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BACHELOR THESIS

Measuring Service Quality During and After In-Flight Incidents: A Case Study of Alaska Airlines Flight 1282

presented by

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Preface

This bachelor's thesis was written as part of my studies in Wirtschaftsinformatik at the Universität Hamburg. The topic of this thesis, measuring service quality during in-flight incidents, piqued my interest as it represents an exciting connection between technological systems and human interactions. In our increasingly globalized and interconnected world, the aviation industry plays a central role, and the quality of customer service in stressful situations, such as unexpected in-flight incidents, is crucial for passenger trust. My personal interest in aviation also motivated me to explore this topic in depth.

However, conducting this research posed several challenges. In particular, the limited availability of data and direct literature on specific aspects of service quality during in-flight incidents made the empirical analysis difficult. This required an intensive and creative approach to the available sources, as well as a thorough exploration of related fields of study. Despite these challenges, I was able to develop solid findings through targeted methodological approaches.

Special thanks go to my supervisor, Prof. Dr. Stefan Voß, whose continuous support and valuable advice contributed significantly to the success of this thesis. Especially during the final phase of the thesis process, he was not only academically supportive but also provided assistance beyond the scope of the thesis. I am deeply grateful for his constant availability and invaluable guidance.

I hope that this thesis will contribute to research in the field of service quality in aviation and will serve as a basis for further studies aimed at improving service processes in critical situations.

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Philipp Borkers

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1. Introduction

1.1 Background and Context

Air travel is widely regarded as one of the safest modes of transportation globally. According to the IATA Annual Safety Report (2023), the commercial aviation industry experienced 30 total accidents in 2023, a notable improvement from 42 accidents in 2022. The all-accident rate decreased from 1.30 per million sectors in 2022 to 0.80 in 2023, with an average of one accident for every 880,293 flights. Despite these impressive safety statistics, the possibility of in-flight emergencies cannot be completely ruled out. For instance, on January 5th, 2024, Alaska Airlines Flight 1282 experienced an in-flight emergency when a panel detached from the fuselage during ascent, causing rapid decompression and necessitating an emergency landing.

While these emergencies are rare, they differ significantly from regular flight operations in terms of both the expectations of passengers and the response required by airline staff. In normal conditions, airlines are primarily judged on on-time performance, comfort, pricing, and in-flight services, such as entertainment or food. However, service quality plays an even more critical role during an in-flight emergency. How an airline manages such a situation—including how well the crew communicates with passengers, provides safety measures, and offers post-incident support—can significantly affect the passengers' perception of the airline and can drastically affect customer loyalty.

The case of Alaska Airlines Flight 1282 highlights the unique challenges airlines face during emergencies. In such situations, passengers' immediate concerns shift dramatically. Their focus moves away from comfort or punctuality to more pressing needs such as communication, safety equipment functionality, and the ability of the airline's crew to manage the crisis effectively. This case emphasizes the importance of service quality in high-stress situations, showcasing how airlines must be well-prepared to maintain passenger trust and safety under extraordinary circumstances.

This study focuses on assessing the service quality provided by Alaska Airlines during this specific in-flight emergency. By developing a new measurement tool and applying it to this case, the aim is to understand both the airline's strengths and areas for improvement in its crisis response.

1.2 Problem Statement

While much research has been conducted on general service quality in aviation (Zhang et al., 2023), more attention needs to be given to how service quality is perceived during in-flight emergencies. These situations are uniquely stressful and present distinct challenges for both passengers and crew. One reason for the lack of research in this area is the infrequency and unpredictability of such incidents, making them difficult to study systematically. Additionally, the highly individualized nature of each emergency means that generalizing findings from one event to another is challenging, further complicating efforts to develop a unified framework for measuring service quality in these contexts.

Moreover, existing tools for measuring service quality, such as the widely used SERVQUAL model, are well-suited for routine airline operations but must be more sufficient to capture the complexities of service delivery during emergencies. These models assess standard dimensions of service like reliability, responsiveness, and tangibles, but they fail to account for the heightened passenger needs during a crisis. Furthermore, there currently needs to be a specific framework tailored to evaluate service quality in crises, and gathering reliable data is particularly challenging due to the infrequency of such events and the sensitive nature of passengers' experiences.

The degree of service quality in emergencies is crucial because a poorly handled crisis can drastically undermine customer trust and loyalty. Passengers may turn to negative reviews, refuse to fly with the airline again, or even take legal action. Conversely, a well-managed emergency can enhance customer loyalty, showcasing the airline's reliability, responsiveness, and commitment to passenger safety and well-being. This makes it essential for airlines to develop strategies for handling such crises, as maintaining high service quality during emergencies can help preserve the airline's reputation and customer base. Thus, it is in every airline's best interest to analyze earlier incidents and emergencies to identify areas for improvement.

Due to the distinctiveness of each in-flight emergency, it is essential to define the specific problem addressed in this research. This is particularly important because, in developing a framework to assess service quality in such situations, a certain level of generalizability is necessary to make similar incidents comparable. Clearly defining the problem as an *in-flight emergency that leads to a perceived life-threatening situation and forces an emergency*

landing makes it possible to establish criteria that can be applied to other comparable cases. This ensures consistency in evaluating the service quality across different incidents, allowing for more accurate assessments and actionable insights.

As defined in the Code of Federal Regulations (Annual Edition) by the National Transportation Safety Board (2024b), an *accident* involves an aircraft operation during which any person suffers death or serious injury or the aircraft sustains substantial damage. In contrast, an *incident* refers to occurrences associated with aircraft operations that affect, or could affect, the safety of operations but do not result in severe injury or significant aircraft damage. For this study, the term "emergency" will be used interchangeably with "incident".

The primary concern is the service directly related to the in-flight emergency and its aftermath. Therefore, service attributes that occur prior to the incident, such as the check-in process, boarding procedures, baggage handling, or pre-flight communications, are outside the scope of this investigation. Instead, the focus will be on service elements that passengers experienced from the moment the emergency occurred—during the incident on board, at the airport following the emergency landing, and in the post-incident treatment provided by the airline. This includes, but is not limited to, the communication and actions of the crew during the emergency, the adequacy of the safety equipment, the handling of passengers' emotional and physical well-being, and the post-incident support services offered, such as compensation or counseling.

The Alaska Airlines Flight 1282 case serves as a pertinent example highlighting the existing gap in service quality research during in-flight emergencies. On January 5th, 2024, a panel broke away from the aircraft's fuselage during ascent, triggering rapid decompression and necessitating an emergency landing (National Transportation Safety Board, 2024a). This event created a life-threatening scenario for passengers, raising their expectations of the airline's crisis management and service response. By analyzing the service quality in this specific case, this research seeks to identify how airlines can enhance their emergency response to better address passenger needs in such critical situations.

1.3 Research Aim and Objectives

The primary research question for this study is: "*How can the service quality on Alaska Airlines Flight 1282 during the incident be assessed, highlighting both the strengths and weaknesses in the airline's response*?".

This question aims to explore both the strengths and weaknesses in Alaska Airlines' service delivery during the in-flight emergency. To answer this, it will be necessary first to define the specific aspects of service quality relevant to such an incident. Traditional service quality dimensions will be examined within the unique context of an in-flight emergency, where passengers' needs and expectations shift dramatically.

The purpose of this research question is twofold:

> *Identify Strengths*: By analyzing which service aspects were managed effectively, the study seeks to highlight the positive actions taken by an airline that contributed to passenger safety, comfort, and satisfaction during an emergency.
>
> *Highlight Areas for Improvement*: Equally important is identifying service aspects that require further enhancement. This could include areas where passengers felt unsupported. Understanding these weaknesses will allow targeted recommendations to improve future emergency service responses.

Addressing this research question, the study will contribute to a more comprehensive understanding of how airlines can improve their service quality, specifically in high-stress emergency situations, ultimately helping to enhance passenger trust and loyalty.

To effectively achieve the primary goal of this research—assessing the service quality of Alaska Airlines Flight 1282—a modified service quality measurement model is used. This study seeks to adapt an existing model to address better the unique challenges posed by in-flight emergencies. The main focus is on understanding how passengers perceived the airline's crisis management and overall service delivery during this critical situation, aiming to identify strengths and areas that require improvement.

A secondary objective is to develop or adapt a service quality measurement framework suitable for in-flight emergencies. It can measure the service quality in the Alaska Airlines case. The need for an adapted model arises because measuring service quality during in-

flight emergencies presents unique challenges that existing methods still need to be fully equipped to address. Factors such as the difficulty in collecting data due to privacy concerns and the difficult access to involved passengers for information gathering, the unpredictable nature of emergencies, and the heightened safety and communication demands make it clear that existing models are not reliable or comprehensive enough for these situations. As such, the adaptation of both the measurement model and the data collection methodology is necessary. These issues will be discussed throughout the study, highlighting the importance of developing a more specialized tool to measure service quality in emergency scenarios.

1.4 Structure of the Study

This study begins with a theoretical foundation, focusing on the definition and impact of service quality, a crucial concept for many industries, particularly aviation. This section introduces core concepts such as the dimensions of service quality. Additionally, the relevance of service quality within the aviation industry is explored, particularly concerning its impact on customer satisfaction and loyalty.

Following the theoretical framework, the Alaska Airlines Flight 1282 case is examined in detail. A description of the incident, including the emergency landing and the airline's immediate response, serves as the case study around which the analysis of service quality will be structured. This provides context for understanding airlines' unique challenges during in-flight emergencies and the critical role of service quality in such situations.

The methodology section explains the use of existing service quality measurement models, focusing on adapting SERVPERF to suit the specific context of in-flight incidences better. This section also details the process of developing a new measurement tool, adapted from established dimensions and items, to capture the distinct aspects of service quality during crises. Data collection methods are explained, emphasizing the challenges associated with obtaining relevant data in these rare and high-stress scenarios.

The adapted SERVPERF model is then applied to the Alaska Airlines case, presenting the dimensions and items specifically tailored to measure service quality in an emergency context. The analysis of the collected data is presented in a structured manner, offering insights into how passengers perceived the airline's service during the incident.

Finally, the results are discussed, identifying key strengths and weaknesses in the airline's crisis management and service delivery. The discussion also includes implications for the broader aviation industry, suggesting how airlines can enhance their service quality in emergencies. Additionally, the methodology is critically evaluated, and the study's limitations are acknowledged, providing a balanced reflection on the research process and outcomes. The thesis concludes with a summary of findings and recommendations for future research.

2. Theoretical Foundation

This section provides the theoretical basis for understanding service quality, which is crucial for the study's analysis. It covers key definitions, relevant concepts, and the importance of service quality, specifically focusing on its role in the aviation industry. Building on this theoretical basis, the study is equipped to investigate the research question and the difficulties in evaluating service quality during critical incidents such as in-flight emergencies.

2.1 Definition and Impact of Service Quality

Defining and measuring service quality is inherently more challenging than assessing the quality of tangible goods. As Parasuraman, Zeithaml, and Berry (1985) point out, "When purchasing goods, the consumer employs many tangible cues to judge quality: style, hardness, color, label, feel, package, fit. When purchasing services, fewer tangible cues exist. In most cases, tangible evidence is limited to the service provider's physical facilities, equipment, and personnel." This distinction highlights the intangibility of services, making the evaluation process more complex. While the quality of physical products can often be directly inspected, service quality is primarily evaluated based on customer perceptions shaped by their interactions and experiences. As a result, defining and measuring service quality requires a nuanced approach that considers how well the service delivered aligns with customer expectations.

Service quality is generally understood as the degree to which a service meets or exceeds customer expectations. It is a measure of how effectively a company delivers a service that aligns with what customers anticipate. Lewis and Booms (1983) define service quality as the extent to which the delivered service matches customer expectations. Achieving high service quality, therefore, involves consistently meeting or exceeding these expectations, influenced by prior experiences and various elements of the service delivery process, including physical evidence, service procedures, and the people involved in providing the service.

Parasuraman, Zeithaml, and Berry (1988) further emphasize that service quality is determined by "the discrepancy between customers' expectations of service and their perceptions of the service received." This definition underscores the importance of understanding and managing customer expectations to deliver high-quality service.

