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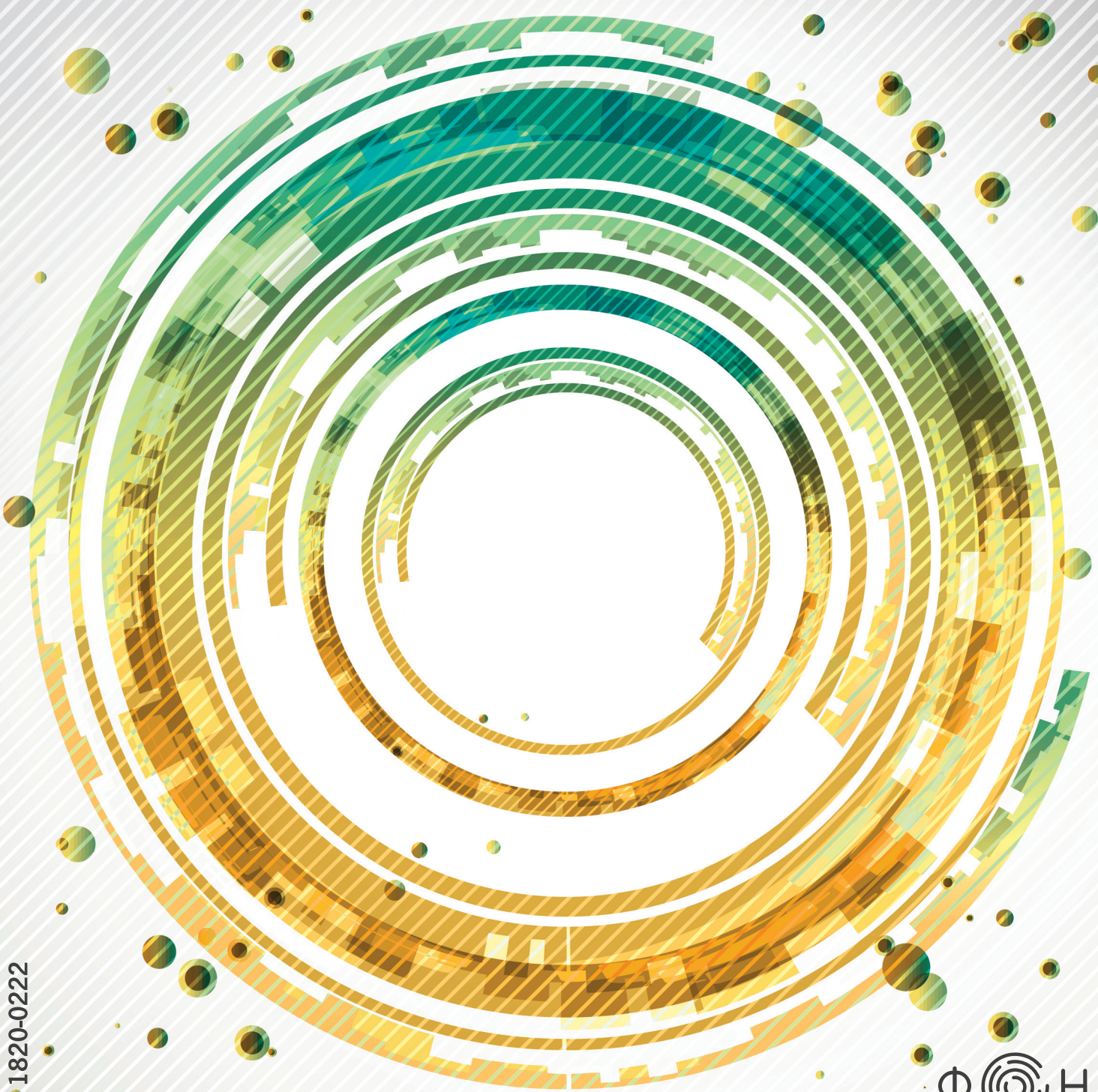

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УНИВЕРЗИТЕТ У БЕОГРАДУ
ФАКУЛТЕТ ОРГАНИЗАЦИОНИХ НАУКА

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Can Service Faults in Passenger Flights be Prevented? A proposed Framework

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The paper devises a new framework for implementing preventive service systems that aim at preventing service failures and complaints in air transport services. By proactively monitoring the provision of services to passengers and averting service failures, preventive service management decreases the volume of customer complaints and assists in enhancing service quality and airline reputation. The presented framework is based on extensive use of IT systems that continuously monitor the service infrastructure in a cycle of activities that includes detection and prevention of service failures, notification of service malfunctions and follow-up operations. The implementation and the value of the framework are exemplified in various scenarios that arise in the operation of commercial flights and often facilitate passenger complaints and discomfort.

