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Strategic Optimization of the European Full-Service Network Carrier Business Model: How Airlines Can Adapt to Ensure Long-Term Competitiveness

Analysis of Operational and Financial Components within the Business Model

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-Group Part-

Abstract

This work examines how Full-Service Network Carriers (FSNCs) within the European airline industry can adapt their business model to succeed in an evolving environment shaped by rising costs, margin decline, and supply chain disruptions caused by increased geopolitical tensions. While existing research has extensively analyzed the business models of FSNCs and the challenges they face in isolation, it has not yet explored how these challenges collectively drive business model adaptation of FSNCs. Drawing on qualitative methods, this thesis proposes four key recommendations: customizing the travel experience, reinventing loyalty programs, embracing technology for automation and reducing dependence on individual markets.

Keywords

Strategy, Business Model, European Airline Industry, Full-Service Network Carrier, Business Model Optimization, Market Dynamics, Customer Centricity, Operational Strategies

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Table of Contents

List of Figures and Tables 3
List of Abbreviations 4
1 Introduction (Group Part) 5
2 Methodology (Group Part) 7
2.1 Research Methods (Group Part) 7
2.2 Applied Approach & Data Collection (Group Part) 7
3 Overview of Key Concepts and Frameworks (Group Part) 11
3.1 Definition Business Models (Group Part) 11
3.2 Generic Strategies (Group Part) 12
3.3 Frameworks (Group Part) 14
4 The European Airline Industry (Excluded) 17
4.1 Current State (Excluded) 18
4.2 Market Dynamics and Competitive Forces (excluded) 18
4.3 Evolution of Airline Business Models (Excluded) 18
4.4 Variation of Business Models (Excluded) 18
4.4.1 Full-Service Network Carrier (FSNC) (EXCLUDED) 18
4.4.2 Low-Cost Carrier (LCC) (Excluded) 18
4.4.3 Regional Carrier (Excluded) 18
4.4.4 Charter Airlines (Excluded) 18
5 In-depth Business Model Analysis of Full-Service Network Carrier 18
5.1 Key Challenges (Excluded) 18
5.2 Business Model Canvas Analysis of Full-Service Network Carrier (Ind Part) 18
5.3 Strategic Advantages and Vulnerabilities (Group part) 32
6 Recommendations for Business Model Optimization (Group Part) 36
6.1 Formulation of Recommendations (Group Part) 37
6.2 Evaluation of Recommendations (Group Part) 42
6.3 Key Recommendations (Group Part) 44
6.3.1 Customize travel experience (Group Part) 44
6.3.2 Reinvent loyalty programs (Group Part) 48
6.3.3 Embrace technology for automation (Group Part) 51
6.3.4 Reduce dependency on individual markets (Group Part) 55
7 Limitations and Extensions (Group Part) 58
8 Conclusion (Group Part) 60
References 63
Appendix 92

List of Figures and Tables

Figure 1: *Qualitative coding concept* 10

Figure 2: *Generic strategies – Porter's curve* 14

Figure 11: *Spectrum of airline cooperations* 24

Figure 12: *Operating expenses per employee 2019 vs. 2023 and growth rate (in € million)* .. 28

Figure 13: *Cost structure comparison: FSNCs vs. LCCs (average cost-to-revenue ratio)* 29

Figure 14: *Staff costs per employee 2019 vs. 2023 and growth rate (in € million)* 30

Figure 15: *FSNC customer journey* 45

Table 1: *Overview of interviewees* 8

Table 3: *Evaluation of recommendations from 1-10* 42

Table 4: *Overview of repetitive tasks within the FSNC business model* 52

List of Abbreviations

AI	Artificial Intelligence
ASM	Available Seat Miles
ATC	Air Traffic Control
B2B	Business-to-Business
B2C	Business-to-Consumer
BtL	Biomass-to-Liquid
CAGR	Compound Annual Growth Rate
CASK	Cost per available seat kilometer
CRM	Customer Relationship Management
E2E	End-to-End
EASA	European Union Aviation Safety Agency
FAANG	Facebook, Amazon, Apple, Netflix, Google
FSNC	Full-Service Network Carrier
GDP	Gross Domestic Product
GDS	Global Distribution System
IATA	International Air Transport Association
ICAO	International Civil Aviation Organization
JV	Joint Venture
KPIs	Key Performance Indicators
LCC	Low-Cost Carrier
M&A	Mergers & Acquisitions
MRO	Maintenance, Repair, and Overhaul
NDC	New Distribution Capability
OTAs	Online Travel Agencies
PtL	Power-to-Liquid
RET	Reduced Engine Taxiing
SAF	Sustainable Aviation Fuel
SES	Single European Sky
SET	Single Engine Taxiing
StL	Sun-to-Liquid
VFR	Visiting friends and relatives

1 Introduction

"Post-COVID, European Full-Service Network Carriers have focused on restoring their traditional business model, but this short-term approach will not be sufficient to remain competitive in the long-term." – Expert 10, Managing Director Loyalty and Customer Engagement

This statement by an industry expert highlights a key tension in the airline industry. While the short-term restoration of traditional business models has been critical for recovery, long-term competitiveness demands a more forward-looking approach. The airline industry, characterized by its global reach and constant evolution, operates within a highly dynamic environment. Each day, the industry relies on a vast network of processes, coordination, and alignment among various stakeholders to achieve its mission of connecting people worldwide. Projections for Europe show air passenger numbers increasing by 3.8% annually until 2043, underlining the importance and relevance of the industry going forward (Boeing 2024 b). However, while the airline industry's relevance is unlikely to disappear, it faces increasing challenges that could compromise its central role if not effectively addressed. As one industry expert noted, within the industry *"one crisis is always followed by another"* (Expert 3), indicating airlines' high vulnerability to various risks. Current challenges such as supply chain disruptions, rising operational costs, and competitive pressures are directly impacting the business models of traditional FSNCs and underscore the critical need to rethink their strategies to ensure resilience and adaptability, all while balancing cost control with shifting consumer and regulatory demands. FSNC's business model is a particularly interesting field to explore as it represents the traditional airline model that has historically dominated the industry with its full-service offerings, extensive networks, and premium pricing with numerous established players competing globally. This research focuses specifically on European FSNCs, which operate within a unique market characterized by specific regulatory requirements and competitive dynamics. As experts emphasize the urgency of transformation in the airline industry, the central question remains

how this transformation should take place (Dehne, et al. 2024). Existing research has largely focused on the different business models and the current challenges within the industry in isolation. However, a research gap remains regarding how these challenges interact and collectively drive the need for FSNCs to adapt their business model. Therefore, this thesis aims to develop actionable recommendations for European FSNCs to address these challenges and implement mechanisms for adapting and optimizing their business models effectively.

The structure of the thesis is designed to provide a comprehensive progression through the research field, with each chapter building upon the insights of the previous one. The first chapter introduces the study, outlining its goals, the author's motivation, and the relevance of the airline industry. In the subsequent chapter, the research and data collection methods used are described. The third chapter covers essential theories about business models and strategy to establish a theoretical foundation and introduces applied frameworks. The fourth chapter examines the European airline industry and gives an overview of its current state and market forces, using *Porter's Five Forces* analysis. Furthermore, the evolution and variation of business models within the airline industry are illustrated. The fifth chapter presents an in-depth analysis of the FSNC business model and examines the key challenges faced by those carriers. Building on this, a detailed examination of the strategic advantages and vulnerabilities inherent in the FSNC business model is conducted. The sixth chapter presents a brief overview of recommendations for optimizing the FSNC business model. The recommendations are then evaluated, and four key recommendations are selected based on the results. The limitations of the work are discussed in chapter seven, offering insights for further research. Finally, the conclusion summarizes the work's key findings.

2 Methodology

The following chapter presents the methodology employed in this work, detailing the research methods, and approaches adopted. Furthermore, it provides insights into the data collection process and the professional backgrounds of the experts interviewed for the analysis.

2.1 Research Methods

Deductive and inductive research are two fundamental reasoning approaches in academic studies. Deductive research starts with a general theory or hypothesis and tests it through specific observations or experiments. In contrast, inductive research begins with specific observations and aims to generate new insights from the collected data. Inductive research methods are often linked to qualitative research (Thomas 2003).

To develop actionable recommendations for business model optimization, this study primarily adopts an inductive and qualitative research approach. Two complementary methods were employed: a comprehensive literature review and semi-structured interviews with industry experts. Several factors make qualitative research particularly suitable for this study. Firstly, the airline industry operates in a dynamic environment with complex factors that are challenging to quantify, such as shifting competitive dynamics and evolving regulatory pressures. Qualitative research enables deeper insights into strategic considerations that go beyond numerical data. This is particularly valuable for understanding the complexities of business models and decision-making processes (De Sord 2024).

2.2 Applied Approach & Data Collection

In the first step, a **literature review** was conducted to gather secondary data within the context of existing knowledge (Cropley 2022). The literature review draws from diverse sources, including academic sources, industry publications, annual reports of corporations, as well as media publications from leading business magazines. Academic sources included research papers,

journals, and theoretical frameworks. Moreover, practical insights were drawn from industry reports by recognized organizations such as the International Air Transport Association (IATA) and consultancies like McKinsey & Company. These sources provided the foundation for explaining core business theories and concepts as well as the specific key challenges FSNCs are facing. The secondary data was processed to extract insights and to establish a theoretical foundation for the subsequent analysis part (Yin 2016).

