Operational/Manufacturing Strategy in Service Operations: A Case Study of SERVQUAL Model in Airline Company

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Abstract

With the economic crisis in Asia, the airline companies must be more competitive in their service operations in order to stay in business. The first step to improving quality in service operations is to evaluate the existing level of service quality of the company. The company could then spend some of its limited resources to improve the service. The purpose of this study is, therefore, to illustrate how service quality could be assessed in an airline company. The company currently provides both domestic and international passenger transportation services. Interviewing with management and other staffs of the company, and the passengers by using structural questionnaires was carried out in this study. SERVQUAL model, which was developed by Parasuraman et al [1], is used to assess the level of service quality in their operations. The results indicate that there is a need for cultural change, commitment of management team, and employee involvement to increase the customer satisfactions, which leads to enhance the competitiveness of selected Asian airline company. Finally, recommendations on re-designing existing service operations (reservation, before-flight service, onboard service, and after- flight service) was proposed. It includes (a) providing more flight schedule, (b) conducting the business feasibility study on providing the low-cost airline, (c) providing more systems/facilities for safety and comfortable purpose, and (d) providing self-check-in or online check-in services.

1. Introduction

1.1 Need for quality in services operations

Quality in service operations is a total experience usually evaluated by customers. Unlike product quality, service quality in services can not be controlled by scientific methods or objectively measured by setting standards. Owning to their very nature, services are performances rather than objects [2]. Employees supported by technology and management carry out these performances. Because of the large emphasis placed on employees, performance levels can differ across employees as well as occasions.

Service operations always encompass multiple interactions between the customer and different employees. Therefore, the service industry must place emphasis on both differentiation and price [3]. The battle for competitive advantage can not be fought on price alone. Differentiation in design of service features, processes and facilities should all be considered.

In a situation where all airline companies have comparable fares and matching frequent flyer programs, the one with better perceived service draws passengers from other carriers. The airline industry is very much influenced by changes taking place in its varied environment [4]. The development of the customer-oriented marketing by airlines has been a response to the new competitive environment, which has

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changed from a seller's market to a buyer's market.

1.2 How to measure the service quality?

Service quality is a form of attitude that results from the comparison between perceived and expectations. Good service quality means meeting the customer expectations. Customers tend to perceive the quality of a service by comparing the actual service experiences to what their expectations were before purchasing it. Since perceived feeling is the quality of the service, it determines the degree of the customer's satisfaction. Service is judged to be unsatisfactory when expectations are not met; satisfactory when they are met and more than satisfactory when they are exceeded. The First American Corporation defines service quality as "*conforming to standards that represent the products and service's basic characteristics*". [4]

Because of the differences in individual perceptions and past experiences with delivered service, it is very difficult to measure service quality. One recommendation to ensure that the delivered services will meet customer expectations is to design suitable service characteristics at an early stage. Gap analysis, which was proposed in the SERVQUAL model by Parasuraman et al [1, 5], could be used to measure the service quality and provide information for improving the service characteristics.

The SERVQUAL model assumes that customers' perceptions of quality can be measured using an ordinal scale 1-5. Customers' expectations for a particular service shape their assessment of the quality of that service. When there is a discrepancy between customers' expectations and the understanding of customer expectations by management, perceived service quality would suffer and customers will give low scores [6]. Management's failure to identify customers' desires accurately is one gap in service quality.

The purpose of this study is to illustrate a technique for assessing quality in airline service operations, and determine the level of service quality of a selected case study Buy using the SERVQUAL model as described earlier. One national airline company of Asia-Pacific country was selected as case study. The company currently provides both domestic and international passengers transportation services.

The SERVQUAL model questionnaire is one of the preeminent instrument for evaluating the quality of service as perceived by the customer [1, 7]. The model focuses mainly on identifying gap, which lead to minimize the degree of difference between customers perceived and expected service quality level. In this study, the justification for using the SERVQUAL's gap measures is that the model has been tested and re-validated through many services organizations internationally [2, 5-9]. Previous studies [8, 9] publishing in a recent *Decision Science* demonstrated the used of a modified SERVQUAL instrument to assess the quality of information service operations. But such a study in Airline service operations is still limited [4].

