

The Initial Study of Problem-solving in Customer Services in the Airlines' Sector

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Abstract: - Problem-solving is considered to be one of the important factors affecting and creating competitive advantages for customer services in the Airlines' Sector. Services in the airline industry refer to the system of air transportation of people and goods. However, airline companies need to pay more attention to adapt to the new business conditions if they want to maintain their market share. Consequently, airline companies switch their attention to customer complaints rather than focusing only on service price. Customer complaints means dealing with several issues associated with the creation of customer satisfaction. This could be improved by introducing a simple, formal and informative problem-solving approach; prevent re-occurring problems and support decision making by creating a useful knowledge environment. This paper aims to explore the current practices of problem-solving in customer services in the airlines' sector. This will lead to a better understand of the urgent need to customise a problem-solving approach based on A3 Thinking.

Key-Words: - Customer Services, Problem-Solving, A3 Thinking, Knowledge Management.

1 Introduction

The competition in the airline industry is based on customer service delivery. Nowadays, there are 265 airline companies over 117 countries operating worldwide [1]. If we consider the domestic carriers, the number of airline companies might hit 5000 over the world. This huge number reflects the severity of the competition level in the airline industry. This sever competition adds another layer of complexity to the challenges that airline companies encounter. However, airline companies need to pay more attention to adapt with the new business conditions if they want to maintain their market share. Consequently, airline companies switch their attention to the customer complaints rather than focusing only on service price. It is believed that several problems and customer complaints could be prevented by introducing a formal problem-solving approach. This will prevent re-occurring problems and create a knowledge environment to support customer services.

The rest of this paper is structured as follows; Section 2.1. outlines different customer services available in the airline sector. Section 2.2 summarises the customers' journey in the airlines sector in an attempt to identify the customers' experience at different touchpoints so that the company can improve the customer experience to deliver a better level of satisfaction. Section 2.3 highlights different approaches used to solve

problems. In addition, Section 3 focuses on a customised problem-solving approach for the airlines' sector. Section 4 outlines the importance of creating the right knowledge environment from the solved problems. A detailed description of the initial field study and the research gaps are presented in Sections 5 and 6. Finally, Section 7 provides the conclusion and future plan.

2 Literature Review

2.1 Customer Services in the Airlines Sector

It is argued that there is a significant gap between the service delivery process designed by the service provider and the service delivery from the customer's perspective and this gap should be narrowed if companies want to compete in the market [2]. However, customers' needs are different and, accordingly, it is not possible to establish a single set of needs that suit all types of customers. Liou et al. [3] argued that different industries create different customers' needs, which mean that each industry has its unique operational settings that create different customers' needs. Mason [4] argued that flight safety and in cabinet services, including meals and comfort of seats, are key services that customers of the airline industry care about. Chen and Chang [5] argued that airline services can be classified into two main groups; ground services and

in-flight services. Ground services include information gathering, reservations and ticket purchases, airport check-in, and post-flight service. While in-flight services include in-flight seat comfortability and quality of meals offered. Similar to [6], [3] and [7] found that timeliness of check-in and departure, along with having proper room for passengers' legs and knees (seat comfortability), are significant services for customers of the airline industry. Chang et al. [8] found that in-flight meals play a significant role in the repurchasing decision of airline customers because such meals affect the overall satisfaction of customers. Curry and Gao [9] found that airline companies which provide better services enjoy solid competitive advantages that enable them to retain current customers and entice prospective customers, thanks to strong loyalty that their customers have towards their services. Table 1 summarises some of the researches into customer services.

Table 1 Summary of studies in customer services

Author(s)	Purpose	Methodology	Findings
Halvorsrud et al. (2016)	To propose a framework based on customer journeys for a structured portrayal of service delivery from the customer's point of view	Case study methodology	They identified four points that need improvement in the way to improve customer service quality.
Liu et al. (2011)	Propose a framework to improve service quality among domestic airlines in Taiwan	Modified grey relation method based on survey data.	They provide managers of Taiwanese airline companies with the tools (e.g. performance ranking services) needed to improve customer service quality.
Martin et al. (2011)	Evaluating frequent flyer programs from the air passengers' perspective	Interviews and questionnaire	They reported that willingness-to-pay is higher for FFP passengers.
Chen and Chang (2005)	They examined the gap between travellers' service expectations and actual service received and the potential gaps related to travellers' service expectations and the perceptions of these expectations by frontline managers and employees of a Taiwanese airline.	Survey	There is a severe gap between passengers' expectations and services received in Taiwanese airline companies.
Bandy (2002)	To develop a programme that is able to improve customer service quality which will improve customer satisfaction	Analytical study	The facility manager is able to design and instrument customer service programmes that improve customer satisfaction and the overall performance of the facilities management operation.
Mason (2001)	To test whether business passengers using low-cost airlines represented a separate market segment than those business passengers using traditional network carriers	Survey	Passengers using network carriers use low-cost airlines and vice versa.
Donovan and Samler (1994)	To develop a framework that is able to create a Customer-driven Organization	The ten-step for delighting customers	Customer service quality can be delivered using this 10 step and companies can continue satisfying customers' needs in a sustainable way by complying with this steps.
Street (1994)	To demonstrate how British Airways deliver high quality customer service by investing on staff training.	Case study	Staff training is a valuable way to deliver high quality customer service.
Young et al. (1994)	1. Evaluate service quality perceived by passengers. 2. Evaluate consumer awareness and usage of airline survey.	Analytical study	They found different service quality levels of airline services. In addition, they reported that the airline survey is not well disseminated nor used by most of passengers.