Expectations and perceptions are vital concepts in evaluating service quality. Expectations serve as the benchmarks customers bring to a service experience, shaped by their past interactions, word-of-mouth, and marketing messages. These expectations provide a standard against which customers judge the service they receive. On the other hand, perceptions reflect the customer's actual experience with the service, representing their subjective assessment of how well the service met or fell short of their expectations. The comparison between expectations and perceptions ultimately determines the perceived service quality. When the service aligns with or exceeds expectations, it is deemed high quality; when it falls short, it is considered poor.

The significance of service quality extends beyond customer satisfaction; it plays a pivotal role in influencing a company's profitability. As Zeithaml and Bitner (2003) note, maintaining high service quality fosters customer retention, which is more cost-effective over time than managing high customer turnover. By consistently delivering superior service, companies can build long-term customer relationships, reducing the need for costly customer acquisition efforts and improving overall financial performance.

Moreover, the impact of service quality on a company's performance is profound, as it directly influences customer behavior in ways critical to long-term success. Zeithaml, Berry, and Parasuraman (1996) highlight that superior service quality fosters customer retention and loyalty and encourages behaviors such as paying premium prices, recommending the company to others, and increasing purchase volumes. These positive behaviors translate into higher profitability and a sustained competitive advantage. Conversely, poor service quality can lead to adverse outcomes, including customer complaints, reduced spending, and defection to competitors. This relationship between service quality and profitability underscores the strategic importance of consistently delivering high-quality service to enhance customer satisfaction and drive business success.

2.2 Concepts of Service Quality

2.2.1 Dimensions

Dimensions are specific attributes or criteria used to evaluate the quality of a service. They represent different aspects of a service that customers consider when forming their perceptions of quality. These dimensions help break down the abstract concept of service quality into measurable components.

In their work on defining and measuring the quality of customer service, Lewis and Mitchell (1990) provide an overview of various conceptualizations of service quality proposed by different scholars.

Scholars have conceptualized service quality in various ways over the years, each emphasizing different dimensions contributing to how customers perceive service quality. Sasser et al. (1978) initially proposed three dimensions: levels of material, facilities, and personnel, suggesting that service quality is not only about the outcome but also how the service is delivered.

Grönroos (1984) introduced the idea of technical and functional quality, where technical quality refers to what the customer receives, and functional quality pertains to how the service is delivered, including the interaction between the service provider and the customer. Lehtinen and Lehtinen (1982) expanded on this by identifying physical quality, corporate quality, and interactive quality as crucial dimensions, further dividing service quality into process quality (evaluated during the service) and output quality (evaluated after the service).

LeBlanc and Nguyen (1988) added that corporate image, internal organization, and customer satisfaction are crucial contributors to perceived service quality. Edvardsson et al. (1989) further refined these concepts by proposing four aspects: technical quality, integrative quality, functional quality, and outcome quality.

The most widely recognized model, however, is that of Parasuraman et al. (1985, 1988), who initially identified ten dimensions of service quality but later condensed them to five: tangibles, reliability, responsiveness, assurance, and empathy. These dimensions have become foundational in service quality research and practice. Additionally, Grönroos (1990) suggested a sixth dimension, recovery, to address the importance of handling service failures effectively.

2.2.2 Service Recovery

The service recovery concept refers to the systematic process that a company or service provider undertakes to address and resolve service failures to restore customer satisfaction. Service failures occur when the delivered service falls below customer expectations, and the company's ability to recover from these failures directly impacts its relationship with the customer. Effective service recovery is considered a critical component of overall service

quality, as it can mitigate the adverse effects of a service failure and even enhance customer loyalty when handled appropriately (Grönroos, 1988).

Key elements of service recovery include an apology, corrective action, compensation, and clear communication. Timeliness and responsiveness are also essential in ensuring that the recovery process is effective. For instance, the quicker a service provider acknowledges a failure and takes steps to rectify it, the more likely they will maintain a positive relationship with the customer. Research has shown that customers tend to judge the quality of recovery based on fairness, whether they perceive the resolution to be fair regarding outcomes, procedures, and interpersonal treatment (Tax, Brown, & Chandrashekaran, 1998).

In some cases, when a service recovery is handled exceptionally well, it can lead to increased customer loyalty, a phenomenon known as the service recovery paradox. This paradox suggests that customers may end up more satisfied after a well-handled failure than they would have been if the service had been delivered flawlessly from the start (Michel, Bowen, & Johnston, 2009). However, this outcome is not guaranteed, and poor service recovery can lead to customer defection, negative word-of-mouth, and damage to the company's reputation.

2.2.3 Customer Loyalty

Customer loyalty refers to the long-term commitment customers develop towards a service provider, leading to consistent repeat purchases and favorable attitudes toward the brand. This concept involves more than just satisfaction; it reflects a deep emotional attachment and a willingness to advocate for the brand. Loyal customers tend to be less price-sensitive, are more forgiving of minor service failures, and are likely to recommend the service provider to others.

In service quality, customer loyalty is often a direct consequence of consistent and reliable service that meets or exceeds customer expectations. According to Oliver (1999), loyalty can be defined as “a deeply held commitment to rebuy or repatronize a preferred product or service consistently in the future, despite situational influences and marketing efforts having the potential to cause switching behavior.” This suggests that loyalty is not merely transactional but relational, built through repeated positive experiences with a service provider.

Furthermore, customer loyalty has financial implications, as studies show that retaining loyal customers is more cost-effective than acquiring new ones. Reichheld and Sasser (1990) emphasized that increasing customer retention by just 5% can lead to profit increases of between 25% and 95%. In addition, loyal customers are likely to engage in positive word-of-mouth communication, significantly enhancing brand reputation and attracting new customers without substantial marketing efforts.

The relationship between service quality and customer loyalty is particularly important in the service industry. Zeithaml, Berry, and Parasuraman (1996) found that superior service quality leads to higher levels of customer loyalty, boosting customer retention and profitability. Loyal customers are more likely to stick with a brand even during service failures if recovery efforts are considered adequate.

In conclusion, customer loyalty is a critical concept in service quality, as it reflects the long-term value customers bring to a service provider. Companies can foster loyalty by consistently delivering high-quality service, which translates into sustained business growth and competitive advantage.

2.3 Relevance of Service Quality in Aviation

Service quality has emerged as a crucial differentiator in the highly competitive aviation industry. While price remains a dominant factor influencing customer choice, relying solely on price competition is not sustainable for airlines in the long run. An exclusive focus on price can lead to reduced service quality, which may negatively impact customer satisfaction and, more critically, flight safety. Additionally, because airlines are adept at quickly matching competitors' price reductions, competing only on price can result in a race to the bottom that harms both the customer experience and the airline’s profitability (Jones and Sasser, 1995)

As a result, airlines also focus on service quality as a means of differentiation. This is particularly important given the intensifying competition in the aviation sector, where multiple airlines often operate on the same routes. Ostrowski et al. (1993) note that in markets where carriers offer similar pricing and schedules, service quality becomes the primary factor distinguishing one airline. Moreover, globalization and the rise of international travel have led to heightened customer expectations for high-quality, consistent service across different regions and carriers. Customers now demand seamless experiences

that meet their standards, regardless of the airline or destination, underscoring the growing importance of service quality as a competitive advantage.

Service quality also plays a strategic role in differentiating traditional full-service airlines from low-cost carriers. While full-service airlines emphasize a broader range of amenities and higher service standards to attract and retain customers, low-cost airlines often focus on minimizing costs by reducing the scope of onboard services (Kossmann, 2006). This divergence in service strategies illustrates how different business models leverage service quality to appeal to distinct market segments.

An essential component of service quality in aviation is the perception of safety. Passengers' confidence in an airline's safety measures is a crucial factor influencing their overall satisfaction and loyalty. Effective communication during flight delays or emergencies, adherence to safety protocols, and well-trained staff are critical to enhancing passengers' sense of security. This perception of safety and other service quality dimensions directly impacts customer trust and the airline's reputation.

The importance of service quality varies across different markets and passenger types. Abrahams (1983) highlights that expectations differ significantly between short-haul and long-haul flights and between business and leisure travelers. For example, business travelers may prioritize punctuality and efficiency, while leisure travelers might value comfort and in-flight entertainment more. This variation suggests that airlines must tailor their service offerings to meet different customer segments' diverse needs and preferences.

Empirical studies, such as those conducted by the Bureau of Transport and Communications Economics (BTCE, 1994), confirm that service quality is a decisive factor in airline choice for business and leisure travelers. Butler and Keller (1992) further emphasize that service quality is ultimately defined by the customer, reflecting the concept's subjective nature. As Chang and Yeh (2002) point out, the challenge in defining and measuring service quality in aviation arises from its inherent heterogeneity, intangibility, and inseparability.

Service quality in aviation extends beyond the actions of the flight and cabin crew, who are primarily responsible for passenger safety and comfort during flights. The overall service experience is also influenced by technical support and maintenance services that ensure the aircraft's operational readiness, such as functioning inflight entertainment systems and

properly maintained lavatories. Internal airline departments or external vendors may provide these services, including other airlines or airport facilities. Additionally, airport security personnel play a vital role by safeguarding the aircraft, conducting security checks, and screening baggage, acting as essential service providers in the broader aviation ecosystem (Kossmann, 2006).

In summary, service quality's relevance in aviation is multifaceted, encompassing competitive differentiation, customer satisfaction, and operational safety. As the industry continues to evolve, maintaining high service quality standards will remain critical to airlines' success in meeting their global customer base's diverse and growing expectations.

2.4 Crisis Management

In the aviation industry, crisis management is paramount due to the unpredictable nature of emergencies and the high stakes in ensuring passenger safety and maintaining service quality. Crises in aviation can range from technical failures, severe weather disruptions, and in-flight medical emergencies to more extreme situations such as hijackings or terrorist threats. In all these scenarios, effective crisis management becomes crucial not only for the safety of passengers and crew but also for preserving the airline’s reputation and ensuring minimal disruption to operations.

Crisis management is defined as the process by which an organization deals with a disruptive and unexpected event that threatens to harm the organization or its stakeholders. According to Ehsan Khodarahmi (2009), crisis management is essential for any business aiming for success, particularly in environments as dynamic and complex as the 21st century. Khodarahmi emphasizes that there is no "one-size-fits-all" strategy for crisis management; instead, flexibility and adaptability are key components of a practical approach. The author points out that many organizations fail to learn from past mistakes and do not take proactive measures to mitigate potential crises, leading to a more challenging management process once a crisis occurs.

The concept of crisis management involves several key components:

- Anticipation and Preparation: Effective crisis management requires organizations to anticipate crises and prepare contingency plans. This involves identifying potential risks, conducting regular training and drills, and establishing clear protocols for

communication and decision-making during an emergency (Gundel, 2005). Preparation also includes developing recovery plans that allow organizations to return to normal operations after a crisis swiftly.

- Effective Communication: Communication is a critical element in managing any crisis. Khodarahmi (2009) highlights that accurate and timely communication is vital to prevent the spread of misinformation and to maintain public trust. Organizations must ensure that their communication strategies are well-structured, providing clear, concise, and honest information to all stakeholders, including passengers, employees, and the media. This aligns with Wells's (1978) and Ashcroft's (1997) findings, who argue that effective information management and communication are crucial to successful crisis resolution.

- Flexibility and Adaptability: A successful crisis management plan must be flexible enough to adapt to different situations. As crises are often unpredictable, organizations need to be able to modify their responses based on the specific circumstances they face. This adaptability is essential in handling both "normal" disturbances, which are anticipated and planned for, and "abnormal" crises, which are unexpected and require quick, decisive action (Mitroff & Alpaslan, 2003).

- Maintaining Public Trust and Reputation: An airline's response to a crisis can significantly impact its reputation. Transparency, honesty, and empathy are crucial in maintaining public trust. According to Thomas and Fritz (2006), a well-managed crisis can even enhance a company's reputation if it demonstrates strong leadership, effective communication, and a commitment to passenger safety. Conversely, mishandling a crisis can lead to lasting damage to the airline's brand and customer loyalty.