In addition to the literature review, **semi-structured interviews** served as a source of primary data. The interviews were conducted to validate the previous research findings and aim to provide practical insights beyond those available in literature. Semi-structured interviews were chosen because they combine the strengths of both structured and unstructured interviewing techniques. This allows the use of standardized questions while also adapting to the expertise and experiences of participants (Dumay 2011).

The interviewees were selected based on their experience in the European airline industry and their potential contributions to the research objectives. Participants were recruited via personal networks from internships and current professional roles, as well as active sourcing on LinkedIn. All selected participants are currently holding (senior) managerial positions. Many had long careers in the industry with diverse roles and responsibilities, enabling them to provide broad insights across various topics. An overview of their job roles is presented below.

Table 1: *Overview of interviewees*

ID	Current Role	Current Organization	Area of Expertise	Format	Duration
1	Head of Strategy	Leading European FSNC	Strategy, Cost Mgmt.; Out- and In-sourcing; Growth initiatives; Sustainability	Virtually	60 Min
2	Partner	Leading international consultancy in operations	Cost Mgmt.; Supply-Chain; Partnerships Value-Chain Mgmt.	Virtually	30 Min

3	Aviation Mgmt. Professor, Board Member	Transportation consultancy	Cost Mgmt.; Digitalization; Process Optimization; Customer Behavior; Loyalty Programs; Sustainability; Financing; Regulatory Demands	Virtually	60 Min
4	Senior Manager; University Lecturer	Leading international consultancy with a focus in finance	Customer Behavior; Loyalty Programs, Digitalization; Supply Chain; Partnerships; Organizational Mgmt.	Virtually	30 Min
5	Senior Manager Airline Strategy	Leading European FSNC	Synergies and Efficiency; Value-Chain Mgmt.; Partnerships; Group Mgmt.	Virtually	30 Min
6	CEO	Global Alliance Network	Global Alliances; Competitive Scenarios; Competitive Strategies; Customer Behavior; Loyalty Programs; Digitalization	Virtually	30 Min
7	Operations Director	International trade and aviation organization	Organizational Mgmt.; Employee Productivity; Operational Efficiency; Fleet Mgmt.; Regulatory Demands; Growth and M&A	Virtually	60 Min
8	Project Manager Airline Efficiency	Leading European FSNC	Operations; Airline Efficiency; Value-Chain Mgmt.; Process Optimization	In Person	30 Min
9	Head of Partnership Management	Leading European FSNC	Human-Resource Mgmt.; Legal; Partnerships	Virtually	45 Min
10	Managing Director Loyalty and Customer Engagement	Leading European mobility provider; Former leading European FSNC	Loyalty Programs; Customer-Centricity; Customer Behavior	Virtually	30 Min
11	Director Loyalty	Global Alliance Network	Loyalty Programs; Customer-Centricity; Customer Behavior	Virtually	30 Min

Source: *Own illustration 2024.*

The interviews were conducted based on a **pre-defined questionnaire**. While this provided structure, the interview guide also allowed flexibility for situationally follow-up questions (Taylor, Bogdan and DeVault 2016). The questionnaires were divided into four parts in line with the research objectives. The first two parts covered standardized questions about participants' current roles and previous work experience, as well as a challenge ranking in which experts were asked to prioritize seven predefined challenges based on their relevance for FSNCs. The third part included in-depth questions for topics such as operations, supply chain, and strategy, tailored to the participant's expertise. Finally, participants were asked to identify

areas with the greatest potential for improvement and to share their opinion for an industry outlook. To enhance the quality of responses, the interview questions were shared with participants in advance. A total of eleven interviews were conducted between early October and mid-November 2024. Most of the interviews were conducted virtually via Microsoft Teams to accommodate geographical and scheduling constraints. Each interview lasted 30 to 60 minutes. Participants were informed of the purpose of the interviews and data handling procedures. The names and companies of the interviewees remain anonymous. To maintain confidentiality, participants are identified only by numbers ranging from one to eleven. Interviews were conducted in German and English, depending on the participants' preferences. German responses were translated for the transcript into English.

The **data analysis** process followed a structured approach to ensure a comprehensive analysis of the collected data. Firstly, the audio recordings from the interviews were transcribed into text files. These transcripts were then uploaded into MAXQDA, a qualitative data analysis tool (De Sord 2024). Similarities in responses were identified to generate *codes* and organized into categories such as key challenges, in-depth business model analysis, and recommendations. The coding concept can be seen in the chart below (Figure 1).

Figure 1: *Qualitative coding concept*

Source: *Own illustration 2024.*

This process was crucial to structure and integrate the findings into the thesis. It helped to systematically connect the empirical insights from the interviews with theoretical concepts from the literature (Yin 2016). Together, the qualitative insights from interviews and the literature review formed a holistic understanding of the industry and the business model of FSNCs. These insights were crucial in forming recommendations for business model optimization.

3 Overview of Key Concepts and Frameworks

The following chapter provides a comprehensive review of the concept of business models and generic strategies and aims to establish a clear understanding of what constitutes a business model. The review delves into frameworks, such as Osterwalder and Pigneur's *Business Model Canvas* or Porter's *generic strategies*. This foundational knowledge is essential for analyzing how firms position themselves in competitive environments and will serve as a basis for understanding the strategic recommendations in later sections of the thesis.

3.1 Definition Business Models

The term business model is a widely used concept for describing and classifying businesses and serves to understand the different ways in which companies create and deliver value (Baden-Fuller and Morgan 2010). Various definitions of business models have emerged, highlighting the diverse perspectives. These range from being viewed as mechanisms for value creation and innovation (Gambardellla and McGahan 2010, Teece 2010) to a system of interdepend activities (Zott and Amit 2010) and even as dynamic learning systems (Itami and Nishino 2010). For a business model to be successful, it must pass two critical tests: the narrative test, which ensures that the company's story makes sense, and the numbers test, which confirms that the business is profitable. Additionally, business models must remain adaptable, with managers continuously testing and refining them based on market feedback. While strategy and business models are sometimes mistakenly used interchangeably, they are fundamentally different

(Magretta and Joan 2002). One needs to clearly distinguish between business models and strategy in terms of their core focus. Business models primarily emphasize how a company can create and capture value from its innovations, linking technological capabilities with economic outcomes. In contrast, strategy focuses on sustaining competitive advantages and addressing competitive threats. Additionally, they differ in their assumptions about knowledge of the company and its key stakeholders. While business models deal with limited knowledge and bias through earlier success, strategy assumes more complete information to enable calculated competitive decisions (Chesbrough and Rosenbloom 2002).

3.2 Generic Strategies

As shown in the previous chapter, competitive strategy and business models are inherently connected, as a company's business model defines how it creates value, while its competitive strategy determines how it positions itself in the market to gain a sustainable advantage over competitors (Magretta and Joan 2002). According to Michael E. Porter, competitive advantage refers to a firm’s ability to outperform its competitors by delivering greater value. Porter developed three distinct generic strategies: cost leadership, differentiation, and focus (Porter 1985).

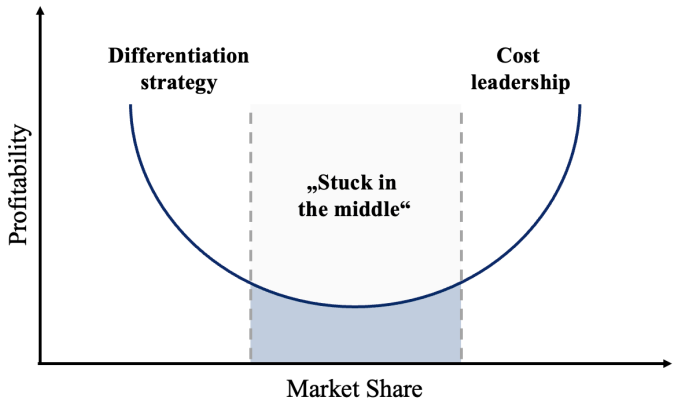
The **cost leadership strategy** emphasizes producing goods or services at a lower cost than competitors. Cost leadership is achieved through a holistic optimization of the value chain and exploitation of economies of scale. Firms that pursue this strategy benefit from price advantages, as they can offer lower prices than competitors while remaining profitable. Cost leadership often results in stronger bargaining power over suppliers and resilience against the threats of new entrants or substitute products. However, there are risks associated with this strategy, as competitors potentially replicate cost-saving practices, leading to a "race to the bottom", which erodes profit margins and prices. Firms must balance cost reductions with the maintenance of product quality to avoid commoditization (Porter 1985).

The **differentiation strategy** emphasizes creating products or services that are perceived as unique or superior by customers. Differentiation can be achieved through distinct product features, superior quality, or exceptional customer service. Companies adopting this strategy charge premium prices, as customers are willing to pay more for the added value. Differentiation allows firms to build strong brand loyalty and reduces the threat of substitutes by making products difficult to replicate. While differentiation can be a highly profitable strategy, it also requires constant investments to maintain the perception of uniqueness (Porter 1985).

The **focus strategy** involves targeting a specific market segment. This strategy enables firms to specialize in serving a niche, either by providing lower-cost products or by offering specialized products. By concentrating on a specific segment, firms can develop a deep understanding of the niche's preferences and serve it more effectively than broader competitors. Risks associated with the focus strategy include the possibility of the niche market becoming too small to sustain the business (Porter 1985).