Keywords: preventive service management, service faults, customer complaints, customer satisfaction.

1. Introduction

The dramatic growth of the airline industry and air transport worldwide highlights the major economic and commercial importance of provision of quality and punctual flight services (Kim and Lee, 2009). The operation of services is challenging and complex, particularly in the airline industry, where large numbers of passengers continuously travel to multitude destinations worldwide and air transport services incorporate a broad set of resources, safety and work procedures.

Recent studies emphasize the importance of complaint management as a key factor for ensuring customer satisfaction and, in the longer term, customer loyalty (Homburg et al., 2010). At the same time, studies conducted on the subject of service recovery argue that most of the customers that confront service failures avoid complaining, especially before deciding to leave their service providers, and thereby do not provide service companies the opportunity to correct their negative experiences or compensate them for their damages (Chebat, Davidow, and Codjovi 2005; Sharma et al. 2010). Further, similar service failures often repeat themselves (either in same or different contexts) and more customers are exposed to service malfunctions that could have been prevented had companies enforced service control mechanisms earlier.

The recent and common practice applied by service providers that seek to improve their operations is complaint management. Complaint management includes scope of activities that encourage dissatisfied customers to complain, rather than remaining dissatisfied and spread negative opinions, correct their negative experiences and "convert" dissatisfied customers to satisfied and loyal clients (Fornell and Wernerfelt, 1987; Paul et al., 2009). However, the major drawbacks of complaint management are the exposure of customers to service faults and the requirement that customers contact their service providers and complain as a precondition for initiating complaint management procedures.

Preventive service management is a new and innovative framework that aims at improving customer satisfaction without exposing customers to negative experiences, by preventing service faults and the consequent customer complaints. The methodology is based on ongoing monitoring of the service infrastructure and processes and on detection of conditions that may lead to potential service failures. Since continuous mon-

itoring activities require intensive labor and may be very costly, we advocate the application of automated systems to carry out monitoring activities.

Preventive service management aims at guaranteeing consumer satisfaction as well as proactive elimination of events that may lead to potential service malfunctions by using human-based procedures and automated systems. Indeed, prevention of failures was explored in the airline industry, considering, in particular, airline maintenance and safety policies (see for example Liou et al., 2008; Netjasov and Janic, 2008). However, little research has been dedicated to preventive practices that can enhance the quality of the service provided to passengers. Preventive service management suggests that by identifying, monitoring and preventing different factors and occurrences that result in service malfunctions, airlines can improve the level of delivered services and customer satisfaction, while sparing inconvenience and recovery costs.

2. Preventive service management: a conceptual framework and methodology

Preventive service management can be applied in a wide range of organizations, including airline companies. However, its application requires a coherent and constructed framework that addresses a broad variety of services and processes that support them. The methodology and the framework presented in this paper were constructed to accomplish the major aim of reducing the likelihood of service failures. This aim is addressed and met at large by establishing a model that addresses a broad spectrum of service related processes and organizational units on the basis of four major stages: detection, prevention, notification and follow-up (see Fig. 1).