- Continuous Learning and Training: Those are essential components of effective crisis management, as they prepare organizations to respond swiftly and adaptively to unpredictable events. Regular simulations, drills, and protocol updates ensure that staff are well-equipped to manage a wide range of crises, enhancing organizational resilience and maintaining operational stability (Robert & Lajtha, 2002). This approach promotes a preparedness and continuous improvement culture, allowing organizations to handle unforeseen situations confidently.

- Learning from Past Crises: An essential aspect of crisis management is learning from past incidents. Khodarahmi (2009) notes that organizations must analyze previous crises to understand what went wrong and how similar situations can be avoided in the future. This continuous improvement process helps refine crisis management strategies and enhance organizational resilience.

In conclusion, effective crisis management in aviation is a multifaceted approach that requires anticipation, preparation, flexibility, communication, coordination, and learning. By integrating these components, airlines can better manage crises, minimize damage, and ensure a quick recovery, thereby maintaining their reputation and customer loyalty. The importance of crisis management cannot be overstated, as it directly impacts airlines' overall service quality and operational stability.

3. Case Overview: The Incident of Alaska Airlines 1282

A relevant example of an in-flight incident that led to a perceived life-threatening situation for passengers and necessitated an emergency landing (as defined in section 1.2) is Alaska Airlines Flight 1282 (AA1282). This case is presented to provide a detailed understanding of the events and the specific challenges faced by the airline during this emergency.

3.1 Description of the Incident

According to the National Transportation Safety Board (2024a), on January 5, 2024, at approximately 17:14 local time, Alaska Airlines Flight 1282, a Boeing 737-9 with the registration number N704AL, experienced a significant in-flight incident shortly after takeoff from Portland International Airport (PDX), Portland, Oregon. Under normal flight conditions, the aircraft was en route to Ontario, California (ONT), when a sudden and unexpected rapid decompression occurred. This was caused by the departure of the left mid-exit door (MED) plug from the aircraft during its climb to cruising altitude.

The flight crew, consisting of two crewmembers and four cabin crewmembers, reported a loud bang and immediate physical effects of decompression, including popped ears and the forceful removal of headsets. The flight deck door was blown open, and communication became challenging due to the noise. The rapid decompression led the crew to declare an emergency and request a descent to a lower altitude. The aircraft was cleared to descend to 10,000 feet and subsequently returned to PDX, where it landed safely on runway 28L without further incident. All 177 occupants (171 passengers and six crew members) were safely evacuated upon arrival at the gate, although seven passengers and one flight attendant sustained minor injuries.

Initial examinations revealed that the separation of the MED plug adversely impacted the aircraft's pressurization system, necessitating immediate emergency actions by the flight crew. The investigation into the incident included an analysis of the aircraft’s structure, cabin safety systems, and pressurization controls, revealing significant damage around the area of the missing MED plug, particularly in seat rows 25 and 26, and deformation to various parts of the cabin interior.

This incident, categorized as an accident due to substantial damage to the aircraft, prompted an immediate investigation by the National Transportation Safety Board (NTSB) and

involved several parties, including Alaska Airlines, Boeing, and the Federal Aviation Administration (FAA).

3.2 Context and Response of the Airline

In incidents such as the one involving Alaska Airlines Flight 1282, where an emergency occurred during the flight, the airline, as a service provider, is particularly challenged to maintain high service quality. Such situations amplify the expectations placed on airlines to manage crises effectively and transparently.

Alaska Airlines, headquartered in Seattle, USA, services cities across the USA, Canada, Mexico, and Costa Rica. The airline's reputation for quality service is well-recognized; it was ranked as the best airline in the USA based on 2023 data from WalletHub (WalletHub, 2024) and placed 18th globally according to AirlineRatings.com (Geoffrey, 2024). While the sources from WalletHub and AirlineRatings.com are not formal academic studies, they utilize various methodologies to determine their rankings. These rankings reflect a significant level of expectation from the public and passengers alike, underscoring the airline's commitment to maintaining high standards of service and safety.

In response to the incident on Flight 1282, Alaska Airlines promptly initiated an investigation. As a precautionary measure, the airline announced on its news channel that it would temporarily ground its fleet of 65 Boeing 737-9 aircraft, stating, "Following tonight’s event on Flight 1282, we have decided to take the precautionary step of temporarily grounding our fleet of 65 Boeing 737-9 aircraft" (Ben Minicucci, 2024).

Furthermore, Alaska Airlines issued multiple press releases expressing regret over the incident and assured full cooperation with aviation authorities to determine its cause.

4. Methodology

This section outlines the methodology for assessing service quality, focusing on the model adapted to meet the specific demands of in-flight emergencies. The goal is to ensure that the adapted model accurately reflects the passengers' expectations in high-stress situations. Additionally, this section addresses the data collection methods employed to gather relevant information for evaluating service quality, considering the unique challenges posed by collecting data in the context of an emergency incident.

4.1 Measuring Instrument

4.1.1 SERVQUAL

When selecting an appropriate instrument for measuring service quality, the SERVQUAL model stands out as one of the most widely used and recognized tools. As developed by Parasuraman, Zeithaml, and Berry (1988), SERVQUAL provides a structured framework for assessing the gap between customer expectations and their perceptions of the delivered service.

The success of SERVQUAL is due to several factors. First, the model offers comprehensive coverage of service quality through five key dimensions: reliability, responsiveness, assurance, empathy, and tangibles. These dimensions capture the essential aspects of service quality relevant to customers across various industries (Parasuraman, Zeithaml & Berry, 1988). Second, SERVQUAL is characterized by its flexibility and adaptability. The tool can be easily modified to suit the specific needs of different industries and services, leading to its widespread use in sectors such as healthcare, hospitality, and aviation (Buttle, 1996). Third, SERVQUAL is appreciated for its simplicity and ease of use. It employs a standardized survey technique that measures both customer expectations and perceptions, allowing for the identification of specific gaps in service quality (Parasuraman et al., 1988).

Furthermore, SERVQUAL is scientifically grounded and validated in numerous studies, confirming its reliability and validity in various contexts. This solid empirical foundation contributes significantly to the credibility and popularity of the tool (Zeithaml, Parasuraman & Berry, 1990). The SERVQUAL model is a multidimensional instrument for measuring service quality based on the assumption that service quality is determined by the gap between

customer expectations and their actual perceptions of the service received. The smaller this gap, the higher the perceived quality.

SERVQUAL uses a survey with 22 standardized items distributed across the five service quality dimensions. Customers rate both their expectations of the service and their actual experiences. By analyzing the difference scores between these two aspects, companies can take targeted actions to improve their service quality (Parasuraman, Zeithaml & Berry, 1988). In practice, SERVQUAL has proven to be extremely useful not only for evaluating current service quality but also for making strategic decisions to enhance the customer experience. It enables companies to identify weaknesses in their service and allocate resources effectively to increase customer satisfaction and loyalty (Buttle, 1996).

The SERVQUAL instrument is one of the most widely used tools for measuring service quality. It has been successfully applied in numerous studies to assess service quality in the airline industry. For instance, Gilbert and Wong (2003), Huang (2010), and Park et al. (2004) have utilized the SERVQUAL model to investigate passengers' perceptions of service quality across various airlines. These studies have demonstrated that the SERVQUAL model provides valuable insights into the dimensions of service quality that are significant to passengers.

In addition, a specific measurement instrument tailored to the unique characteristics of the airline industry has been developed, known as the AIRQUAL model (Bari et al., 2001). This model was designed to measure service quality in airlines, considering air travelers' specific needs and expectations. The AIRQUAL model will be discussed in more detail in Section 4.2.

Despite its widespread use and adaptability, the SERVQUAL model has also faced criticism. One of the main critiques centers on the assumption that the gap between expectations and perceptions is the best method for measuring service quality. Critics argue that measuring expectations is often subjective and variable, which can affect the reliability and validity of the results (Cronin & Taylor, 1992). Additionally, it is argued that the SERVQUAL model, in its standard form, may only adequately cover some relevant aspects of service quality in specific industries, such as aviation. Some of these criticisms and their relevance to measuring service quality in the airline industry will be further discussed in the following sections.

4.1.2 SERVPERF

SERVPERF is an advancement of the SERVQUAL model and was proposed by Cronin and Taylor (1992) as an alternative for measuring service quality. Unlike SERVQUAL, which measures service quality by the gap between customers' expectations and their actual perceptions of the service, SERVPERF is based solely on experienced performance. This model assumes that perceived service quality is best captured through customers' actual experiences with the service without considering the subjective component of expectations.

Introducing the SERVPERF model aims to address a central issue with the SERVQUAL model: the variability and subjectivity of customer expectations. Critics of the SERVQUAL model, such as Cronin and Taylor (1992), argue that expectations are often vague and heavily influenced by individual and situational factors, leading to biases and inaccuracies in measurement. In contrast, SERVPERF eliminates this subjective component and focuses solely on perceived performance, considered a more accurate and reliable method for evaluating service quality (Cronin and Taylor, 1994).

The SERVPERF model uses the exact dimensions of SERVQUAL—reliability, responsiveness, assurance, empathy, and tangibles—but focuses only on measuring the actual service performance within these dimensions. Customers are asked to rate their experiences on a scale, and the average score for each dimension indicates service quality.

Through this approach, SERVPERF offers a more objective and focused method for measuring service quality. This is particularly useful for companies that wish to evaluate their services based on clear and measurable criteria. The exclusive focus on performance allows for identifying more targeted improvement measures and enhancing customer satisfaction without being affected by fluctuations in customer expectations (Cronin & Taylor, 1992).

Due to the criticism of the SERVQUAL model, the SERVPERF method has been chosen as the measurement instrument for this study. This decision is also based on the applicability of SERVPERF to the case of Alaska Airlines, where assessing expected service quality in the context of rare events (such as the Alaska Airlines Flight 1282 incident) is particularly challenging. For individuals not directly involved, it is difficult to evaluate expectations in such a specific scenario, as it is hard to empathize with the situation, and no comparable benchmarks are available.

By focusing solely on perceived performance, SERVPERF provides a more practical and effective approach for measuring service quality in this context. It allows for a direct assessment of the service as experienced by the passengers, which is more relevant and accurate when considering unique and rare incidents where customer expectations are not easily defined or standardized.

4.2 Adaption of Dimensions and Items

4.2.1 Theoretical Background for Adaption

One criticism of the SERVQUAL model is that it does not universally fit every service sector (Babakus & Mangold, 1992; Bekhet & Al-alak, 2011). The standard dimensions and items of SERVQUAL may not adequately capture the unique characteristics and customer expectations of different industries, cultures, and countries.

Although the literature on the adaptation of dimensions and items predominantly focuses on the SERVQUAL model, it is essential to note that SERVPERF is an extension of SERVQUAL. Therefore, it is reasonable to assume that the assumptions made in the literature regarding the need for customization and modification of dimensions and items can also be applied to SERVPERF.

Many studies have already demonstrated the need to adapt the dimensions and items of these models to fit the specific characteristics of various service sectors. For example, in the banking sector, studies by Mels et al. (1997) and Zhou et al. (2002) have shown that the original SERVQUAL dimensions may only partially capture the unique aspects of service quality in banking. Similarly, in the healthcare sector, Carman (1990) and Lam (1997) highlighted the need for modifications to reflect the distinct expectations and requirements in this field. Furthermore, the HEALTHQUAL model has been introduced as a legitimate tool for measuring service quality in healthcare settings (Lee, 2016), which directly adapts the SERVQUAL model to fit the healthcare sector better.

The necessity for such adaptations also extends to the airline industry, where the AIRQUAL model (Bari et al., 2001) was explicitly developed to measure service quality in regular airline operations. As mentioned in Section 4.1.1, AIRQUAL addresses the general service quality of airlines; it does not account for the specific expectations and requirements during in-flight incidents, such as those experienced on Alaska Airlines Flight 1282. This gap in the

existing models highlights the importance of further adapting and refining service quality measurement tools to suit the unique conditions of emergencies in aviation.

Thus, adapting service quality measurement models like SERVQUAL and SERVPERF is crucial to accurately reflect the unique characteristics and customer expectations of different service sectors, cultural contexts, and geographic regions. This is particularly relevant for ensuring the models' applicability and reliability in diverse settings where customer expectations vary significantly.