Porter initially argued that firms must choose one of the three generic strategies (Appendix A). The concept of being *"stuck in the middle"* refers to firms that fail to commit to one distinct strategy (Figure 2). This results in a weak market position, as firms neither benefit from cost efficiencies nor succeed in creating the unique value needed for differentiation. Without a clear strategic direction, these firms often lack in value proposition, profitability and risk being outcompeted by firms with a more defined approach (McGee 2014). However, modern business practices increasingly suggest hybrid strategies that combine elements of both cost leadership and differentiation (Mintzberg 1988). This allows companies to achieve competitive advantages through both efficiency and unique value creation (Hill 1988).

Figure 2: *Generic strategies – Porter's curve*



Source: *Own illustration, based on Porter 1980.*

3.3 Frameworks

Throughout the thesis, a variety of frameworks are used to systematically analyze the industry's inherited complexities. The frameworks are critical for understanding market trends, conducting an in-depth analysis of the business model, and formulating actionable recommendations.

The first model applied is the *Five Forces* framework, developed by Michael E. Porter, which is a strategic tool used to analyze the competitive environment of an industry. It is based on the principle that strategy should address the opportunities and threats posed by the external environment. Porter identified five forces that influence the profitability and attractiveness of industries. The strength of each force depends on the structure and characteristics of an industry (Bruijl 2018). These forces are described in the following.

First, the **threat of new entrants** evaluates how easily new competitors can enter the market, which largely depends on entry barriers such as economies of scale, capital requirements, and access to distribution channels. Additional barriers include regulatory constraints and customers' brand loyalty. When barriers to entry are low, markets become more accessible, leading to increased competition and lower profit margins. Second, the **bargaining power of suppliers** measures their influence over pricing and terms. This force is stronger when a few large suppliers dominate the market. Factors such as high switching costs, unique components, and the

potential for forward integration increase their leverage. Powerful suppliers can drive up costs and impact industry profitability. In contrast, when suppliers operate in a competitive environment or rely heavily on the industry, their bargaining power diminishes. Third, the **bargaining power of buyers** describes the ability of customers to pressure pricing, quality, and service conditions. Buyer power is higher when there is a concentration of buyers and products are standardized. Fourth, the **threat of substitute products** or services assesses the risk of customers switching to alternatives that fulfill the same needs. This intensifies when substitutes offer better value at lower costs. Advancements in technology often drive substitution by providing innovative alternatives. Industries facing high substitution risks must prioritize innovation to enhance their value proposition and retain customers. Fifth and finally, **industry rivalry** refers to the intensity of competition among existing players in the market and is influenced by the number of competitors, industry growth rates, and the degree of product differentiation. Rivalry is intense in industries with equally positioned players. High competition results in price wars and decreased profitability (Porter 1980).

The collective strength of the *Five Forces* determines firms' ability to earn rates of return exceeding the cost of capital. Understanding them enables organizations to strengthen their competitive positioning and identify opportunities for improved market positioning (Porter 2008).

The second framework applied in this thesis is the *Business Model Canvas*, one of the most-well known frameworks for the analysis of business models. The framework by Osterwalder and Pigneur consists of nine interrelated components driving operations. They define it as “the rationale of how an organization creates, delivers, and captures value.” The nine building blocks are the following: **Customer Segments** identify the distinct group or individuals the company aims to serve. **Value proposition** represents the unique bundle of products or services to address customer needs. **Channels** underline how a company communicates and delivers its value

proposition to its customers. **Customer relationships** outline the types of interactions a company has with its customers. **Revenue streams** explain how a company generates revenue from its customer segments. **Key resources** are the critical assets required to create value, maintain operations, and sustain customer relationships. **Key activities** describe the essential tasks that a company must perform to operate effectively. **Key partnerships** include strategic alliances, suppliers and other partnerships that help optimize operations and sustain customer relationships. **Cost structure** breaks down the major expenses associated with running the business.

This framework provides a structured approach to visualize how each part of an organization contributes to creating value and generating revenue. Ultimately, the business model serves as a blueprint for implementing strategy through the organization's structures, processes, and systems (Osterwalder and Pigneur 2010). *Business Model Canvas* is a framework that has been widely adopted across industries to identify inefficiencies, explore growth opportunities, and adapt to changing market dynamics. Through its structured approach, both companies and start-ups can visualize and refine their business model and ensure competitiveness and fulfill customer needs (SCORE 2024). For the in-depth analysis of the FSNC business model, this framework was chosen as it gives a detailed overview of the business model itself. Additionally, it is the basis for identifying the key strategic advantages and vulnerabilities within the FSNC business model and will enable the development of actionable and clear strategic recommendations.

The third framework applied in this thesis is the *NUF* framework. This framework serves as a decision-making tool for evaluating developed recommendations. The framework provides a "reality check" for proposed ideas by assessing them based on three criteria: to what extent are they New, Useful, and Feasible *(NUF)*. This work applies a *modified NUF* framework, incorporating an additional criterion to assess business model specificity. Each recommendation is assessed using a matrix based on these criteria, with scores ranging from 0 to 10. A score of 10

represents a high level of novelty, usefulness, feasibility, and relevance to the analyzed business model, while a score of 0 indicates a low level.

The **“New”** criterion assesses whether the idea has been previously attempted and how significantly it differs from past initiatives. The underlying hypothesis is that a new recommendation brings attention and potential opportunities. Furthermore, the **"Useful"** criterion evaluates whether the recommendation effectively addresses the problem. A highly useful recommendation implies that the problem can be solved comprehensively without creating new problems. The **“Feasible”** criterion assesses whether the recommendation can realistically be implemented. High feasibility is characterized by a low number of required resources and minimal effort. Lastly, the **"Business Model Specificity"** criterion assesses how well a recommendation aligns with the unique features of the analyzed business model. A high score indicates strong alignment, while a low score suggests broader applicability across various business models.

Subsequently, the assigned points are summed, resulting in a score that allows for comparison with other recommendations. Additionally, the *modified NUF* framework provides the opportunity to identify the criteria and root causes that resulted in one recommendation being ranked higher or lower than another (Gray, Brown and Macanufo 2010).

4 The European Airline Industry

Following the methodology outlined in Chapter 2, this chapter provides a comprehensive overview of the European airline industry, laying the foundation for a deeper understanding of the complexity of the market. First, the current state and projected developments of the industry is discussed. Next, the chapter delves into the market dynamics using *Porter’s Five Forces* framework, presenting an analysis of the competitive pressures within the industry. Finally, the evolution and variation of business models within the European airline industry are described.

4.1 Current State (Excluded)

4.2 Market Dynamics and Competitive Forces (Excluded)

4.3 Evolution of Airline Business Models (Excluded)

4.4 Variation of Business Models (Excluded)

4.4.1 Full-Service Network Carrier (FSNC) (Excluded)

4.4.2 Low-Cost Carrier (LCC) (Excluded)

4.4.3 Regional Carrier (Excluded)

4.4.4 Charter Airlines (Excluded)

5 In-depth Business Model Analysis of Full-Service Network Carrier (Excluded)

5.1 Key Challenges (Excluded)

5.2 Business Model Canvas Analysis of Full-Service Network Carrier

[…] The next component, **key resources,** can be divided into two main categories: tangible and intangible assets. Tangible assets include, among others, the aircraft fleet, office buildings, and ground operation vehicles. Intangible assets include the workforce, IT infrastructure, and brand equity associated with FSNC's status as "legacy carriers".

When looking at FSNC's tangible assets, their extensive and varied aircraft fleet, primarily consisting of Airbus and Boeing models, represents a key characteristic. This diversity allows them to operate efficiently across short-, medium-, and long-haul routes, meeting the demands of different markets (Airbus 2024, Boeing 2024 a). For instance, FSNCs commonly use the Airbus A320 family and Boeing 737 for short-haul flights, while larger aircraft such as the

Airbus A380 and Boeing 747 operate on long-haul journeys (Expert 7). While fleet diversity supports operational flexibility, it also increases costs, especially for maintenance, spare parts, and crew training (Expert 7, Expert 8). This is one of the reasons FSNCs like Lufthansa and Air France invest significantly in fleet renewal. As an illustration, Lufthansa Group spends more than €2.5 billion annually, while Air France invests more than €1 billion yearly in new-generation aircraft, such as the Airbus A350 and Boeing 787 Dreamliner (Air France 2024 a) (Lufthansa Internal Document 2, Appendix K). Fleet renewal not only contributes to fleet harmonization but also offers substantial environmental benefits as newer aircraft are more fuel-efficient and quieter, which helps reduce FSNC's carbon footprint. These environmental advantages align with the growing industry focus on sustainability and represent the reason why many FSNCs view fleet renewal as their main lever for reducing carbon emissions (Expert 1) (Air France 2024 a, Airbus 2024, Lufthansa Group 2024 e). In addition to their fleets, FSNCs possess further tangible assets, such as office buildings, many of which are strategically located at airports. Ground operation vehicles also play an important role. For example, ramp agents use these vehicles to drive to aircraft which require ground servicing (Lufthansa Group 2023 a).