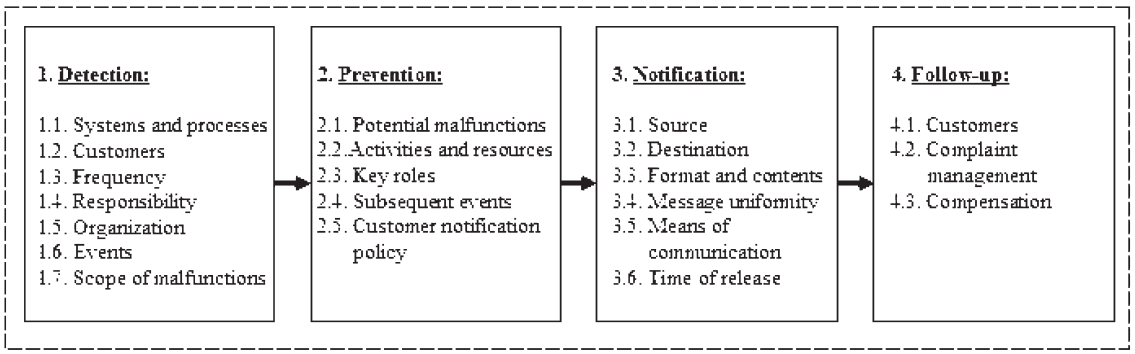

Figure 1: Stages of the Preventive Service Management process

Detection represents the stage of continuous monitoring of services to eliminate possible occurrence of dissatisfactory events. For example, airline companies may continuously monitor the state of major and minor aircraft maintenance problems to allocate replacement aircraft and team within a short period. Automation of the monitoring processes via real-time information systems provides broad coverage of the services in multiple destinations worldwide, while enabling the airline to economize on labor costs.

Service activities and information systems that carry out detection processes should address the following aspects:

1) The service operations, processes and related systems that should be monitored by the airline.
2) The population of customers for which detection is carried out (for example, business passengers, frequent flyers or all the passengers in a particular flight).
3) The frequency of operating detection activities (for example, hourly, daily or weekly monitoring of service processes).
4) Who is responsible for different detection operations.
5) The ways in which detection operations are organized and carried out, the information systems and the airline resources that they use.
6) Which events are defined by the airline as service malfunctions.

Prevention represents the activities that the airline implements to eliminate potential risk factors that affect the proper provision of services and their quality. In this stage, the airline carries out activities that proactively prevent the occurrences of service failures, such as emergency and contingency operations. In case planned service outages and maintenance operations are carried out, prevention includes the organization of activities and resources that can shorten the duration of service malfunctions and minimize financial losses.

Our framework consists of the following aspects of prevention processes:
1) Identifying potential service failures that may occur and articulating plans to resolve them in advance.
2) Allocation of resources and prioritizing necessary means to prevent service failures from occurring - The allocation of resources can also be decided on an economic basis: service providers can decide to invest in preventing only the failures that cause damages that surpass the costs of the resources, without taking into account downgraded service quality and reputation.
3) Key roles in the firm that should be informed about service failures that are prevented (major stakeholders within the airline, such as the CEO, technical experts and customer service managers).
4) Subsequent events that follow particular service failures and should be prevented.

Notification provides information about service failures to customers who are likely to be affected by them or to customers that the airline finds it important to alert about the problems and the major steps that are taken to solve them. Notifications may be delivered to customers in conjunction with the preventive operations that are carried out or may be activated after the prevention stage is completed. The proposed framework suggests that by applying notification in an automated way, the firm can address a large number of customer calls in cases of widespread service failures. It is further suggested that firms should implement additional *active* notification systems that pro-actively contact customers and deliver notifications about expected service failures or failures that are discovered and can affect the operations of customers.

3. Applying the preventive service framework: prevention of potential service failures in passenger flights

The most common passengers' complaints refer to the following categories (Weber and Sparks, 2004; Kim and Lee, 2009):
- Airline punctuality and convenient flight scheduling.
- Food quality and fulfillment of special meal requests (such as a vegetarian, Kosher or a children's meal).
- Proper and complete delivery and receipt of baggage at the flight destination.
- Cabin and check-in services.

Airlines can comply with a broad spectrum of service failures and malfunctions and prevent them by implementing proactive steps for monitoring and correcting service failures. The range of service processes and the failures associated with them begins when customers are ordering their tickets and ends when they leave the flight and collect their luggage. In general, the sources of service failures can be divided into three major groups: first, data on passengers or on airplanes are not streamlined between various information systems of the firm, resulting in maltreating customers despite the available information on their bookings and preferences. For example, a malfunctioning seat that is reported in the aircraft maintenance information system and is not removed from the ticketing system until it is fixed can create a problem to the passenger that purchased it and to the crew that should remove him to another seat shortly before take-off.