4.2.2 Developing a New SERVQUAL/SERVPERF Instrument

A tailored approach is necessary to develop an adapted SERVQUAL model for measuring service quality during in-flight incidents. Unlike the development of the HEALTHQUAL questionnaire, where existing studies on service quality were consolidated to identify potential dimensions and items, followed by validation through patient surveys (Lee, 2016), the development of the AIRQUAL model employed Churchill's methodology (1979) for developing better measures of marketing constructs. Churchill's approach involves a systematic process that includes specifying the domain of the construct, generating a sample of items, collecting data, and evaluating reliability and validity, with iterative refinement based on empirical data. This method is highly structured and thorough, ensuring that the final measurement instrument accurately reflects the studied construct.

However, applying either of these methodologies—whether consolidating existing studies as with HEALTHQUAL or using Churchill's rigorous approach to construct development as with AIRQUAL—is impractical in the current context due to several constraints. First, there is a notable lack of existing studies specifically addressing service quality measurement during in-flight incidents. This gap in the literature makes it challenging to identify appropriate dimensions and items from previous research. Second, there is limited access to the necessary data to conduct comprehensive studies or surveys, as the number of passengers willing to provide detailed feedback on such traumatic incidents is understandably low. Third, the time constraints associated with this research project do not allow for the extensive iterative processes typically required in both methodologies.

Given these limitations, it is crucial to develop a questionnaire that is not only tailored to the specific context of the in-flight incident of AA1282 but also holds general applicability for comparable situations. The aim is to create a tool that can be applied to various similar issues,

enabling comparative analysis across different incidents. In this context, the problem definition outlined in Section 1.2 becomes essential: the focus is on an "in-flight emergency that leads to a perceived life-threatening situation and forces an emergency landing". This definition provides a clear framework within which the adapted SERVQUAL model should operate.

The chosen approach for determining the appropriate dimensions and items involves a literature review and an analysis of passenger reactions to comparable incidents. This method identifies key dimensions and items relevant to in-flight emergencies while ensuring that the adapted SERVQUAL model remains robust, reliable, and applicable across various situations. By grounding the development of the adapted SERVQUAL model in both theoretical and empirical research, the resulting instrument will provide a comprehensive and valid measure of service quality during in-flight incidents (see Chapter 5).

4.3 Data Collection

In this study, the conventional approach of distributing the SERVQUAL/SERVPERF questionnaire to customers who have experienced the service is not feasible due to several constraints.

The most significant challenge is establishing contact with the involved passengers. The passenger list is protected by data privacy regulations, which restrict access to any personal information, including addresses or contact details. This legal restriction makes it nearly impossible to reach out to the passengers on the flight directly. Moreover, the general willingness to revisit the incident—an event that traumatized some passengers—is understandably low. Reports indicate that some passengers opted to set their social media accounts to private to avoid media inquiries in the aftermath of the incident. Under these circumstances, it would be neither ethical nor appropriate to prompt passengers to relive potentially traumatic experiences solely for the purpose of measuring service quality.

Nevertheless, there is a substantial amount of information available concerning service and service quality within the scope of news coverage and investigations related to the incident. These insights are captured in various formats, such as social media posts, blogs, podcasts, interviews, and news articles. This study will employ content analysis as a methodological approach to leverage this information.

This approach can be considered a form of field research, as it involves systematically collecting and analyzing real-world data in a natural, uncontrolled setting. Rather than using direct surveys or interviews, this study observes and interprets passenger feedback organically generated online. This mirrors the observational aspect of field research, where behaviors are studied as they naturally occur without intervention (Reyes-García & Sunderlin, 2011). By focusing on publicly available data, the method allows for a non-intrusive collection of insights, capturing authentic responses to service experiences without imposing on those involved.

A notable example of field research is Mystery Shopping, a method where evaluators pose as regular customers to assess service quality. This approach was effectively employed by Voß et al. (2008) to evaluate service quality in public transportation. In their study, the authors describe how Mystery Shopping can be utilized to gather insights about service quality in public transportation, highlighting its effectiveness in assessing various service attributes. This underscores the effectiveness of real-world observations to evaluate service quality. Similarly, based on content analysis, this study will leverage organically generated passenger feedback to capture authentic experiences and perceptions related to service quality during the in-flight incident.

Content analysis is a systematic research technique used to interpret textual data by identifying and quantifying certain words, themes, or concepts within the text (Krippendorff, 2013). This method allows for the examination of patterns in communication, facilitating the extraction of meaningful insights from the data. In the context of this study, it will be used to extract relevant passenger statements that pertain to the specific items within the SERVQUAL/SERVPERF framework. These statements will then be coded to align with the Likert scale traditionally employed in these models.

A keyword analysis was also conducted to locate relevant passenger statements across various data sources, such as social media, news reports, and interviews. Keywords like "Alaska Airlines Flight 1282", "AA1282" or "passenger experience" were identified and used to extract statements that could be used in the analysis.

Only direct or quoted statements from passengers were included in the analysis to maintain the integrity of the data and ensure the accuracy of the findings. This approach aims to capture the genuine perceptions of the passengers, as indirect accounts or secondary

interpretations may distort the actual sentiment expressed by the individuals involved. Using direct statements ensures that the service quality assessment remains as authentic and representative of the passenger's experience as possible.

Each statement was carefully examined and categorized according to its relevance to the specific SERVPERF items, such as reliability or empathy. The analysis aimed to map these themes to the established service quality dimensions, clarifying how passengers evaluated the airline's performance during the emergency.

Several steps were taken to clean the data to ensure data accuracy and reliability. First, statements were verified to confirm their origin from the passengers or credible sources, such as news outlets quoting passengers directly. Duplicate statements were removed to avoid over-representation, and each statement was critically assessed for relevance to the study's framework. These precautions ensured that the data used in the analysis were reliable and relevant to the study's objectives, contributing to a more robust evaluation of service quality.

Aside from that, it is essential to note that the conventional Likert scale used in SERVQUAL/SERVPERF consists of seven points. Previous research by Lewis (1993) has criticized this scale for its potential bias, as respondents may have a tendency to select the extreme ends of the scale (i.e., 1 or 7). To mitigate this issue, ensure more reliable data, simplify the coding process, and minimize the coder's subjectivity level, this study will adopt a simplified three-point scale: 1 – satisfied, 2 – neutral, and 3 – dissatisfied. This modified scale will be used to code the passenger statements derived from the content analysis, providing a structured and systematic approach to evaluating service quality perceptions in the context of in-flight incidents. Example:

> Expression: "The oxygen mask was working OK"
> Dimension: Tangibles
> Item: Up-to-date (safety) equipment
> Coding: 2 (neutral)

Adopting this adapted methodological approach, the study aims to derive valuable insights into passenger perceptions of service quality during in-flight incidents without imposing additional psychological burdens on those affected.

5. Adaption of SERVPERF Instrument

5.1 Adaption of Dimensions

As Chang and Yeh (2002) have noted, measuring the service quality of airlines is challenging due to the heterogeneity, intangibility, and inseparability of services. Nevertheless, various concepts and studies have been developed to establish service quality dimensions or to identify critical attributes from the passengers' perspective. For example, Gourdin (1988) utilized the dimensions of safety, timeliness, and price. Elliott and Roach (1993) proposed dimensions such as food and beverage quality, timely luggage transport, seat comfort, the check-in process, and in-flight service. Similarly, Haynes (1994) focused on dimensions including luggage handling, seat cleanliness, check-in process, convenience of transit, timeliness, and handling customer complaints. The developers of the AIRQUAL model (Bari et al.) also identified different dimensions, which included airline tangibles, terminal tangibles, personnel, empathy, and image.

Alotaibi (2015), in his PhD thesis, evaluated the AIRQUAL scale and concluded that the standard SERVQUAL/SERVPERF dimensions are the most suitable for measuring the service quality of airlines. These dimensions have proven effective since the introduction of SERVQUAL and have been utilized across several industries, as discussed in Section 4.1.1. They were established through a two-stage process involving data collection and refinement, which included the initial development of a 97-item instrument. This was followed by analyses to retain items that effectively discriminated among differing quality perceptions, ultimately identifying five distinct dimensions (Parasuraman, Zeithaml, & Berry, 1988). Based on this methodology for determining the dimensions and their multiple applications across various fields, these dimensions are also considered appropriate for this study. Therefore, the dimensions of Tangibles, Reliability, Responsiveness, Assurance, and Empathy will serve as the foundation for the model used in this research.

1. *Tangibles* refer to the physical elements associated with a service, such as the appearance of facilities, equipment, and personnel. In the airline industry, tangibles include the cleanliness of the aircraft, the modernity of the interior, and the professionalism in the appearance of the crew. These aspects help form a customer's first impression and influence their perception of the service's quality. In the context of in-flight incidents, tangibles take on additional importance, encompassing the

availability and condition of emergency equipment, which can directly impact passenger safety and confidence in the airline's preparedness.

2. *Reliability* measures the service provider's ability to consistently deliver the promised service accurately and dependably. In the airline sector, this dimension reflects the airline's ability to adhere to schedules, maintain safety standards, and handle unexpected situations. During emergencies, reliability becomes critical, as it involves the airline's capacity to manage the situation effectively, ensuring passenger safety and maintaining trust in the airline's ability to handle crises.

3. *Responsiveness* is about the willingness and ability of staff to provide prompt service and assistance. In a general service setting, it reflects how quickly and effectively service providers respond to customer needs and inquiries. For airlines, especially during in-flight incidents, responsiveness is crucial as it involves the speed at which the crew addresses passenger concerns, provides updates, and offers assistance. This can significantly affect passenger anxiety levels and overall experience during a crisis.

4. *Assurance* encompasses employees' knowledge, competence, courtesy, and ability to convey trust and confidence. This dimension is vital in any service context as it reassures customers about the service provider's capabilities and professionalism. In aviation, assurance is essential during emergencies, as passengers rely on the crew's expertise and calm demeanor to feel secure and confident that the situation is under control.

5. *Empathy* refers to the ability of service providers to provide caring and personalized attention to customers. This dimension is critical in fostering customer loyalty and satisfaction in everyday interactions. In the case of in-flight incidents, empathy is essential as it involves understanding and addressing passengers' emotional and psychological needs, providing comfort and support during a stressful experience, and ensuring that passengers feel valued and cared for even in challenging situations.

These dimensions provide a comprehensive framework for assessing service quality, particularly in the context of in-flight incidents, where technical performance and emotional

support are crucial to passenger perceptions of service quality (Alotaibi, 2015; Parasuraman, Zeithaml, & Berry, 1988).

5.2 Adaption of Items

For the adaptation of SERVPERF model items, similar incidents to Alaska Airlines Flight 1282 are included in the analysis to determine general service requirements for in-flight incidents that meet the definition of a perceived life-threatening situation necessitating an emergency landing. Incorporating a range of cases from different countries and cultures enhances the instrument's validity, as it accounts for varying cultural expectations and perceptions of service quality (Furrer et al., 2000). This approach increases the tool's usability on a global scale. The primary challenge lies not in the scarcity of such incidents but in identifying cases with sufficient media coverage, which is essential for a thorough analysis of service expectations and requirements.

The following cases correspond to the defined requirements and should be used to analyze expectations:

1. Alaska Airlines 1282, which has already been presented in section 3.

2. On 30 September 2017, *Air France Flight AF066,* an Airbus A380-861, experienced a critical in-flight engine failure while cruising at FL370, approximately 100 NM east of Greenland. The titanium fan hub of engine No. 4 fractured due to cold dwell fatigue, leading to the ejection of debris and the destruction of the engine casing. Despite severe damage, including debris impacting the wing and airframe, the crew maintained control of the aircraft. They initiated an emergency descent and declared a MAYDAY, diverting to Goose Bay, Canada, where an emergency landing was conducted. Although the incident caused significant vibrations and a perceived life-threatening situation, no injuries occurred (Bureau d'Enquêtes et d'Analyses, 2020).

