes five offices: Supervision Policy Office, Supervisor Examination Office, Supervisor Consultant Office and Customer

Office. The staffs of this system are from four countries, including France, Germany, Spain and the UK, and each office has its special function. The purpose of building this system is addressing the weakness of the old organization structure. The functions of Supervision Policy Office are collecting and finding the difference in policies, laws and market regulations from different countries, then the representatives from different countries do a negotiation internal to find an outcome that be accepted by four countries work teams, and make a regulation for all project team members as a guidance regulating the behavior of employees. Moreover, the project manager of this office will set up the training plan for employees based on their results of professional skills' testing, then the employees need to do the training to make up for their deficiencies in skills. The functions of Supervisor Examination Office are in the following. One is to ensure every region being observed the common policies and rules. One is checking and evaluating the career performance of employees and collecting the employers' requirement and feedback, after that making an examination report to identify the issues and provide possible solutions. The functions of Supervisor Enforcement are three. They are guiding employees to complete their work, providing support to employees and appraising the performance of employees. The purpose of this office is to ensure all the employees completing their works correctly and effectively. The function of Supervisor Consultant is providing useful suggestions and advices for all level's internal project managers and staffs in the entire project cycle. Meanwhile, the office also provides marketing and information technology (IT) consultant. The function of Customer Monitoring Office is identifying the expectations of customers and meeting the satisfaction of them to develop the customer experience and help improving and perfecting the performance of products.

The Project Manager Training system exists as a subordinate department of Division of Supervisor system, which could help giving some supplementary function in project manager training aspect of the project. Due to the particularity of the new aircraft project, there should be some different from other or past projects, so this

system could support the specific training for all levels' managers, such as project practitioner, project manager, senior project manager, project director and portfolio executive. The project manager training is divided in 7 parts, including coaching training, culture & political training, leadership training, conflict management training, communication training, decision-making training and trust building training, which are in different length of class hours. Project managers can be chosen to learn a different class by their inspection results. This training can reduce the weaknesses of project management in the A380 project.

Another benefit for establishing these two systems is that can reduce the expense and the risks for outsourcing in consultation, because the outsourcing company cannot know the project in detail. All the functions of the two systems could be beneficial for project success in the final.

The next section also includes some professional analysis throughout some methodologies and models of leadership. The outcomes of these analyses can be meaningful information to guide project manager building project teams in correct way, being corporation with stakeholders to satisfy their demands and avoiding the potential risk to ensure achieving project success.

5.2 Methodology

In this project plan, implement two methodologies, the division of supervisor and project manager training, to address the issues in Airbus a380 project and improve the project rate of success. The first methodology is that provide the division of the supervisor to address the weaknesses of organizational structure. The organization of the division of supervisor is based on the review of Consumer Financial Protection Bureau's (CFPB) supervision program.
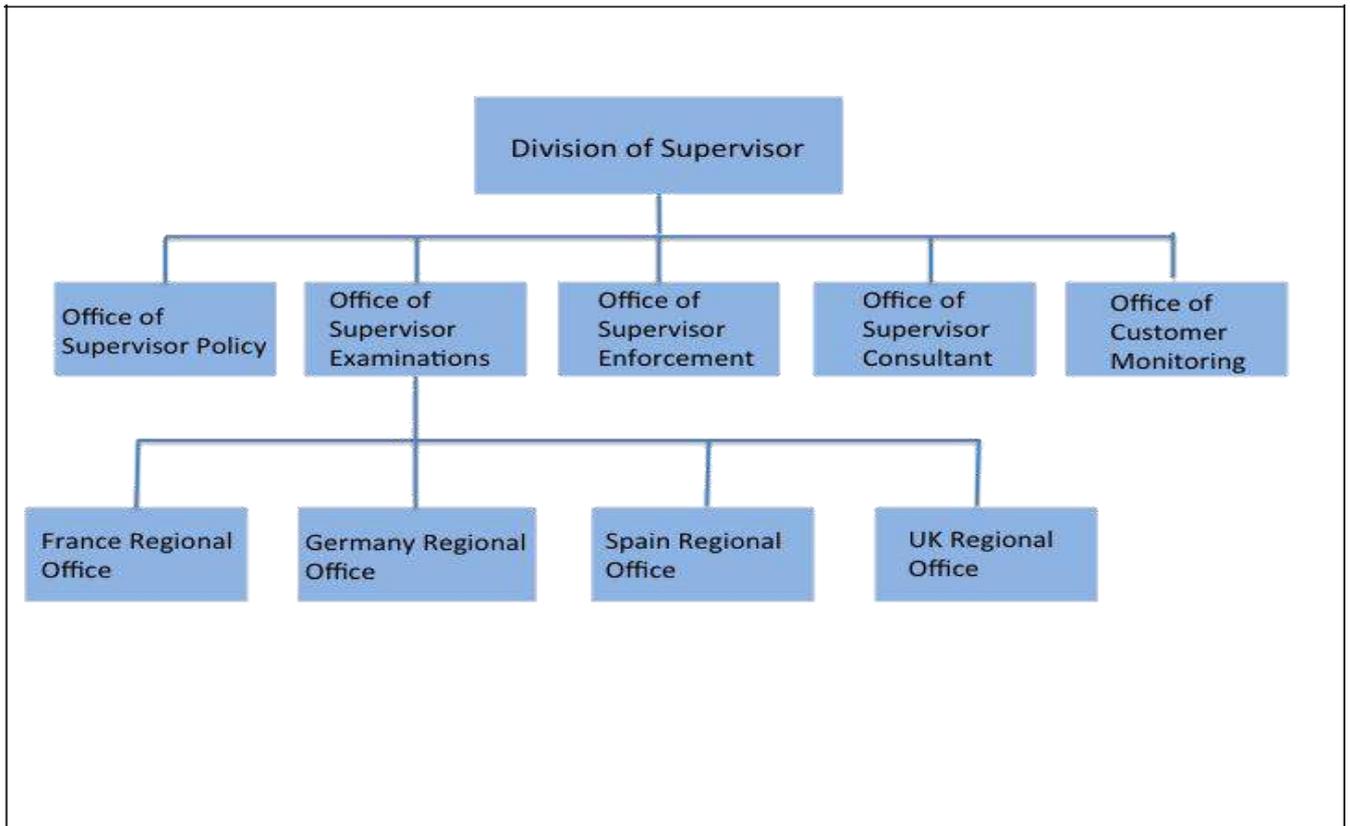
Figure 1: Division of Supervisor

According to Figure 1, the department of supervisor includes five offices and office of supervisor examination includes 4 regional offices in France, Germany, Spain and UK.

5. 2.1 Office of Supervision Policy

Responsibility of Office of Supervision Policy is that collects and analysis of the different policies, regulations and laws for different countries. Make sure the whole decision in this project considers all laws and avoids potential risks and issues. It also considers the factors of different markets, regions and cultures. The detail principles of Office of Supervisor Policy as follows:

•! Collect and analyze the new policies, regulation and laws in different regions

The A380 project is a multi-national program that includes major four countries such as France, Germany, Spanish and United Kingdom. Each country is in charge of

different tasks within the project. The initial idea is that utilize the advantages of different countries to improve the project rate of success. However, due to the different policies and regulations, four countries utilize two versions of software and it directly leads to the project delay the schedule and overrun budget. The program of German and Spanish utilized the CATIA version 4 to continue to design and complete the process of the project. Meanwhile, British and French updated the CATIA to version 5. Thus, the supervisor should provide and update the important policy and regulation for the project manager and ongoing monitor and consider the process of project follows the policy. The possible policies in Airbus a380 project as follows:

1.! Effective communication with different groups and report the content of meeting such as agenda and minutes of the meeting.

2.! Unifying the different tools and techniques in different countries, for example, the different versions of software.

3.! Set up the performance standards of employees to evaluate the contributions of each member.

•! Set up the training plan for employee

The supervisor should qualify and evaluate the performance of each employee according to each job role. Analysis and judge the weakness and strengths of personality to develop an improvement of the performance plan. Set up a suitable objective and action strategy and schedule to improve work or management skills for each employee. Moreover, the supervisor should ongoing evaluate the career performance. Details of project manager plan in the figure 2.

5.2.2 Office of Supervisor Examinations

The office of supervisor examinations divides in four offices in four countries. It should take responsibility to ensure each region follows the policy and rule. Check and evaluate the career performance and collect the employer's requirement and feedback, rewards or new positions, to project manager.

Identify the issues or risks in the project and generate the exanimation reports for the department of supervisor. The details principle of examination as follows:

1.! Set up examination guidance based on the objectives and goals of the project.

2.! Applied the approaches and methodologies of examination.

3.! Set up the content of examination and inform each member among the exam schedule.

4.! Review the results of the examination staff and report the strengths and weaknesses for each.

5.! Provide the training advices for the project manager.

The purpose of the examination is that review the staff performance among the professional knowledge, technique level and professional ethics. According to the examination report, identify the issues and provide possible solutions to improve person's abilities and the probability of project success.

5.2.3 Office of Supervisor Enforcement

The duty of this office is to ensure all the employees complete their works correctly and effectively. Thus, the supervisor would provide guidance to employees before they start working to make sure they have the same goal and direction as an organization. In the process, employees may have specific problems related to project. In this case, the supervisor could help them to address the problems based on professional knowledge and experience. At the end of each project, it is necessary to evaluate the performance to know everyone's contribution and drawback. Details of strategies of enforcing as follows:

1.! Guide employees to complete the work

Before starting to work, all employees need to know organizational polices, project programs and their responsibilities. Mechanical passing on an order by documents could not accurately transmit information, because the written documents may create

ambiguity and cannot ensure communication in time. To overcome the problem, the supervisors in the office provide face-to-face guidance. They cannot only clearly explain policies and programs that employees involved in, but also show them their scope, standard and effective methods of work.

2.! Provide support to employees

No project can be completed without any problems. Problems could happen anywhere. If nobody to collect these problems and just leave the problems to employees themselves, then the project will exist many unsolved problems and even hide problems. The supervisors of this office at the role of collecting problems, solving problems, and reminding other related employees. They can apply their knowledge and experience to solve the problems, or brainstorm a relative workable solution. Their only purpose is to help all employees to complete works with quality and efficiency.

3.! Appraise performance of employees

Performance appraisal aims to clarify the roles and responsibility of all employees, which mean evaluating everyone's contribution to the project. As long as the contributions are determined, the issues of specific employees and other side issues will be discovered. And once the issues are found, managers could start with analysis problems and finding solutions. For the individual issues of employees, the supervisors could make a plan of training to them. In this way, they will keep an eye on these issues in future projects, and if similar issues occur, they will learn how to address them.

5. 2.4 Office of Supervisor Consultant

Office of supervisor consultant provides useful suggestions and advices to internal project managers or staff to support the continuing of the project. Details of strategies as follow:

1.! Offer the strategy consultants to develop and improve the structure of organization for senior management in the A380 project.

2.! Offer the marketing consultant to address the risks of competition between Airbus Company and Boeing Company.

3.! Offer the management strategy of human resources to deal with the barriers of cross-culture. The different cultural background in A380 project leads to the problems of communication, ineffective people management and the issues of unifying different deliverables of different project groups.

4.! Offer the information technology (IT) consultant. The most important issue is that the A380 project uses different versions of software. If the project has IT consultant, it would effectively avoid this risk or reduce the negative impacts. The major duty of IT consultant is that provide useful advices of hardware, software and network.