Second, passengers provide information via their bookings, but further know-how about their flight habits and needs that could ensure their convenience and satisfaction was not derived from their booking. For example, passengers that purchase children's tickets should not be allowed to choose seats near the exits, since children are not strong enough to open the exit doors in case of emergency. Hence, the ticketing system should prohibit choosing these seats when bookings that include a child are made so as to prevent the inconvenience of allocating different seats before the flight.

Third, due to lack of attention or mistakes of passengers or service providers, passengers are provided with inferior services than could have been supplied to them had these mistakes been automatically tracked and prevented. For example, if the passenger or the travel agent forgets to request special meals, the frequent flyer system can ensure via the purchasing history that the passenger usually consumes standard meals or otherwise contact the passenger before the flight to validate his choice.

Table 1 summarizes the various potential service failure events that can occur throughout the process of service provision in commercial passenger flights. As the various types of service failures do not depend on each other, airlines can choose to implement some or all of the proposed solutions to prevent them.

Table 1: Potential service failures in passenger flights and activities to monitor and prevent them

	Service failure description	Proposed solution
1	Unplanned flight delay - Delay of arrival to the destination and possibility of missing connection flights	Notification of passengers upon the event, the expected delay and instructions what actions should be taken. Preparation of dining and sleeping arrangement, if needed, including passenger transportation.
2	Planned flight delay - Delay of arrival to the destination and possibility of missing connection flights	Notification to passengers about planned flight change (via SMS or phone). Rental of aircraft and crew, if needed. Frequent update of passengers.
3	Ticketing and seat allocation - Improper allocation of seats for babies, children and disabled persons by the ticketing system	Allocation of baby and parent seats by the ticketing system upon completion of a booking. Child seats would not be permitted next to emergency exits. Disabled persons ordering wheelchairs would not be seated next to emergency exits. Unavailability of seats due to technical problems requires notification of maintenance, temporarily removal from the ticketing system for upcoming flights and automatic allocation of alternative seats if purchased.
4	Flight manifest inaccuracies - Passengers do not appear in the manifest despite purchasing and receiving their flight tickets	Before flights automatically examining that the manifest and the passenger ticket purchases are identical. If mismatches were revealed, passengers would be provided with alternative seats.
5	Arrival of passenger luggage to a wrong destination	Receipt of contact details and address from passengers reporting luggage claims. Update of passengers via SMS or phone upon finding the luggage and coordinating its delivery. Installation of additional barcode readers in baggage compartments of airplanes to prevent wrong loading.
6	Flight time brought forward – Inconvenience and loss of Duty Free shopping time	Passengers are notified via SMS or by phone
7	Meals do not fit preferences of passengers (vegetarian, Kosher, etc.) due to travel agents' mistakes or passengers forgetting to specially order them	Automatic review of Frequent Flyer history can reveal mismatch between passengers' meal orders in the present and in the past. Then, a company representative will call the passengers to ensure the accuracy of their present meal order.
8	Reduction of pre-flight waiting time	Luggage collection from the passenger's house (as a premium/standard service).
9	Animal transport – Lack of passenger's knowledge can impede the check-in process or would not allow transporting the animal.	Delivery of an email a few days before the flight stating the procedures and requests in detail, including contact details of the airline's advisory veterinarian**.**
10	Confusion about the flight time due to mistakes and lack of attention	Redesign of the electronic ticket to highlight the flight date and time. Delivery of SMS with the flight details the day before.
11	General or specific seat malfunctions in the media system	Reporting the malfunctions to maintenance. Distribution of media players to passengers.

Among the various service failures that can be prevented by airlines, mismatch between passengers' meal preferences and the meal ordered for them (seventh category in Table 1) can occur due to mistakes in online booking or due to a travel agent's fault. This service failure can cause major inconvenience to passengers who cannot consume non-standard meals (due to medical or religious reasons), as most airlines offer them only if they were ordered before the flight. Fig. 2 exemplifies how this failure can be prevented by linking the various information systems and data sources of the airline. This process aims at ensuring that ordered meals match

the preferences of passengers, indicated by data on their previous and recent flights. If no mismatch is found, the passenger receives by SMS his flight and meal details. Otherwise, an airline representative contacts the passenger to verify that the meal order matches their preferences and, if necessary, corrects it.