3. On September 15, 2024, *Delta Air Lines Flight 1203*, a Boeing 737-900ER, encountered a pressurization issue shortly after takeoff from Salt Lake City, Utah, en route to Portland, Oregon. The aircraft could not maintain pressurization above 10,000 feet, forcing the pilots to declare an emergency and descend to a safer altitude. Passengers experienced significant discomfort, with some reporting ear and nose

> bleeds and one passenger being diagnosed with a ruptured eardrum. The flight circled the Great Salt Lake before returning to Salt Lake City International Airport, where it landed at 8:30 a.m. local time. Paramedics evaluated ten passengers, three of whom sustained minor injuries from sudden jerks during the descent. Delta Air Lines provided medical support and issued an apology, while the FAA initiated an investigation (Van Cleave, K., Krupnik, K. (CBS News), 2024; Alund, N. N. (USA Today), 2024).

Developing the items for the adapted SERVPERF instrument involved a thorough literature review to identify relevant industry-specific measurement models and an analysis of the Alaska Airlines incident and similar incidents to define new items (see above). The key models identified were SERVQUAL (Parasuraman et al., 1988), AIRQUAL (Bari et al., 2001), and the modified AIRQUAL (Alotaibi, 2015) (see Appendix 1 & 2). Only the items aligned with the defined service quality dimensions were selected from these models for inclusion in the adapted instrument. Duplicates or overly similar items were consolidated to ensure clarity and relevance.

Also, a thematic analysis (Guest et al., 2012) was conducted utilizing the three cases presented. This process began with collecting reports, interviews, and passenger experience reports related to the identified in-flight incidents, providing rich contextual data about service quality during these events.

The data were thoroughly reviewed to capture the nuances of passengers' experiences. Initial coding was then performed, marking significant phrases that reflected passenger needs and expectations. Through this iterative process, similar codes were grouped to form overarching themes, representing core service requirements articulated by passengers.

After reviewing and refining these themes, new items not included in Table 1 were identified. These items were explicitly defined to reflect specific service requirements highlighted by passengers in their experiences. Care was taken to ensure these items were precisely formulated, clearly addressing specific service aspects relevant to in-flight emergencies. Each item was carefully assigned to the appropriate SERVPERF dimension to maintain the model's internal consistency.

In addition to precision and appropriate categorization, the wording of the new items was crafted to align with the overall structure and tone of the existing SERVPERF model. This includes ensuring that the items are straightforward, easily understandable, and free from ambiguity so that respondents can accurately assess the service quality they experienced without confusion. Moreover, items were designed to avoid leading or biased phrasing, ensuring they effectively capture genuine perceptions of the airline's performance during the emergency.

Finally, the new items were formulated to be contextually relevant, addressing the unique challenges posed by in-flight emergencies while maintaining the general structure of a service quality assessment. These additions aim to provide a more comprehensive measure of service quality in high-stress situations, ensuring the tool remains valid and reliable in this context (Parasuraman et al., 1988).

The requirements were carefully analyzed in the cases and situations presented above. Whenever one of the items emerged as a relevant requirement, a corresponding checkmark (X) was placed in the table. This approach allowed for systematic identification of the critical service quality aspects essential in each incident, ensuring that only those items deemed necessary in all cases were retained for the final adapted SERVPERF model.

The following abbreviations are used: Alaska Airlines 1282 (AA), Air France 066 (AF) and Delta Air Lines 1203 (DA).

	#	ITEMS	SOURCE	AA	AF	DA
TANGIBLES	Q1	Up-to-date equipment	SERVQUAL	X	X	X
	Q2	Physical facilities are visually appealing	SERVQUAL	(X)		
	Q3	Employees well-dressed/neat	SERVQUAL			
	Q4	Appearance of the physical facilities are consistent with the type of service industry	SERVQUAL			
	Q5	The airline company provides passengers with new, modern and well maintained aeroplanes	AIRQUAL	X		
	Q6	The toilets on board of the aeroplane are clean and easy to use	AIRQUAL			
	Q7	Personnel working for the airline company are neatly dressed	AIRQUAL			
	Q8	The airline company provides passengers with allocated seats	MODIFIED AIRQUAL			

	Q9	The airline company provides entertainment for passenger on board of the aircraft	MODIFIED AIRQUAL			
	Q10	Food and drink served on the aeroplane during the flight are of high quality and sufficiently varied.	AIRQUAL			
	Q11	Degree of physical facilities, food and drinks after the emergency landing	NEW	X	X	X
	Q12	Availability of communication tools	NEW	X		X
RELIABILITY	Q13	The firm meets their promised time-frames for response	SERVQUAL			
	Q14	The firm is sympathetic and reassuring, when the customer has problems	SERVQUAL	X	X	X
	Q15	They are dependable	SERVQUAL		X	
	Q16	They provide their services at the times promised	SERVQUAL	X	X	X
	Q17	They keep accurate records	SERVQUAL			
	Q18	Passengers' luggage is handled with care and attention	AIRQUAL			
	Q19	Degree of compensation provided by the airline to the passengers	NEW	X	X	X
	Q20	The crew ensured passengers safety	NEW	X	X	X
RESPONSIVENESS	Q21	They should not be expected to tell customers exactly when the service will be performed, negative	SERVQUAL	X		
	Q22	It is not reasonable to expect prompt service from employees, negative	SERVQUAL	X	X	X
	Q23	Employees do not always have to be willing to help customers, negative	SERVQUAL			
	Q24	It's OK to be too busy to respond promptly to customer requests, negative	SERVQUAL			
	Q25	Airlines company provides its services for customers promptly	MODIFIED AIRQUAL	X		X
	Q26	The crew informs passengers about the incident in timely and comprehensive manner	NEW	X	X	X
	Q27	Employees are willing to help passengers	NEW	X	X	X
	Q28	Medical and psychological support offered after the emergency	NEW	X		X
ASSURANCE	Q29	Employees should be trustworthy	SERVQUAL	X	X	X
	Q30	Customers should feel safe when transacting with employees	SERVQUAL			
	Q31	Employees should be polite	SERVQUAL	X	X	X
	Q32	Employees should get adequate support from the firm to do their job well	SERVQUAL			
	Q33	Airline company personnel are experienced and well trained	AIRQUAL	X		
	Q34	Crews ability to inspire confidence during the emergency	NEW		X	

	Q35	Clear explanation of post-landing support services	NEW	X		
	Q36	Employees should provide clear instructions and guidance	NEW	X	X	X
	Q37	The airline shows responsibility	NEW	X	X	X
EMPATHY	Q38	Firms should no be expected to give each customer individualized attention, negative	SERVQUAL	X	X	X
	Q39	Employees should not be expected to give each customer individualized attention, negative	SERVQUAL	X	X	X
	Q40	It is unrealistic to expect employees to fully understand the needs of the customers, negative	SERVQUAL	X	X	X
	Q41	It is unreasonable to expect employees to have the best interests of the customers at heart, negative	SERVQUAL			
	Q42	Firms should not necessarily have to operate at hours convenient to all customers, negative	SERVQUAL			
	Q43	Personnel working for the airline company put themselves in the place of the passengers when providing service	AIRQUAL			
	Q44	Special care for vulnerable groups	NEW		X	
Total: 5 Dimensions / 44 Items (22 SERVQUAL, 7 AIRQUAL, 3 MOD. AIRQUAL, 12 NEW						

Table 1: List of Items for Definition of Requirements

In the adapted SERVPERF model's final version, only items relevant across multiple analyzed cases and situations, indicated by an "X," will be included. The negatively worded items from the original SERVQUAL questionnaire will be rephrased positively. In SERVQUAL, certain items are intentionally written in a negative form to reduce response biases, ensuring that respondents don't simply give consistent positive or negative answers without considering each question carefully. This strategy helps to maintain respondent attention and improves the validity of the data by minimizing biases like acquiescence bias or socially desirable responses (Krosnick, 1999). Since these response biases are not a primary concern for this study, the negatively worded items will be rewarded positively for consistency in the adapted SERVPERF model.

5.3 Adapted SERVPERF Questionnaire for In-Flight Incidents

The adapted SERVPERF instrument is explicitly designed to measure service quality in the context of in-flight emergencies that lead to perceived life-threatening situations and necessitate an emergency landing. This tailored approach acknowledges the unique challenges airlines face during such critical incidents, where traditional service quality

metrics may not adequately capture the nuances of passenger experiences. The instrument comprises 17 items organized into five key dimensions: tangibles, reliability, responsiveness, assurance, and empathy, allowing for a comprehensive assessment of the airline's performance in these scenarios.

Dimensions	Items	Level of Satisfaction		
		1 Dissatisfied	2 Neutral	3 Satisfied
Tangibles	P1. Up-to-date (safety) equipment			
	P2. Degree of physical facilities, food and drinks after the emergency landing			
	P3. Availability of communication tools			
Reliability	P4. The airline reacts sympathetic and reassuring			
	P5. The airline offers alternatives to provide their services timely			
	P6. Degree of compensation provided by the airline to the passengers			
	P7. The crew ensured passengers safety			
Responsiveness	P8. The crew informs passengers about the incident in timely and comprehensive manner			
	P9. Employees respond promptly to passengers needs and requests			
	P10. Employees are willing to help passengers			
	P11. Medical and psychological support offered after the emergency			
Assurance	P12. Employees should be trustworthy and polite			
	P13. Employees should provide clear instructions and guidance			
	P14. The airline shows responsibility			
Empathy	P15. The airline is attentive to individual concerns and needs			

	P16. Employees effectively address and fulfill individual concerns and needs			
	P17. Employees understand the needs of the customers			

Table 2: Adapted SERVPERF Questionnaire for In-Flight Incidents

6. Results

In this section, the SERVPERF analysis results on the Alaska Airlines Flight 1282 case are presented, starting with an overview of the data collection process and the participants' demographics. Out of the 171 passengers on board the flight, the perceived service quality of 17 passengers was collected, representing approximately 10% of the total passengers. The statements were sourced from publicly available platforms through content analysis, and no specific demographic data such as gender, age, or education level could be obtained.

Source	Type of Source	Number of Statements	Number of Statements by Original Account
YouTube	Social Network	34	0
TikTok	Social Network	16	3
Instagram	Social Network	12	2
SpectrumNews	News-Channel	10	0
The New York Times	Newspaper	8	0
OregonLive (The Oregonian)	Newspaper	5	0
CNN	News-Channel	5	0
Biketalk.online	Forum	4	0
The Spokesman-Review	Newspaper	4	0
Koin	News-Channel	3	0
CBS	News-Channel	3	0
KATU	News-Channel	1	0
Seattle Times	Newspaper	1	0
Facebook	Social Network	1	1
Twitter	Social Network	0	0
Total		**107**	**6**

Table 3: Overview of Passenger Statements for SERVPERF-Analysis on Alaska Airlines 1282

As Table 3 shows, a total of 107 statements were collected and subsequently coded into the SERVPERF model, with each item receiving between 5 and 9 statements, resulting in an average of 6.29 statements per item. The statements were gathered from 15 different platforms and websites, with the distribution of sources reflecting the availability and originality of the statements. It is important to note that while some statements were shared across multiple platforms, they were only included once in the analysis to maintain the integrity of the data.

Given the nature of the analysis, platforms that provided direct statements from passengers, particularly those in video format, were considered the most reliable. Video-based platforms offered more precise insights into the statements' tone, context, and authenticity, facilitating a more accurate coding process. As a result, YouTube emerged as the most significant data source, contributing 34 statements, accounting for approximately 32% of the total statements. TikTok followed with 16 statements (approximately 15%), and Instagram contributed 12 statements (approximately 11%). Various news outlets also served as important sources, offering passenger statements through interviews or video excerpts.

Text-based platforms like Facebook and Twitter were less frequently used as sources in the analysis, with Facebook contributing only 1 statement and Twitter none at all. This is partly due to the limited number of direct statements available on these platforms and the difficulty in verifying the authenticity of the existing statements.

Additionally, only a tiny portion of the statements—six in total, accounting for approximately 5%—were directly posted by passengers involved in the incident. This limited participation is due to the challenge of verifying the statements and the fact that very few passengers publicly shared their thoughts specifically about the service quality during and after the incident. Most of the statements analyzed were drawn from media coverage of the event, which frequently quoted or referenced passenger experiences.