In terms of intangible assets, one of FSNC's primary resources is its skilled workforce. FSNCs require a large workforce, especially pilots, cabin crew, and ground staff, to deliver their broad range of services. Significant investments are made in employee training and development to maintain high operational standards. For example, Lufthansa operates its own European Flight Academy, reflecting the focus on in-house training of employees (European Flight Academy 2024). Cabin crews and ground staff are equally important in daily operations. Cabin crews ensure passenger comfort and safety during flights, while ground staff handle pre- and post-flight activities, enabling seamless operations. These roles are crucial for maintaining comprehensive customer service, making staff a key asset for FSNCs in sustaining their competitive

advantage (FIS 2023 b, Lufthansa Group 2023 a). FSNCs manage complex operations and seek to deliver seamless customer experiences, making their IT infrastructure another vital intangible asset. They rely on advanced IT systems to coordinate bookings and reservations, ticketing, flight operations, and customer communications. In this context, GDS and the increasing integration of NDC play an important role. Currently, the airline industry finds itself in a transitional phase between the two standards with NDC gaining in significance as FSNCs aim to modernize distribution and reduce dependency on third-party systems (Chapter 5.2 Channels) (Brunod 2024, OAG 2023 a). Another important intangible key resource of FSNCs is their brand equity. FSNCs have a strong national identity and often serve as "flagship carriers" for their home countries. For many customers, flying with their national carrier provides a sense of "coming home", making FSNCs the preferred airline choice for travelers from the same country. This national identity strengthens customer loyalty and enhances the airline's reputation globally (Lufthansa Internal Document 1, Appendix K). However, protecting this brand image has become increasingly difficult in recent years, with issues like flight cancellations, strikes, and delays damaging their standing (Reuters 2024, Lufthansa Group 2023 a).

The following component **key activities** of European FSNCs can be divided into four areas: mobility and transportation, fleet and operations management and customer service and hospitality and sustainability. First, FSNCs are primarily providers of mobility and transportation, operating commercial air services globally by connecting destinations beyond Europe's borders. Therefore, FSNCs collaborate with an extensive network of mobility providers and must manage these relationships.

"[…] focus on what we do best: flying people from point A to point B […] What we really want to perfect is the flight itself and everything that goes along with it."
– Expert 1, Head of Strategy European FSNC

Beyond the operation of flights, FSNCs take a comprehensive approach to the theme of connectivity and mobility. In this context, mobility concepts are developed to offer customers a seamless travel journey, integrating bus and train services with air travel.

Second, another key activity is described by fleet and operations management. The aircraft fleet outlined in the Key Resources section must be managed. Fleet management involves the selection, procurement, fuel planning, and maintenance of aircraft. The focus here is on maximizing utilization and reducing inefficiencies while ensuring quality and safety (Acumen 2024). Although this work focuses on passenger service, it is important to note that European FSNCs often establish subsidiaries to handle the maintenance, repair, and overhaul (MRO) of their aircraft in-house, ensuring smooth operations and maintaining control over these processes. For example, the Lufthansa Group divides its business segments into passenger airlines and aviation services, with the latter further divided into MRO and logistics (Lufthansa Group 2024 b). On top of that, operations management involves ground operations. FSNCs typically have their own staff, especially at their hub airports, taking over activities like passenger check-in, boarding, and lounge operations. In the case of Air France-KLM, approximately 65% of employees were part of the ground staff, representing 47,000 employees in 2023 (Air France-KLM Group 2023).

Third, for commercial passenger FSNCs, customer service and hospitality are not only key activities but also embedded as fundamental principles of this business model. FSNCs offer a comprehensive range of services through various channels to provide the best possible support to their customers. The customer service teams address passenger needs before, during, and after flights, both at airports and through hotlines. Furthermore, to retain customers, the management of the described loyalty programs is crucial for long-term customer retention (Reinartz 2006). Therefore, the emphasis is on service quality, ensuring that customer expectations are met or even exceeded (Bagwell and Kellermann 2023). Additionally, since the inception of the

FSNC business model, hospitality has been a cornerstone of the model, both on the ground and onboard. On the one hand, FSNCs operate lounges at frequently traveled airports to cater to the needs of key customers. Frequent flyers, as well as business and first-class passengers, have access to these lounges and are provided with refreshments before their flight. On the other hand, hospitality also plays a vital role on board, extending beyond the basic need for nourishment. While FSNCs offer onboard meals on medium- to long-haul flights, LCCs do not.

"You can't imagine how important the food onboard is because food means interruption. People aren't necessarily hungry when flying to Los Angeles […] Food is always a small movement and action, and many people appreciate it because it provides a break."
– Expert 3, Aviation Management Professor and Board Member

Fourth, in recent years, the development and implementation of sustainability initiatives have become increasingly important, as described by the International Civil Aviation Organization (ICAO) (The ICAO Journal 2011). Due to regulatory pressure, growing consumer awareness, and the fact that FSNCs often operate under the flag of their home countries, they face immense pressure to take the lead in sustainability initiatives. As a result, significant efforts have been made to develop sustainability initiatives. In addition to the requirement to publish an annual sustainability report, FSNCs are setting ambitious goals. For example, KLM, in cooperation with Air France, has published a climate action plan for 2030, focusing on reducing CO2 emissions by 30% (KLM 2023). This plan aligns with the well-below two-degree Celsius trajectory set for the airline industry, as determined by the Paris Agreement signed in 2015 (KLM 2022). Additionally, FSNC British Airways has positioned itself as the largest buyer of carbon removals in the United Kingdom, reinforcing its environmental commitment as part of its 2030 sustainability strategy (Media Centre British Airways 2024). This key activity is no longer a minor aspect, it must increasingly become a core competency for FSNCs to achieve their ambitious sustainability goals.

The importance of **key partnerships** in the business model of European FSNCs is of central relevance. These partnerships not only enhance the customer experience but also generate additional revenue streams (Expert 6). The key partnerships within the *Business Model Canvas* for FSNCs can be categorized into two groups: partnerships and suppliers.

"True partnerships are those where a joint business model and common goals are developed, whereas supplier relationships often do not involve shared vision and goals."
- Expert 9, Head of Partnership Management

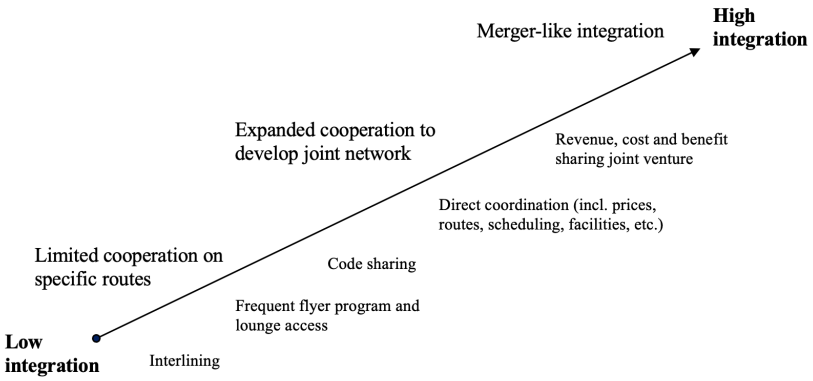
While identifying partnerships of FSNCs that are working towards the same vision of FSNCs, one has to name partnerships among airlines, hub airports, and corporate travel partners.

"[…] an airline cannot fly to all destinations in the world on its own. Through alliances, they can leverage partner carriers to reach destinations they otherwise couldn't serve."
– Expert 6, CEO of a Global Alliance

First, FSNCs engage in significant airline-to-airline partnerships through codeshare agreements, strategic alliances, and joint ventures, each representing a different level of integration and cooperation (Figure 11). A codeshare agreement, in contrast, describes an arrangement where one airline sells seats on another airline's flight using its own flight code. Furthermore, airline alliances are true partnerships between airlines to share services, schedules and benefits and often conclude codeshares (Pearce and Doernhoefer 2011). Almost every single European FSNC is a member of one of the three major alliances: Oneworld, SkyTeam, or Star Alliance (Göv 2020). Thereby providing passengers with an expanded selection of destinations and connections (Rajasekar 2009). This is particularly evident in the case of Lufthansa. For instance, through its membership in the Star Alliance, Lufthansa can offer cost-effective flights to New Zealand without operating a direct flight from Frankfurt to Auckland. In this example, the flight

from Frankfurt to Singapore is operated by Lufthansa, while the connecting flight from Singapore to Auckland is handled by Air New Zealand, another member of Star Alliance (Lufthansa Group 2024 d). Through this collaboration, airlines within the alliance benefit mutually by sharing knowledge and expertise and generating new revenue streams as well as attracting new customers, as previously discussed. On top of that, an even deeper level of airline-to-airline cooperation is described by Joint Ventures (JV). Through JVs, airlines share revenues on specific routes, regardless of which airline operates the flight (Pearce and Doernhoefer 2011). Taking Lufthansa as an example, the A++ transatlantic JV involves Lufthansa, United Airlines, and Air Canada, focusing on routes between Europe and North America. According to experts, the A++ transatlantic JV is particularly significant for Lufthansa, as it represents one of their most important partnerships (Expert 5). Additionally, Lufthansa's J+ bilateral JV with All Nippon Airways (ANA) is a partnership focused on routes between Europe and Japan (Lufthansa Group 2024 a).

Figure 3: *Spectrum of airline cooperations*



Source: *Own illustration, based on European Commission and US DOT 2010.*

Second, close relationships with hub airports are crucial for FSNCs as they operate in a hub and spoke network. This means that FSNCs operate from a main airport that often handles up to 50% of overall flights of the specific airline (Expert 2). As an example, Lufthansa is headquartered in Frankfurt am Main, while KLM operates from Amsterdam, British Airways from London, and TAP Air from Lisbon. In this context, strong partnerships with the respective airport

authorities are crucial, such as Lufthansa's JV with Fraport “FraAlliance” in Frankfurt or KLM's partnership with the Schiphol Group in Amsterdam. These cooperations are vital to ensure smooth operations and an optimal customer experience (Fraport 2024, Schiphol 2024). Through this close collaboration, not only access to landing rights and lounges can effectively be managed, but cooperation in ground operations can also be optimized leading to increased customer satisfaction. FSNCs, which offer a wide range of services, provide lounges where business and first-class passengers can relax. However, their partnerships with airports outside of their hub tend to be more supplier-based in nature. As both airports and airlines compete for margins, the high level of dependency that FSNCs have on these airports reduces their negotiating leverage (Expert 1).