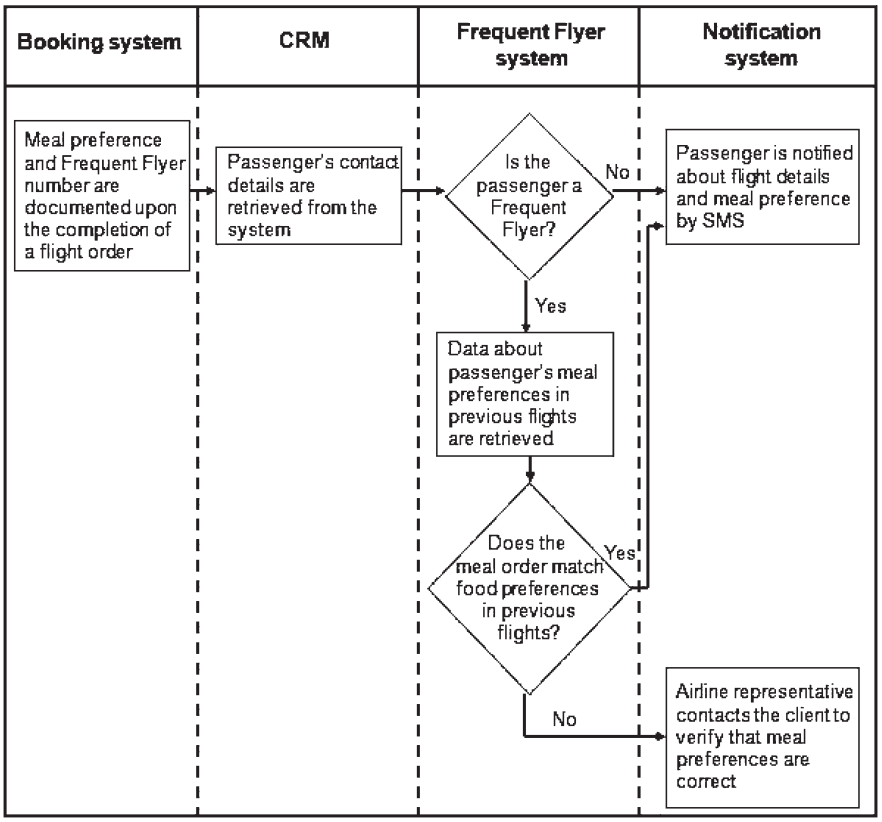

Figure 2: Preventing mismatch between meal orders and passenger preferences

Conclusion

The recent research literature on service and customer relationship management has largely focused on preserving customer satisfaction and addressing customer complaints as means for improving service quality. This paper takes a different approach towards the possibilities of improving the quality of services by proposing the preventive service management framework, which is based on monitoring the provision of services and eliminating potential service failures.

The airline industry was chosen to illustrate the application of preventive service management and its benefits as the operation of airlines and their revenues are largely based on the quality of services. Additionally, airline operations are sensitive to the emergence of service failures in multitude operations and contexts, for example as a result of technical malfunctions in aircraft cabin systems.

The presented methodology suggests that while the majority of services providing organizations, including airline companies, react to service malfunctions in an attempt to preserve satisfaction and loyalty of customers, service quality can be preserved in advance, hence sparing airlines the negative consequences of service failures. The methodology also advocates extensive use of information and communications systems. On the one hand, the use of information technologies enables airlines to enhance the degree and the quality of communication between them and their customers (e.g. by notifying them about their orders or any changes in the flight schedule). On the other hand, airline companies can produce larger value from data on aircraft procedures or about their customers' habits (e.g. by preventing ticketing of a broken seat or by identifying mismatch between an ordered meal and the customer's special food habits from past purchases). Moreover, by using information and communications systems for automatic processing of information and for handling of potential service failure factors, airlines do not only enhance service quality but also substantially economize on labor and service recovery costs.

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