2. Literature Review

2.1 Service operation processes in airline

There are many possible aspects that could influence the airline customers' perception of service quality at different times in the service process. Generally, most passengers are concerned with the following basic aspects of service operations[4]:

- Flight schedule;
- Air fare;
- Safety;
- Comfortable;
- In-flight amenities; and
- Ground services

In addition, service operation processes in airline companies consist of four major activities:

- Reservation process,
- Before-flight service process,

- Onboard service process, and
- After- flight service process.

Starting with the reservation service, many airline companies became involved in the world computerized reservation system. With the help of this system, passengers have been provided with very quick and precise information about flight schedule, availability of flights, fares and rules governing the fares. In addition, the telephone network links all reservation offices around the world.

Before-flight service, the second process, could be classified into four main activities: selling the ticket, check-in, the lounge, and boarding. Next, onboard services are delivered to the passengers. It includes food and beverages, in-flight entertainment, and seat comfort. Finally, the after-flight service at the destination airport includes baggage handling and transportation.

To ensure that the characteristics of all the service processes mentioned above are designed and delivered well, understanding of customer expectations and perceptions on delivered services are needed for management to design an appropriated service delivery processes and specifications.

3. Research Methodology

3.1 The SERVQUAL model

It is important for a service company to know how well they are servicing customers so that they can improve and maintain the level of their service operations. Measurement of service quality ultimately provides a means of determining where the company is, and where it is likely to go in terms of market share. This measurement should reflect how much their existing customers are satisfied with the service provided.

The SERVQUAL model, which was developed by Parasuraman et al [1] was used to identify the shortfall within the organization and shortfall between the customers' perception of actual performance of the service and their expectations. In this model, there are five gaps, GAP_1, GAP_2, GAP_3, GAP_4 and GAP_5, to determine the shortfalls. Figure 1 shows the conceptual framework of the SERVQUAL model.

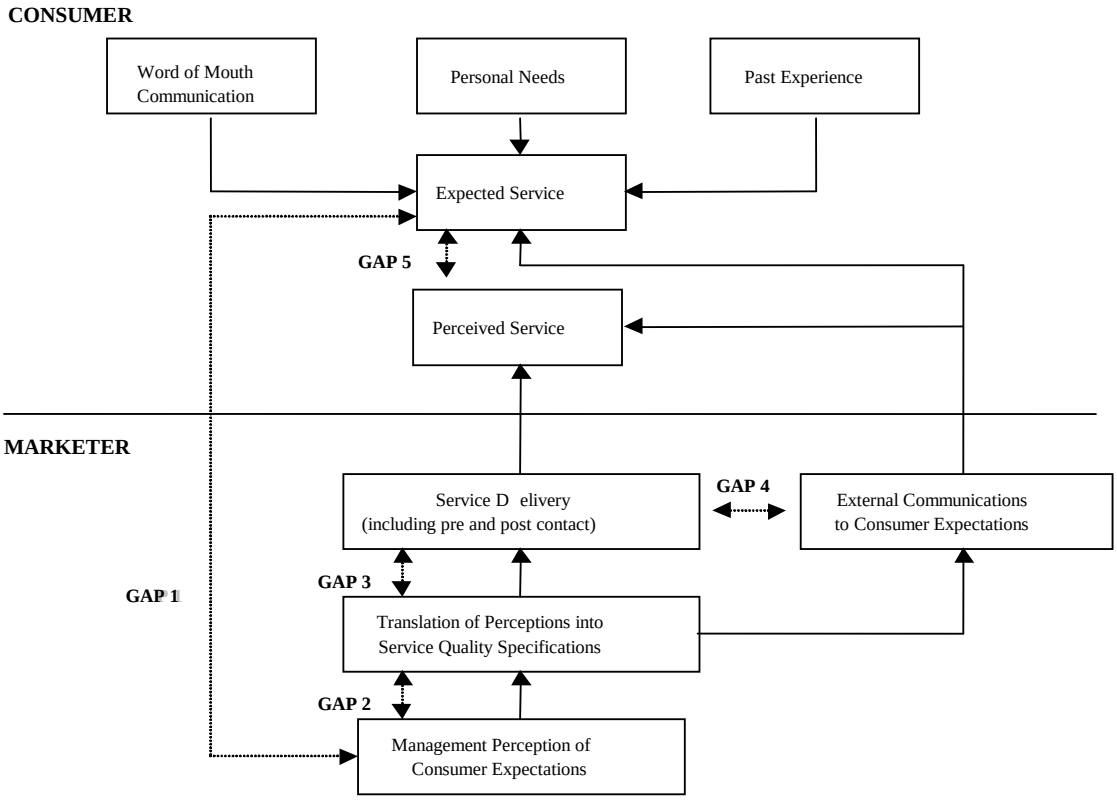

Figure 1 Conceptual Framework of the SERVQUAL Model [5]