2.2 Customer Journey in the Airlines' Sector

It is important to identify the different touchpoints of the customer journey to help companies plan ahead to meet the customers' expectations. Airline companies can identify the most important touchpoints from the customer point of view; so that the companies can affect the customers' experience

in a way that can retain the customer loyalty in the long run. Accordingly, the study identified a lot of points which are divided into three main stages; before the journey, during the journey, and after the journey. Dent [10] argued that the most important steps vary among customers according to their classification (business, leisure, family, and special needs' travellers). It was found that the family travellers, for instance, are more concerned with the in-flight services, like the meals provided and types of entertainment available for children. On the other hand, the business travellers are more concerned with business facilities (e.g. Wi-Fi availability) during the journey and the accuracy of check-in times. Fig.1 summarizes the customer journey touchpoints at the three stages.

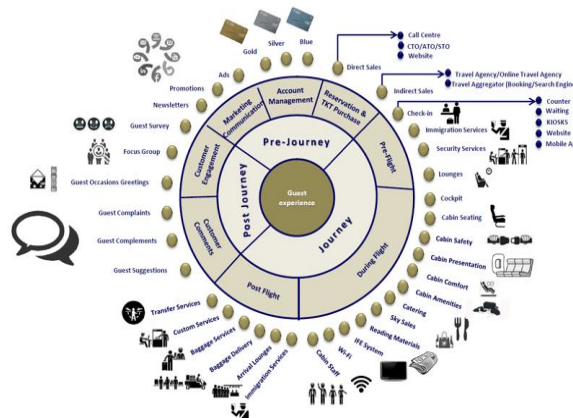


Fig.1: Customer journey mapping

2.3 Problem Solving Approach

Saad et al. [11] argued that problem solving is a mental process which incorporates several stages (steps) starting with the problem identification and ending with the application of the best action to eliminate the roots of the problem. The success of the problem solving approach can be measured by several proxies; for example, the frequency of customer complaints [12] and/or the disappearance of the problem in the future [13].

There are many of problem solving approaches that could be used in the airline industry to maximise customer service quality in airline industry. These approaches include the root cause analysis (RCA). These celebrated approaches are capable of diagnosing the real roots of a given problem to assure that the company is addressing the problem and not the symptoms of the problem [14].

Many researchers have proposed their own approach for the problem solving. The following are a number of such approaches to address problems:

2.3.1 The 5 Whys

The 5-Whys analysis was originally introduced by the Toyota Production System (TPS). It is argued that “Taiichi Ohno”, who is the founder of TPS, believed that the 5-Whys analysis is a very effective tool to identify the root cause of problems [15]. Saad et al. [11] argued that the 5-whys technique can be integrated with different problem solving approaches easily and effectively for better outcomes. For example, the fishbone diagram as shown in Fig.2.

Although the literature review reveals the wide use of the 5 Whys approach in order to identify problems, no knowledge creation activity is found for this approach. The reason is that the 5 Whys (asking ‘why’ five times) mainly identify the causes of a problem. However the solutions are not explained in detail or verified.

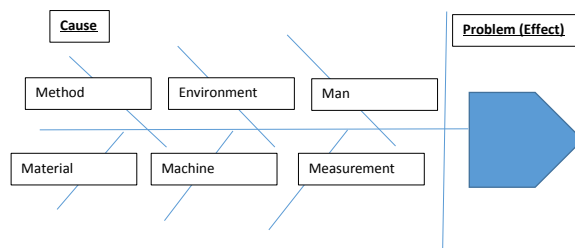


Fig.2 The fishbone diagram of problem solving

2.3.2 Root Cause Analysis

Root cause analysis (RCA) is a management tool that is mainly used to identify and analyse the origins of a given problem [11]. Additionally, the RCA is that it can deal with problems with multiple root causes and it is able to identify multiple root causes of a problem if it exists [14].