Items in Each Dimension	Mean	Std. Deviation
Tangibles	**2.24**	**0.46**
P1. Up-to-date (safety) equipment	2.44	0.68
P2. Degree of physical facilities, food and drinks after the emergency landing	1.60	0.80
P3. Availability of communication tools	2.67	0.47
Reliability	**2.23**	**0.47**
P4. The airline reacts sympathetic and reassuring	2.17	0.69
P5. The airline offers alternatives to provide their services timely	2.50	0.50
P6. Degree of compensation provided by the airline to the passengers	1.50	0.76
P7. The crew ensured passengers safety	2.75	0.43
Responsiveness	**2.28**	**0.50**
P8. The crew informs passengers about the incident in timely and comprehensive manner	1.50	0.71
P9. Employees respond promptly to passengers needs and requests	2.20	0.75

P10. Employees are willing to help passengers	2.80	0.40
P11. Medical and psychological support offered after the emergency	2.63	0.70
Assurance	**2.14**	**0.52**
P12. Employees should be trustworthy and polite	2.88	0.33
P13. Employees should provide clear instructions and guidance	1.80	0.98
P14. The airline shows responsibility	1.75	0.97
Empathy	**2.14**	**0.49**
P15. The airline is attentive to individual concerns and needs	1.80	0.75
P16. Employees effectively address and fulfill individual concerns and needs	2.83	0.37
P17. Employees understand the needs of the customer	1.80	0.98

Table 4: Results of the SERVPERF-Analysis for Alaska Airlines Flight 1282

Table 4 presents the items from the SERVPERF model, along with their corresponding means and standard deviations. It is essential to clarify that the SERVPERF scale in this analysis ranged from 1 to 3, where 1 signifies the lowest perceived level of service quality and 3 denotes the highest. Based on the SERVPERF analysis, the highest perceptions of service quality were linked to P12: "Employees should be trustworthy and polite" (2.88 ± 0.33), P16: "Employees effectively address and fulfill individual concerns and needs" (2.83 ± 0.37), P10: "Employees are willing to help passengers" (2.80 ± 0.40), and P7: "The crew ensured passenger safety" (2.75 ± 0.43).

Conversely, the lowest perceptions were associated with P6: "Degree of compensation provided by the airline to passengers" (1.50 ± 0.76), P8: "The crew informs passengers about the incident in a timely and comprehensive manner" (1.50 ± 0.71), and P2: "Degree of physical facilities, food, and drinks after the emergency landing" (1.60 ± 0.80).

Overall, the SERVPERF mean was calculated at 2.20. The assurance and empathy dimensions had the lowest mean scores (2.14), while responsiveness recorded the highest average score at 2.28, although the differences between the dimension means are relatively small.

7. Discussion

7.1 Interpretation of the Results

The analysis of the results is crucial for answering the study's primary research question: *"How can the service quality on Alaska Airlines Flight 1282 during the incident be assessed, highlighting both the strengths and weaknesses in the airline's response?"* This section aims to provide a comprehensive overview of the airline's performance during the in-flight emergency by evaluating the service quality across different dimensions and items. The interpretation will identify areas where the airline excelled in managing the crisis while pinpointing areas with room for improvement. This nuanced evaluation is essential for understanding the effectiveness of Alaska Airlines' response to the incident and its overall service quality during this high-stress situation.

In reviewing the results, it becomes evident that the means of the individual dimensions, as discussed in Section 6, are notably close, ranging from 2.14 to 2.28. This small range suggests a relatively consistent perception of service quality across the assessed dimensions. The similarity in mean scores implies that passengers viewed the airline's performance in the various aspects of service quality—tangibles, reliability, responsiveness, assurance, and empathy—in a largely uniform manner.

Such uniformity in scoring can be interpreted in several ways. On the one hand, it may indicate that the airline maintained a relatively balanced level of service quality throughout its operation, without any extreme highs or lows in specific areas. This balance can be seen as a strength, suggesting the airline does not disproportionately excel in one area at the expense of another. However, it could also indicate that passengers felt the overall service quality was adequate but not exemplary in any single dimension. In other words, no standout elements of service quality significantly outperformed the others, nor were there any dimensions that dramatically underperformed.

The proximity of these scores suggests a relatively neutral to positive overall perception of service quality, with room for improvement across all dimensions. Furthermore, this consistency across dimensions may reflect the passengers' holistic experience during and after the in-flight incident, where multiple facets of service—from safety measures to post-landing care—shaped their overall satisfaction.

7.1.1 Positive Aspects of Service Quality

In reviewing the positive aspects of the service, as highlighted in the results, it becomes evident that the highest mean scores were associated with the performance of the crew and ground staff. Specifically, P12: "Employees should be trustworthy and polite" (2.88 ± 0.33), P16: "Employees effectively address and fulfill individual concerns and needs" (2.83 ± 0.37), P10: "Employees are willing to help passengers" (2.80 ± 0.40), and P7: "The crew ensured passenger safety" (2.75 ± 0.43) received the highest evaluations. These items collectively point to the crew's willingness to assist and effectively handle an unprecedented situation.

The high scores for these items suggest that the passengers positively viewed the crew's demeanor and actions during the crisis. The crew's ability to maintain calm, provide safety instructions, and assist passengers as needed is a testament to their training and ability to manage stress under challenging conditions. One reason for this positive evaluation may be the airline's strong focus on training its crew members in crisis management, ensuring that they are well-prepared to handle emergencies in a composed and professional manner. Such preparedness could be rooted in frequent safety drills and protocols established by the airline to ensure crew readiness in unforeseen situations.

Interestingly, while most items relating to the crew were positively received, P17: "Employees understand the needs of the customer" was rated lower, with a mean score of 1.80 ± 0.98. The high standard deviation of 0.98 suggests significant variation in passenger experiences with this particular aspect. This may indicate that while the crew's general performance was commendable, their ability to address passengers' diverse and specific needs varied. Given the traumatic nature of the incident, each passenger may have had unique concerns and emotional responses, which the crew may have struggled to address comprehensively. This could explain the lower score and the inherent challenge of managing individual expectations during an emergency.

Another highly rated item was P3: "Availability of communication tools" (2.67 ± 0.47). Following the emergency, the airline made onboard Wi-Fi free, allowing passengers to contact their loved ones. Many passengers used this service to inform family members about the situation and, in some cases, to convey what they feared might be their final messages. Others utilized the internet to access FlightRadar and gather information about the flight's

trajectory, as the onboard communication regarding the flight's destination and progress was limited. This point will be discussed in more detail in the section on negative aspects, as it highlights the partial communication gap between the crew and passengers during the incident.

Furthermore, P11: "Medical and psychological support offered after the emergency" (2.63 ± 0.70) was rated relatively high, which can be attributed to the swift response of emergency personnel, including firefighters, who boarded the plane after landing to assist passengers. The appreciation for their presence is notable, although the absence of severe physical injuries among passengers likely resulted in lower expectations for medical intervention. This may have made it easier for the provided support to meet or exceed the passengers' perceived needs. Additionally, the airline's provision of post-incident psychological support, such as access to mental health resources and counseling sessions through Empathia (Takahama (The Seattle Times), 2024), their incident response and family assistance partner, was viewed as a positive and proactive measure to address any potential emotional or psychological distress.

Finally, the airline's P5: "The airline offers alternatives to provide their services timely" (2.50 ± 0.50), also stood out as a positive aspect. Despite the disruption caused by the emergency landing, the airline promptly arranged alternative flights for some passengers and even organized a replacement flight later that evening. This swift response ensured that passengers could still reach their destination with minimal delay, an important factor in service recovery. By offering timely alternatives, the airline demonstrated its commitment to minimizing the inconvenience caused by the incident and maintaining a high level of service despite the crisis.

In summary, the positive results in these items highlight the airline's strengths in handling the crisis, particularly regarding crew performance, communication tools, medical support, and service recovery efforts. These aspects contributed to a generally favorable perception of service quality during and after the emergency.

7.1.2 Negative Aspects of Service Quality

One of the most critically evaluated aspects of the service experience was the compensation offered to passengers in the aftermath of the incident. Item P6: "Degree of compensation provided by the airline to the passengers," received a low mean score (1.50 ± 0.76),

indicating a general dissatisfaction among passengers. Alaska Airlines offered a compensation package that included a $1,500 payment and a full refund of the ticket price (Takahama (The Seattle Times) 2024). However, many passengers perceived this amount as inadequate, particularly given the psychological distress and potential long-term effects of the incident. The traumatic experience, including the rapid decompression and emergency landing, may lead to lasting mental health challenges, such as the development of flight anxiety, which could require extended psychological treatment and even affect passengers' professional lives due to work absences. The absence of legally mandated compensation standards for delayed flights, as mentioned by The U.S. Department of Transportation (2024), and therefore also such events, likely contributed to the perception that the airline's offer did not fully address the emotional and financial impacts on the passengers.

Another area that garnered negative feedback was P8: "The crew informs passengers about the incident in a timely and comprehensive manner" (1.50 ± 0.71). Several factors severely hindered effective communication during the incident. Passengers seated further away from the breach in the fuselage could not observe the damage directly and relied on the crew for information. However, loud wind noise from the breach, combined with the use of oxygen masks, made it difficult for the crew's announcements and the pilots' communications to be heard clearly. Consequently, many passengers reported feeling inadequately informed about the nature of the incident and the actions being taken to ensure their safety. The higher standard deviation (0.71) in this item suggests variability in the passengers' experiences, with those seated in the front sections of the aircraft possibly receiving more information than those sitting towards the rear, closer to the damaged section.

Post-landing support also received a low evaluation, particularly regarding the provisions for food and beverages. The item P2: "Degree of physical facilities, food and drinks after the emergency" was rated poorly (1.60 ± 0.80). Following the emergency landing, passengers were given a $12 voucher for food and drinks at the airport, which was widely viewed as insufficient. Given the typically high prices at airport establishments, this voucher did not adequately meet the passengers' needs, especially considering the prolonged wait times for alternative flights or other transportation arrangements. This service aspect fell short of passengers' expectations, particularly when additional care and support were anticipated after such a stressful and potentially traumatic experience.

7.1.3 Conclusion of the Findings

The SERVPERF analysis reveals a generally positive perception of Alaska Airlines' service quality during the emergency on Flight 1282, particularly in terms of the crew's professionalism and emergency response. High scores in aspects such as trustworthiness, helpfulness, and ensuring passenger safety highlight the airline's strengths in crisis management and underscore the crew's ability to handle high-stress situations effectively. These factors contributed to an overall favorable assessment of the airline's performance during the incident.

However, the study also identified notable areas for improvement, most prominently regarding compensation, communication during the emergency, and post-landing support. The perceived insufficiency of compensation, coupled with communication challenges during the incident, led to lower satisfaction scores in these dimensions. Given the circumstances, passengers felt that the $12 voucher for post-landing food and drinks was inadequate. These findings suggest that while the airline's immediate response to the crisis was effective, more attention is needed to improve passenger care, compensation, and information dissemination to better align with customer expectations in similar emergencies.

Ultimately, Alaska Airlines' handling of the in-flight emergency on Flight 1282 demonstrated competence in managing the immediate crisis but highlighted key areas where improvements are necessary to enhance the overall passenger experience during and after such incidents. These findings can inform strategies to improve service quality in future in-flight emergencies across the industry.

7.2 Implications for Airlines

The findings of this study highlight several important implications for airlines, particularly in the context of in-flight emergencies and crisis management. One key takeaway is that airlines must prioritize the technical and safety aspects of their service and the human factors that contribute to the overall passenger experience. The crew's trustworthiness, politeness, and responsiveness were highly rated, underscoring the importance of well-trained personnel who can handle both routine and emergency situations with professionalism and empathy.

While each in-flight emergency presents unique challenges and circumstances, the implications drawn from this study hold general relevance across the aviation industry.

Whether an incident involves technical malfunctions, weather-related disruptions, or other unforeseen issues, airlines can apply these broader lessons to improve their crisis response. The specific nature of an emergency may vary, but passengers consistently expect clear communication, reliable safety measures, and compassionate treatment from the airline staff.

Airlines should continue to invest in comprehensive staff training programs that include crisis management scenarios. By doing so, crew members can respond effectively to emergencies, reassuring passengers and maintaining a sense of control during high-stress situations. This builds passenger trust and can enhance brand loyalty, as passengers are more likely to fly with an airline they believe can handle unexpected incidents.