“We have a close connection with airports, but often these don’t evolve into real partnerships. Airlines and airports are often in a tension relationship, especially in Germany, which is often problematic […]” – Expert 9, Head of Partnership Management at European FSNC

Third, FSNCs strive for a shared vision of mobility and transportation by collaborating with corporate travel partners to further extend their service offerings beyond aircraft transportation. These partnerships include collaborations with local mobility providers, such as railway companies. The cooperation between Lufthansa and Deutsche Bahn in Germany and Air France – KLM with Eurostar and TGV enhances the travel experience and facilitates an intermodal travel approach (Lufthansa Group 2024 h, Air France 2024 b, KLM 2019). In addition to this traditional offering, there are also ongoing expansions, such as the partnership between Lufthansa and Uber. From 2021 until the end of 2023, customers of Lufthansa's frequent flyer program had the opportunity to earn points through Uber (Uber 2021). These partnerships with mobility providers are a fundamental component of the service offerings of FSNCs and must be continuously developed and enhanced.

Within the next step, an examination of key suppliers of European FSNCs will be conducted by focusing on aircraft manufacturers, ground operations, fuel suppliers, and technology providers. First, in the area of aircraft manufacturers, FSNCs primarily focus on cooperation with the two dominant companies, Airbus and Boeing, which shape the market as a duopoly (Röhl 2018). FSNCs seek to establish long-term relationships with aircraft manufacturers that enable flexible planning and procurement of new aircraft based on the airlines' capacity needs. This approach allows FSNCs to ensure their fleets consistently meet current demand, thereby sustaining their competitiveness in the market (Westberg 2024, Olienyk and Carbaugh 2011). The diverse range of aircraft types adds complexity to procurement, maintenance, and planning, highlighting the importance of collaboration with manufacturers to manage fleets and meet customer demands.

Second, partnerships with ground operations like catering providers are of central importance. FSNCs rely on suppliers such as GateGourmet and Air Chef to meet their catering needs. While many catering providers were integrated into the corporate structures of FSNCs in recent years, a contrasting trend emerged. For instance, Lufthansa's former catering subsidiary, LSG, announced the sale to Aurelius Group, a European private equity firm, on May 5, 2023 (Aurelius Group 2023). Previously, in 2016, Air France-KLM also sold 49.99% of its catering subsidiary Servair to the Swiss catering provider Gategroup which now supplies more than 300 airlines worldwide (Reuters 2016, Gategroup 2024). Through this trend, European FSNCs relinquish direct control over catering services, thereby establishing caterers as key suppliers.

Third, FSNCs will increasingly rely on closer cooperation with fuel suppliers such as Shell Aviation, TotalEnergies, and ExxonMobil Aviation, not only to procure kerosene but also to secure sustainable aviation fuel in the future. The introduction and need for SAF will create a new market that first has to be understood by each airline, and procurement strategies have to be developed (Expert 3). In this context, IATA has established a biannual Aviation Forum

where decision-makers in the fuel sector and industry leaders discuss topics such as efficiency, safety, and sustainability. This platform promotes the exchange of knowledge and best practices, contributing to guiding the industry toward a more sustainable future (IATA 2024 d). While SAF may be sufficient until 2025 (Expert 3), insights from McKinsey & Company indicate that the projected scarcity of SAF by 2030 will exert increasing pressure on airlines. This is driven by demands from both regulators and consumers for more sustainable operations (Esqué and Riefer 2024). In this context, collaboration between airlines and fuel suppliers is crucial for resource access, meeting demand, addressing future challenges, and integrating sustainable practices.

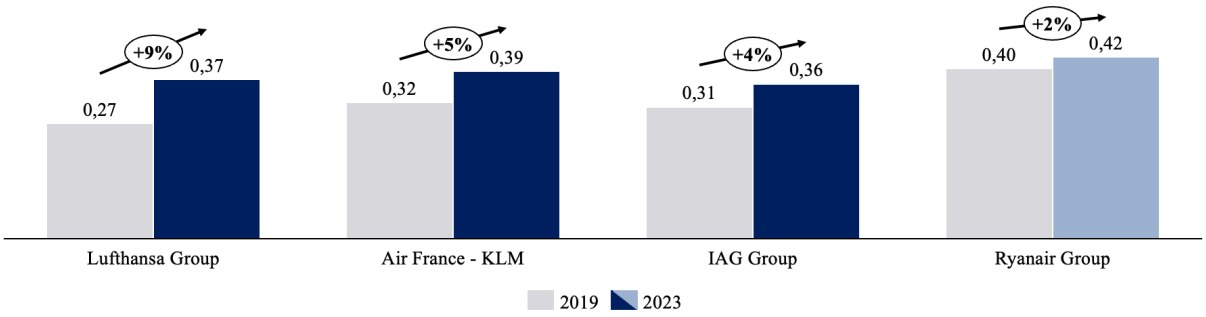
Fourth, supplier relationships with technology providers such as Amadeus, Sabre, and Travelport are important (Expert 9). These providers support FSNCs with their GDS, enabling airlines to distribute their flights and fares through various channels, such as travel agencies and online platforms (Pan 2015). Additionally, they assist with revenue management by optimizing pricing strategies and supporting the fleet management of the respective airline. This includes crew planning and maintenance processes to enhance efficiencies and minimize costs (Amadeus 2024). The GDS is particularly critical to FSNCs, as illustrated by the variety of channels discussed. It is essential to maintain close relationships with these providers to develop specific software adaptations and ensure that the systems are optimally aligned with the airlines' needs.

In examining the **cost structure** of European FSNCs, it is essential to identify the major expenses associated with running the operations. As highlighted in Chapter 5.1, a major challenge for European FSNCs is rising costs and declining margins, making it crucial to analyze their cost structure. European FSNCs often present financials in which operating expenses make up a significant portion of their revenue, and in some cases, these expenses even exceed the revenue generated. As an illustration, the Lufthansa Group’s 2023 annual report reveals an operating expense-to-revenue ratio of 101%, indicating that operating expenses surpass the revenue

(Lufthansa Group 2023 a). A closer look at other major European FSNCs further underscores the financial challenges they face. Air France-KLM also operates with an operating expense ratio of 101%, while the IAG Group, which includes FSNCs such as British Airways and Iberia, reports a ratio of 88% (Air France-KLM Group 2023 a, IAG Group 2023). In comparison, European LCC Ryanair shows a more favorable ratio of 87% in its 2023 annual report. Furthermore, it can be observed that operating expenses follow a consistent increase over time. For instance, a comparison of the Lufthansa Group's operating expenses per employee between the pre-COVID year 2019 and 2023 reveals a 9% growth rate (Lufthansa Group 2019 a). Air-France-KLM experienced a growth rate of 5% in operating expenses per employee, while the IAG Group saw a 4% rise over the same period (Air France-KLM Group 2023 a, IAG Group 2023, Air France-KLM Group 2019, IAG Group 2019).

In contrast, at the LCC Ryanair operating expenses per employee only grew by 2% from 2019 to 2023, highlighting the importance of cost management for FSNCs in particular, given the financial pressures inherent to their business model (Figure 12) (Ryanair Group 2019, Ryanair Group 2023).

Figure 4: *Operating expenses per employee 2019 vs. 2023 and growth rate (in € million)*

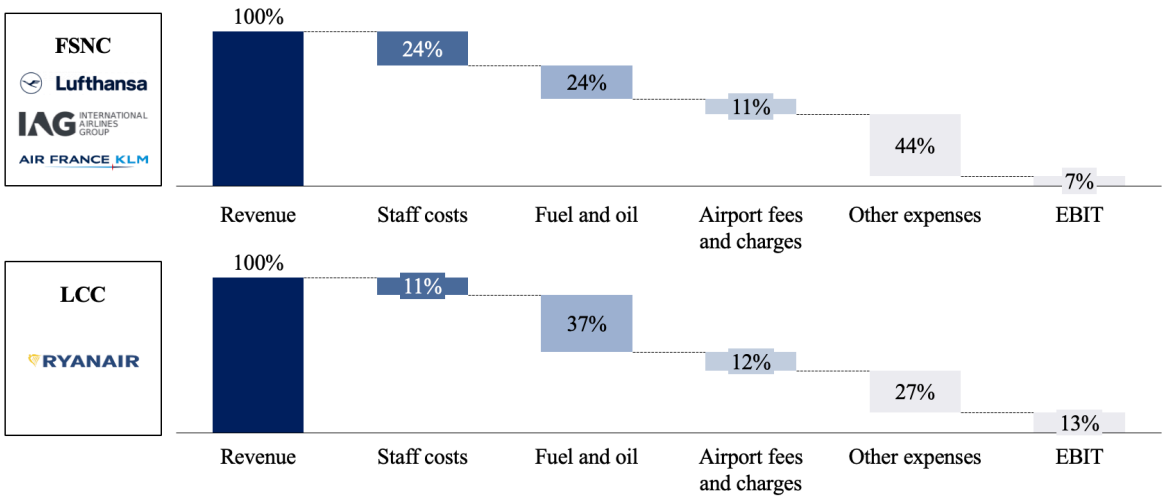


Source: *Own illustration, based on financial report 2023 and 2019 data of respective companies, 2024.*

Although the annual reports of Lufthansa, Air France-KLM, and the IAG Group include smaller subsidiaries that are not directly aligned with the FSNC business model, it remains predominant within these groups, thus providing a useful financial overview of their cost structures. Given

the high and continuously rising operating expenses that FSNCs face in maintaining their operations, it is essential to analyze the key cost drivers. The following section identifies and compares the main cost drivers of European FSNCs with those of LCC Ryanair.