However, the success in knowledge creation is contingent on the documentation and the presentation of the data collected. In other words, some problems might have interrelated causes and roots which makes it difficult to understand the causes and related effects of such problems if there is no good documentation and presentation of the data collected (Kim et al., 2009).

2.3.3 Problem Analysis Flowchart (PAF)

The Problem Analysis Flowchart is one of the well-known problem solving approaches, especially in manufacturing companies, thanks to its ease of use. It is argued that even unexperienced employees are able to understand how to solve a problem that is listed in the template generated by this method thanks to the well-structured ten steps that this method is based on [11]. Table 2 shows the 10 steps of the PAF in detail in order to fully understand this method.

However, if we check these 10 steps, we will notice that it is not as systemised as other problem solving approaches. It is more based on a trial and error approach in almost all the stages starting from problem causal identification until the corrections.

Table 2 Detailed Steps in the PAF

Step	Details
Problem Statement	Considering two different perspectives which are the object and defect. The object will be a process, machine, part and system. The problem statement will ask what, where, when, scope and trend.
Symptoms	Symptoms are faults that need to be observed. This step includes faults, signs of problems.
Changes	The change might have occurred prior to the onset of the problem.
Relevant data	Any relevant information or data that can help to resolve the problem.
Defect free configurations	Helps to eliminate potential problem causes.
Distinction	Always compare the process or object with the problem to the process or object without the problem, not vice versa.
Causal chains	Causal chains are the logical steps from symptoms to the cause of the problem. Each step is the cause of the next step and the effect of the previous one.
Test, corrections, results and conclusion	All these activities will eliminate potential root causes.
Most probable cause	Review all the analysis and discuss the results by listing the underlying causes of the problem.
Short term and long term corrections and controls	The short term action – requires little effort and the problem is fixed on the spot. The long term action – requires more effort and the problem is continuously improved.

2.3.4 The 8 Disciplines

Bhote and Bhote [16] argued that the 8 disciplines (8 D) problem solving tool was originally developed by Ford (the American car manufacturer) in the early 1990’s to overcome any operational inefficiencies associated with production and customers’ satisfaction. The 8-D technique contains 8 steps.

However, on the other hand, [16] criticised this approach as it is not effective in brand new problems. They justified this as the 8-D approach does not provide a solid solution to the problem. In other words, it doesn’t tell the involved team how to solve the problem because it is highly reliable on conjecture and guessing techniques that have been used for a long time and found to be ineffective.

2.3.5 A3 Report

The A3 Report was introduced in the 1960s used by the Toyota Motor Corporation to present any probable solutions. It develops a well-defined structure to handle problems. According [17] the A3 report is “a mechanism to foster deep learning, engaging collaboration, and thoroughness”. A3 paper is applied successfully as a communication tool with evidence and logical structures [18]. Normally, the A3 report is considered as a good visualization method [19] that is found in 4 minor variations: proposal, problem solving, status reporting, and competitive analysis [20]. This systematic A3 report approach not only targets to solve and communicate problems but also presents

the process more transparently and comprehensibly leading to a ‘full on’ thinking and learning [21] and [17]. The conventional A3 report supports by getting more detailed knowledge of the problem and opportunity with possible solutions. In Toyota, the conventional A3 report helped in fostering knowledge development [17].

The conventional A3 report has three major effects: (1) the format needs conciseness and focus; (2) pictures and other visuals make the A3 report easy to learn and it, in turn, supports getting maximum information; (3) all of the important information is put at the front (Saad et al., 2013). A conventional A3 template for A3 sized paper is shown in Fig.3 and it consists of seven components, beginning with the background and proceeding to the current condition, future goal, root cause analysis, countermeasures; implementation plan and follow-up action, as well as the Plan-Do-Check-Act (PDCA) learning cycle that are put on two sides of A3 paper (Kimsey, 2010).

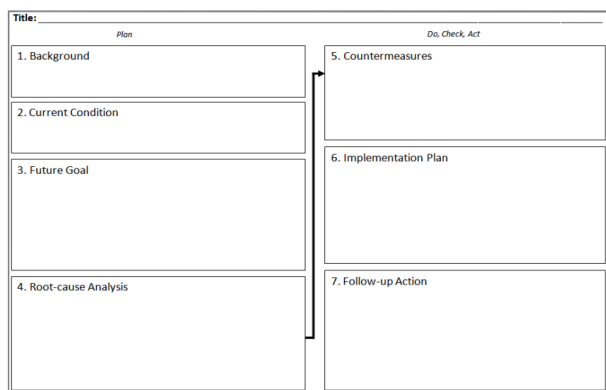


Fig.3 The traditional A3 template

3 Towards a Customised Problem-Solving Approach for the Airlines’ Sector

The author tries to give a summary of the approaches discussed in section 2.3. The traditional A3 report is found useful in handling problems in the airlines’ sector. In this research, the problem solving approaches are considered not only to solve the problem but also to confine the knowledge created during the solving activities to support current and future decision making. Useful knowledge will be accumulated and visualized with the help of right directions and processes and this will assist the airlines’ sector to convert their experiences into proper knowledge. However, the process needs to be well defined so that airlines’

sector is motivated to provide useful knowledge in an efficient way.

The 5 Whys and root cause analysis (RCA) approaches are commonly practised but the traditional A3 report, 8 Disciplines (8D) and Problem Analysis Flowchart (PAF) do not have enough empirical study in airlines’ sector. So, it is significant to find elements that are needed to assist problem solving in the airlines’ sector with a simple template.

The five approaches and their main phases are shown in Table 3. This analysis is done considering the main phases found on their standard templates. The outcomes of the analysis facilitate to recognize a number of vital phases and their tools, e.g. including text, diagram, table, graph, sketch, bullet, and a blend of problem solving phases would be good options for the new A3 thinking approach.

Table 3 Inter-relation Analysis Phase-to-Phase

Problem Solving Approaches					
	8 Disciplines (8D) Standard	Traditional A3 Report	5 Whys	Root Cause Analysis (RCA)	Problem Analysis Flowchart (PAF)
Key Phases	1. Form the team pitfalls				
		1. Background			
	2. Clarify the problem	2. Current condition		1. Define the problem 2. Collect the data 3. Identify possible causal factors	1. Problem statement
		3. Future goal			
	3. Contain the problem pitfalls				
	4. Identify the root cause	4. Root cause analysis	Why 1 Why 2 Why 3 Why 4 Why 5	4. Identify the root cause (s)	2. Symptoms 3. Changes 4. Relevant data 5. Defect-free configurations 6. Distinction 7. Causal chains
	5. Generate solutions	5. Countermeasures			
	6. Implement permanent solutions	6. Implementation plan		5. Recommend and implement solutions	8. Test, corrections, results and conclusion
	7. Prevent recurrence				9. Most probable cause
	8. Congratulate the team (Validation)	7. Follow-up action			10. Short term and long term corrections and controls

Legend:

Text	Diagram	Graph	Sketch
Bullet	Combination	Table	

4 The importance of Creating the Right Knowledge Environment from the Solved Problems

It is necessary to understand about the capability as it helps in achieving an efficient knowledge management for organisational performance. The target is to examine various problem solving approaches regarding their capability to effectively solve problems and create knowledge. A new A3 thinking approach will assist to develop suitable knowledge management capability for better

competitiveness. So, a number of capabilities have been defined depending on problem solving activities, like knowledge creation, capture and sharing. The capabilities consider the following issues and challenges in knowledge management:

- Zhang et al. [22] mentioned the core idea of knowledge management in companies and the main challenge is to capture and share tacit knowledge.
- Borches and Bonnema [23] mentioned a number of obstacles based on their survey: communication within disciplines and divisions, addressing complexity, identifying suitable systems information and knowledge sharing. They argue that limited knowledge sharing is the main source of many problems.
- According to [24] it is essential to make sure of the efficiency of knowledge capture, sharing and reuse of the knowledge in a more structured way to assist new product development.
- According to [25] confining knowledge is a big issue for the organization and knowledge creation, and capturing and sharing knowledge have the most significant role in organizational knowledge management.
- King et al. [26] mention the difficulties of creating and sharing of knowledge in organisational knowledge management.

The main difficulties identified for the knowledge management are knowledge creation, knowledge capture and knowledge sharing. These three capabilities are of great importance in managing knowledge considering the innovation. The innovation success is attained as soon as the problem solving capabilities are identified [27]. The recommended A3 thinking approach based on these capabilities will minimize the number of complaints in airlines' knowledge management for customer services. This leads to the development of a novel A3 thinking approach that assists the knowledge driven customer services regarding the problem solving based on these capabilities.

- **Capability 1: Knowledge Creation**
Jurie [28] mentioned that knowledge creation is the key activity for innovation and competitive advantage that structures the problems, develops and applies solutions for the identified problems and increases the scope of gathering new knowledge with the help of problem solving activities.

- **Capability 2: Knowledge Capture**
According to [25] efficient knowledge capture relies on changing personal knowledge into group knowledge following the organisation's strategy in order to share the knowledge.

- **Capability 3: Knowledge Sharing**

Knowledge sharing is the distribution of knowledge in the organization and it is an essential element of [29].

5 The Initial Field Study

The author interviewed key personnel in Saudi Airlines in Saudi Arabia (Jeddah) to understand the current practices of Saudi Airlines and to know the issues of customer dissatisfaction and how they can deal with it. Fig.4 illustrates the key findings of initial field study for Saudi Airlines in Saudi Arabia in Jeddah. The figure shows the customer journey and the satisfaction. It is noticeable that the customer journey has 11 stages, described as follows:

- The first two stages, Marketing and Ticket Purchase (Pre-customer journey), appear with a green colour, which that mean there were no issues with customer satisfaction.
- The level of customer satisfaction was average and appears in this figure with a yellow colour in Pre-Flight and During-Flight customer journey (check-in, lounge, on-ground, boarding, on-boarding and arrivals).
- Finally, there are issues in customer satisfaction that appear in a red colour in Post-journey (baggage delivery, delay handling, complaint handling).

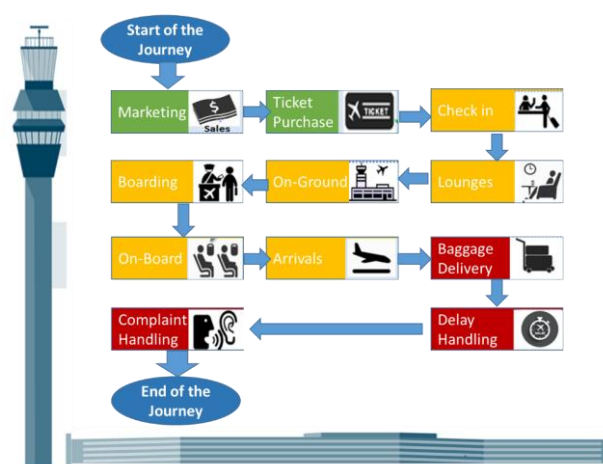


Fig.4 Customer trip experience

From the initial field study Fig.5 shows the proportion of customer satisfaction in the key stages of a customer journey. It is obvious from the figures that the lowest customer satisfaction is in airport-post flight.



Fig.5 Customer satisfaction

In addition, the initial field study conducted the typical customer complaints during the customer journey, as seen in Table 4.

Table 4 Typical customer complaints

Typical Customer Complaint	Customer Journey
The price of the ticket	Pre-customer journey
Lounge facilities/rest area	Pre-flight
Flight schedule	
Departure time	On-boarding
Quality of food & drinks	
Unexpected changes (plane/seat/cabin class)	Arrivals
Entertainment content	
Baggage handling services at check-in	Arrivals
Queuing/waiting time	
Staff attitude/behaviour	
Staff ability to solve any problems or issues	

6 Research Gaps

A review of the literature urges for more research in the field of the problem solving approaches used for knowledge management. This works as a base for a new problem solving approach. The following illustrates the research gaps found during the review of the literature:

- There is not enough discussion and empirical research available to implement the problem solving approaches in airlines' sector.
- The problem solving approaches are not sufficient to develop the knowledge management capabilities in order to assist knowledge driven customer services.
- The study did not identify one approach that combines the capability of knowledge creation, capture and sharing in an easier way in airlines' sector.
- A gap exists regarding the definition of a problem solving approach to assist the customer services environment.

7 Conclusion and Future Plan

Problem solving is a crucial skill in the customer service. Any lack of effective decision making during customer service will lead to dissatisfaction

of the customers. This type of issue can be solved through an appropriate problem-solving approach.

Although, there are systems in airlines to handle with customer complaints; the biggest challenge is not only whom will take up the quick response to solve these issues, but also how the results of complaints handling can be converted into reusable knowledge and prevent re-occurring problems in the future.

Given the current state and the customer satisfaction issues, there are no appropriate problem-solving approaches in airline sector that could deal with customer complaints. It is believed that several problems and customer complaints could be prevented by introducing a formal problem-solving approach. This will prevent re-occurring problems and create a knowledge environment to support decision making. This research is looking at the use of A3 Thinking as a problem-solving approach after being modified to suit customer services' needs in airlines sector. This will lead to having a Knowledge Management (KM) application in order to capture and create knowledge for its re-use, thus supporting the continuous improvement process of customer services. Further research is required to produce a novel A3 thinking approach to capture and provide useful knowledge, to be created and documented in a simple manner.

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