Another important implication is the need for airlines to review their compensation policies. In the case of Alaska Airlines Flight 1282, passengers felt that the compensation did not adequately reflect the incident's trauma and potential long-term impacts. This suggests that airlines should adopt a more flexible and passenger-centric approach to compensation, considering the emotional and psychological toll such events can have. Offering more comprehensive post-incident support, such as counseling services, is one way to show greater empathy and care for passengers' well-being.

Another and more extreme example of the importance of compensation provides the case of Germanwings Flight 4U9525, which crashed in the French Alps on March 24, 2015, resulting in the deaths of all 150 people on board (Yasar, 2016). Following this tragedy, Germanwings faced significant criticism for its inadequate compensation practices, which many viewed as insufficient given the trauma experienced by the victims' families. While the accident itself primarily caused reputational damage, the communication strategy and the lack of proper compensation exacerbated public sentiment against the airline. Ultimately, Germanwings ceased operations as an independent airline and was absorbed into its parent company, Eurowings, also in an effort to distance itself from the negative associations tied to the tragedy. This case underscores how inadequate responses to crises can have long-lasting impacts on an airline's reputation, potentially leading to its dissolution and the need for rebranding to regain customer trust (Canny, 2016).

Finally, the study emphasizes the importance of clear communication during and after emergencies. In-flight incidents can cause significant confusion and anxiety; passengers need timely, clear, and accurate information. Airlines should ensure that communication

systems are reliable and staff are trained to provide frequent updates, even if only to acknowledge that further information is pending. This transparency helps alleviate passenger stress and improves the perception of the airline's competence during emergencies.

In summary, while each emergency situation is distinct, these broader implications—focusing on staff training, communication, and compensation—provide a foundation for airlines to handle crises better. Implementing these strategies not only enhances passenger trust during routine operations but also safeguards an airline's reputation in times of unexpected adversity.

7.3 Evaluation of the Applied Methodology

Measuring intangible goods, such as service quality, presents a unique set of challenges compared to tangible goods. Unlike physical products that can be objectively assessed based on features like design, functionality, or durability, service quality is largely subjective and depends on customer perceptions. This challenge is particularly pronounced in the airline industry, where service quality is inherently tied to the passenger experience, which can vary significantly from person to person. In cases involving airline emergencies, such as the incident analyzed in this study, assessing service quality becomes even more complex due to the emotional and psychological factors at play during and after the event.

In this particular case, the methodology was further constrained by limited access to the passengers involved. Due to privacy regulations, passenger lists and contact details were unavailable, making it impossible to survey the individuals who experienced the emergency directly. Additionally, ethical considerations come into play when attempting to contact passengers who may still be dealing with trauma from the event. Reaching out to them for feedback could be perceived as insensitive and intrusive. These challenges made traditional methods of data collection, such as direct surveys or interviews, impractical.

To address these limitations, an alternative methodology was employed: a content analysis of publicly available data. This approach involved gathering statements from passengers through various online platforms such as social media, news articles, blogs, and interviews. Content analysis provided a way to capture real, spontaneous reactions without further stressing the passengers. The key strength of this method lies in its ability to analyze statements made in a more natural setting, thereby offering insights into passengers' true perceptions of service quality without the pressure of a structured survey.

However, content analysis also has limitations. One potential drawback is the varying level of detail in the statements, as passengers may not always elaborate on specific aspects of the service. Additionally, the sample may not fully represent the entire passenger group, as only a subset of individuals chose to share their experiences publicly. Despite these limitations, content analysis was deemed the most appropriate method in this situation, given the ethical and practical constraints.

Additionally, this methodology facilitated the interpretation of the results by allowing the pre-collected and coded statements to inform the analysis of each item's mean score directly. Since the passengers' statements had already been categorized and linked to specific SERVPERF items, it became easier to reference them when interpreting the numerical results. For instance, understanding how a particular item scored positively or negatively was made clearer by reviewing the actual passenger feedback. This connection between qualitative data and quantitative measures provided concrete examples to explain why certain items were rated higher or lower, ensuring that the real-life experiences and perceptions of the passengers directly supported the interpretation of the mean scores.

Another critical aspect of the methodology was using a modified SERVPERF model, which focuses on passengers' perceptions of the service they received rather than comparing their expectations and experiences as in the traditional SERVQUAL model. This modification was significant because asking passengers to provide their expectations for service during an emergency would be unrealistic. Emergencies are unpredictable, and it would be difficult for passengers or outside observers to have a clear sense of what to expect during such a crisis.

A three-point Likert scale was used instead of the typical seven-point scale. While this simplified scale reduced the opportunity for finer response differentiation, it offered significant benefits in this context. Firstly, it improved the accuracy of the manual coding process, as a three-point scale made it easier to categorize statements clearly, especially when dealing with fragmented or informal data sources like social media. Additionally, the smaller scale helped to mitigate bias toward extreme answers, which can sometimes occur with larger scales. Given the nature of the content analysis, this approach ensured a more straightforward data analysis without sacrificing the coding process's reliability.

In conclusion, the methodology applied in this study was well-suited to the case's specific circumstances. Using content analysis and a modified SERVPERF model allowed for an ethical and practical approach to measuring service quality in the aftermath of an airline emergency. While traditional data collection methods were not feasible, the chosen methodology provided valuable insights into passenger perceptions and highlighted areas where the airline succeeded or fell short in its service delivery. Despite its limitations, this approach effectively addressed the core research objectives while maintaining sensitivity to the passengers' experiences.

7.4 Limitations of the Study

This study presents several limitations that must be acknowledged when interpreting the results. One of the primary challenges is the potential *lack of data quality*, as the analysis relies heavily on publicly available data from social media platforms and news articles. These sources often reflect the opinions of a specific subset of individuals, typically those more willing to publicly share their experiences. This self-selection bias may result in a sample not fully representative of the entire passenger group. Passengers who experienced more neutral or even positive outcomes may have chosen not to publicly share their experiences, leaving the data skewed towards those with more vigorous, often negative, opinions.

Related to this is the *tendency for individuals to report negative experiences more frequently* than positive ones. Research has shown that people are more likely to express dissatisfaction than satisfaction, particularly in public forums (Anderson, 1998; Hennig-Thurau et al., 2004). While this could skew the overall service quality assessment downwards, it does not necessarily distort the relative perceptions across individual service quality dimensions. Even if the overall score is lower, the comparative ranking of different items should still provide insight into areas of strength and weakness within the service provided.

Another significant limitation is the *lack of demographic data*. Due to the inability to directly survey passengers, important demographic information such as age, gender, cultural background, or socioeconomic status could not be collected. This lack of data impedes a more nuanced analysis of how different passenger subgroups might perceive service quality differently. For example, perceptions of service quality can vary significantly with age.

Older passengers may have different safety concerns or be more sensitive to certain services, such as assistance during an emergency or the level of comfort provided in facilities. Without demographic data, it is impossible to assess these potential variations in service quality perception (McColl-Kennedy et al., 2003).

Furthermore, the *small sample size* of only 17 passengers represents a relatively minor proportion (approximately 10%) of the total 171 passengers aboard the flight. This limited sample size inherently reduces the generalizability of the results (Lenth, 2001). The views captured in the analysis may not fully represent the range of experiences of the entire passenger group. While content analysis allowed for a deeper understanding of the publicly available data, the conclusions drawn from such a small group must be treated with caution, especially given the possible underrepresentation of certain perspectives.

Another limitation of this study lies in the *development of the adapted SERVPERF method*. Instead of using a traditional requirements analysis or expert validation, the requirements and items were derived through an analysis of comparable incidents, leaving the question of the instrument's validity open. This unconventional approach poses the risk of not adequately capturing all relevant dimensions and aspects of service quality. Additionally, the lack of validation through direct feedback from the affected passengers limits the generalizability of the findings. Further instrument validation would be necessary to enhance the reliability and significance of the results.

A further limitation comes with the small sample size, which poses challenges not only for generalizability but also for *conducting reliability tests* to measure internal consistency, such as Cronbach's Alpha. Charter (1999) notes that smaller samples can lead to imprecise reliability estimates, as they increase the likelihood of sampling error and reduce the stability of the internal consistency measures. This limitation is particularly relevant for studies like this one, where the number of responses is limited, making it difficult to ensure that the reliability of the adapted SERVPERF instrument is accurately assessed.

In conclusion, while the study provides valuable insights into service quality perceptions during an in-flight emergency, these limitations—data quality concerns, negative reporting bias, lack of demographic information, and small sample size—highlight the need for careful interpretation of the findings. Future research could address these limitations through more direct and structured data collection methods.

8. Conclusion

The incident involving Alaska Airlines Flight 1282, along with the subsequent grounding of Boeing 737-9 MAX aircraft, had a significant financial impact on the company in the first quarter of 2024. The grounding extended into February, compounding the operational disruptions caused by the incident. Although the company received $162 million in initial cash compensation from Boeing, this was not enough to fully offset the financial damages incurred. Alaska Airlines reported a net loss of $132 million for the first quarter of 2024, which, while slightly improved from the $142 million loss in the same period of 2023, still represents a major financial setback (Alaska Air Group, 2024a).

Despite these negative financial results, which did not indicate a massive financial collapse, the company's overall financial stability appears to be resilient, as reflected by the results of the second quarter of 2024. Alaska Airlines reported a net income of $220 million, or $1.71 per share, compared to $240 million, or $1.86 per share, in the same quarter of 2023 (Alaska Air Group, 2024b). These numbers suggest that the airline's financial performance rebounded after the initial losses incurred from the incident.

Furthermore, these financial results align with the findings of this case study analysis, in which passenger perceptions of Alaska Airlines Flight 1282 tended to be more positive than negative. While some service areas, such as compensation, were criticized, passengers generally had a favorable view of how the airline handled the in-flight emergency. This suggests that the incident did not severely damage the airline's reputation and that its brand perception remained stable.

This insight is reflected in the analysis results, which indicate that despite the limited scope of the compensation payments, set at $1,500 per passenger, many travelers felt that this amount did not adequately address the emotional distress and inconvenience caused by the incident. Moreover, the poor communication during the flight exacerbated the situation. Passengers felt not adequately informed about the nature of the emergency. This lack of timely and clear information may have intensified their anxiety, as they were unable to understand the severity of the situation or what to expect next. The inability of the crew to effectively convey critical updates due to the loud noise from the cabin further hampered passengers' confidence in the airline's crisis management.

Additionally, the inadequate provision of food and relaxation options after the emergency landing contributed to passengers' dissatisfaction. Many were provided only a $12 voucher for food and drinks at the airport, which was perceived as insufficient given the circumstances. Following such a stressful incident, passengers expected more support through meals and a comfortable environment to regroup and recover from the ordeal.

Despite these negative aspects, the analysis revealed that the positive service attributes prevailed.

In particular, the crew's adept handling of the situation and interactions with the passengers were highly regarded. Their calm demeanor and willingness to assist contributed significantly to a sense of security among passengers during a stressful moment. Passengers noted how the crew maintained composure throughout the incident while ensuring that individual concerns were addressed promptly. This professional approach was crucial in reassuring passengers who were understandably anxious about the unfolding emergency.

The prompt medical assistance upon landing also enhanced passengers' perceptions of the airline’s commitment to their well-being. Emergency personnel, including firefighters, boarded the aircraft quickly to attend to any injured or distressed individuals, which instilled confidence in the airline’s response efforts. Passengers appreciated the immediate attention given to their health and safety, reinforcing that Alaska Airlines prioritized their care during the crisis.

Moreover, the availability of communication tools played a significant role in alleviating some of the anxiety associated with the emergency. Free Wi-Fi enabled passengers to contact their loved ones, helping to reduce feelings of isolation during a traumatic experience. This access to information and connection was crucial, as it allowed passengers to update their families on their status and reassure them that they were safe, thereby mitigating the stress experienced during the incident.