Figure 5: *Cost structure comparison: FSNCs vs. LCCs (average cost-to-revenue ratio)*



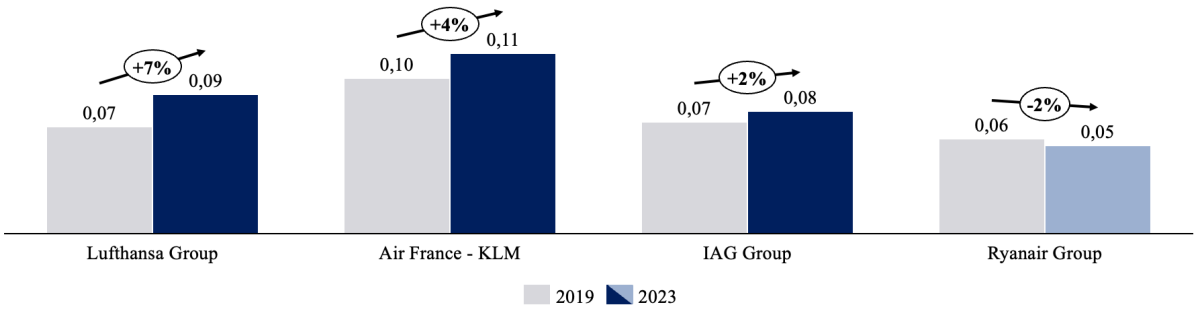
Source: *Own illustration, based on financial report 2023 data of respective companies, 2024.*

As highlighted in Figure 13, the major cost drivers for European FSNCs are staff costs, followed by fuel and oil costs and airport fees and charges. While other expenses, such as maintenance, repair, and overhaul (MRO), also play a role, this in-depth analysis will focus on the three main cost drivers.

First, staff costs account for 24% of revenue on average across European FSNCs (Appendix L). Major drivers of these costs are the large workforce and high staff salaries. According to the value proposition of FSNCs, these airlines require a large workforce to deliver their premium service promise and differentiate themselves from competitors and other business models. For example, the overhead costs of Lufthansa Group reflect the salaries of approximately 96,677 employees, whereas Ryanair Group operates with a workforce of only around 22,000 people (Lufthansa Group 2024 c). Similarly, Turkish Airlines employs approximately 30,000 people, while easyJet operates with just 16,000 employees (Turkish Airlines 2023, easyJet 2024). This

comparison underscores that FSNCs consistently maintain larger workforces than LCCs. However, FSNCs not only employ more people but also report higher staff costs per employee. In 2023, Lufthansa Group reported staff costs of around €86 thousand per employee, Air France-KLM around €111 thousand, and IAG Group approximately €76 thousand, compared to Ryanair's €54 thousand per employee in the same period. Furthermore, the staff costs increased significantly for FSNCs during the last few years. Between 2019 and 2023, staff costs per employee grew at a CAGR of 7% for Lufthansa Group, 4% for Air France-KLM, and 2.4% for IAG Group. Meanwhile, Ryanair achieved to reduce its costs per employee by around 2% during the same period (Figure 14) (Air France-KLM Group 2023 a, Ryanair Group 2023, Lufthansa Group 2019 a, Air France-KLM Group 2019, IAG Group 2019, Ryanair Group 2019, IAG Group 2023, Lufthansa Group 2023 a).

Figure 6: *Staff costs per employee 2019 vs. 2023 and growth rate (in € million)*



Source: *Own illustration, based on financial report 2023 and 2019 data of respective companies, 2024.*

These numbers underscore the significant cost burden FSNCs face compared to LCCs, which operate with leaner workforces and lower staff costs. The combination of a larger workforce and higher salaries per employee highlights the structural challenges FSNCs experience in managing profitability while also delivering their service promise. Further, it illustrates the importance of continuous and strict cost optimization for FSNCs to maintain long-term competitiveness.

One of the major reasons for FSNCs' higher cost burden is collective agreements with unions, which often result in rising labor costs. FSNCs' crews, pilots, and ground staff are typically unionized, making this a crucial cost driver. To illustrate, in March 2024, Lufthansa agreed to an 18% salary increase for ground staff following strikes, highlighting the reliance on union negotiations to prevent operational disruptions (Rachel More; Madeline Chambers 2024). Pilots' salaries also represent a significant portion of labor costs. According to Statista, pilots at Lufthansa and KLM earn nearly three times more than their counterparts at Ryanair (Gehaltsreporter 2018). This difference can be primarily attributed to seniority-based pay systems and union agreements, which often limit the flexibility of FSNCs in restructuring contract terms to optimize labor costs.

Second, fuel and oil costs also make up around 24% of revenue within the FSNC landscape. In the case of Lufthansa Group, this represents fuel expenses of €7.93 billion. In contrast, LCCs like Ryanair experienced an even higher fuel and oil cost share of 37%, representing €4.03 billion, in 2023 (Appendix L). This difference in cost structure, particularly in terms of fuel and oil expenses, is primarily driven by ticket pricing. LCCs focus on offering the lowest possible ticket prices, as previously analyzed in Chapter 5.1. As a result, the revenue generated per flight for FSNCs is much higher than that of LCCs. However, airlines of both business models purchase similar quantities of fuel and oil, meaning that the share of fuel and oil costs for LCCs is 15 percentage points higher than for FSNCs. Still, in 2023, Lufthansa's annual report highlighted the rising fuel costs as a critical factor influencing profitability. This development is even intensified by volatility in global oil prices and geopolitical factors (Lufthansa Group 2023 a). Nevertheless, although the share of fuel and oil costs in the cost structure of FSNCs is lower than that of LCCs, FSNCs are significantly impacted by the use of less fuel-efficient, older long-haul aircraft. A study shows that overall, four-engine aircraft had 24% lower fuel efficiency per passenger compared to two-engine aircraft. This is especially true for four-engine

models such as the Boeing 747-400, Airbus A380-800, A340-300 and A340-600 (Rutherford 2018).

Third, airport fees and charges represent, on average, 11% of revenue across FSNCs, with this share rising to 13% for both the Air France-KLM Group and the Lufthansa Group (Appendix L). FSNCs primarily operate out of major hub airports, which demand significantly higher landing and handling fees than secondary airports, favored by LCCs due to their cost-saving potential. Nevertheless, rising costs of airport charges impact the profitability of almost every business model within the European Airline industry. The costs incurred for operating from main airports represent a necessary trade-off for FSNCs, as these airports offer better access to high-revenue business travelers and facilitate international connections (Castillo-Manzano, López-Valpuesta and Pedregal 2012).

5.3 Strategic Advantages and Vulnerabilities

Throughout the in-depth analysis of the FSNC business model, strategic advantages, and vulnerabilities can be identified. Advantages include strategic partnerships networks, brand reputation, and expansive scale, while vulnerabilities encompass a lack of differentiation, high operating costs, high complexity and long decision-making processes, and strong dependency on suppliers and markets.

In the context of **strategic advantages**, several points stand out. First, **strategic partnerships** for FSNCs with alliances represent a significant competitive advantage over other business models, as they allow access to a global network and enable flights to be offered to nearly any destination without having to operate them directly. This is also reflected in the existing flight routes, for example, Ryanair operates 2,500 flight routes, while Lufthansa Airlines can rely on its network and offers only 460 routes (Appendix D). However, through its partnership with Star Alliance respective code share and interline agreements, it can provide access to 17,500

flight routes (Star Alliance 2024 a). Second, cross-sector partnerships enable customers of FSNCs to experience an almost seamless journey by taking advantage of intermodality options like cooperation with local rail-way providers. This allows FSNCs to offer customers the check-in of their luggage directly after leaving the train at the airport, eliminating the need to search for the right check-in counter in the terminal, which leads to significant time savings and increased convenience (Expert 1).

Second, FSNCs benefit significantly from their established **brand reputation and broad market positioning**. With extensive global networks, they maintain a strong presence that extends worldwide well beyond their home markets. Through their hub-and-spoke model, FSNCs are able to build a broad international network, increasing accessibility and ensuring seamless connections for customers worldwide (Bozogáň and Hurná 2018). Another factor that enhances their standing is that many FSNCs serve as the "flagship" carriers of their respective countries, deeply rooted in national identity and evoking a sense of pride among citizens. Additionally, FSNCs appeal to a broad customer base by offering tailored services across different cabin classes, from first-class luxury to budget-friendly economy. This segmentation strategy meets the diverse demands of both leisure and business travelers. At the same time, FSNCs ensure value for money through their additional services, like comfortable seats and good customer service, ensuring customers get what they pay for (Expert 3). Another contributor to their strong brand positioning is their loyalty programs, which are often integrated across multiple airlines within large alliances. These programs create high switching costs and encourage customers to consistently choose FSNCs for their travel needs, which ensures customer retention. Moreover, through loyalty programs, FSNCs maintain direct contact with their customers, and it is even considered a *"defensive strategy"*, giving FSNCs an advantage over other business models in the travel sector, such as hotels (Expert 1).

Third, FSNCs operate at an **expansive scale**, giving them unique advantages in several aspects of their business model. In terms of resources, their size enables them to maintain a diverse fleet of aircraft to serve short-, medium- and long-term flights. At the same time, their financial capacity allows them to invest heavily in fleet renewals. Their expansive scale is further supported by their large and highly skilled workforce. This workforce, which includes pilots, cabin crew, and ground staff, plays a critical role in delivering a broad range of services to the customers. By positioning their own personnel at major hub airports for tasks such as check-in, boarding, and lounges, FSNCs ensure greater control over operations and consistently high standards of customer service. Additionally, they also benefit from cost efficiencies associated with their large scale. Their size allows them to negotiate favorable procurement terms, for example, for fleet acquisition and ground handling contracts, and to achieve economies of scale that significantly reduce operational costs (Expert 7).

Among the **vulnerabilities**, the first issue is the **lack of differentiation of FSNCs**. Generally, nearly all FSNCs in Europe and worldwide provide comprehensive but largely homogenized service packages like global networks, onboard food and beverage options, in-flight entertainment, various seating classes, premium lounges, and loyalty programs (FIS 2023 b). These offerings represent the baseline services which FSNCs are forced to maintain as customers expect them as standards when flying with a premium carrier. Standing out is, therefore, challenging without significant innovation or involves high costs. Additionally, FSNCs operate within a narrow-margin business model that prioritizes safety above everything else (Expert 6). These characteristics in combination with strict regulatory requirements, limit their resources and flexibility for experimenting with unique differentiators such as service innovations (Millan 2023). Furthermore, intense competition and the hybridization of business models, e.g., increasingly focusing on service unbundling, blurs the distinction between different players in the market (Chapters 4.3 and 4.4). All these factors contribute to FSNCs finding themselves *"stuck in the*

middle" regarding competitive strategies (Chapter 3.2). This situation arises due to a high overlap in FSNCs' key activities, key resources and value proposition (Madgalina and Bouzaima 2021). To conclude, real differentiation requires more than meeting technological or service expectations and standards within the industry. European FSNCs often struggle to free up necessary resources to innovate, establish clear brand positioning, and implement customer-centric strategies to stand out in a competitive market. Balancing these ambitions with day-to-day operations remains a vulnerability.

Second, **high operating costs and thin profit margins** represent a significant vulnerability for European FSNCs. As discussed in Chapter 5.2, the rising costs, particularly in relation to staff, fuel, oil, and airport charges and fees, pose a major threat to their financial stability. Furthermore, the diverse fleet of FSNCs results in high operational costs, as each aircraft type demands specialized maintenance, components, and crew training. FSNCs exhibit higher unit costs per available seat kilometer (CASK), reaching up to $8-12 cents on long-haul routes. This is notably higher than LCCs, which maintain costs between $4-6 cents CASK (CAPA 2016 a). Therefore, operating expenses frequently surpass the revenue generated by several major players in the European market. As a result, FSNCs face growing vulnerabilities, especially in maintaining profit margins and managing cost structures.

Third, high **organizational and operational complexity** makes it hard for FSNCs to adapt quickly and navigate geopolitical tensions. Multiple layers of hierarchies, legacy and outdated IT systems, extensive complex contractual frameworks, and collective bargaining agreements are slowing down their ability to respond to rapidly shifting market conditions (Expert 1). Within large corporations like FSNCs, "*decision-making processes, where tasks are heavily divided, are often significantly slower than in smaller ones*" (Expert 2). In contrast to LCCs, FSNCs generally require a larger workforce, which, while beneficial for specialized tasks and various service offerings, can limit flexibility. Additionally, while the FSNCs' diverse fleet

composition increases operating costs, the major vulnerability lies in the high complexity of operations. For example, this complexity arises from the need for specialized training and licensing for pilots and crews, who are only authorized to fly on specific aircraft, which significantly impacts crew scheduling and planning (Expert 7).

Fourth, strong **dependency on suppliers and individual markets** are another vulnerability of the FSNCs business model. While North American airlines tend to insource activities to a high degree, European FSNCs are heavily dependent on third-party providers, which are particularly consolidated within the European airline industry (Expert 2, Expert 8). This dependency on suppliers such as aircraft manufacturers, caterers, and technology providers represents a significant vulnerability due to the limited flexibility in choosing from a variety of options, resulting in low bargaining power (Expert 1). This dependence is most evident in their reliance on major aircraft manufacturers, such as Airbus or Boeing, for fleet procurement. Supply chain delays and production bottlenecks can significantly impact operations and fleet modernization efforts (Expert 2). Additionally, FSNCs heavily rely on their key market, Europe, particularly for business travelers and the premium segment. This makes FSNCs vulnerable to geopolitical crises and regulatory changes (Expert 5).

6 Recommendations for Business Model Optimization

In the following chapter, tailored recommendations are presented for optimizing the FSNC business model. Recommendations focus on actionable strategies to leverage and secure competitive positioning. The subsequent sections provide an overview of the formulation of recommendations, a comprehensive explanation of these recommendations, followed by a critical evaluation using the *modified NUF* framework, which assesses each recommendation based on its novelty, usefulness, feasibility and business model specificity.

6.1 Formulation of Recommendations

A structured, step-by-step process formed the foundation for developing key recommendations for European FSNCs. First, the key challenges European FSNCs currently face were identified, which have a major impact on their business model. These challenges were subsequently included in the interviews and ranked by experts based on their relevance. Next, a detailed analysis of the business model of FSNCs was conducted using the *Business Model Canvas* framework. Through this detailed analysis, the core strategic advantages and vulnerabilities of the FSNC business model became visible. By combining expert knowledge and desk research, this analysis enabled the development of recommendations grouped into four major areas: customer centricity for differentiation, cost control initiatives, complexity reduction through agility, and resilience during geopolitical uncertainty. These recommendations are directly linked to the identified challenges and vulnerabilities and therefore form actionable measures for FSNCs to transform their business model to ensure long-term competitiveness.

The first area of recommendation focuses on the topic of **customer centricity for differentiation** as it provides significant potential to drive customer retention, customer acquisition, and upselling opportunities (Expert 1, Expert 3, Expert 6). Based on the key challenge of changing customer behavior and the FSNC business model-specific vulnerability of lacking differentiation, focusing on the customer and providing quality-driven reasons for higher pricing could provide the key competitive advantage many FSNCs are seeking.

First, FSNCs should emphasize the offering of **customized travel experience**. In recent years, customer behavior has shown increasing preference for unique, personalized experiences (Dietz 2024). By leveraging booking data, social media, and the insights gained from loyalty programs, FSNCs should seek to achieve a hyper-segmentation of customers, aiming for a “segment of one.” This drives customers’ willingness to pay, revenue, and loyalty.

Second, FSNCs should **reinvent loyalty programs** to push customer centricity and increase differentiation. To build stronger customer trust, FSNCs should focus on two key approaches. First, they should provide personalization for top-tier members by offering tailored benefits, more exclusivity, and restricted premium experiences. Second, they should address the needs of lower-tier members and attract younger generations by creating a loyalty ecosystem built on strategic partnerships that extend beyond the travel sector. This will lead to increased customer retention and long-term loyalty.

Third, seamless transport integration through **expanded intermodality options** offers further opportunities for differentiation. Partnerships with local railway operators, such as Deutsche Bahn in Germany, enhance customer convenience and support climate goals by reducing CO2 emissions. FSNCs should further invest in the expansion of such offerings, e.g., by encouraging A++ JV partners and other Star Alliance members to establish intermodal partnerships with local railway operators in their respective countries. This is especially viable in regions with well-developed rail networks, such as Japan. In regions where railway systems are less developed, FSNCs can explore partnerships with alternative transportation providers. These could include bus operators, such as Greyhound in the USA, or ride-hailing services like Uber. While covering the whole travel journey with integrated transportation offerings might not be fully feasible due to complexity, providing enhanced, more convenient options remains a worthwhile goal (Expert 4, Expert 9).

The second area of recommendation, **cost control initiatives**, addresses key challenges and business model-specific vulnerabilities, such as rising costs and declining margins. The FSNC cost structure is heavily influenced by high operating expenses, particularly in staff costs, fuel, and airport fees, which together account for approximately 60% of revenue (Chapter 5.2). To optimize the FSNC business model and reduce these expenses, three recommendations have been developed.

First, FSNCs should **embrace technology to automate repetitive processes** in order to reduce high staff costs, which account, on average, for 24% of revenue (Chapter 5.2). Driven by a significant amount of operating expenses within this area, automation opportunities exist in functions such as administration, operations, and maintenance (Expert 2). Automated solutions in these functions would enhance operational efficiency and reduce the need for staff, allowing FSNCs to lower costs and gain long-term control over this key cost driver.

Second, FSNCs should **intensify lobbying efforts** in the European Parliament to update and implement the Single European Sky (SES), which could save up to €37 billion annually for European airlines and society by addressing legislative gaps and rule inconsistencies (A4E 2024, Janzen 2023). Key strategies include forming alliances with industry partners, presenting evidence of cost reductions and sustainability benefits, and influencing EU policymakers to prioritize SES. These efforts would reduce airport fees, shorten flight routes, and decrease fuel consumption through a more efficient, unified European airspace (Expert 1).

Third, FSNCs can significantly reduce fuel costs, which currently account for 22% of total revenue, by **improving operational strategies**. While fleet modernization, the largest lever for reducing fuel consumption by up to 25%, is not feasible due to described supply chain disruptions, alternative approaches can still deliver substantial savings (KLM 2023). Strategies such as Single Engine Taxiing (SET), Reduced Engine Taxiing (RET), flap adjustments to reduce drag, optimized landing approaches, and weight reduction measures (e.g., outsourcing onboard retail) can collectively lower fuel consumption and CO2 emissions (Expert 1) (Stettler, et al. 2018, Open Airlines 2023) (Appendix M). While individual savings may seem modest, widespread implementation across all aircraft and flights within FSNCs large fleet would lead to substantial reductions in fuel consumption.

The third area of recommendation focuses on **reducing complexity** in both organizational and operational structures. Key challenges, such as ongoing political tensions and shifting consumer

behavior, highlight the need for FSNCs to respond quickly to market changes. This need is further underscored by the presented vulnerability of complex organizational frameworks, characterized by siloed business units with separate processes, priorities, and multi-layered hierarchies.

Consequently, from an organizational perspective, FSNCs should transition to more **agile organizational structures** by adopting the following measures. To do so, FSNCs should decentralize decision-making, especially in customer-facing and local market teams. However, capital-intensive areas (such as fleet purchasing) should remain centralized to ensure standardization and scale benefits (Expert 7). Furthermore, FSNCs should implement End-to-End process responsibility, where dedicated teams oversee a process from initiation to completion. This goes hand in hand with decentralizing decision-making, simplifying interfaces, and breaking down silos (Expert 2). Additionally, forward-looking KPIs should be implemented that measure decision-making speed and process timelines (Expert 2). According to McKinsey & Company, agile transformations have the potential to boost efficiency, customer satisfaction, and performance by 30% (McKinsey & Company 2021).

From an operational perspective, FSNCs should focus on **harmonizing their aircraft fleet**. Many FSNCs operate highly diverse fleets sourced from different manufacturers, with significant differences between aircraft types. For instance, Airbus models use a fly-by-wire system, while Boeing relies on a traditional control stick. This leads to limited interchangeability of parts and requires separate pilot training. FSNCs should streamline their fleet to a target picture of four widebody and two narrowbody aircraft types. This would not only generate cost savings but also reduces complexity through reduced parts inventory and standardized training programs for crews. Additionally, FSNCs should prioritize Airbus models, as they provide approximately 80% of parts commonality across aircraft types. This degree of standardization further simplifies maintenance and is typically not provided by other manufacturers (Expert 7).

As the fourth area of recommendation, the need to build **resilience during geopolitical uncertainty** has been identified based on the challenges posed by geopolitical tensions and supply chain disruptions and the business model's vulnerability of strong dependence on individual suppliers and markets. As previously noted, geopolitical tensions have a significant impact on operations, such as through airspace closures. To address these challenges, FSNCs must adopt proactive strategies to ensure operational stability.

First, FSNCs should strengthen resilience by **developing robust risk mitigation strategies**. This involves identifying key geopolitical trends, assessing their impact through risk modeling and scenario planning, and using tools like risk matrices to prioritize risk and implement practical measures to protect critical components of their business model (Expert 3) (KPMG 2024).

Second, FSNCs should build a **resilient sourcing strategy** by reducing dependence on monopolistic suppliers and forming system partnerships, such as profit-sharing agreements, to ensure flexibility and stability during disruptions (Expert 2). Additionally, strategic insourcing or outsourcing are equally important. While insourcing should be prioritized for customer-facing services, non-core functions could be outsourced (Expert 8).

Third, to further strengthen resilience, FSNCs should **reduce dependence on individual markets** by adopting a more international focus. Strategies such as forming alliances or joint ventures, like Lufthansa's involvement in the Star Alliance and its Atlantic partnership with United Airlines and Air Canada help share costs, expand networks, and access new markets (Expert 5) (Lufthansa Group 2024 a). Additionally, investing in equity stakes in airlines in high-growth regions, as seen with Air France-KLM's stake in Kenya Airways, allows airlines to tap into emerging markets and diversify revenue streams (Expert 5) (Karuwa 2023).

6.2 Evaluation of Recommendations

Based on the previously described eleven recommendations for business model optimization of European FSNCs, an evaluation of these recommendations will be conducted using the *modified NUF* framework (Table 3). Recommendations that achieve a very high score represent ideas that are particularly novel, deliver high value, demonstrate a high degree of feasibility and represent high specificity for the FSNC business model. Regarding the development of the *modified NUF* framework, each group member initially conducted an independent evaluation, followed by a collaborative discussion and analysis within the group. This process aimed to incorporate diverse perspectives and fully utilize the expertise of all group members.

Table 2: *Evaluation of recommendations from 1-10*

Area of Recommendation	Recommendation	New	Useful	Feasible	FSNC specific	NUF Score
Customer centricity for differentiation	Customize travel experience	7	9	6	9	**31**
	Reinventing loyalty programs	8	8	6	10	**32**
	Extending intermodality options	4	7	7	8	26
Cost control initiatives	Embracing technology for automation	8	10	8	6	**32**
	Lobbying for SES	3	10	5	3	21
	Improving operational strategies	6	7	8	3	24
Complexity reduction through agility	Harmonizing fleet	8	10	2	9	29
	Establishing agile organizational structure	6	9	4	7	26
Resilience during geopolitical uncertainty	Implementing risk mitigation strategies	4	7	7	5	23
	Optimizing strategic sourcing strategies	6	8	5	4	23
	Reducing dependence on individual markets	7	8	7	9	**31**

Source: *Own illustration 2024.*

The most promising area of recommendation is customer centricity for differentiation based on the highest average *NUF* score. This area, primarily characterized by **customized travel experience** and **reinventing loyalty programs**, stands out due to its high usefulness and strong

relevance to the European FSNC business model. By having a closer look at the remaining areas of recommendation, none of these areas' average score is way above the other. However, specific recommendations score highly and should be prioritized by FSNCs for implementation. Within the area of cost control initiatives, the recommendation to **embrace technology for automation** represents not only an innovative approach but also demonstrates significant usefulness, particularly in reducing high staff costs, which is a prominent component within the FSNCs cost structure. While the feasibility of adopting new technologies may present certain challenges, the potential for quick wins enhances both the practicality and the implementation effort required.

The next area, resilience during geopolitical uncertainty, with its highest-ranked recommendation of **reducing dependence on individual markets**, demonstrates high usefulness and a novel approach. This recommendation is particularly relevant to the FSNC business model due to the global operations of European FSNCs, in contrast to regional airlines and LCCs that primarily focus on specific geographic areas. Although European FSNCs are already making efforts to diversify and reduce market dependence, emerging fast-growing regions remain underutilized, further underscoring the innovative potential of this recommendation. The area of complexity reduction through agility demonstrates high relevance and usefulness for the FSNC business model. Its feasibility is comparatively low due to two significant factors. First, harmonizing the fleet is a highly valuable recommendation in terms of usefulness, novelty, and relevance. However, its feasibility is severely constrained by ongoing supply chain disruptions at aircraft manufacturers, making implementation currently unviable. Second, implementing agile organizational structures in large corporations such as FSNCs requires substantial resources and time, representing a multi-year transformation process. As a result, recommendations within this area are deprioritized for the time being but should be continuously reassessed.

6.3 Key Recommendations

In the following chapter, the four highest-ranked recommendations, based on the *modified NUF* framework, will be discussed in detail. Each recommendation will include a problem statement, the specific recommendation and how it addresses the problem, its impact on the business model and the limitations associated with it.

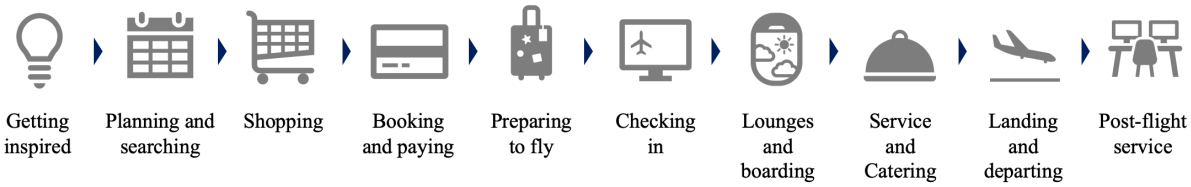
6.3.1 Customize travel experience

The challenge of changing customer behavior and the business model's inherent vulnerability of a lack of differentiation compared to competitors highlights the need for European FSNCs to stand out in the market and excel in specific areas. Also inherent to FSNC's business model is their premium promise which is used to increase the customer's willingness to pay (Expert 1). To achieve differentiation while maintaining and even improving the focus on the customer and delivering premium services, a hyper-segmentation of customers leading to a **customized travel experience** is strongly recommended.

Three distinct components that collectively work toward the same goal of a customized travel journey play a crucial role. First, collecting data to achieve a "hyper-segmentation" of customers into extremely detailed and specific groups based on their preferences, ideally resulting in a *"segment of one"* will enable FSNCs to personalize their offers, suggesting products or services that perfectly match with the customer's interests (Chapple, et al. 2023). Second, the role of ancillary revenue is increasing for FSNCs with flight- and non-flight related ancillaries gaining in significance. To capture the huge potential of this additional income stream, FSNCs should market their existing retail offerings more aggressively and make strategic investments in products that expand customer choice (e.g., