IMPROVING THE QUALITY OF SERVICE

Case company: International SOS Viet Nam

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Dung, Nguyen Hoang Phuong

Lahti University of Applied Sciences
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DUNG, NGUYEN HOANG PHUONG:

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ABSTRACT

Healthcare service is a very promising industry for investors in Viet Nam in recent years due to the potential size of the market yet there are only few players. Although there are many factors that can contribute to the domination of one company, the quality of providing services is still being considered as the primary element in which its characteristic is defined by specific business domain.

The thesis is conducted as a case study of medical assistance company: International SOS Vietnam. Making a contribution to study the quality problem of I-SOS Vietnam, the thesis focuses on the core products of I-SOS namely medical evacuation and repatriation. The purpose is to identify the most common quality problems and their principal causes. Accordingly, valuable recommendations shall be given in order to improve the quality of deliveried service.

The study is performed based on qualitative approach by analyzing historical data and direct observations. The primary data is collected from historical cases in 6 months from January 2008 to June 2008. The secondary data is collected from corporate procedures, books, newspapers and magazines, and internet sources.

The empirical part consists of the description of I-SOS current situation, the application of Pareto analysis and Cause and Effect diagram in analyzing company's data. Eight main defects causing the decline in quality of service are found by using Pareto analysis. Next, the main reasons behind those defects have been traced down by using Fish Bone diagram tool. Those main reasons are later on, grouped into different main categories in order to propose valuable recommendations.

To conclude, implications of the findings and recommendations are given. To improve the quality of service, I-SOS Viet Nam has to emphasize on providing continuous training not only for CSEs, but also for third parties and Marketing employees. Besides, company procedures should be re-edited to be more transparent and appealing. Last but not least, improving the integration with third parties is considered to be the most important factor to improve the quality of service.

Keywords: Quality management, International SOS Viet Nam, medical assistance, tools to improve quality of service, Pareto analysis, Cause and Effect diagram.

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ABBREVIATIONS

AOM	Assistant to Operations Manager
AMC	Account Management Centre
CD	Coordinating doctor
Evac	Evacuation
FTF	Fit to fly
G.M	General Manager
I-SOS	International SOS
MEDA/MEDIF	Medical Application / Medical Information Form
Mrpt	Medical Report
OM	Operations Manager
POA	Plan of Actions
Repat	Repatriation
TMO	Treating Medical Office
ROMIF	Release Of Medical Information Form
CSE	Customer Service Executive

1 INTRODUCTION

1.1 Background

Business firms nowadays are providing significant added values to attract customers in using their services. As they have come to the ultimate understanding that the quality of service is the most critical element to ensure a customer to continue purchasing.

International SOS (I-SOS) is a medical assistance company providing healthcare services to both cooperate and private customers. The term “assistance” has recently arrived in Vietnamese service industries, especially medical assistance. According to George W. Howard, it “has been referred to as a service business that provides help for travellers when they are away from home, especially in a foreign country. It is designed to intervene quickly and be responsive, particularly in emergency medical situation.

One of the core products of assistance service is the medical evacuation and repatriation, where a patient with serious medical condition is transferred from one place to another with better medical care and facilities. Evacuation is defined as transferring a patient to a medical facility in a third country, meanwhile repatriation is defined as transferring a patient back to his/ her home country.

In Vietnam, there aren’t many providers who are affordable to provide medical evacuation and medical repatriation services due to the lack of capital and also because of the limitation in accessing aviation facilities .Yet the number of competitors is dramatically increasing through years, as the insurance industry’s growth has increased up to 11 percent against the same period last year, according to the Ministry of Finance of Vietnam (Viet Nam News, 2009).

Although there are many factors that can contribute to the domination of one firm, the quality of providing services is still being considered as the primary element in which its characteristic is defined by specific business domain.

1.2 The objectives, research questions and limitations of the study

The objective of this study is to focus on the quality of health care services and identify the most common quality problems and their principal causes in International SOS (I-SOS) medical assistance company in Vietnam. Hence, based on those analyzed defects, recommendations shall be given for further improvements.

The research questions are defined as the following:

- What are most common mistakes that cause damages to quality of health care services in Vietnamese International SOS (I-SOS) medical assistance company?
- What are the main reasons that cause those mistakes to happen?

The scope of the study focuses on the core products of assistance service within Operations Department of I-SOS, namely the medical evacuation and repatriation services for cooperative and private customers. There had been several improvements implemented in previous years: such as internal training for employees, investing in modern communicating systems, etc. Yet the problems still exist. The study therefore, after going through the numerical data cases in the first half of year 2008, will give out particular recommendations for better service deliveries for those core products.

Since International SOS is globally active, all their offices have standardized procedures, thus the method of how the problematic areas are found can be applied for any operational departments within the company in order to identify the main defects and solutions for the failure in services delivery process. However, due to the validation of the data, the application of the findings might already be implemented in within the company in 2009. Thus, the study will evaluate the proposed recommendations in comparison with its effects in real life.

Regarding the situation of healthcare services in Vietnam, it is impossible to make either any assumptions or generalizations due to scarce sources of information.

1.3 Research methods

First and foremost, the study is conducted as a case study: "all data relevant to the case will be gathered and intensively analyzed by different methods" (Kumar 2005, 113).

Next, in choosing methodology approaching the research, theoretically, there are two main methods: an inductive approach is applied for "the research which draw general conclusion from empirical observations" (Ghauri & Grohaug, 2002, 13). On the other hand, deductive approach, is applied when "a theory or hypothesis is developed first; the research later is designed to test the hypothesis" (Saunders, Lewis & Thronhill 2003, 85). Or as Eriksson & Kovalainene (2008, 22) discuss in their context that in deductive method, theory is the initial source of knowledge; the study begins with the relevant theories, to empirical analysis. In this study, the deductive method is applied, in which the writer conducts statistical data based on known theories about quality management, thus draw a conclusion.

Afterward, to be able to decide whether study is carried out either by qualitative or quantities methods, the theories should be reviewed. Cooper and Schindler (2008, 162) claim that qualitative research includes "an array of interpretative techniques which seek to describe, decode, translate and otherwise come to terms with the meaning, not the frequency of certain more or less naturally occurring phenomena in the social world". On the other hand, Ghauri and Grohaug (2002, 86) discuss that "in quantities research, findings are arrived at by statistical methods or other procedures of quantification yet the differences between those two methods are mainly based on the emphasis and objectives of the study, not just the question of quantification".

Even though this study will be conducted so that it is based on collected data and numerical figures, it is a qualitative study. As Eriksson & Kovalainene (2008, 5) in Qualitative Methods in Business Research mention that it is a common way to use qualitative methods as providers of better understanding of issues that have remained unclear from quantitative studies.

The research structure (Figure 1) presents all the types of data collected for this study:

- Primary data: Statistical data about historical cases in 6 months from January 2008 to June 2008, personal observation. This type of data serves and will be used practically in the empirical part of the study.
- Secondary data: Corporate procedures, books, newspapers and magazines, company's website and other internet sources. This type of data serves and will be used mainly in the literature review of the study.

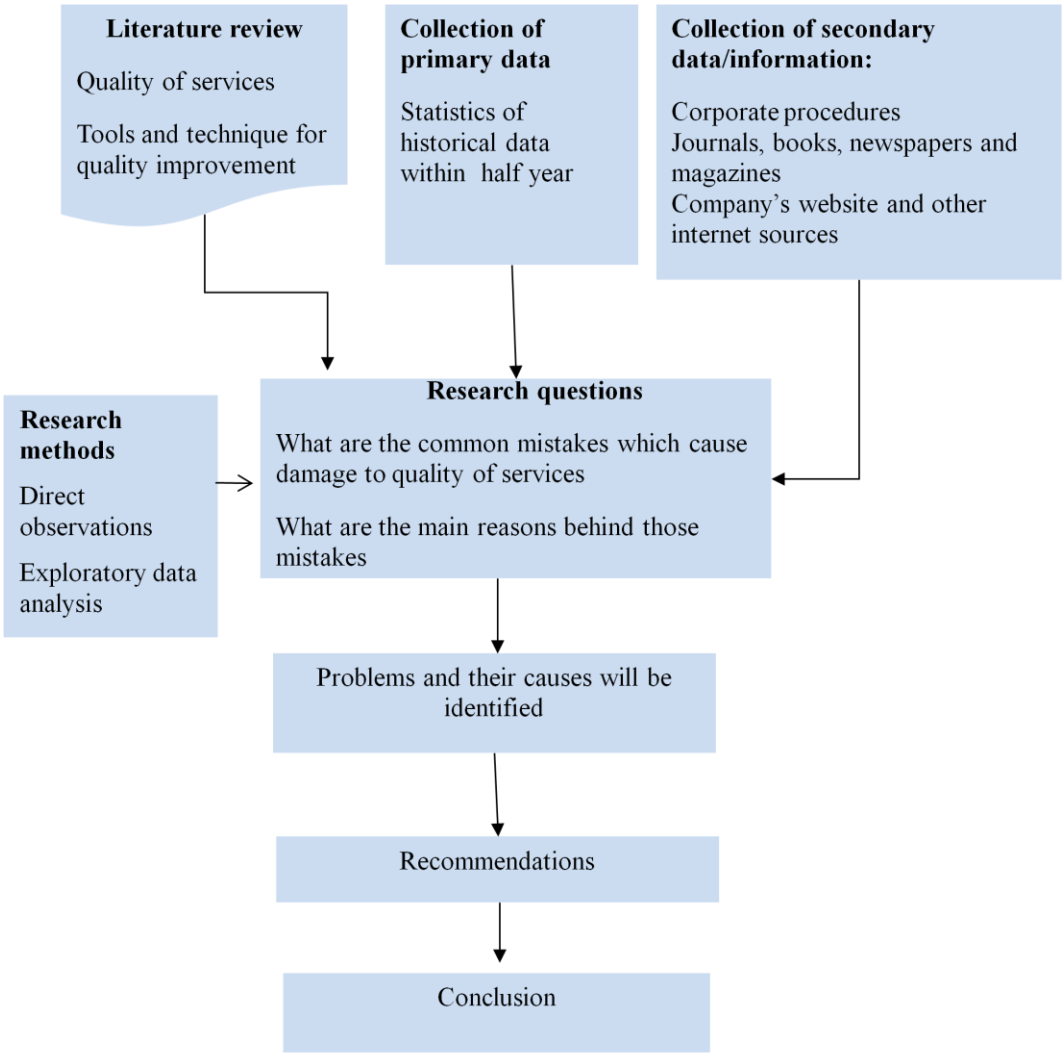

FIGURE 1. Thesis structure and framework

The study will begin with the brief of the present performance and the present quality management in the Operations Department of I-SOS. The procedures of medical evacuation and repatriation will also be explained for better understanding. Then a quality problem analysis will be carried out by going through the historical cases from January 2008 to June 2008 to identify any defects by checking against the company's checklist. The checklist is a specific list that contains 19 critical items for a successful medical evacuation or repatriation (Appendix 1). Any mistakes occurred within a case or any tasks that were never done will be noted down as a defect in the checklist. With the help of Pareto Analyzes, the most common mistakes that form 80 % of all mistakes will be found.

After that the Cause and Effect Diagram will be used to trace the principal causes of the most common mistakes. The most critical problems hence shall be revealed and further recommendation for improvement will be given.

With the help of the chosen research methods: direct observation and exploratory data analysis, a complete picture of I-SOS's current quality performance shall be revealed.

Observation

In Chapter 8 of Business research methods, Cooper and Schindler (2006, 197) also describe two distinctive ranges of observations: Direct and Indirect observation. Direct observation occurs when the observers physically presents at the happening places, events meanwhile indirect observation usually requires the record is done by mechanical, photographic or electronic means.

The study is therefore strongly based on direct observation as the author is acting as a direct observer, interacting with many corresponding aspects of Operations Department's events and behaviours.

Exploratory data analysis

According to Cooper and Schindler (2006, 445) in exploratory data analysis (EDA), the researcher has the flexibility to respond to the patterns revealed in the initial analysis of the data. Meanwhile the confirmatory data analysis is an analytical process which uses classical statistical for significance testing and confidence.

In this study, the flexibility in displaying statistical collected data plays an important attribution; hence the exploratory data analysis is conducted. Numerical data are used with visual displays such as tables, Pareto Diagrams, Cause and Effect Diagrams.

1.4 Thesis structure

The study begins with a look at the definition of quality in service delivery under different lights with different theories. The study will go through three different definitions of the dimensions in the model of service quality. As for Parasuraman, Zeithaml & Berry (1985, 12) there are five factors of customer perceptions of service quality: Tangibility, Reliability, Responsiveness, Assurance, and Empathy. Onthe other hand, Grönroos (2001, 81) derives six factors for experienced service quality also based on the idea of Parasuraman, Zeithaml & Berry: Professionalism and Skills, Attitudes and Behaviours, Accessibility and Trustworthiness, Recovery, Reputation and Credibility. Furthermore, Gummesson (1992, 178) develops a theory in which focuses more on the Tangible aspects of service rather than other factors.

The theoretical framework shall continue to explore various tools and techniques have been advised in the use of controlling service quality. Hill (2000) also lists in his Operations Management book twelve tools and techniques for checking the quality conformance in the operations process. Meanwhile Oakland (1993, 215) has described, “A set of methods the Japanese quality guru Ishikawa has called the seven basic tools”. Yet due to particular purposes of this study, only two of the models: Pareto and Cause and Effect Diagram will be chosen.

Next, approaching the empirical part, the case study of International SOS will be analyzed. As its product is unique, the researcher to some extent simplifies the company's procedure and explains as clear as possible. Within this chapter, the researcher also describes the data screening process in order to conduct such result. Finally, the conclusion of the findings from all afore discussed issues and a summary will be given.

2 QUALITY OF SERVICE

2.1 Definition of quality of service

For a business that delivers service as its final product, the quality of the service is even more vital than just an added value as in manufacturing industries. It is considered to be the ultimate product itself.

There is a wide range of various definitions about quality of services. Also, the definition often leads to fairly vague and meaningless apprehensions, thus it is very difficult to concretize. Each company seems to have defined their own concepts about quality of services and customers who perceive the quality of services differently and subjectively. For example, in Quality of service (Edvardsson, Thomasson & Ovretveit, 1994, 80), the authors mentioned that different service companies had different slogans describing their services:

Federal Express (Fedex): "*The presence of value defined by customers*"
AT&T: "*Meeting or exceeding competitor's quality*"

For Fedex, quality is defined by meeting with the customer's needs and satisfactions meanwhile for AT&T is about being better than what the competitors offering. Both of the slogans appear to be very appeal to customers; they are the guidelines for how customers should be treated.

Dale (2000, 184) also mentioned that the definition of quality of service is relatively various yet the essential is to meet customer needs, and how well the service level delivered matches customer's expectation. In general, quality of service shall contain two main components: customer's expectation and service perceived.

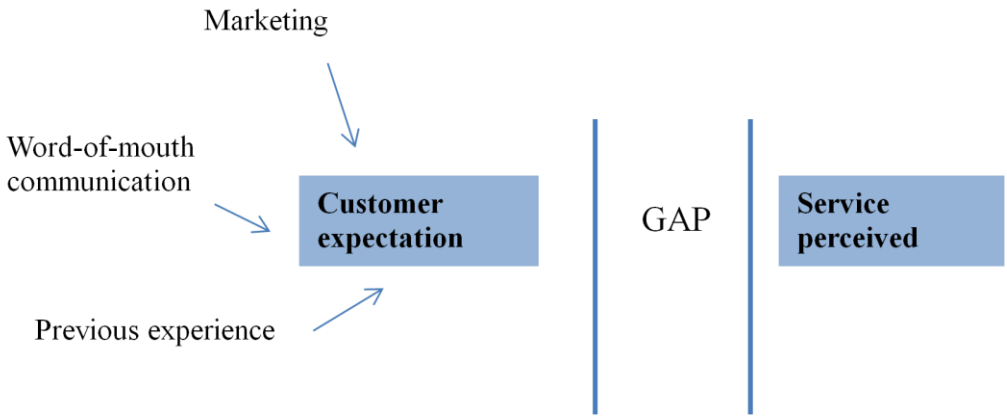

FIGURE 2. Customer expectation and service perceived

As the idea of Dale is presented in figure 2 for easier understanding, he implied that customer's expectation is built from the previous experience with the company, its marketing image, and word-of-mouth communication. Meanwhile the service perceived is the real delivered service. Because customers' expectation consists all the subjective elements such as marketing make-up image and personal experience hence there will be gaps between the consumers 'expectation and the actual performance. The Gap can enlarge from both sides: either the customer has too high expectation or the firm misunderstands the customer's expectation. Edvardsson, Thomasson & Ovretveit (1994, 89) also stress that the customer's expectation of quality is strongly affected by the company's image. A false message embedded in marketing campaign may leads to such misunderstanding.

Sharing the same point of view that the definition of service comprises two elements, yet Kano et al. (1984, 40) present their understanding in a different way. They propose that quality has two dimensions: "must be quality" and "attractive quality". Basically "must be quality" is the expected quality that customer wants to have. And "attractive quality" is the extra added value that goes beyond customer expectation.

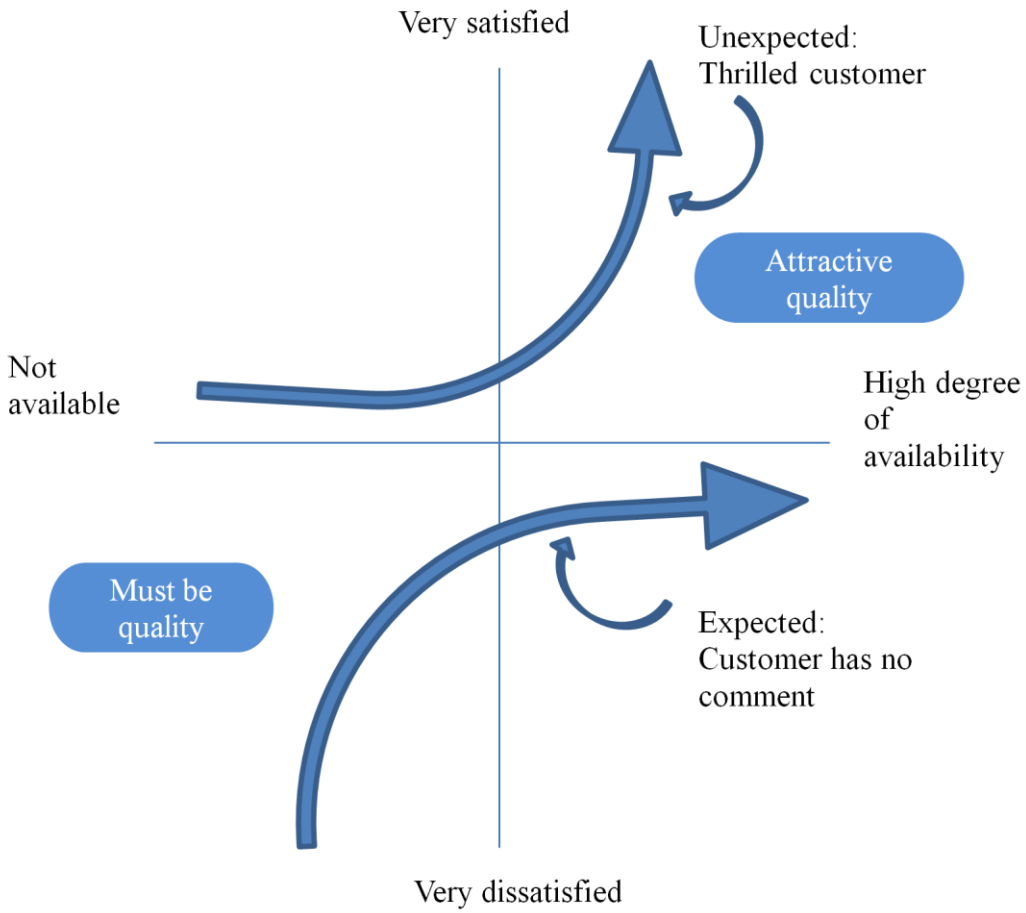

FIGURE 3. Two dimensions of quality (Sarv Singh Soin, 1999, 6)

As illustrate in figure 3, if there is no extra added value, if the service provided is just about the "must be quality" then customer has no comments. It's only a minimum acceptable standard. The level of satisfaction is just about average. On the other hand, if there are extra features for example courtesy call, coupon, etc., customer will be thrilled. The level of satisfaction will rise and it means repeat of purchase.

Nevertheless, the study tries not to debate which is the best definition yet tries to give a deeper understanding about quality of service in which customer wants to perceive. As a result, better improvements in quality can be approached from the firm.

2.2 Dimensions of quality of service

In this chapter, the researcher will go through three different definitions of the dimension in the model of service quality. Those dimensions are very important in evaluating service quality (Schneider & White, 2004, 31). According to Parasuraman, Zeithaml & Berry (1985, 12) there are five factors concerning customer perceptions of service quality: Tangibility, Reliability, Responsiveness, Assurance, and Empathy. On the other hand, Grönroos (2001, 81) derives six factors for experienced service quality also based on the idea of Parasuraman, Zeithaml & Berry: Professionalism and Skills, Attitudes and Behaviours, Accessibility and Trustworthiness, Recovery, Reputation and Credibility. Furthermore, Gummesson (1992, 178) develops a theory in which focuses more on the Tangible aspects of service rather than other factors.

The following paragraphs will study deeper in each model in order to offer a conceptual framework for understanding the features of a service including its outcome, process, and image dimensions.

2.2.1 Parasuraman, Zeithaml & Berry's Dimensions

Among existing service quality models, the best well-known model is SERVQUAL which is developed by Parasuraman, Zeithaml & Berry (1985, 12). It is a qualitative survey designed to collect quantitative data on initial 10 categories about how the customers perceived the services: (1) reliability; (2) responsiveness; (3) competence; (4) access; (5) courtesy; (6) communication; (7) credibility; (8) security; (9) understanding/ knowing; and (10) tangibles.

In 1988, they refined SERVQUAL dimensions into five main factors as follows: tangibility, reliability, responsiveness, assurance, and empathy. SERVQUAL, as an instrument, has been widely recognized and tests in various service industries for measuring service quality. And it has been used as basic elements for many further researches (Schneider & White, 2004, 56).

TABLE 1. SERVQUALs' dimensions (Schneider & White, 2004, 32).

Dimension	Definition
Reliability	Delivering the promised performance dependably and accurately
Tangibles	Appearance of the organization's facilities, employees, equipment, and communication materials
Responsiveness	Willingness of the organization to provide prompt service and help customers
Assurance (Combination of items designed originally to assess Competence, Courtesy, Credibility and Security)	Ability of the organization's employees to inspire trust and confidence in the organization through their knowledge and courtesy
Empathy (combination of items designed originally to assess Access, Communication, and Understanding the Customer)	Personalized attention to give to a customer

In this survey, the author has indicated that Reliability to be the primary influence for the service outcome and is recognized as the most critical service quality among the five service dimensions. Yet this model has indeed raised many criticisms despite of its wide application. As Jui-Chi Chang (2008, 168) discusses within his research, different business fields might find different dimensions to be more or less important due to the characteristic of provided services. For example, Bojanic and Rosen (1994, 5) indicate that Assurance dimension can be specifically important for insurance companies, banking industry, in which customers

have to gain trust with the firms. On the other hand, in funeral business, Empathy would consider to be more important as in dealing with the lost of the client's family members.

Also, in Service Quality: Research Perspective (Schneider & White, 2004, 56), the authors also discuss that whatever dimensions are used should be modified to reflect the specific organization or industry being study. For example, if the organization being studied is a mail-order company or call centre, the appearance of the employees should be excluding.

Nevertheless, for healthcare service sector which requires numerous rendered services from its sub-service providers: such as airliners, hospitals, medical facilities, ground transfers, etc., five dimensions of SERVQUAL model seem restricting. Specifically, in consideration of communicating effectively with local service providers, the managers have to take into account the culture differences aspect.

In summary, SERVQUAL model does not accurate for the entire situation without applicable adjustments. Based on that idea, the researcher will exam Grönroos's dimensions context in order to find an appropriate definition for healthcare service.

2.2.2 Grönroos's Dimensions

Grönroos (2001, 80) explains that SERVQUAL's instruments are only basic elements that help managers to acknowledge how customers would expect the quality of services from the service they had consumed. Hence, Grönroos has derived six criteria for quality of service which stress on the functional quality issues rather than the technical issues (Schneider & White, 2004, 33). Grönroos also advises in his work that his model is more useful for managerial purposes (2001, 80) that can be viewed in table 2.

TABLE 2. Grönrooss' dimensions (Schneider & White, 2004, 34)

Dimension	Definition
Professionalism and Skills	Do the employees, physical resources, and operational systems of the organization have the knowledge and skills to solve customers' problems in a professional way?
Attitudes and Behaviours	Do the service employees (contact persons) show concern for customers and interest in solving their problems in a friendly and spontaneous way?
Accessibility and Flexibility	Is the service provider (e.g., its location, operating hours, employees, operational systems) designed so that customers can access the service easily and so that the provider can adjust to the demands and wishes of a customer in a flexible way?
Reliability and Trustworthiness	Do the customers know that they can rely on the service provider, its' employees, and its' systems to keep promises and perform with the best interest of the customer at heart?
Recovery	Do the customers realize that whenever something goes wrong or something unpredictable happens, the service provider will immediately take steps to keep the customer in control and to find an acceptable new solution?
Reputation and Credibility	Do the customers believe that the operations of the service provider can be trusted and give adequate value for the money, and that it stands for good performance and values which can be shared by customers and the service provider?

Examining in detail, a number of similarities can be found between Grönroos's dimensions and SERVQUAL's dimension can be located in table 2. They both

have the dimension of Reliability in which the firms have to build trust in customers. Moreover, the idea in Reputation/Credibility and Professionalism/Skills dimension of Grönroos can be found in SERVQUAL's Assurance dimension, in which the ability of the firm in delivering qualified service is emphasized (Schneider & White, 2004, 34).

However, Grönroos pays more attention on the Accessibility and Flexibility of service in which highlight the conditions of service provider such as its location, its operating hours, employees and operational systems. They should be well designed so that customers can have easy and convenient access. This dimension is profoundly applicable for Healthcare service, which depends heavily on its sub providers. The quality of sub service provider plays significant role in the success of the company as well as the build-up image.

In addition, Grönroos adds a new separate dimension Recovery. As Bitner, Booms, & Tetreautlt (1990, 73) prove that when the customers felt the organization managed to recover well, customers remembered the failed service favourably. Alternatively, an exclusive compensation would make customer forget about the previous mistakes. For example in Healthcare service, the defect in delaying flying time or providing written medical report can be recovered by follow-up courtesy calls or visiting flower.

2.2.3 Gummesson's Dimensions

While Grönroos emphasies more important on Recovery dimension, Gummesson in the other hand considers Tangible aspect of service is more critical. It can be seen in the table below, Gummesson (1992) presents the idea that perceived service can be evaluated in terms of three elements: the Service Elements, the Tangible Element, and the Software Element.

TABLE 3. Gummessons' dimensions (Schneider & White, 2004, 37)

Dimensions of Customer-Perceived Quality of Total Offering		
For Service Elements		
Reliability		
Responsiveness		
Assurance		
Empathy		
For Tangible Elements		
Goods Perspective	Psychological perspective	Environmental Perspective
Reliability (probability of malfunctioning)	Visibility (seeing all important aspects of a product properly)	Ambient factors (background features customers may or may not be aware of)
Performance (primary characteristics of core product)	Mapping (relation between a control and the reaction of control)	Functionality (factors contributing to use of product)
Features (extras)	Affordance (the purposes the product allows)	Aesthetics (factors contributing to appearance of product)
Conformance (match between specifications and performance)	Constraints (factors limiting what can be done with a product)	Service personnel (e.g., the number, appearance, behavior of people)
Serviceability (easy of repair and maintenance)	Customer control (control over product's functioning)	Other customers
Aesthetics (refers to exterior design, task, smell, touch, etc)	Knowledge needed (information necessary to use product)	Other people
	Feedback (confirmation of results of actions	
For Software Elements		
Reliability (ability to function correctly under different circumstances)		
Extendibility (ability of software to adapt to new specifications)		
Integrity (ability to protect against unauthorized access)		
User friendliness (ease of learning to operate software)		

Apparently, Table 3 shows more focus on the technical issues involved in service than did Grönroos or SERVQUAL. The author later took an example how important it is for tangible and technical aspects in his book Quality Dimension. He presented an example that the quality of an airline is relied on the integration of employees with passengers (service), the physical aircraft (tangibles), and the computer that control and assist in the delivery of service (software).

For the Service Elements, Gummesson mainly agrees with SERVQUALs' dimensions as in Reliability, Responsiveness, Assurance, and Empathy. Tangible, however, is broke down as a separate element in order to underline its value. It is divided into three perspectives:

- Goods perspective: concerns with the manufacturing progress of service.
- Psychological perspective: concerns with how the service interacts with customers in everyday life.
- Environmental Perspective: concerns with the impact of the larger physical environment of the service experience on the evaluation of it (Schneider & White, 2004, 36).

Through the author's research, he has indicated that Tangible aspect had been underrated in SERVQUAL model. Relatively in Healthcare service sector, tangible element does play an important role as customers are likely to spend most of their time in hospitals, airplanes and ambulances. In the same manner, Schneider & White (2004, 36) find that the tangible elements of service did play a substantial role in affecting customer attitudes and behaviours. For example, if the patient is transferred in the fastest airlines, treated in a high class room with personal nursery care, patient will be more satisfied with the delivered service. In another word, in this case, the tangible elements define the major in quality of service.

Finally, Gummesson introduces the new concepts by adding separate software element to service delivery as nowadays, due to the rapid growth of technology,

many transactions and interactions implemented through computer system. For example, customer can order services directly through telephone or email, making reservation through company's website, etc.

2.3 The effect of poor quality

Poor quality does not only cause external damages to the company, but also cause significant internal damages to the company itself. As it is illustrated in the figure 4 below, poor quality can create domino effects within one company.

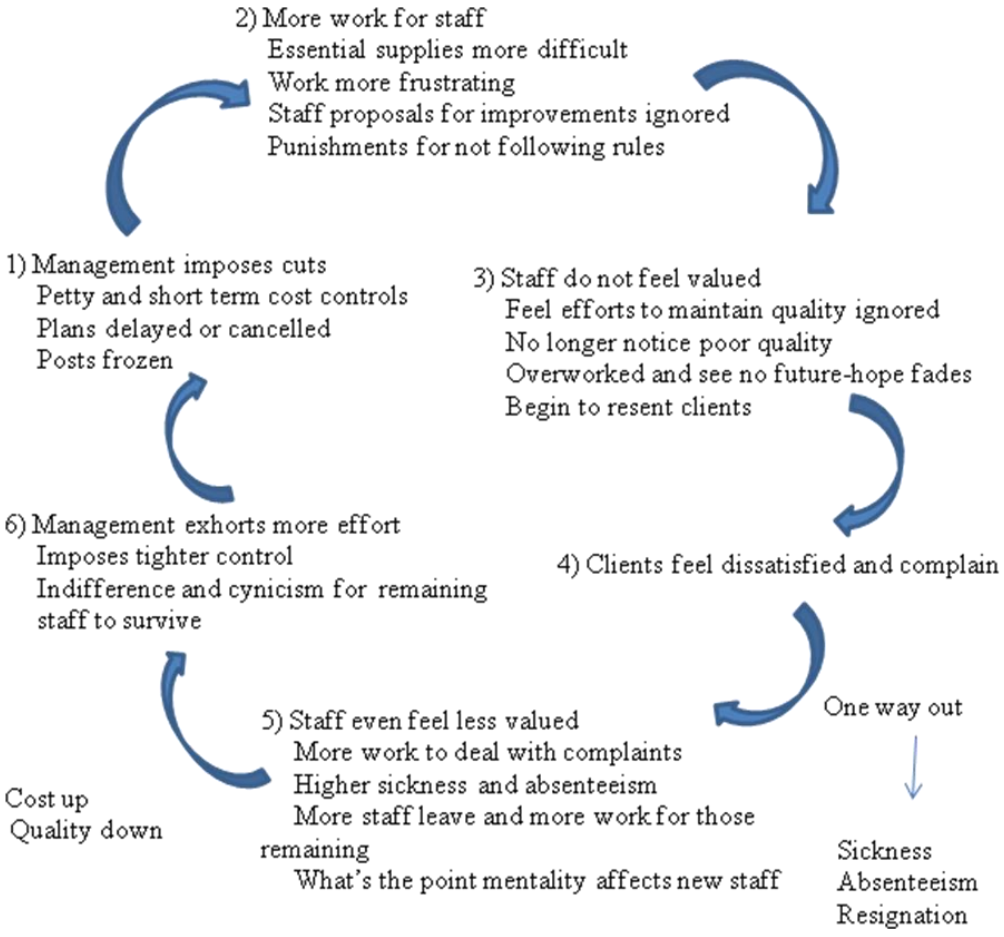

FIGURE 4. The effects of poor quality (Ovretveit, 1992, 94)

The Figure 4 above is first developed by Ovretveit (1992, 94) from his research about quality in the British National Health Service. As the selected case company is working in Healthcare service, the effect of the model can be applied. It is a continuous chain of reaction: when the quality of the service starts going down, the manager will eventually cut down costs and the employees will have to work extra hours, many reassessments will be implemented. Consequently, the staff will feel being exploited and less motivated to work which would make the quality of healthcare goes poorer. In the model, Ovretveit also found out that the only way to step out of this circle is for the employees to resign from work or being absent continuously. The employee turnover of a company depends on the quality of service as well.

The circle then continues as staff has resigned would put more stress on the manager. Apparently, they have to quickly spend time and money to hire and train new staff to cover the missing. While the remaining staff feel burden with heavy workload left from absent colleagues. In the end, the attempt to cut down cost from the beginning has caused the company to actual spend more to maintain the quality of its service.

As Joseph mentions that poor quality also results in costing more money for company in a whole. He discusses that there are three types of costs: Internal Failure costs, External failure costs and Prevention costs (Juran et al, 1951). Prevention costs, more or less are associated with maintaining the function of total quality management system (Oakland, 1993, 187). Internal Failure costs are costs which occur before the failed, designed service reaches customers. External Failure costs are costs which occur after the failed, designed service reaches customers. Furthurmore, Feigenbaum (1986) agrees that there are three types of quality cost, yet he groups Internal and External failure costs into Failure costs. Additionally, he adds in Appraisal costs. Appraisal costs are associated with maintaining the quality of service reach the expectation of customer’s and supplier’s expectation (Soin, 1999, 116)

3 TOOLS AND TECHNIQUES TO IMPROVE QUALITY OF SERIVCE

As discussed previously, the poor quality can cause damages to the entire performance of the company. It is a never ending quest for improvement in the way services are delivered. Hence, a thorough data analysis or a basic understanding of numbers and information is important in order to take any critical decisions or actions. In order to support the managers in collecting, presenting, and analyzing the data recorded for improving the quality of services, a set of methods of tools shall be explored.

Process flow charting -what is done?
Check sheet - how often does it occur?
Histograms - what does the variation look like?
Scatter diagrams - what are the relationships between factors?
Pareto analysis - which are the big problems?
Cause and effect analysis - what causes the problem? (Oakland, 1993, 215)

Those six tools discussed above are representing only basic quality tools. Different authors would include other such as Run charts, Control charts and Stratification. Some even consider Just-In-Time, Statistical process control and Quality function as special tools (Goetsch & Stanley, 2006, 484). Each of these tools is some form of chart for the collection and displaying of specific kinds of data. They help the readers in comprehending the message through organized data.

Moreover, with such wide range of numerous tools and techniques, a selection should be put into use. There are two factors which any organization should be aware of:

- The application of any tool or technique should share the same purpose of the company's long-term plan and the company's strategy as well as its value.
- No particular tools or technique is more effective than the others. They all contribute their part in the improvement process. Therefore, underestima-

> tion of a single tool or technique is a mistake which company should avoid (Dale, 2000, 281).

Also in the same context, Dale suggests several questions that a firm should ask itself when selecting appropriate tools such as “What is the fundamental purpose of the technique?”, “The timeline of the technique?”, “What are the resources, skills, information training required to introduce the technique successfully?” A research carried out by the author conducting four critical factors relating to the successful use and application of tools and technique:
(1) Data collection
(2) Use and application
(3) Role in improvement
(4) Organization and infrastructure (Dale, 2000, 281).

In the limited context of this study, the researcher will only conduct careful exams on two main models: Pareto analysis and Cause and effect analysis as they will be used as effective instrument in later practical findings. The rest of the methods will be presented with brief explanations.

3.1 Process flow chart

Process flow chart is an essential tool to illustrate the complete series of events and activities, stages and decisions of a process (Oakland, 1993, 73). This tool should be used before the application of quality management tools and techniques such as SPC (Statistic Process Control), FMEA (Failure Mode and Effects Analysis) and quality costing (Dale, 2000, 285)

The application of a flow chart is fairly considerable. Traditionally, process charts were used to define activities such as operation, inspection, delay or temporary shortage, permanent transportation. But nowadays, the process has been mapped out with key inputs, value adding steps and output (Dale, 2000, 287). Certain symbols such as circles, triangles, squares, and arrows are utilized to draw a process chart.

This is a considerably useful tool to uncover irregularities and potential problems. An example of a flow chart can be found in figure 11– medical evacuation process.

3.2 Check sheet

Check sheets are relatively simple form used to collect data. They include a list of non-conforming items in order to record the occurrences (Dale, 2000, 292). They are very useful as a data collection device and determining the first problem. An example of Check Sheets can be found in Appendix 1. Referring to the case study, the researcher used the company's Check list as a fundamental tool in order to conduct Pareto analysis.

3.3 Histogram

Histograms are figurative illustrations showing the frequency of data analyzed. They are commonly used with variable data to establish the pattern of variation (Dale, 2000, 293). The histogram displays the distribution of data and, in this way, reveals the amount of variation within a process.

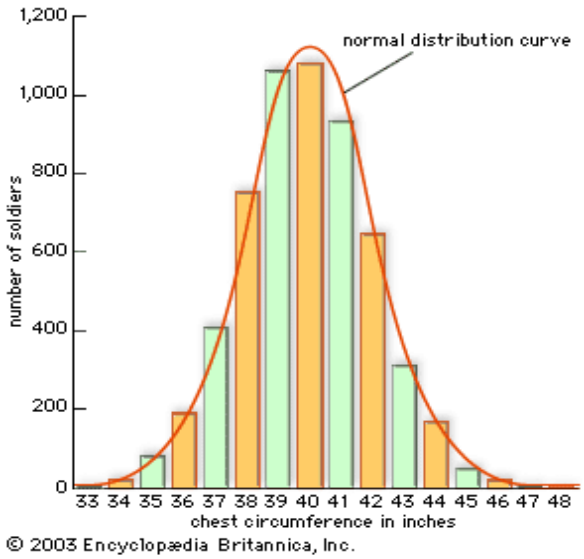

FIGURE 5. Example of Histogram (Britannica, 2003)

This is just an illustration of how a histogram appears. As it can be seen, the histogram is efficient in showing the distribution of the chest measurements in inches amongst inspected Scottish soldiers. The majority of them has quite average chest wide from 39 inches to 40 inches.

3.4 Scatter diagram

Scatter diagrams are used to analyze the possible relationship between two variables. One parameter may contain immeasurable characteristics such as temperature, pressure, screw speed and the other contains measurable characteristics such as length, weight and thickness. When there is change in one parameter, the change in another variable will be noted until a pattern is recorded .In another word, scatter diagram show a linear pattern (Dale, 2000, 301).

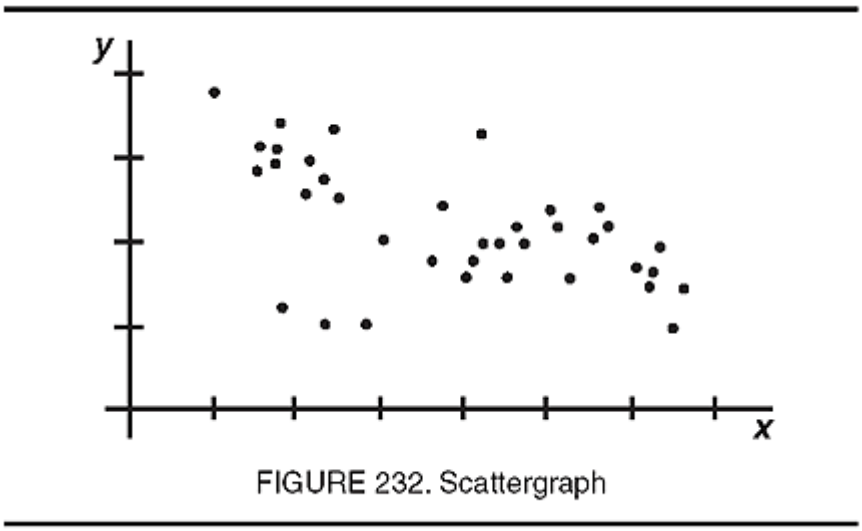

FIGURE 6. Example of Scatter diagram (Allbusniess, 2006)

Figure 6 is an example of Scatter diagram. It shows how the X values upheaval once the values in Y change. The pattern therefore can be studied.

3.5 Pareto analysis

A Pareto analysis is a quality control tool that ranks the data classifications in the descending order from the highest frequency of occurrences to the lowest frequency of occurrences. The total frequency is equated to 100 percent (Karuppusami & Gandhinathan, 2006, 376). Juran (1986) applies the principle 80:20 to analyze the displayed data: 80% of problems are caused by 20% of the possible causes. But the number 80 and 20 are not meant to be absolute. The attention should be paid more on those "vital few" problems in the 20% category to make the most profound improvements. (Karuppusami & Gandhinathan, 2006, 377)

It is fairly useful tool in managing a large volume of data, and helping to determine which problems to solve and in what order. Dale (2000, 297) describes the basic steps in constructing a Pareto Diagram:

- Step 1: Agee on the problem to be analyzed and the time period over which data is to be collected
- Step 2: Identify the main causes or categories of the problem.
- Step 3: Collect the data using
- Step 4: Tabulate the frequency of each categories and list in descending order of frequency.
- Step 5: Arrange the data as a bar chart and construct the Pareto diagram with the columns arranged in order of descending frequency.
- Step 6: Determine cumulative totals and percentages, and construct the cumulative percentage curve upon the bar chart.

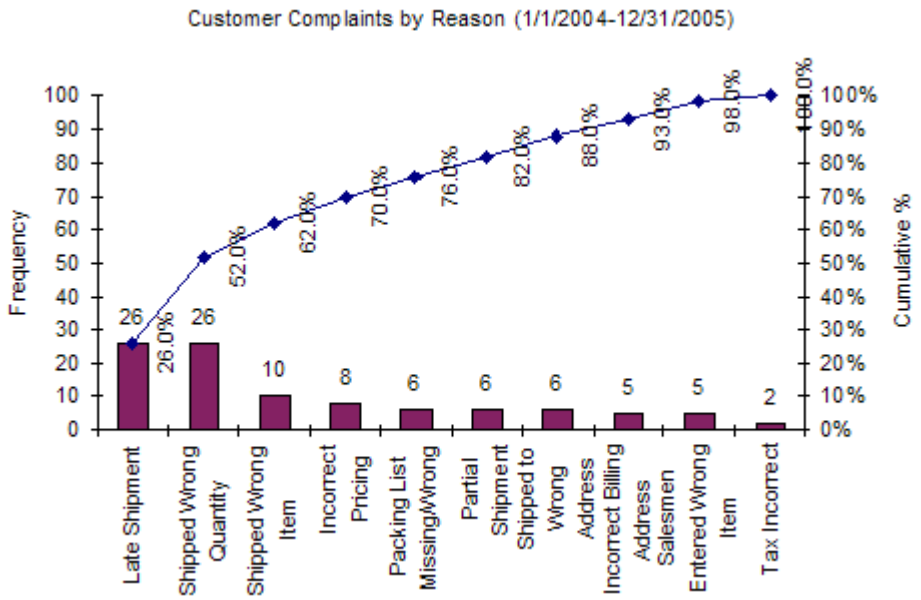

FIGURE 7. Example of Pareto diagram (BPI Consulting, 2006)

Figure 7 is an example how a Pareto diagram works. It is conducted through a survey in order to find out what are the most common mistakes that make the customer dissatisfied. It can be seen in the illustration that the most complaints are from late shipment and shipped wrong quantity, which both account for 26 votes. Come thirdly is the shipped wrong item which account for 10 votes. This diagram helps to allocate precisely the most common mistakes.

3.6 Cause and Effect diagram (CED)

Brassard & Ritter (1994) assert that the CED "enables a team to focus on the content of the problem, not on the history of the problem or differing personal interests of team members" while Wilson, Dell & Anderson (1993) call it a "highly visual technique which aids the process of defining the elements of a problem or event and determining how it probably occurred". This tool is often used after Pareto diagram to trace the principal cause of defects. All the causes in the cause-and-effect diagram can be derived through a brainstorming session. Possible and impossible causes should be listed (Soin, 1999, 127). The four main "bones" of the diagram are set in advance and can be classified into different groups:

- 4Ms: Man, Machines, Materials, Methods
- 4Ps: People, Policies, Places, Procedures
- 4Ss: Skills, Suppliers, Systems, Surroundings (Galloway et al, 2000, 351)

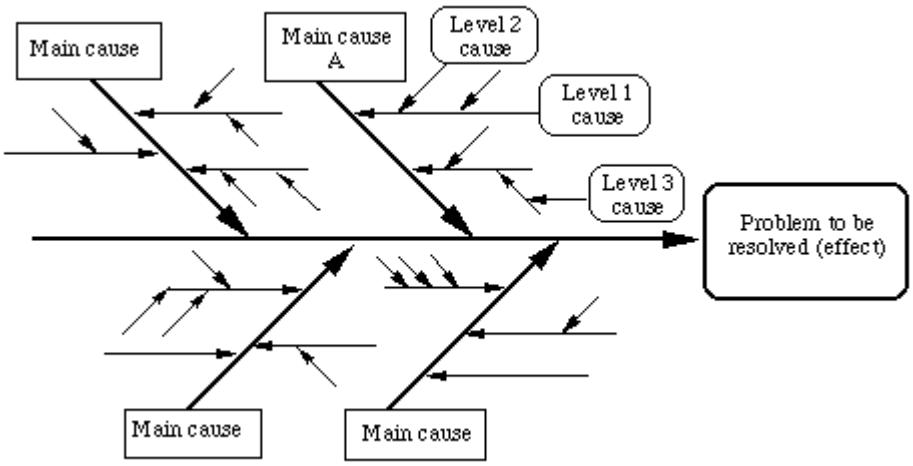

FIGURE 8. Example of Cause and Effect diagram (Huw Richards, 2006)

Figure 8 shows a basic Cause and Effect diagram. The cause-and-effect diagram is a method for analysing process dispersion and it helps organise and relate factors, through team brainstorming progress. (Huw, 2006). Nevertheless, this tool can be rather subjective and complex.

Ishikawa (1982) outlines the following steps for constructing a Cause-Effect diagram

- Step 1: Decide on the problem to improve or control
- Step 2: Write the problem on the right side and draw an arrow from the left to the right side.
- Step 3: Write the main factors that may be causing the problem, by drawing major branch arrows to the main arrow. Primary causal factors of the problem can be grouped into items with each forming a major branch.
- Step 4: For each major branch, detailed casual factors are written as twigs, still more detailed casual factors are written to make smaller twigs.

- Step 5: Ensure all the items that may be causing the problem are included in the diagram (Doggett, 2005, 35)

However, as through the conducting process has shown, the disadvantage of this model is that it depends heavily on detailed knowledge of the problem and only the possible causes are identified. Yet, considering the case study, the Cause and Effect diagram is still a suitable tool to implement because there has never been any action to trace down the detailed of defect.

4 CASE STUDY

4.1 Company overview

Headquartered located in Singapore, International SOS is independent company providing services to a wide range of organizations and individual members. I-SOS provides its service to more than 7,300 clients via alarm centres, medical clinics, regional offices and remote sites in 65 countries (International SOS, 2009a).

The core value of the company is to deliver the highest level of service and customer care to its clients across the world. *Worldwide reach, Human touch* is an expression of this philosophy. It is also known as the company's slogan. As such emphasis on the promising quality of service, I-SOS always has to strike for the best quality in delivered services.

The concept of providing high quality medical care and consulting services to multi-national companies operating in Asia Pacific met highly strong demand. Starting with just 15 staffs, AEA International grew rapidly from its base in Singapore and Indonesia into a pan-Asian corporation, creating operating companies in Hong Kong, Australia, Japan and mainland China. By 1995, the company was presented in every country of the Asia Pacific region. In 1998 AEA International was renamed as International SOS (International SOS, 2009a).

I-SOS has employed over 6,000 people across the world, in which 33% of them are medical professionals: doctors, dentists, nurses, medics, pharmacists and aero medical specialists (International SOSb, 2009).

International SOS currently develops strategic partnerships with other providers of products and services related to the health and safety of travelers. The company has entered into a partnership with Abermed, the UK-based provider of occupational health and remote medical services to the energy sector in November 2009 (People in health, 2009). In July 2008, Control Risks and International SOS have

announced the formation of a strategic alliance (Control risk, 2008).Control risk is the world's leading security risk management firm.

4.1.1 International SOS Viet Nam

In 1985, AEA International was founded in Vietnam. International SOS now provides medical services to over 1,000 companies, representative offices, diplomatic offices and international organizations in Vietnam (International SOS, 2009c) .The company has been operating for more than 29 years with three main clinics located in Ha Noi, Ho Chi Minh City and Vung Tau. Those locations are chosen due to the accessibility of the transportation and the capacity of general hospitals.

According to Mr Trieu, Ministry of Health, International SOS, whose clients are mainly foreign expatriates, has helped set tourists and investors' mind at rest, and stabilise the investment environment in Vietnam (VOVNEWS, 2009). The firm has also contributed to the socio-economic and healthcare development in Vietnam.

In order to comprehend the activities within the company, an organization chart shall be drawn as below:

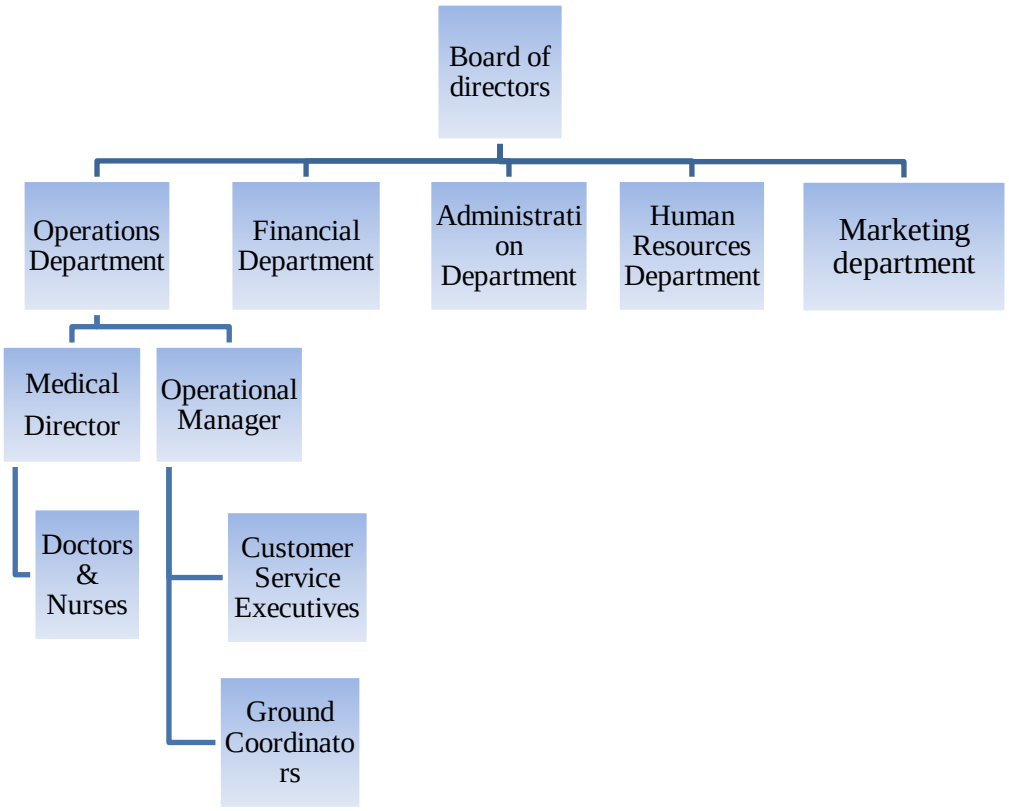

FIGURE 9. Organizations' chart

The department, which carries out the transportation activities, is called Operations Department. The Operations Department contains two units: medical team and operational team. Operations Department is not only as a call centre but also a central point coordinating all the activities to make sure a transfer progresses smoothly and accurately

4.2 Medical evacuation and repatriation

Medical Evacuation and Medical Repatriation are considered the core services provided by International SOS due to the significant profit they bring to the company. Basically, the idea is to transfer the patient from one destination to another destination. The main difference between medical evacuation and repatriation is

the patient's final destination. Evacuation is defined as transferring patient to a medical facility in a third country meanwhile Repatriation is defined as transferring patient back to his/ her home country.

As the service of evacuation and repatriation is not popular to most people, the researcher would like to illustrate as much in details how this special service is provided and list those parties that play a part in the service providing process in Figure 10.

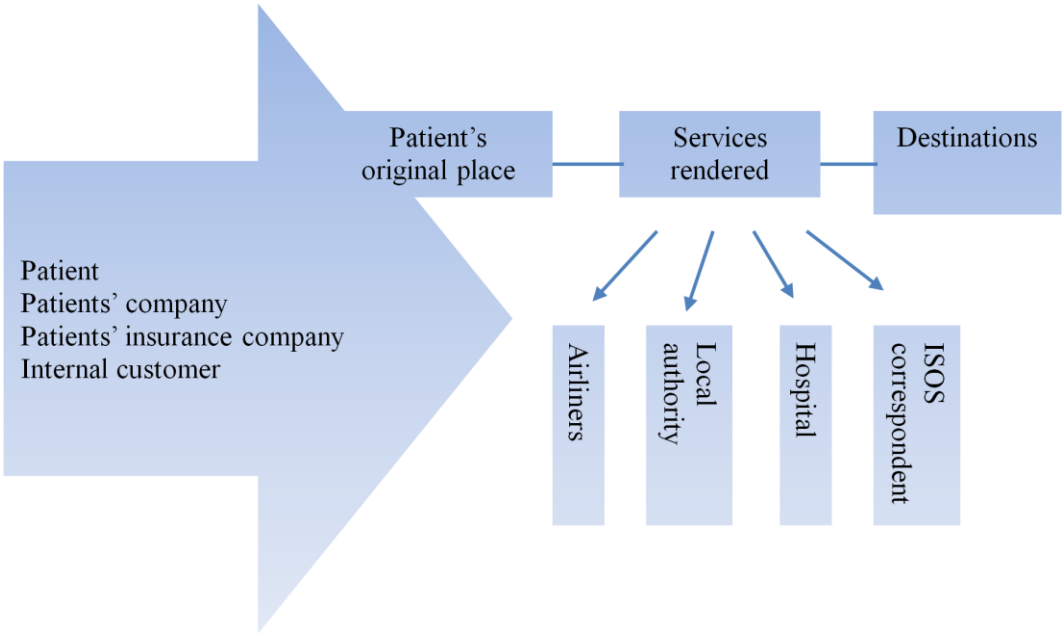

FIGURE 10. Patient's transfer flow chart

A patient will be transferred directly from one hospital to another or there will be several halts in between before the patient can reach the final destinations. Halting might occurs due to the distance of the transportation, the health condition of the patient, etc, yet there is not a necessary for all the third parties which shown in the graph above to participate into every transfer. For instance, a transfer by airplane for patient from Ho Chi Minh City to Singapore is a 2 hours non-stop flight while a transfer from Ho Chi Minh City to Seoul by Vietnam Airlines has a transit around 3 hours in Taiwan.

Service providers:

- Airlines, ticket agents: which ISOS has special contract with in booking and buying tickets. They are able to organize stretcher, cabin wheelchair or oxygen when special pre-arrangement is required. From ISOS side, the company has to fill in and submit to the airliner a medical application called MEDA or MEDIF (a Medical application form), in which the patient's health condition is provided by the treating doctor. The patient cannot be on board if the submitted MEDA/MEDIF is disapproved. There are also other aviation companies which have their own aircraft or helicopter such as VASCO (Vietnam Air Service Company). I-SOS hires this range of service provider only when patient carries infectious sickness or who cannot wait for commercial flight. And of course, the cost to employ this service usually double or triple the price provided by commercial airliners.

- Local hospitals and healthcare centres are one of the rendered services. These facilities can provide intermediate and instant medical treatment pending the evacuation/repatriation or provide ambulances, doctors, nurses to take the patient to the hand-over point with ISOS's team.

- Local authorities are listed as custom clearance offices and ground aviation centres. Transferring a person from one country to another country will require the approval from immigrant authorities. Moreover, private aircrafts will need landing permission in order to land and fetch a patient from international aviation centres.

- I-SOS's correspondents are representatives for I-SOS in cities where the company is not present. The correspondents will carry out all the actions assigned by Operations Department.

All the above services are under control and complete influences of the wide range of clients and customers. The clients and customers are divided into two groups as external customers and internal customers:

- External customers include patients, corporate clients (or patients' company), and enhancement clients (patients' insurance or other assistant companies).

- Internal customers include colleagues from different departments within the company such as Accounting department, Clinic Department, etc.

Clients and customers:

- Individual or private clients: patient, patient's family and relatives who are often in frustrating and nervous condition. They are often appear in the weak mentality hence can cause delays and damages to the service provided. For example, when a patient is not fully conscious requesting for an emergency ambulance or a house-call doctor, it will take double time to locate the patient's destination, which migh significantly bring the patient's health worst. Also an inconsistent patient will easily create double works for I-SOS employees (International SOS, 2005, 18).

- Corporate Clients: Patients' companies who bear the cost of transfer medical treatment for the patients in many cases. Their decision is also another critical factor that has great affect on the speed of service delivery (International SOS, 2005, 19).

- Enhancement Clients: Insurance companies and other assistance companies who play the role as paymasters for most of the evacuations and repatriations (International SOS, 2005, 20).

- Internal customers: for an evacuation or repatriation to be successful, it requires the synchronized contribution of other departments within the company. For example, the accounting department has to be able to provide

adequate fund at the right time, the clinic has to be able to provide escort doctors and nurses for the transfer.

4.3 Problem identification

As the service of medical evacuations and repatriations are provided for patients with emergency situation, any failures or delays during the transportation do not only cause damages to the company's image but also threaten the life of patients. To ensure that the services are provided meet with the standard, International SOS has set up several operations procedures showing how to handle a new request for an evacuation / repatriation

- Standard procedure specifying steps guiding how to handle evacuation

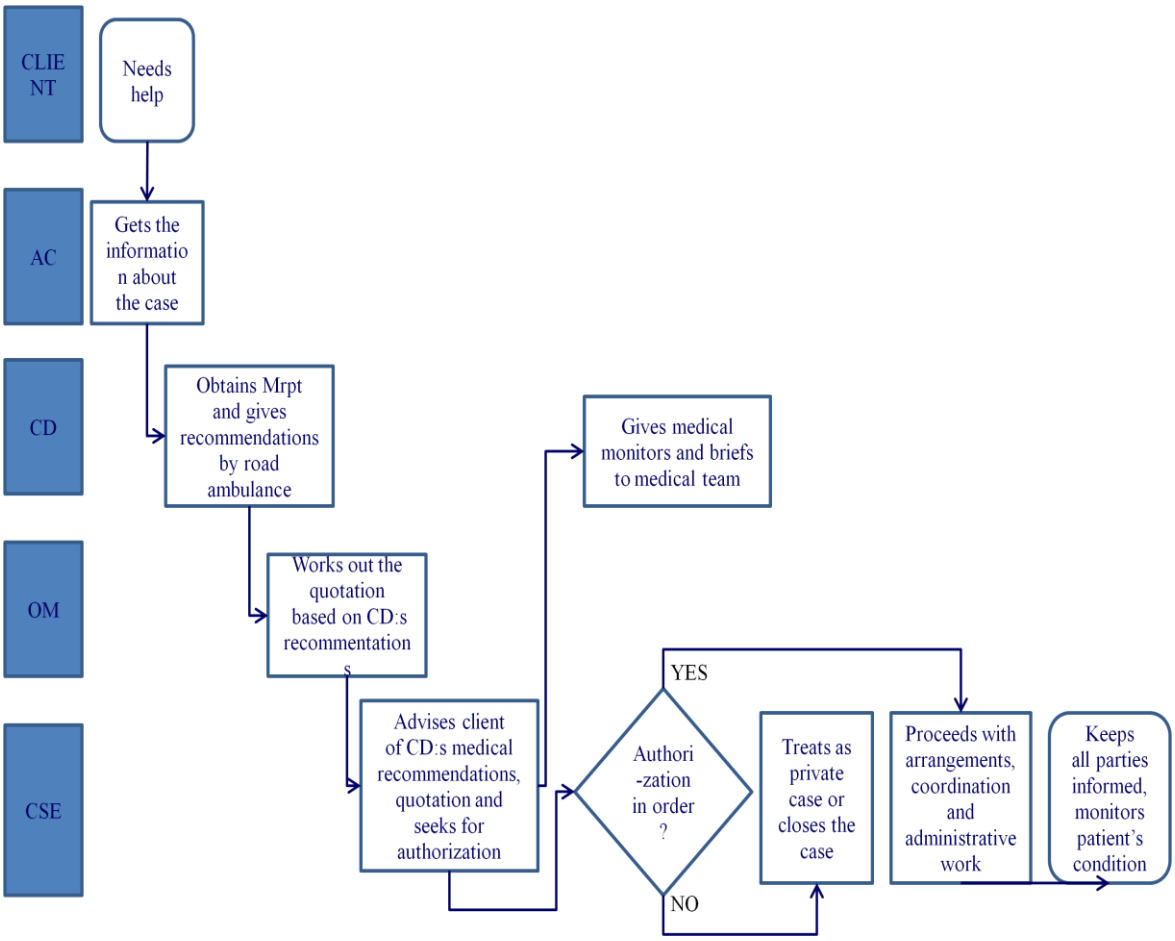

FIGURE 11. Medical evacuation procedure by road embulance (International SOS, 2005, 30)

Figure 11 is an example how to handle a normal road ambulance evacuation. Each step should be the guideline which instructs CSE how to proceed the case accordingly.

- Check lists specifies tasks that are needed to be completed for each type of transport. Appendix 1 is a sample of Service Check list.
- POA is a document containing all the useful information about the logistics' arrangement(s): actions to be done in order as well as telephone number(s) and / or addresses of related I-SOS offices, receiving hospitals, flight details, etc. Appendix 2 - is an example of a POA.

Even with such specific procedures, yet, case defects in reality have occurred periodically and repeatedly. Some of the mistakes were considered as "not big problems" like ignored courtesy calls. Others were real typical and major failures such

as delayed or cancelled flights, ignored updates to clients at due time, or inaccurate written medical reports. Most typical examples are checklists (that should be fully checked) remaining “unchecked” or some required documents still remains un-available after the evacuation / repatriation event. Those defects do not only decrease the quality of provided service but also creating more costs for the company in maintaining cases and recover the failed services.

Previous observations within the Operations department show that most of the defects were caused majorly by the Customer Service Executive, who is responsible directly for managing and controlling the transportation. However as it can be seen in the figure 11 above, the CSE role acts like a coordinator connecting more than five transactions which are happening at the same time, hence those defects are suspect to have roots from other objective sources such as the quality of third parties, the function of communication devices, the weather conditions also plays major impact on the success of the transportation. By the below analyzing of statistical data, those problems shall be revealed.

4.4 Data collecting

International SOS has built specialized computer software (The Case System), in which all the transactions and events happened occuring are recorded in a single case. This system is accessible worldwide by every CSE and traceable with a certain case number. The data collecting process began by reviewing all the evacuation and repatriation cases from January 2008 to June 2008. All the defects happened or any missing steps against the company checklist will be noted down. Each found mistakes will be marked with the number one for such specific case. Overall, 68 cases had been studied. Additionally, the explanatory of many firms’ items and definitions were obtained from discussion and guidance of seniors CSE within the same department.

After the data screening collection process, the number of occurrences of each defect problem will be totalized and the items will be re-sorted with the highest

number of occurrences placed at the top of the list, the second highest next until it reaches the item with lowest number of occurrences. As per the rule of Pareto principle, the occurrences will be calculated in percentage and those items problems fall within the first top 80 percent will be identified.

On the 80 percent of defects problems identified, the Cause and Effect diagram will be developed. The diagram involves several steps:

- Problem statement.
- Identification of major causes (which are the immediate causes that already recorded during the case review).
- Identification of principle causes (which are the most significant ones among the major causes).

The principal causes will indicate which elements in the process of providing service need improvement and what the nature of such improvement is. For instance, the element could be related to staff and the implied improvement could be more training or more supervision. Recommendations to improve the service quality will then be drawn based on those findings from the analysis.

4.5 Findings

The items in checklist is then re-sorted in descending order to find out which items remained in the top 80 percent of defects according to Pareto principle. The result was shown in Table:

TABLE 4. Pareto table

ITEMS	Frequencies	Percentages
Obtain medical report post evac/repat or correct medical report	13	19.10%
Identification of company/membership	12	17.70%
Courtesy call	8	11.70%
Flight delays	6	8.80%
Monitor POA/cases closely	5	7.30%
Timely financial securing	5	7.30%
Medical recommendation is accurate	3	4.40%
Obtain informed consent from the patient	2	2.90%
Formalize medical report	2	2.90%
Quoting	2	2.90%
Update client on case progress	1	1.50%
Medically update client / patient's family	1	1.50%
Confirm mode of transport and in-flight requirement	1	1.50%
Arranging hospital admission at destination	1	1.50%
Arrange and issue tickets	1	1.50%
Confirm patient, family, escort passport and visa details	1	1.50%
Arrange ground transfer	1	1.50%
Confirm hotel bookings for escort	1	1.50%
Sourcing medical escort	1	1.50%
Monitor discharge	1	1.50%
Total	68	100%

It can be seen from the table that eight first items are account for 79.2% over 19 items with the total case of 68. Those are items will be presented separately for clearer understanding:

Obtain medical report post evac/repat or correct medical report	13	19.10%
Identification of company/membership	12	17.70%
Courtesy call	8	11.70%
Flight delays	6	8.80%
Monitor POA/cases closely	5	7.30%
Timely financial securing	5	7.30%
Medical recommendation is accurate	3	4.40%
Obtain informed consent from the patient	2	2.90%
		79.2%

These eight selected items from the Pareto analysis serve as the base to develop the Cause and Effect Diagram. It is shown that the most common mistakes lied in obtaining post medical report which accounts for 19.10%. The second significant defect is to identify the correct membership or the correct client. This mistake contributes 17.70%. Thirdly comes the mistake of forgetting to give courtesy call to patient, 8 defects were found over of 68 cases. Flight delay is considered to be an uncontrollable defect, which plays fourth common mistakes. The fifth and sixth common mistakes both have the same percentage 7.3% are monitor POA closely and timely financial securing. The seventh mistake is inaccurate medical recommendation (4.4%) and last but not least, the eighth mistake is fail in obtaining informed consent from patient (2.9%).

Figure 12 will visually illustrate the distribution of eight items. It also can be briefly recognized that 6 items over 8 items are caused by the staff's competence.

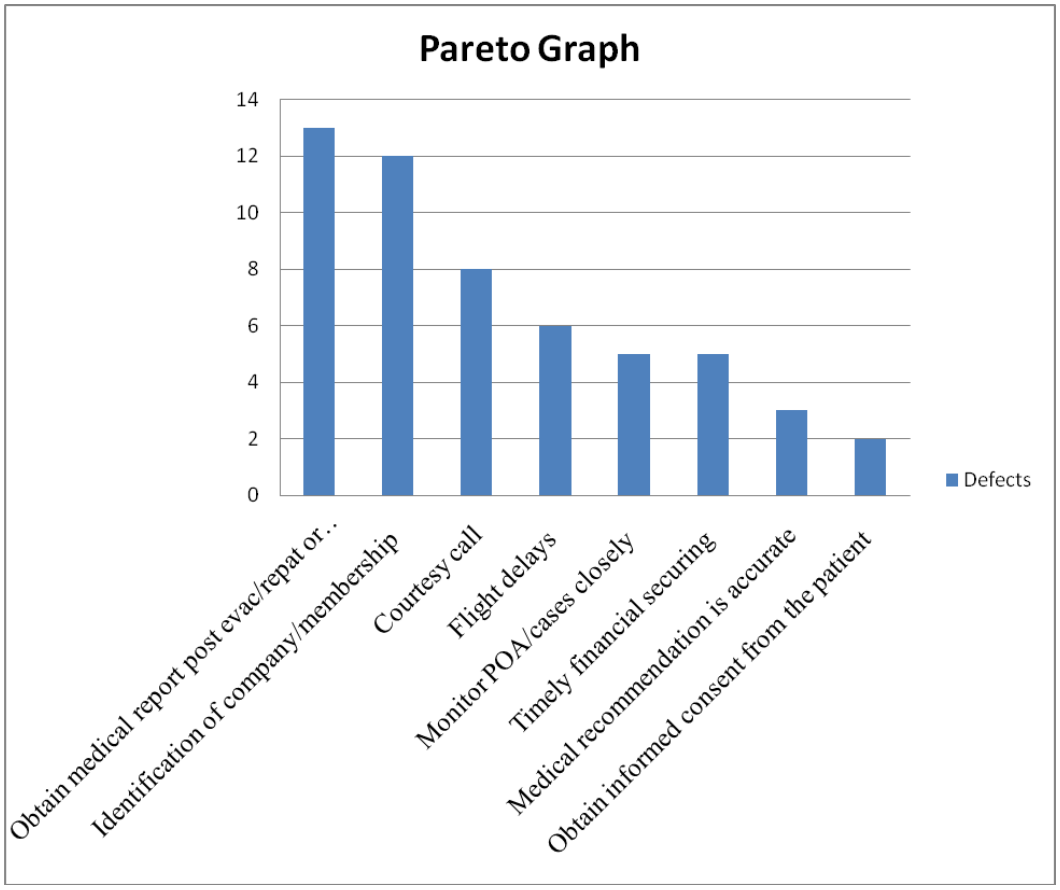

FIGURE 12. Pareto graph

To create the foundation for the development of the Cause and Effect Diagram, the researcher would like firstly, to list out the eight items retained and briefly define their meanings that will help trace to the root of the causes of each defect. These definitions are conducted variously through company's material and discussion with senior CSEs. The eight items are:

- Item 1: Obtain medical report post evacuation /repatriation or correct medical report. This task is done after the evacuation / repatriation has succeeded and the patient has been safely transferred. The post medical report will enable I-SOS coordinating doctors to follow patient's condition afterward. For the paymaster (if not the patient himself/herself) should need to know what health condition of the patient is after the evacuation/repatriation. In both senses, I-SOS is supposed to obtain some update

information from the receiving hospital, either for their own information or for an update to the paymaster. This is not required all the time, but to some paymasters, it is essentially a "must" for I-SOS. Finally, this task offers further opportunities for more business in the long run. For those patients who are evacuated to a third country, there is always a chance to re-arrange a repatriation to take the patient home when he/she is in satisfied condition to travel un-escorted.

- Item 2: Identification of company/membership. As it is explained in Figure 9, title 4.3; I-SOS provides its healthcare services to three main types of outside customers: individual, corporate clients and enhancement clients. For each type, each client is requested for each special procedure: who is the authorized person, who approves the medical fee, etc. Each client has different kind of membership with various benefits. The main task within this item is to obtain patient's name or insurance number and notify the authorized person about the situation. This is considered to be an initial task to clarify which company the patient works for, under which contracts are signed with I-SOS. Hence, proper actions can be carried out smoothly without time consumptions.

- Item 3: Courtesy call. This is included in the company's procedure as a value-added item. It is also another method to obtain the feedback from customers, as knowing how they perceive the service provided by I-SOS. Courtesy calls are always done at appropriate time after the patient has been transferred. Courtesy calls can be done either by CSE for normal transfer/ hospital administration cases or by CD for complex transfer. A too early call when the patient is still in pain might not be welcomed. A too late one would not make much sense and could be considered inappropriate.

- Item 4: Flight delays. Flight delays could be caused as the consequence of I-SOS's handling mistake or by other external factors such as aviation authorities, airport authorities, flight operators, weather etc. Normally, it is

considered as an uncontrollable factor. However, no matter what the causes are, such evacuations / repatriations are considered as failures.

- Item 5: Monitor POA/cases closely. Once a case is confirmed as "active" (as payment has been secured), a POA (Plan of Actions) will be carried out. POA is a document containing all the useful information about the logistics' arrangements: actions to be done in order as well as telephone numbers and / or addresses of related I-SOS offices, receiving hospitals, flight details, etc. Appendix 2 –is an example of a POA. A POA, once it's done, will need to be monitored closely during the implementation to make sure that everything goes well according to the plan. In POA form, time indication is a must to monitor the actions. Only when the tasks before the POA are completed can the POA be implemented.

- Item 6: Timely financial securing. In the service of evacution/repatriation, the payment usually has to be secured before any real arrangements taken places. As the companys' ultimate rule, payment is confirmed prior to implement the transfer. And moreover, this action is always in the presence of high pressures from many other factors:
  - The patients't medical condition is under critical situation which needs immediate treatment.
  - The pressures from the patient's family, friends and colleagues.
  - Aircraft schedules. For commercial airliners, check-in and departure times are pre-defined and have to be followed. For air charters, they are often available on first-come-first-serve basis. Furthermore, there is always a cut-off night time implemented by air charter operators.
  - Other service providers like local hospitals and local authorities. It is common that local hospitals never discharge patients at night time or at weekend, or most local authorities only process requests at a specific time of the working day.

- Item 7: Medical recommendation is accurate. This step indicates the transfer is either an evacuation or repatriation. The medical recommendation specifies by which mode of transfer a patient can be moved, which place

(country, city, and sometimes hospital) he/she should be sent to, which medical equipments should be loaded onboard to help the patient endure the trip. The medical recommendation also decides the cost of an evacuation or repatriation. An appropriate recommendation would save the patient's life and convince the paymaster that the transfer is worth being paid for.

- Item 8: Obtain informed consent from the patient. A consent form as the name described, a document states that a patient agrees to let I-SOS move him/her to another defined place. A consent form, signed off by the patient or someone close to the patient, will serve as a legal protection against any law suit fined by the patient later on.

Cause and Effect diagram

Now all the items for the Cause and Effect Diagram have been explained. The next part of the study will develop the Cause and Effect Diagram to deduce the principal causes of the defects selected from the Pareto analysis.

As discussed in section 4.5, the diagram will involve several steps:

- Problem statement
- Identification of major causes (which are the immediate causes already recorded during the case review)
- Identification of principle causes (which are the most significant ones among the major causes).

The principal causes will indicate which elements in the process of provided service need improvement and what the nature of such improvement is.

However, the process of identifying those principal causes would be more subjective as it is based on direct self observation. Yet it has been discussed with other employees and colleagues to find the principal causes more objective and comprehensive. The process will begin with 8 items selected from Pareto table. Then

several major causes will be noted down. Finally from each major cause, principal causes will be analyzed.

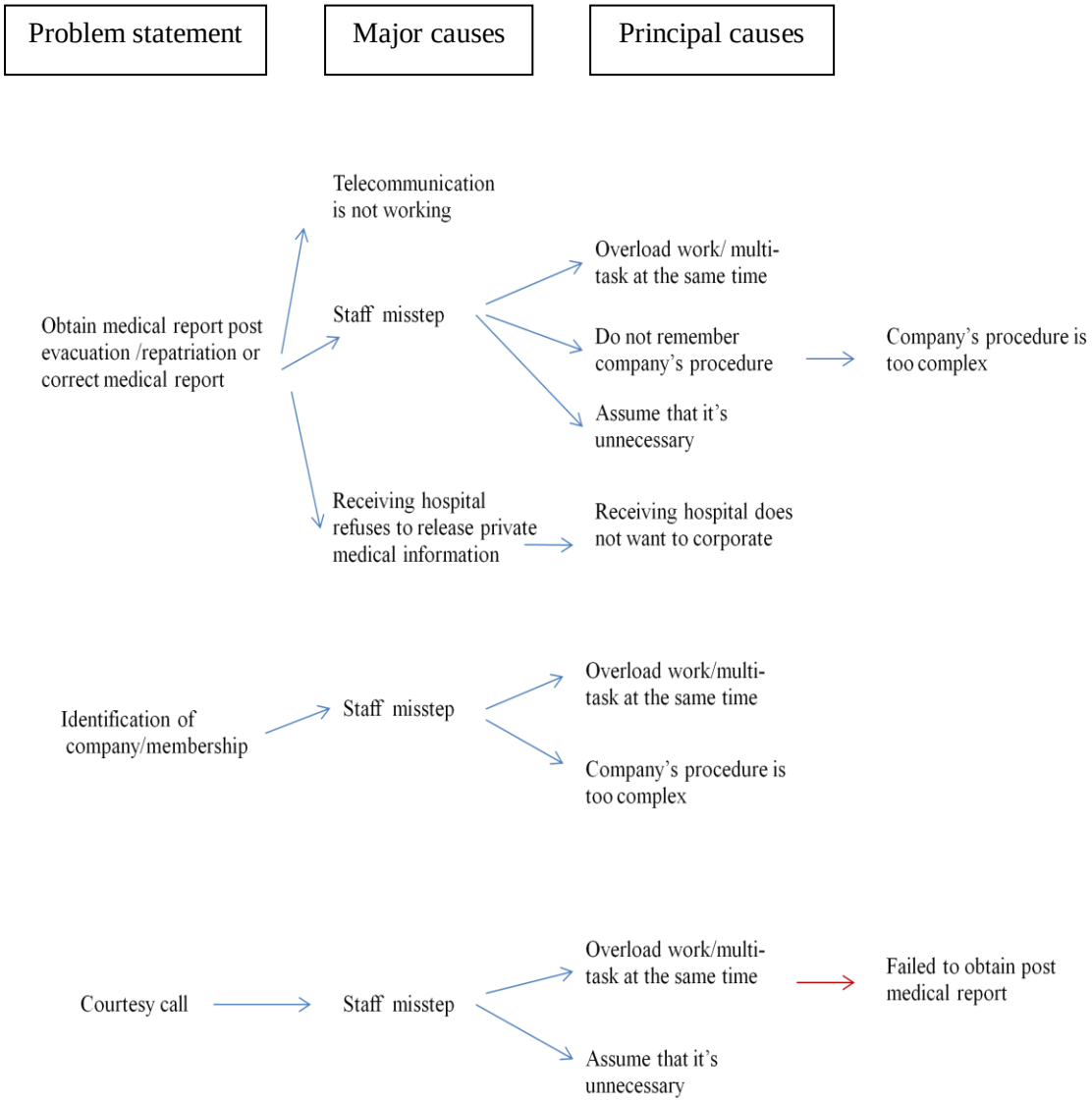

FIGURE 13. Major and principal causes 1

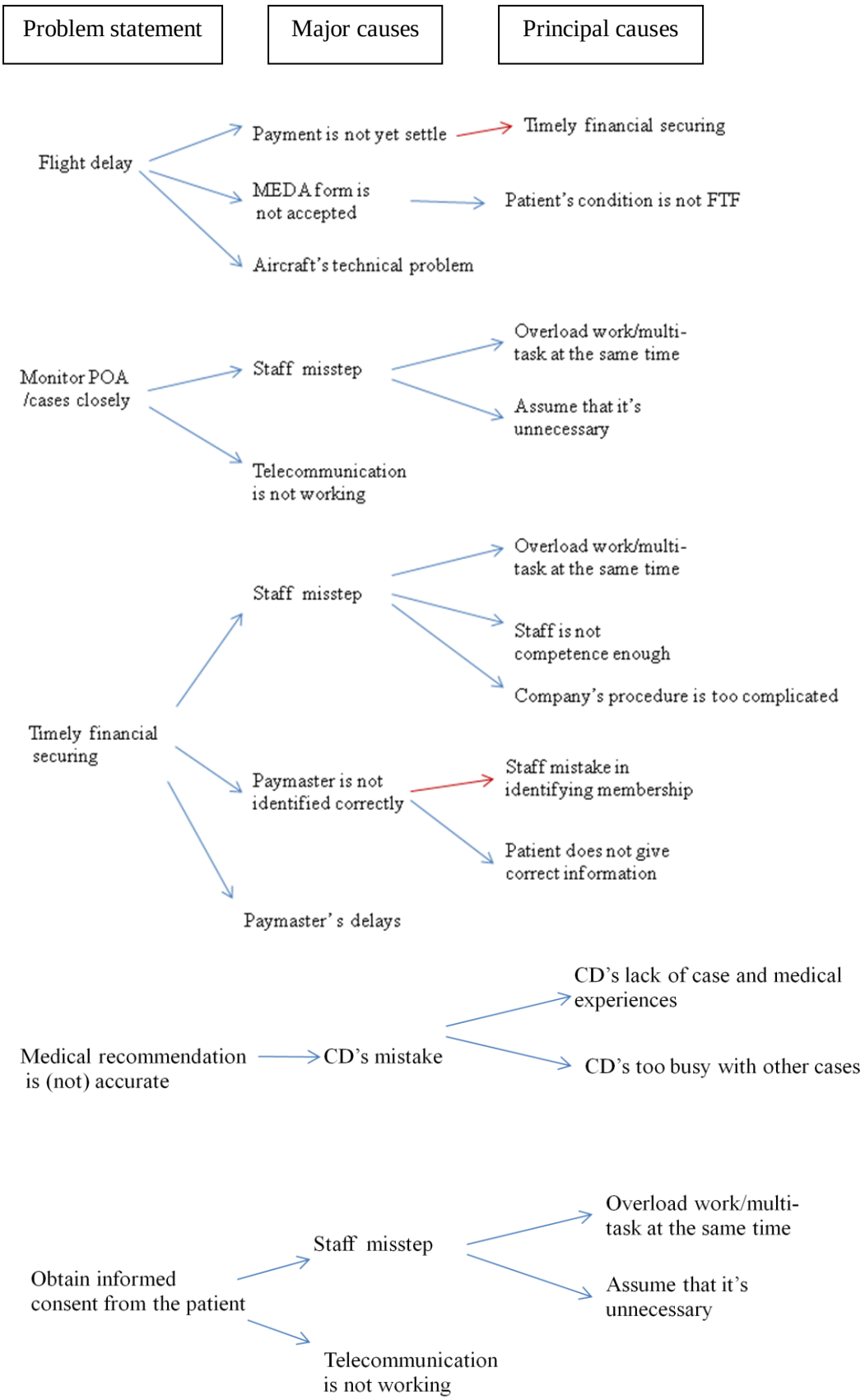

FIGURE 14. Major and principal causes 2

During conducting figures 13, 14; the researcher has encountered several vital findings:

- The existed correlations among the defects: one defect led to one or more other defects. Those correlations are marked in red arrows. For example, in the “Timely financial securing” defect, one of the principal defect is rooted in indentifying wrongly patient’s membership. Or another visible example can be found in “Flight delay” item. One of its major causes is “Payment is not settled”, which also is caused by the defect of late financial securing. The correlation is simplified by the conducting a Fish bone diagram. Once a cause of a first defect was identified, tracing causes for the second defect isn't necessary due to its relevant. As the example above, once “Timely financial securing” had been identified as a caused to “Flight delay”, the process can stop there and refer to “Flight delay” item for further causes.

- Many defects indeed have the same causes. As it can be seen from figure 13, 14; the staffs’ misstep is repeated profoundly. The original causes “Overload with work/multi tasks at the same time” and “Assume it is unnecessary” are noted in 6 items out of 8. Also, the telecommunication devices play a significant role in causing troubles and misunderstandings in communication.

According to the discussed of Sarv Singh Soin’s theory (1999, 127) in Chapter 3, all the causes can be grouped into five main sectors:

- Staff: in which covers the mistakes caused by I-SOS staff (concludes Customer Service Executives and Coordinating Doctors).
- Third party: in which covers the mistakes caused by third parties whom I-SOS out-sources its services.
- Procedures: in which covers the mistakes caused by the complex procedure of the company towards different clients.
- Machinery: in which covers the mistakes caused by telecommunication machines like telephones, computer devices, fax machines...etc.

- Others: in which covers the uncontrollable mistakes caused by others factor.

All the causes hence, will be presented on the Fish Bone diagram

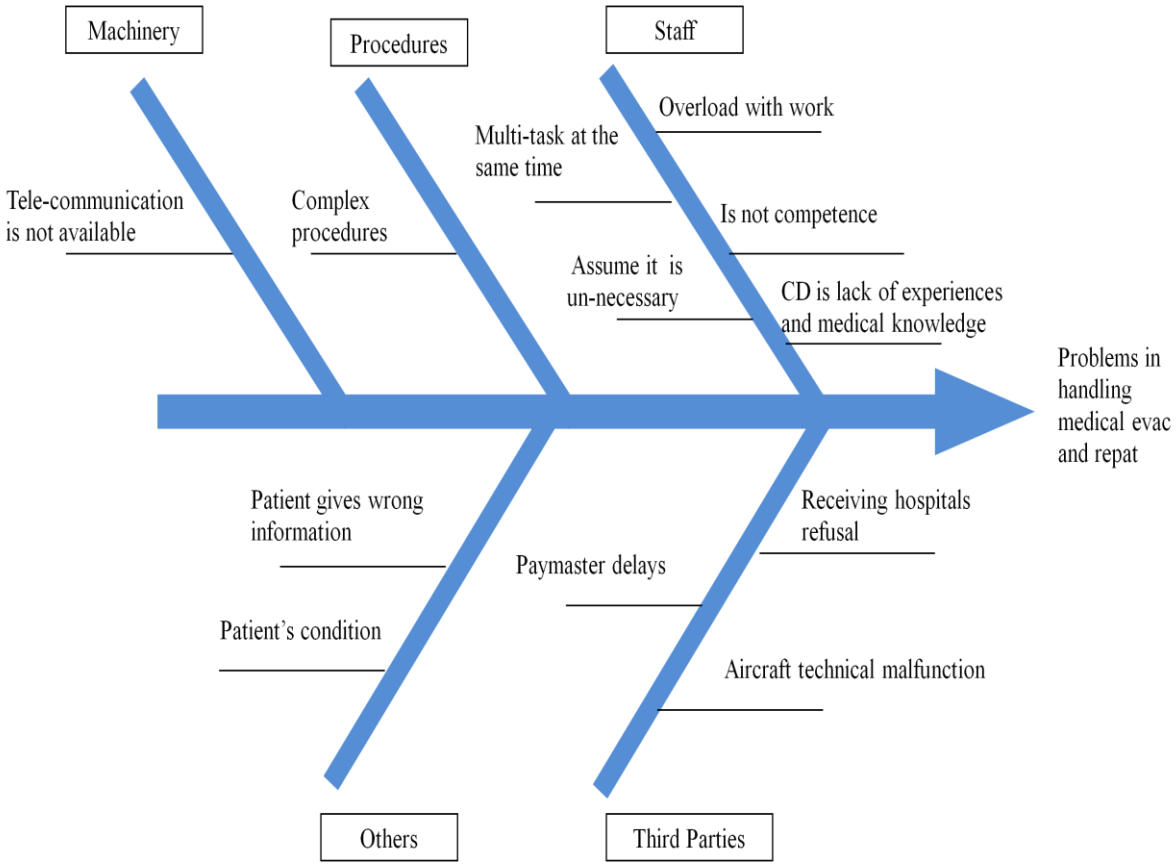

FIGURE 15. Cause and Effect diagram

In the above graph, each branch represents each cause of defect. On each branch, there are several sub-branches indentifying more detailed root causes. Those causes can be either objective or subjective. To have a better understanding, the researcher would like to discuss each root of cause in order to give useful recommendation for company in future improvements.

4.5.1 Staff

First of all, the branch Staff with its root causes will be considered:

- Staffs are overloaded with work. It is a common situation within the Operations Department. The work diligence is not fairly distributed. A senior CSE usually have to handle two to three evacuations a day which increases the chance to commit mistakes. For instance, in busy days, the CSE or CD might either ignore or forget certain steps in the procedure such as obtaining a written consent from a patient, or failing to closely monitor the case progress and even forgetting to courtesy call a patient.

- Staffs are doing multi-tasks at the same time. Due to the emergency characteristic of this service, staffs always have to handle many tasks at the same time. For example they have to book the ticket for one evacuation and fax the insurance form to client for another repatriation case. Multi-tasks can bring efficiency for the organization yet also decrease the quality of provided service. This cause, on the other hand, mainly derives from the above cause "staffs are overload with work".

- Staffs are either not experienced or competent enough in handling case. A common mistake would be obtaining wrong or inaccurate information of patient in an emergency case. Newcomers often forget to obtain patient's telephone number or insurance policy. When this happens, it usually takes more time to recover services.

- CD is lack of experienced or medical knowledge. This mistake often causes dramatic failure to the case as CD given wrong medical recommendations or false diagnoses.

- Staffs assume that it's unnecessary to perform the required action. This usually comes from the assumption that the case is under control, certain steps is not compulsory to perform. In some cases, it will speed up the case process but in some cases, it causes serious mistakes.

Nevertheless, those five root causes by staffs are mainly subjective, internal causes. Yet to be able to identify the true problems, objective and external causes should also be discussed. There are three main objective causes that have direct influence on staff:

- The nature of this service: emergency. In the emergency service, it is hard to predict in advance the quantity of the cases. This makes the diligent task more difficult as well as accommodating more staffs on busy days.

- Operations procedures are too complex and do not appear transparently all the time. Even senior staffs could get confused and mistaken if having failed to take precaution. Regular staff training (both on the company's operations procedures and customer service skills), availability and accessibility of operations procedures would be vital to minimize the defects.

- As International SOS mainly outsources its services from third parties. The real job of a CSE is to monitor and coordinate all the third parties together smoothly and orderly. If one third-party does not function properly, all the mistakes will be accredited directly to staff. This, in the end creates a delusion that the defect is caused by staff but rooted by third-party.

4.5.2 Procedure

The following paragraph will explore the second branch of the Fish Bone diagram: Company's procedures.

The procedures themselves appeared to be complex, and not transparent. The procedures do not take into accounts the tasks that need to be done to minimize the effects of external factors (can be referred to as Third Parties). For instance: the present procedures do not insist the staff on obtaining an informed consent form from the patient. This gap has brought number of legal problems to I-SOS, in which, the patient keep suing I-SOS for releasing private medical report to irrelevant parties. On the other hand, the procedure is not strictly followed by the Management at any level, and thus not respected by the staff. Moreover, a few steps in the check list have been constantly ignored without the surveillance of managers.

As introduced, I-SOS has numerous clients, and with each client, I-SOS has customized special procedure for them. For example, with corporate clients, when a case is acknowledged, the CSE has to identify the authorized person of the company which the patient works for. Hence, CSE proceeds to arrange a conference call between the authorized person with CD. But for enhancement clients, when a case is acknowledged, the CSE has to call the authorized person from the patient's insurance company. Later, a conference call should be arranged between the authorized person and CD. Additionally, the procedure of transferring and securing money is distinctive from client to client. It creates more obstacles for a CSE to handle the case smoothly and effectively. As time is always a critical factor in medical emergency service, complex procedures bring profound disadvantages for delivered services.

4.5.3 Third parties

Defects which are caused by the Third Parties are the most difficult to foresee and control.

- Aircraft's technical problems, which causes the aircraft to miss its scheduled flight. Aircrafts cannot either take off / land or cannot complete the trip having to go back to the original place.(International SOS, 2005)

- Paymasters. When it comes to deciding who is going to pay for the fee of services, identifying an accurate paymaster is a very confusing procedure. For instance, a paymaster can claim in the first stage that he/she will self paid for the cost of transfer. However, once a price set has been worked out and presented to him/her, the paymaster informed that the patient was insured and this insurer turned out to be I-SOS's member. This situation might delay the transfer as I-SOS then had to start the case again by contacting to the insurance, presenting another set of price, etc. As this defect can refer to the complex procedure defect. With different clients, again, I-SOS set up different prices.

- Receiving hospital's refusal in releasing post medical report of patient's condition. This can happens because the receiving hospital's staffs are either ignorant or too busy to do the task. It can also derive from the fact that receiving hospital is in partnership with one of International SOS competitors.

The next two defects are not analyzed and identified within the diagram yet have significant impacts on the success of a case. Hence, those two defects shall be mentioned:

- Hospitals' limited medical facilities: Local hospitals are known to be in poor state of medical facilities. Diagnostic equipments and doctors' medical knowledge, especially in provinces, are sometimes limited.

- Local authorities. Like flight operators, local customs, local authorities reserve the right to give approval within their functions. Due to the heavy bureaucracy in Vietnamese government's system, there is no other option for I-SOS if they face the disagreement from local authorities.

4.5.4 Machinery

The in-availability of the telecommunication system might make it impossible for I-SOS to obtain a kind of written confirmation from a patient (or a signed ROMIF) or to monitor the case progress closely. The in-availability of telecommunication also makes it difficult to collect the accurate information from patient when he or she is in the remote place/site.

This factor is considered to be objective and hard to control. Future improvement will depend wearily on the development of satellite telecommunication in general. The more modern the devices are, the better the communications between CSE and clients.

4.5.5 Others

Others include two items are patient's condition and patient's scattered information. The scattered information is given by patient can be resulted from the inavailability of the telecommunication. On the other hand, it can be resulted from the patient's weak state of mind. If the patient's condition is half-conscious condition, misspell of location mistake or unclear requests would likely be made.

5 RECOMMENDATION

As has been analyzed thoroughly in chapter Four, there are five factors that International SOS should highly concentrate on for future improvement. They are Staff, Procedure, Third Parties, Machinery, and Others. As for Machinery and Others factors, they are less important and more or less uncontrollable. Hence, in this chapter, recommendations are given focusing on Staff, Procedure and Third Parties.

5.1 Improving staff's competence

In order to improve the competence of staff, a continuous training should be applied. The knowledge of customer service skills and client's procedures should be reinforced once in three months. Moreover, a monthly test should be given to CSE, which is based on the materials handed out during the training. In that case, the result of the test can help the manager to provide proper supervision accordingly.

During the time the study was conducted, there was a monthly training for CSE already. Yet the result of this study is still valid. Thus, there are three possibilities that cause the ineffectiveness of the existant training:

- The training is not well-organized or provided professionally. It is more likely staff-teaching-staff method, which the researcher finds inadequate. The company only assigns one or two seniors to provide training for other CSEs. The problem is, those seniors might not fully understand all company and client's procedures, and therefore, their teaching depends heavily on personal experiences. Still, personal experiences are not adequate enough for the company's expectation. Plus, there will be more work for others once those seniors are absent

for training courses. Hence, I-SOS should build up a training team within South East Asia region. The team would contain approximately one to two persons who are responsible for training and auditing at the same time. There are totally seven alarm centers in South East Asia region: Jakarta / Bali (Indonesia), Kuala Lumpur (Malaysia), Yangon (Myanmar), Manila (Philippines), Singapore (Singapore), Bangkok (Thailand) and Ho Chi Minh (Vietnam). The training and auditing team can spend routinely a week at each alarm centre to provide training as well as auditing the quality performance of each alarm centre. Then, they can have five weeks off-duty before starting the routine again. The training and auditing team also acts as a bridge in communicating between ACs. They will help unify all the gaps between different ACs within South East Asia region.

- Re-considering Staff's issue with Third Parties that has been discussed in the Cause and Effect diagram: as International SOS mainly outsources its services from third parties, the real job of a CSE is to monitor and coordinate all the third parties together smoothly and orderly. If one third-party does not function properly, all the mistakes will be accredited directly to staff. This, in the end creates the illusion that the defect is caused by staff but is rooted in a third-party. In the later coming chapter, recommendation to help solve this problem will be addressed.

- The existing training program is only accessible for CSE in Operational Deparment. Yet, due to the theories of Total Quality Management, everyone in the organization should be involved. The suggestion is that the training program should be available to Marketing employees, in the same context. Very often, the quality of actual ser-

vice is polished and marked up by marketing employees creating a false demand for services. In addition, marketing employees do not comprehend the responsibilities of CSE, and then usually, their requests cause troubles for handling the case. The training program indeed would eliminate the gap between the marketed quality and the actual provided quality.

5.2 Improving companys'procedures

The following paragraph will discuss the recommendation given to improve the company's procedure. But in order to suggest a recommendation, a brutal fact should be acknowledged that it is impossible to unify or simplify those procedures. The researcher suggests that I-SOS should make their procedures more transparent and appealing. By transparent, it means that procedures should be reviewed every half year and critical steps should be noted down in procedure such as:

- Obtaining a signed ROMIF from every patient, that authorizing I-SOS to release the patient's medical information to a third party. This act will assist to minimize the risks of future legal dispute.
- Submitting and obtaining written approval for MEDA/MEDIF for every evacuation / repatriation case. This act will help to minimize the risks of rejection by Airline Companies.

These two steps, later on had been implemented and added into the company's procedures in the end of 2008.

By appealing, it is meant making the procedures more accessible and reachable for CSEs. Currently, all the procedures are kept in a special folder in a public domain that can be accessed by every CSE**.**However, practical experience shows that CSEs hardly can locate the correct procedure's file folder and complain that they

cannot read the procedure on a computer screen. Therefore, after locating one procedure correctly, they will have to print it out and read it again. Regarding the nature of the service, it is a waste of time. Therefore, the researcher suggests that I-SOS Vietnam should print out those procedures on paper, and every CSE should have a copy in a special folder on their workstation. It seems to be a insignificant suggestion on the surface but once it is implemented**,** it will help speed up the movement of the case without missing any vital steps.

5.3 Improving the integration with third parties

From the researchers' point of view, this is the most important factor to improve the quality of service for I-SOS Viet Nam. Since the service flows from one third party to another, its quality is influenced by all members in the progress. Presently, I-SOS has developed an internal system of evaluating and storing information about third parties. Yet this is only active internally within the department, no external actions have been considered in order to improve the quality as well as the relationship with third parties. The proposals are:

- Providing occasional training for third parties. In that way, information can be shared and interacted in both parties. Third parties would gain more coherent knowledge about I-SOS Vietnam procedures and agendas as well as I-SOS expected quality of service. Simultaneously, I-SOS Vietnam would comprehend the hierarchic systems of Vietnamese local third parties. When dealing with third party entities such as local hospitals and local authorities, it is very important to have good relationship with the right person.

- Encouraging third parties to develop their own quality management systems, to become more flexible and responsive. As discussed in Chapter Four, one of the defects caused by third parties is poor medical facilities

and infrastructure. This defect indeed leads to the low quality in medical services. Therefore, by providing guidances and supports, I-SOS Vietnam can assist third parties to develop their own quality management systems. I-SOS Vietnam can transfer technology know-how in managing a patient's record and hospital invoices; share the experiences in administrative work; introduce tools to improve quality, etc. In that sense, the final results will benefit both sides.

- Obtaining feedback from third parties to measure the standard quality of service as well the expectations from third parties. By actively giving out questionnaires and surveys to third parties, I-SOS can measure the contemporary situation of third parties along with their requirements. Furthermore, it helps strengthen the relationship from both sides. Especially with local authorities as they are known for bureaucracy.

To conclude, those recommendations are developed based on the current problems occurring in Operations Department. Hence, they should be able to help I-SOS Vietnam improve the quality of its service.

6 SUMMARY

The study starts with the review of quality of service theories. There is a wide range of various definitions about quality of services yet the quality of service basically comprises two components: actual perceived service and customers' expected service. The study later goes through three different important definitions of the dimensions in the model of service quality. Different models have different emphasis on different dimension. Parasuraman, Zeithaml & Berry state that there are five factors concerning customer perceptions of service quality: Tangibility, Reliability, Responsiveness, Assurance, and Empathy.However, for the healthcare service sector which requires numerous rendered services from its sub-service providers: such as airlines, hospitals, medical facilities, ground transfers, etc., five dimensions of SERVQUAL model seem restricting. On the other hand, Grönroos derives six factors for experienced service quality also based on the original SERVQUAL: Professionalism and Skills, Attitudes and Behaviours, Accessibility and Trustworthiness, Recovery, Reputation and Credibility. The other five dimensions are somewhat similar to SERVQUALs' dimensions but with wider explanations. In addition, Grönroos adds a new separate dimension "Recovery" which is profoundly applicable for Healthcare service. Last but not least, Gummesson develops a theory which focuses more on the Tangible and Software aspects of service rather than other factors.

By understanding the components and dimensions of quality of service, a method to improve its quality is explored in Chapter Three. Again, there is such wide range of numerous tools and techniques, the application of each tool or technique is different depending on the company's long-term plans and the company's strategies. Within the limited context, Chapter Three only introduces six tools with brief explanations. Amongst those, there are two main models receiving careful examination: Pareto analysis and Cause and effect analysis as they will be used as effective instruments in later practical findings.

After a review of the product and transport system issues, a case study of Operations Department of International SOS Vietnam is carried out. Prior to analysis of the problems, the current situation of the compnay is emphasized. A detailed ex-

planation of the company's core products (medical evacuation and repatriation) and its functions have been given.

The initial objective of this study is to focus on the quality of health care services and identify the most common quality problems and their principal causes in the case company. Two main questions that are proposed in the beginning of the study have been resolved by going through the historical cases from January 2008 to June 2008 and the application of Pareto analysis tool, the main 8 defects have been identified. Next, the main reasons behind those defects have been traced down by using Fish Bone diagram tool. Those main reasons are later on, grouped into 5 main categories: staff, procedures, third parties, machinery, and others. Chapter Four hence continues to study each category in detail in order to suggest valuable recommendations for the company.

With the findings of principal causes in chapter Four, 3 main recommendations are proposed: to improve staff competence, to improve the company's procedures and to improve the integration with third parties. In order to improve the competence of staff, a continuous training by a regional training team should be applied for both CSEs and Marketing employees.

Secondly, I-SOS should make their procedures more transparent and appealing. Certain critical steps should be added into the procedure such as submiting the MEDA/MEDIF and obtaining the signed ROMIF.

Finally, improving the integration with third parties is considered to be the most important factor to improve the quality of service for I-SOS Viet Nam. Three considerable proposals are given to strengthen the interrelation with third parties: 1) providing occasional training for third parties, 2) encouraging third parties to develop their own quality management systems, to become more flexible and responsive, 3) obtaining feedback from third parties to measure the standard quality of service as well as the expectations from third parties.

Due to the depth of this issue regarding quality of service, the thesis did not cover all the necessary aspects. Therefore, future research can carry out the comparison

between the costs to recover services and the costs to set up and maintain the regional training team. Furthermore, the thesis only studies internal problems between Operations Department with its' rendered services; there are no measurements between Operations Department actual quality of service with customers' expectations. Last but not least, the future research can be conducted using the same method which had been used in this study to evaluate the effectiveness of its recommendations.

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APPENDICES

Appendix 1: **Service Checklist**

No.	**Items**	**Done by**	**Not done**
1	Obtain medical report post evac/repat or correct medical report		
2	Monitor POA/cases closely		
3	Obtain informed consent from the patient		
4	Medically update client / patient's family		
5	Identification of company/membership		
6	Timely financial securing		
7	Medical recommendation is accurate		
8	Update client on case progress		
9	Sourcing medical escort		
10	Confirm patient, family, escort passport and visa details		
11	Courtesy call		
12	Flight delays		
13	Confirm mode of transport and in-flight requirement		
14	Arranging hospital admission at destination		
15	Arrange and issue tickets		
16	Quoting		
17	Arrange ground transfer		
18	Confirm hotel bookings for escort		
19	Formalize medical report		

Appendix 2: POA- Plan of Actions

Classified document