Finally, the swift arrangements for alternative transportation demonstrated Alaska Airlines' commitment to minimizing disruptions for their passengers. The airline’s proactive measures, including offering replacement flights, reinforced the notion that even in challenging circumstances, Alaska Airlines aimed to maintain a high level of service. These efforts were essential in fostering goodwill among passengers, ensuring that their overall

experience, despite the emergency, was viewed more favorably. Collectively, these positive aspects significantly contributed to an enhanced perception of service quality, highlighting the resilience of the airline's reputation amidst adversity.

These findings collectively address the research question: "How can the service quality on Alaska Airlines Flight 1282 during the incident be assessed, highlighting both the strengths and weaknesses in the airline's response?" The analysis indicates that while there were notable weaknesses, particularly in areas such as compensation, communication, and post-incident support, the strengths demonstrated by the crew's professionalism, prompt medical assistance, and the availability of communication tools significantly contributed to a positive perception of service quality. However, it is essential to acknowledge that drawing parallels with similar incidents remains challenging due to the lack of comparative studies. This absence of benchmarks limits the ability to fully contextualize Alaska Airlines' service quality in the face of emergencies.

The adapted SERVPERF/SERVQUAL questionnaire represents a significant advancement in measuring service quality in the context of in-flight incidents that lead to perceived life-threatening situations and necessitate emergency landings. While the current version of this questionnaire requires further validation—such as through expert reviews or additional surveys involving affected passengers—it already provides a valuable tool for assessing service quality in these critical scenarios. This adaptation allows researchers and airline management to capture the nuances of passenger experiences during emergencies, facilitating a better understanding of how service quality is perceived in high-stress situations.

Moreover, the questionnaire's ability to standardize measurements across different incidents enhances the comparability of service quality evaluations. By establishing consistent criteria, the adapted questionnaire can be utilized to analyze various in-flight emergencies, enabling airlines to benchmark their performance against peers in the industry. This comparability not only aids in identifying strengths and weaknesses within an airline's service delivery but also facilitates sharing best practices across the aviation sector.

Implementing the adapted SERVPERF/SERVQUAL questionnaire in post-incident analyses not only promotes a culture of continuous improvement within the airline industry but also characterizes this study as a pilot study. This innovative application aims to explore and

refine the methodology for evaluating service quality during emergencies, providing essential insights that can inform future research. Airlines can ensure that their service quality metrics remain pertinent and effective by consistently assessing and updating the questionnaire based on real-world incidents and passenger feedback. This will lead to ongoing enhancements in their crisis management strategies. The results of this pilot study will aid in the continued development of the instrument, ensuring it accurately reflects passenger experiences in various crisis scenarios. By establishing an initial understanding of how service quality is perceived in high-stress situations, this research sets the foundation for more comprehensive studies in the future, ultimately strengthening the industry's capacity to respond to and manage in-flight emergencies.

While the results of this study provide valuable insights into the service quality experienced during Alaska Airlines Flight 1282, they must be interpreted cautiously. The incident's unique circumstances necessitated an atypical methodology for collecting data, as access to relevant information and the ability to contact involved passengers were significantly restricted. This led to the reliance on existing statements from passengers, which were analyzed through content analysis and subsequently coded according to the SERVQUAL/SERVPERF items.

One major limitation of this approach is the small sample size derived from the content analysis, which may not accurately represent the full range of passenger experiences. The limited number of statements included in the study can restrict the generalizability of the findings, as the experiences of a broader population may not be adequately captured. Additionally, the absence of demographic data, such as age, gender, and socio-economic background, further complicates the interpretation of the results. Without this contextual information, assessing how different passenger groups perceived the service quality during the incident becomes challenging.

Furthermore, the reliance on publicly available statements may introduce biases, as individuals who share their experiences online might not represent the overall sentiment of all passengers. Therefore, while the findings shed light on the service quality during the in-flight incident, it is crucial to acknowledge these limitations to provide a balanced perspective on the results and their implications for future research and practice.

In summary, this study underscores the importance of a tailored approach to measuring service quality, particularly in high-stress scenarios such as in-flight emergencies. The service quality assessment on Alaska Airlines Flight 1282 was conducted using a modified SERVPERF framework. The results of this analysis indicate a generally positive perception of the service quality provided by the airline, highlighting areas where the crew excelled in managing the crisis while also identifying aspects that require improvement. These insights shed light on the airline's operational response and contribute to the broader discourse on service quality in the aviation sector. As the industry evolves, airlines must leverage these findings to implement effective strategies that enhance customer experiences during crises, reinforcing their reputation and fostering long-term loyalty among passengers. Future research should continue to explore these dynamics, allowing for the development of robust frameworks that can guide airlines in their quest to improve service quality across various situations.

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Appendix

Appendix 1: Original SERVQUAL Questionnaire

The following graphic presents the original SERVQUAL questionnaire developed by Parasuraman, Zeithaml, and Berry in 1988. This tool is widely used to assess service quality across various dimensions by measuring customer expectations and perceptions.

DIRECTIONS: This survey deals with your opinions of ——— services. Please show the extent to which you think firms offering ——— services should possess the features described by each statement. Do this by picking one of the seven numbers next to each statement. If you strongly agree that these firms should possess a feature, circle the number 7. If you strongly disagree that these firms should possess a feature, circle 1. If your feelings are not strong, circle one of the numbers in the middle. There are no right or wrong answers—all we are interested in is a number that best shows your expectations about firms offering ——— services.

E1. They should have up-to-date equipment.
E2. Their physical facilities should be visually appealing.
E3. Their employees should be well dressed and appear neat.
E4. The appearance of the physical facilities of these firms should be in keeping with the type of services provided.
E5. When these firms promise to do something by a certain time, they should do so.
E6. When customers have problems, these firms should be sympathetic and reassuring.
E7. These firms should be dependable.
E8. They should provide their services at the time they promise to do so.
E9. They should keep their records accurately.
E10. They shouldn't be expected to tell customers exactly when services will be performed. (−)[b]
E11. It is not realistic for customers to expect prompt service from employees of these firms. (−)
E12. Their employees don't always have to be willing to help customers. (−)
E13. It is okay if they are too busy to respond to customer requests promptly. (−)
E14. Customers should be able to trust employees of these firms.
E15. Customers should be able to feel safe in their transactions with these firms' employees.
E16. Their employees should be polite.

E17. Their employees should get adequate support from these firms to do their jobs well.
E18. These firms should not be expected to give customers individual attention. (−)
E19. Employees of these firms cannot be expected to give customers personal attention. (−)
E20. It is unrealistic to expect employees to know what the needs of their customers are. (−)
E21. It is unrealistic to expect these firms to have their customers' best interests at heart. (−)
E22. They shouldn't be expected to have operating hours convenient to all their customers. (−)

DIRECTIONS: The following set of statements relate to your feelings about XYZ. For each statement, please show the extent to which you believe XYZ has the feature described by the statement. Once again, circling a 7 means that you strongly agree that XYZ has that feature, and circling a 1 means that you strongly disagree. You may circle any of the numbers in the middle that show how strong your feelings are. There are no right or wrong answers—all we are interested in is a number that best shows your perceptions about XYZ.

P1. XYZ has up-to-date equipment.
P2. XYZ's physical facilities are visually appealing.
P3. XYZ's employees are well dressed and appear neat.
P4. The appearance of the physical facilities of XYZ is in keeping with the type of services provided.
P5. When XYZ promises to do something by a certain time, it does so.
P6. When you have problems, XYZ is sympathetic and reassuring.
P7. XYZ is dependable.
P8. XYZ provides its services at the time it promises to do so.
P9. XYZ keeps its records accurately.
P10. XYZ does not tell customers exactly when services will be performed. (−)
P11. You do not receive prompt service from XYZ's employees. (−)
P12. Employees of XYZ are not always willing to help customers. (−)
P13. Employees of XYZ are too busy to respond to customer requests promptly. (−)
P14. You can trust employees of XYZ.
P15. You feel safe in your transactions with XYZ's employees.
P16. Employees of XYZ are polite.

P17. Employees get adequate support from XYZ to do their jobs well.
P18. XYZ does not give you individual attention. (−)
P19. Employees of XYZ do not give you personal attention. (−)
P20. Employees of XYZ do not know what your needs are. (−)
P21. XYZ does not have your best interests at heart. (−)
P22. XYZ does not have operating hours convenient to all their customers. (−)

[a] A seven-point scale ranging from "Strongly Agree" (7) to "Strongly Disagree" (1), with no verbal labels for the intermediate scale points (i.e., 2 through 6), accompanied each statement. Also, the statements were in random order in the questionnaire. A complete listing of the 34-item instrument used in the second stage of data collection can be obtained from the first author.

[b] Ratings on these statements were reverse-scored prior to data analysis.

Appendix 2: Dimensions and Items Used by Alotaibi (2015) for Pre-Test Exercise

The following table displays the scale items used in the pre-test exercise, as Alotaibi (2015) presented. These items were designed to evaluate specific constructs before the main study.

Dimensions	Label	No. of Items	Items	Questions	Source
Airline Tangibles	ATANG	7	Q1	The airline company provides passengers with new, modern and well maintained aeroplanes.	AIRQUAL
			Q2	Food and drink served on the aeroplane during the flight are of high quality and sufficiently varied.	AIRQUAL
			Q3	The toilet on board the aeroplane is clean and easy to use.	AIRQUAL
			Q4	There are daily newspapers and current magazines to read in the aeroplane.	AIRQUAL
			Q5	Personnel working for the airline company are neatly dressed.	AIRQUAL
			Q6	The airline company provides passengers with allocated seats	NEW
			Q7	The airline company provides entertainment for passenger on board the aircraft	NEW
Airline Reliability	REL	6	Q8	Passengers' luggage is handled with care and attention.	AIRQUAL
			Q9	When airline company promises to do something by a certain time, it does so	SERVQUAL
			Q10	When you have problems, airline company shows sincere interest in solving it	SERVQUAL
			Q11	Airline company performs the service right the first time	SERVQUAL
			Q12	airline company provides its services at the time it promises to do so	SERVQUAL
			Q13	airline company insists on error-free records	SERVQUAL
Responsiveness	RES	5	Q14	Employees of airline company tell you exactly when services will be performed	SERQUAL
			Q15	Employee of airline company give you prompt service	SERQUAL
			Q16	Employees of airline company are always willing to help customers	SERQUAL
			Q17	Employees of airline company are never too busy to respond to your requests	SERQUAL
			Q18	Airline company provides its services for customers promptly	NEW
Assurance	ASS	5	Q19	Airline company personnel are experienced and well trained.	AIRQUAL
			Q20	The behaviour of employees of airline company instills confidence in customers	SERQUAL
			Q21	You feel safe in your transactions with airline company	SERQUAL
			Q22	Employees of airline company are consistently courteous with you	SERQUAL
			Q23	Employees of airline company have the knowledge to answer your questions	SERQUAL
Empathy	EMP	7	Q24	Passengers are compensated sufficiently by the airline company for any damages arising in the shortest time possible.	AIRQUAL
			Q25	Personnel working for the airline company put themselves in the place of the passengers when providing service.	AIRQUAL
			Q26	Airline company gives you individual attention	SERQUAL
			Q27	Airline company has employees who give, you personal attention	SERQUAL
			Q28	Employees of airline company understand your specific needs	SERQUAL
			Q29	Airline company has your best interests at heart	SERQUAL
			Q30	airline company has operating hours convenient to all its customers	SERQUAL
Total : 5 dimensions / 30 Items (9 Items AIRQUAL ; 18 Items SERQUAL ; 3 Items NEW)					

Statement on the Use of Artificial Intelligence

I hereby confirm that AI tools, specifically ChatGPT, were utilized in the process of developing this thesis. These tools were employed to assist with generating ideas, improving language quality, and supporting research-related tasks. However, all content has been critically evaluated, adapted, and verified to ensure accuracy, originality, and compliance with academic standards. The use of AI does not replace my independent thinking, analysis, or the academic rigor applied throughout the work.

Affidavit

I hereby declare that I have completed the present thesis independently and without external assistance, except for the use of AI tools, which have been appropriately acknowledged where relevant. Any passages taken either verbatim or in spirit from publications or presentations by other authors have been clearly identified as such. This thesis has not been submitted to any other examination authority, nor has it been published previously.

Lisbon, 04.10.2024

Name (Signature)