GAP_1: This gap defines the difference between what a customer expects of a service and what management perceives as customer expectations. Managers may think they understand why a customer wants to buy the service. Based on this perception, they determine the specification of the service. If there is such a gap, a variety of mis-understandings such as providing the wrong facilities, hiring the wrong staff or identifying the wrong training needs tend to occur. To close this gap, managers must have detail knowledge of what customers require. Only then the customer requirements could be built into the service delivery system.

GAP_2: This gap defines the difference between management perception of customers' expectations and design of the service specifications. Even when customer expectations have been accurately determined, these may not be accurately presented in the service specifications. In many cases, management does not believe that it can meet customer requirements and there is no commitment on the part of management to deliver the service quality. In addition, management may wish to meet customer requirements but feels hampered by inadequate: (a) methods of measuring quality and (b) methods of covering those measurements into service specifications.

GAP_3: This gap defines the difference between service specifications and the actually delivered service. This gap is concerned with the actual performance of service. Even if customer expectations are accurately determined and quality specifications are correctly identified, actual performance of the service may leave customers not being satisfied. The existence of service performance gap depends on both the willingness and the ability of staff to provide the service according to designed service specifications.

GAP_4: This gap defines the difference between the actual quality of service delivered and its quality presented in the firm's external communications. This gap might be termed "promises gap" that lies between the company promises what it actually delivers to the customer. If the advertising or sales pitches promise one kind of service and the customer receives a different kind of service, then that promise is broken.

GAP_5: This gap defines the difference between the expected service and service actually perceived to customers. Closing and narrowing this gap is the ultimate goal of Service Company. GAP_5 can be shown in terms of a function of all the other gaps as follows:

$$Gap_5 = f\,(Gap_1, Gap_2, Gap_3, Gap_4) \qquad (1)$$

In order to minimizes Gap_5, causes leading to increase $Gap_{1\text{-}4}$ should be investigated. Figure 2 demonstrates the conceptual framework (instrument measuring service quality) using in this study.

3.2 Measures of Service Quality

According the SERVQUAL model, this study adapted measures developed by Parasuraman et al [5] to determine the gaps in this study. Measures of GAP_1 are Marketing Research, Upward Communication, and Level of Management. Measures of GAP_2 are Goal Setting, Task Standardization, and Perception of Feasibility. Measures of GAP_3 are Teamwork, Employee-job fit, and Technology-job fit, Perceived Control, Supervisory Control System, and Role Conflict. Measures of GAP_4 are Horizontal Communication, and Propensity to over-promise. Measures of GAP_5 include Tangibles, Reliability, Responsiveness, Assurance, and Empathy (see Figure 2).

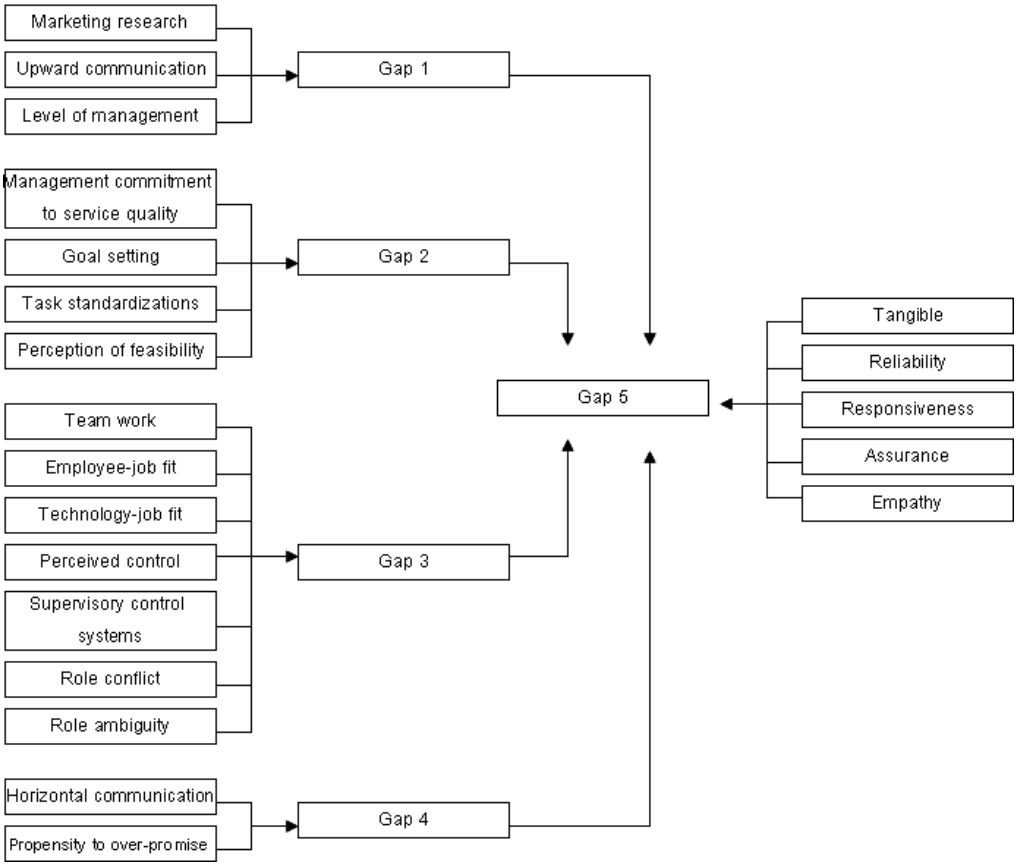

Figure 2 Conceptual Framework using in this study

3.3 Samples Selection and Data Collection

The respondent sample is taken from the management staffs, the employees, and passengers of one Airline company in developing country. This study selected both domestic and international passenger services. The questionnaires used in this study are developed based on the SERVQUAL Model, and pre-tested with twenty-two passengers, five management staffs, and ten employees of the selected airline company.

Three set of questionnaires, which are shown in Appendix 1, were used to investigate the degree of service quality in reservation process, before-flight service process, onboard service process, and after-flight service process. Respondents include management staffs and passenger contacted employees of a selected airline company, and passengers. They were asked for their perceptions of services provided by the company. Direct interviews with management were also conducted to get more data for the gap analysis. All questions in the questionnaires have a five-point scale and additional questions on demographic information on the respondents.

Questionnaires were sent to management staffs - senior officers, and managers, and top management - deputy directors and directors - randomly selected within the company. Furthermore, random sampling of passenger-contact employees from different departments, for example sales/ticketing check-in counter, was performed to collect data of the service.

In order to collect the information from passengers, questionnaire was distributed to passengers on-board. The filled questionnaires

were then collected by crewmembers during both domestic and international flights including the waiting passengers in the departure hall for the short routes traveling.

quantitative analysis, the scaled items are tested for reliability and validity. The SPSS package had been used in the analysis of data. The result of *MANOVA* indicated that there is no significant difference among the following respondent's characteristics:

- Gender of passengers,
- Age of passengers,
- Experiences in facing with the service operations of airline company,
- Class of seat, which was reserved by passengers;
- Domestic and international passengers;

3.4 Analysis of Data

The methods of analysis were both quantitative and qualitative. For the

- Types of passengers: business people or travelers

Finally, the qualitative analysis, which is based on SERVQUAL Model, was performed.

4. Research Findings

This company was established in 1958 in the public sector. Initially, it was divided into 51% share for government and 49% share for the general public. Later in 1959, the government owned the whole company. In the beginning of operation, there was a single DC-3 aircraft and ninety-seven employees linking four points with the capital.

Table 1 *MANOVA* test for an effect of respondent's characteristics

Effect	Model	F	df	Sig.
Gender of passengers	Pillai's Trace	0.460	120	0.832
	Wilks' Lambda	0.438	120	0.817
Age of passengers	Pillai's Trace	0.868	120	0.810
	Wilks' Lambda	0.868	118	0.913
Experiences	Pillai's Trace	0.376	120	0.540
	Wilks' Lambda	0.376	120	0.571
Class of seat	Pillai's Trace	0.560	120	0.971
	Wilks' Lambda	0.558	120	0.971
Types of passengers (Businesspeople/Traveler)	Pillai's Trace	0.812	120	0.118
	Wilks' Lambda	0.816	118	0.118
Domestic and international passengers	Pillai's Trace	1.048	120	0.105
	Wilks' Lambda	1.138	118	0.103

Significant at 0.05 levels (Number of passengers responding to questionnaire is 120)

Currently, this company has an operation fleet of fourteen airplanes including B-757 and Airbus A310-300 aircraft. The passenger network extends to more than thirty-five points in the domestic sector and twelve cities in ten countries in the international sector.

4.1 Analysis of GAP $_1$

As exhibits in Table 2, the degree of service quality (GAP $_1$)is proposed to be a function of marketing research orientation, upward communication and hierarchy levels in management. Therefore, this study has attempted to bring out how well management perceives the customer's requirements and expectations.

Marketing research orientation: Management in a case study has a lot of problem in marketing research. It may be that they over estimate their perception while responding to the questionnaire. The average of these measurements is 3.18, which means that there is the existence of GAP_1. In addition, we found that there is no significant difference between perceptions of top management and middle management with the p-value greater than 0.05.

Upward communication: When factors affecting GAP_1 under upward communication were examined in terms of management level, i.e., position. Statistically significant differences in responses were obtained between managers and employees. But the opinions about quality of contact were not statistically significant in either group, apart from the uncertainty of communication. The mean value of this measure is 3.61. It is important to note that the communication in a case study is not well defined.

Level of management: There is no statistically significant difference between both management levels. Details explanation will be described in the subsequence section.

Table 2 Means of variables in each GAP of case study

Measures	Mean Value	Measures	Mean Value
GAP_1		GAP_4	
• Marketing Research	3.18	• Horizontal Communication	3.24
• Upward Communication	3.61		
• Level of Management	3.20	• Propensity to over-promise	2.40
• Management Commitment	3.70		
GAP_2		GAP_5	
• Goal Setting	3.13	• Tangibles	3.08
• Task Standardization	2.98	• Reliability	2.73
• Perception of Feasibility	3.65	• Responsiveness	3.17
		• Assurance	3.57
GAP_3	3.75	• Empathy	2.95
• Teamwork	3.85		
• Employee-job fit	3.64		
• Technology-job fit	3.74		
• Perceived Control	2.28		
• Supervisory Control System	3.83		
• Role Conflict	3.97		
• Role Ambiguity			

1: strongly disagree, 5: strongly agree

Management commitment to service quality: According to the data management level or position did not influence the management's commitment to providing service quality. The mean value of this measure is 3.70.

4.2 Analysis of GAP_2

A variety of factors such as resource constraints, short-term profit orientation, market conditions, and management indifference may account for GAP_2. The size of the gap in this case study is proposed to be a function of management commitment to service quality, goal setting, task standardization and perception of feasibility. All

variables responsible for GAP_2 have an average value 3.25. This implies that GAP_2 exists. The explanation of this finding is that there is no total management commitment to design of service quality. There is emphasis on other objectives such as cost reduction and short-term profits.

Goal setting: There is no statistically significant difference between upper management and middle management regarding the perception of goal setting. The average value of respondents is 3.13

Task standardization: The p-value of variable under task standardization is greater than 0.05. It implies that management level does not influence the perception for task standardization (2.98).

Perception of feasibility: The result of data analysis indicates that there is no significant difference in upper management and middle management on the perception of feasibility. The mean value of this measure is 3.65

4.3 Analysis of GAP $_3$

GAP_3 occurs when employees are unable and/or unwilling to perform the service at the desired level. The main factors proposed to account for the size of GAP 3 were teamwork, employee-job fit, technology-job fit, perceived control, supervisory control system, and role conflict and role ambiguity.

Teamwork: The employees of this case study did not feel that they were working together well although there is a little bit higher mean value (3.75) for internal customer view. They overestimate themselves and blame others, which shows bad teamwork environment.

Employee-job fit and technology-job fit: It was proposed that emphasis on matching the employees to jobs through a proper selection process and consequent abilities or skills of employee to perform the jobs would affect the size of GAP_3. The mean value is 3.85 and 3.64 respectively. It implies that the employees in this case study feel comfortable and are able to perform their jobs well. However, they blame bad selection process and lack of tools and technologies for not being able to perform their jobs well.

Perceived control: Perceived comfort was proposed to be a function of the degree to which organizational rules, procedures and culture limit contact employees flexibility in servicing customers. Although, in this study, the employees control their job even with many customers at a time, they are unable to perform well because control over the service has been dispersed among multiple organizational units and there is no predictability of demand. The mean value is 3.74

Supervisory control system: Supervisory control system was proposed to be evaluated through the existing of behavioral control system which consists of observations or other reports on the way the employee work or behave rather than only output measurement. All the variables under its consideration have a mean value of 2.28. It implies that the employees were not encouraged by the existing supervisory control system for their own actual performance evaluation.

Role conflict: Role conflict was evaluated through the employee's feelings regarding the expectation of job position, supervisor and customer. In this study, measures in this consideration have a mean value of 3.83. It implies that there is no role conflict to cause widening of GAP_3.

Role ambiguity: Role ambiguity was evaluated through the employees' certainty about what managers or supervisors expect from them, how to satisfy those expectations and how their performance would be evaluated and rewarded. The mean value of 3.97 indicates that the employees have no problems of role ambiguity to influence the size of GAP_3.

4.4 Analysis of GAP_4

This GAP is the difference between what the company promises to deliver in its communication and what they actually deliver to the customers. In this study, Gap $_4$ was proposed to be a *function of horizontal communication* (with a mean value of 3.24) and *propensity to over-promise* (with a mean value 2.40). The advertising was developed independently and tended to over-promise. Therefore, GAP_4 would be substantial.

4.5 Analysis of GAP_5

This gap represents the potential discrepancy between the expected services from the customer's point of view. In order to evaluate the existing service quality level, the questionnaire was adopted from SERVQUAL model with some modifications appropriate for airline passenger service. This GAP is analyzed under five measurements of service quality as follows:

Tangible service quality: The tangible measures in this study are a modern aircraft fleet, accessibility of flight service units, convenience of facilities, food service, fares, etc. After asking the passengers, it was found that the performance of this company is less than the expectations of their passengers. Since the performance mean is about 3.08, indicating influence of tangibles on GAP_5.

Reliability: Reliability performance of this company for all the items such as on time schedule, flight status information, frequent flyer/mileage program, reputation, etc. have a mean value of 2.73. It implies that reliability perception of customers significantly impacts on GAP_5. In addition, we found that the most critical item is timely performance.

Responsiveness: The result of analysis (with a mean value of 3.17) implies that these factors contribute to GAP_5 because of the lack of willingness and helpfulness of staff, prompt baggage delivery, and the need for waiting long time at the ticket counter and boarding gate. The most critical item of responsiveness is the need for helpfulness/courtesy.

Assurance: Mean value of this dimension is 3.57. It implies that these factors also contribute to GAP_5. The most critical item is the need for adequate support from the airline in resolving these problems.

Empathy: The performance of the airline does not satisfy passenger expectations for all items under this dimension such as personal attention, understanding of customer needs, etc. It results in a mean value of 2.95.

5. Discussion and Further Studies

According mean value of each gap in SERVQUAL model, reflecting existing service operations (reservation, before-flight service, onboard service, and after- flight service) of a selected airline company, this study suggests following recommendations:

- Using frequent marketing research to perceive customers needs/expectations and then translate them to design various services operations such as providing more flight schedule, conducting the business feasibility study on providing the low-cost airline, providing more systems/facilities for safety and comfortable purpose, and providing self-check-in or online check-in services;

- Voice of customer should be communicated through out the company by using in-housing newsletter, online information, or call center services;

- Looking at performance in different approach rather than using existing approach to judge it rather by behavioral approach to evaluate performance based on merit to make employees satisfied with supervisory control system;

- Providing the communication on business performance to all employees concerned and avoiding to over-promise which would raise the customer expectation can cause more dissatisfaction if employee unable to meet the promise;

- Keeping modern designed of aircraft fleet (comfortable seat, and up-dated in-flight service technology), the company could regain their lost reliability and reputation regarding on-time performance;

- Encouraging all customer-contacted employees (i.e. checking-in, baggage claim service) to show helpful/courtesy to gain passenger's royalty to the company; and

- Controlling the probability of missing baggage and giving personnel attention to gain passenger's confidence towards company's service processes.

However, the degree of passenger's perceived on service quality could be varied from time to time. Seasonal effect (high-low season) of traveling should be investigated for further study.

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