5.! Advice the plan of development for personal to require higher position and better development in the company.

6.! Provide ongoing consultant, coaching and guidance for staff.

The purpose of office of supervisor consultant is that improves the quality of the project and addresses the potential risks in the process of project. Moreover, provide the ongoing consultant for the project manager during the process of project. Meanwhile, the staff could require a path to improve the personal ability to acquire the higher position.

5.2.5 Office of Customer Monitoring

The purpose of office of customer monitoring is that identify the expectations of customer and meet the customer satisfaction to develop the customer experience. The major methodology is that generate the survey to require the feedback of customer. Evaluate and analyze the feedback of customer to understand the demands of

customer and develop the improvement of the project. Report the customer analysis to project manager and present the advantages and disadvantages of reporting. Improve the quality of each deliverable to satisfy the expectations of the customer. The detail principles of customer survey as follows:

1.! Offer the customer satisfaction survey or customer non-satisfaction survey. Sometimes, the customer perhaps does not clearly understand the requirements or demands of the product. Thus, the project manager could identify what kind of factors customer does not like. It also could help or inspire the project manager to identify the expectations of the customer.

2.! Questions of customer survey should be quite an easy answer. Multiple choices are a good way and it easy to quantitative analysis for project manager.

3.! Regular and ongoing customer survey. Ongoing survey may have benefits to build well relationship between manufacturer and customer.

5.2.6'Project'Manager'Training'

In the figure 2, show the structure or organization of project manager training. The purpose of training is that reduce the weaknesses of project management in the A380 project. Project manager training divides 7 parts, coaching training, culture & political training, leadership training, conflict management training, communication training, decision-making training and trust building training. Seven parts of project manager training are based on the interpersonal skills in PMBOK. The appropriate utilize of interpersonal skills supports the managing of the project to improve the quality of project (PMBOK, 2013). The assumption of project manager training plan as follows:

1.! Coaching training focus on the project practitioner and project manager who is the low-level in the organization of management. Thus, provide the longest time to training and the content of training pay more attention on the basic management skills.

2.! The objective of cultural and political training is portfolio executive and project director who is the high-level in the project. It assumed that the problem of cross-culture and politics has high probability appear in the high-level cooperation. Thus, provide 100 hours to address these possible problems in the project.

3.! Assumed the high-level has strong leadership skills, and training have low effects to support them. Thus, the objective of leadership training is senior project manager and other low-level manager.

4.! It assumed that the conflict management more effective in the high-level project manager. Due to the strong power and authority of high-level project manager. It easily influences the process of the project.

5.! Assumed the communication, decision-making and trust building training more important to high-level project manager.
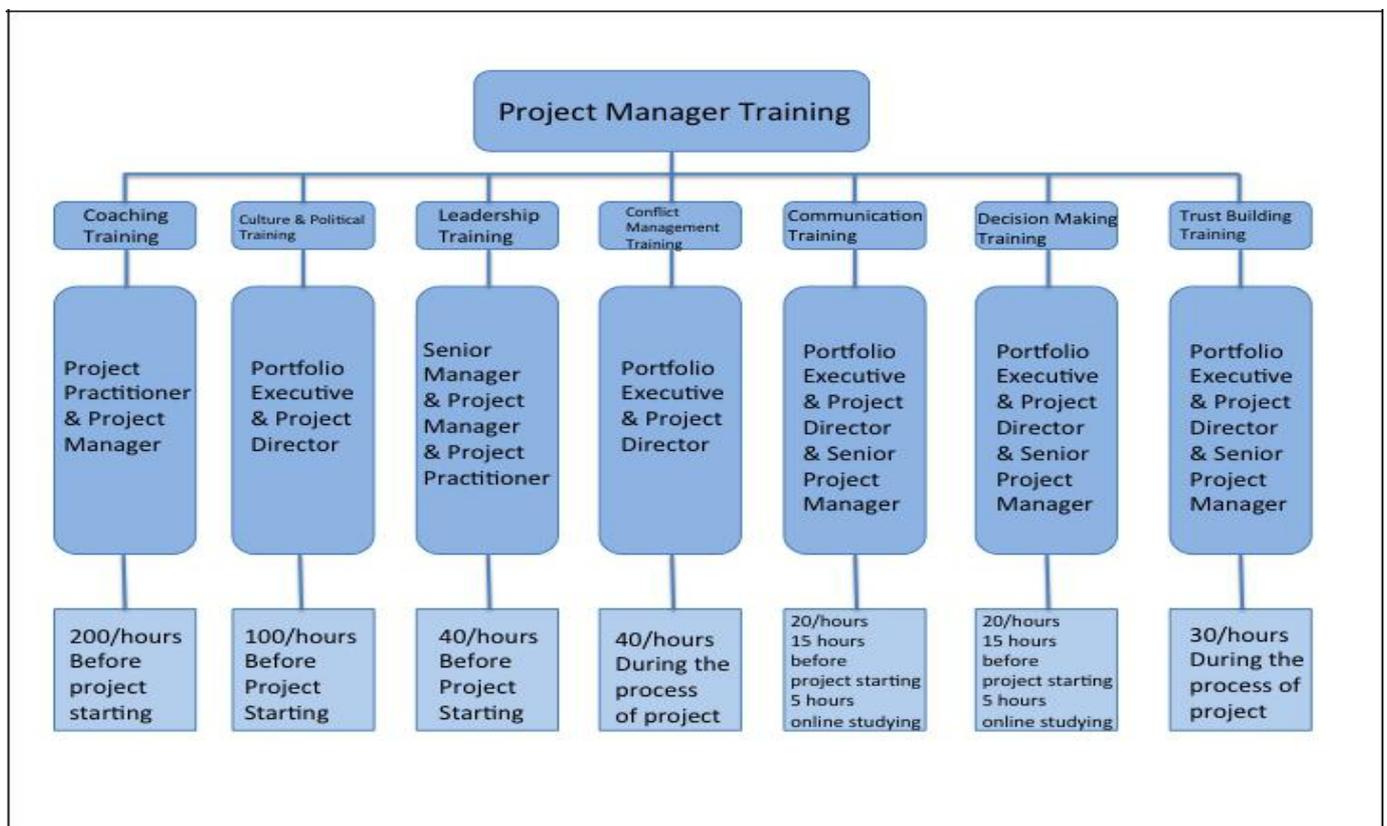
Figure 2: Project Manager Training

The managerial level of Figure 2 divides five different grades, project practitioner, project manager, senior project manager, project director and portfolio executive, is based on the roles of the Australian Institute of Project Management. The time line of training major considers the available time of different level project manager. The details of the time as follow:

Training Content	Before the project start					The process of project
	Week1	Week2	Week3	Week4	Week5	
Coaching Training						
Culture & Political Training			**2.5 week**			
Leadership Training						
Conflict Management Training						40 hours
Communication Training				15 hours		5 hours
Decision-making Training				15 hours		5 hours
Trust Building Training						30 hours

Table 1: The high-level Gantt chart of project manager training

According to Table 1, the schedule plan of project manager plan divides two parts that before the project start and the process of the project. The assumptions of high-level Gantt chart as follows:

1.! The duration of working is 8 hours per day and having 5 working days per week. Do not consider the public holiday in this Gantt chart.

2.! Consider the objective of training is high-level manager, the office of supervisor choice online course to ensure staff have available schedule continuing.

3.! Conflict management training and trust building training have a high probability to appear in the process of project. Provide more training hours during the process of project.

4.! Training in the process of project pay more attention to address the potential risks and provide the details of the project management plan for project manage

5.3 Stakeholder Management

5.3.1 Stakeholder Identification

According to the Figure 1, it indicates the structure of mainly stakeholders.
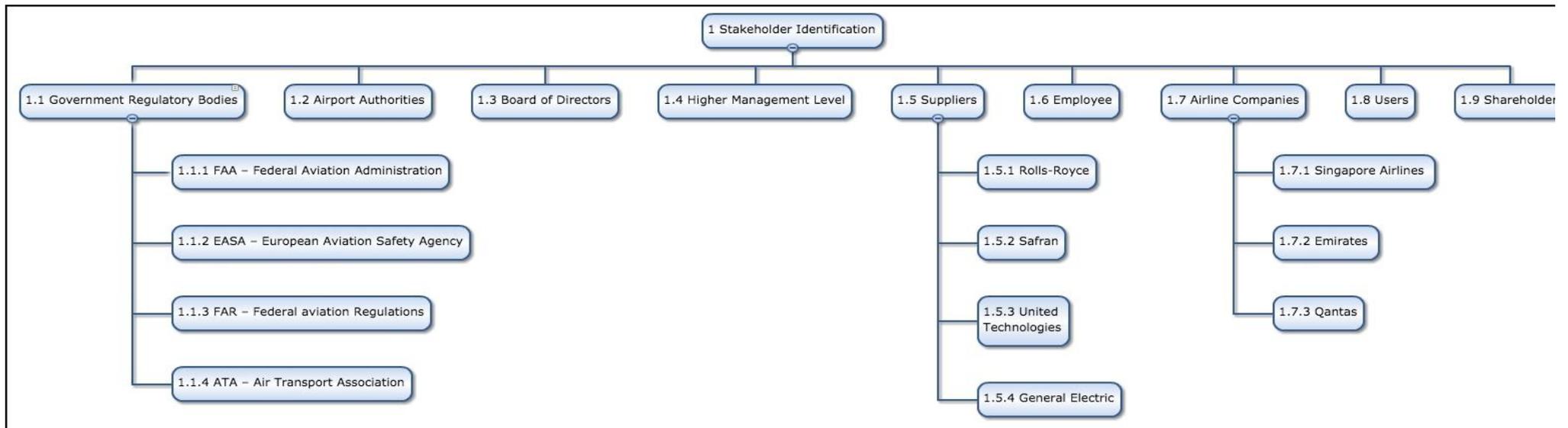
Figure 1: Stakeholder Identification

5.3.2 Stakeholder Analysis

The major function of stakeholder analysis is that enhance the probability of project success dependS on the identification of stakeholders' interest, expectation and influence (PMBOK, 2013). Due to the analysis of different stakeholders, provide adopted options or processes to satisfy the different demands of each stakeholder.
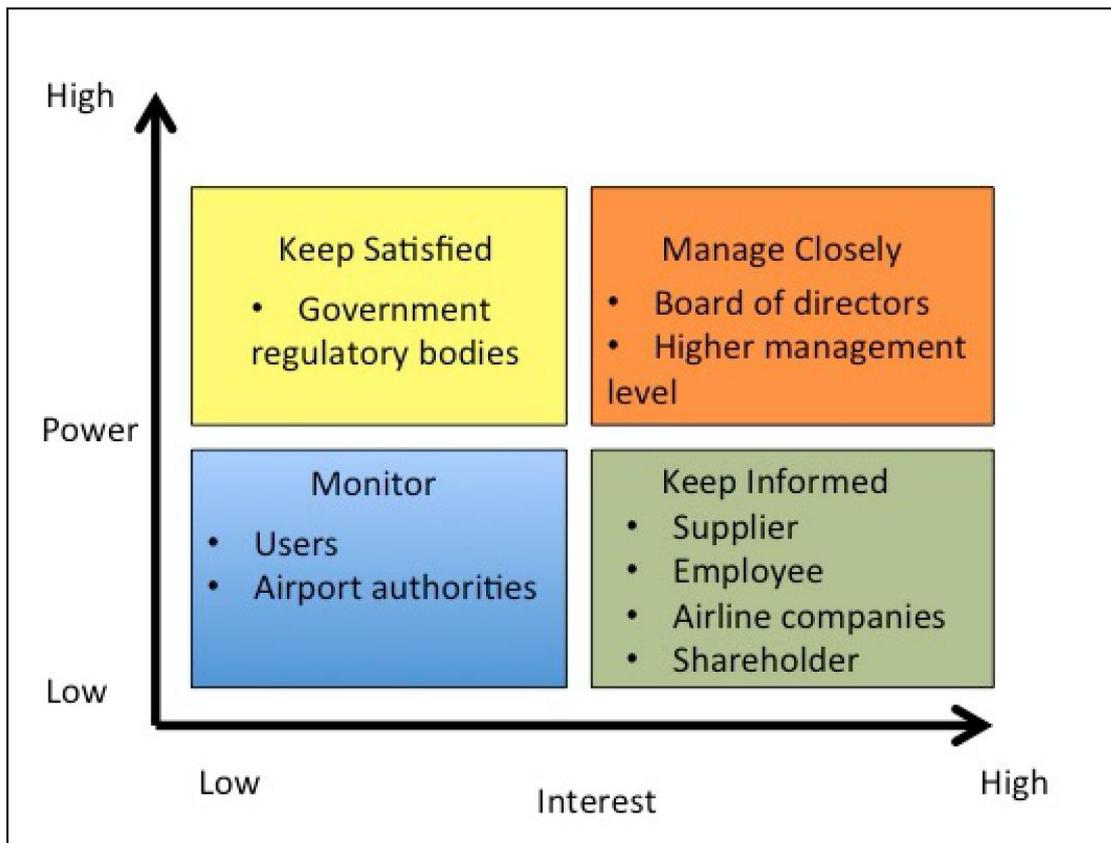
Figure 1: Power/Interest Gide with Stakeholder

According to the Figure 1, the users and airport authorities would not influence the process of the project due to the low power and interest. For the government regulatory bodies, they have high power but low interest. Thus, the project manager should satisfy the demands of those stakeholders. However, some groups have high interest and low power such as supplier, employee and airline companies and they are the divers of the project. Thus, keep informing for those groups. The board of directors and higher managers has high power and high interest and they would change the process of the project. Satisfy the demands of those groups first.

5.3.3 Stakeholder Engagement Plan

The purpose of stakeholder engagement plan is that communication and corporate with stakeholders to satisfy the demands and avoid the potential risk to ensure the project achieves success (PMBOK, 2013).

Project manager utilizes the effective communication and negotiation with stakeholders to require the support from them and reduce the resistance (PMBOK, 2013). Therefore, analysis and conclude the stakeholder engagement plan to provide possible strategies to address the project issues.

No	Stakeholder	Roles	Interest	Power	Strategy	Engagement Plan
1	Government Regulatory Bodies	Setting up the regulations and laws. Create the flight quality standards and certificate the each test to ensure the deliverables of project safety.	Low	High	Keep Satisfy	Keep satisfied. Provide the detail project plan and meet the requirement of Government Regulatory Bodies to acquire approvals.

2	Users	Provide a feedback of airport to evaluate the performance and make some recommendations.	Low	Low	Monitor	Keep informed. Satisfy the key requirements of users or customers and create innovations and interest points of products to develop users' interest.
3	Airport Authorities	Authorize the licenses of manufacturers according to the process of project.	Low	Low	Monitor	Keep informed. Hold a meeting constantly to seek supports.
4	Board of Directors	The major decision maker in this project cause of high interests and power. Make important decisions on the project, and affect the direction of the project.	High	High	Manage Closely	Create project charts, deliverables, milestones and deadline of project. Delivery the tasks, resources and funds to each programmers and engage

						the regular meetings to promote, control and monitor the process of project.
5	Higher Management Level	Key divers to promote the development of each project. Delivery the tasks and assignments to each membership. Monitor and control the process of project within budget and in schedule.	High	High	Manage Closely	Conduct regular meeting with team members. Motivate individuals to ensure the quality of project with a high level.
6	Suppliers	The key partners of project supplies necessary resources to meet the standards of project design and product.	High	Low	Keep Informed	Provide the relevant information to share with suppliers to require feedbacks to promote the development of project.

						Conduct regular meeting.
7	Employee	Execute the details of project tasks and the major productivities on the project.	High	Low	Keep Informed	Provide training to ensure individual dose a competent job. Impose motivation and conduct regular meeting to make sure the each deliverables attain per targets. Collect the project update timely.
8	Airline Companies	The most important clients on this project. Advance the requirements of project.	High	Low	Keep Informed	Conduct regular meetings to understand the requirements or change requirements of project. Share the information of project situation to acquire the

						feedback of Airline Companies.
9	Shareholder	Invest in this project to require the profits.	High	Low	Keep Informed	Conduct meeting to report the financial situation, the investment of company and business reports.

Table 2: The Stakeholder Analysis

5.4 Communication Plan

The purpose of stakeholder communication table is that discusses with different levels of stakeholders and requires the feedback of each group. Modify the part contents or structures of supervisor department according to the feedback to require major stakeholder support. Informed low power or low interest stakeholder and improve the relationship with them.

Stakeholders Communication Table						
Communication	Target Audience	Purpose	Owner	Communication	Medium	Frequency

Type				Deliverable		
Kick-off meeting	Board of Directors, Higher management level, Shareholder	Introduce the purpose; duty and work flow of office of supervisor to require the supports of stakeholder. Require the budget support of the board of directors.	Project manager	Agenda, Meeting minutes and report.	Face to face	Once a month
Regular meeting	Government Regulatory Bodies	Informed the general contents of the project plan for government and build a good	Supervisor manager	Agenda, Meeting minutes, feedback and report.	Face to face	Once a month

		relationship between government and project.				
Client meeting	Users, Airport Authorities, Higher project manager	Informed the details of the supervisor structure and require the feedback of the client	Supervisor manager	Agenda, Meeting minutes, feedback and report.	Face to face	Once a month
Procurement meeting	Higher management, suppliers	Informed the duty and responsible and require the feedback.	Supervisor manager	Agenda, Meeting minutes, feedback and report.	Face to face	Once a month
Internal announcement	Employees, Higher project manager	Informed the details of supervisor	Supervisor manager	Agenda, Meeting minutes, feedback	Face to face	Once a month

meeting		department for employee.		and report.	

Table 3: Stakeholder Communication Table

5.5 SWOT Analysis of the Project Plan

The definition of SWOT analysis is that it is a planning and evaluation technique, which has four factors such as strengths, weaknesses, opportunities and threats (Hill & Westbrook, 1997). The purpose of SWOT analysis is that the decision maker could clearly understand the whole aspects of the project and make reasonable options to achieve the objectives of the project (Hill & Westbrook, 1997).

HELPFUL

HARMFUL

INTERNAL

STRENGTHS

- To improve detailed communication between employees and managers
- Supervisor could collect the detailed suggestions from designers
- Avoid the potential risk due to complex organizational structure
- Identify the problems and provide reasonable plan to address the potential problem in the project
- Have more chance to connect with major stakeholders

WEAKNESSES

- Need more employees to collect and analysis the feedback of communication
- Implement of detail communication requires more budgets
- It would spend lots of time on the communication plan
- Feedback collecting would be slowly Communication inflexibility
- Hardly organize and manage the higher manager to involve the project manager training

EXTERNAL

OPPORTUNITIES

- Prevent project failure due to the detailed mistakes
- Effectively monitor the schedule of project
- Effectively control the utilization of budget
- To control the project details to improve the quality of project
- To avoid problems caused by different cultural background

THREATS

- The technical challenges of communication
- The different levels of communications infrastructure
- The barrier of communication due to the different languages

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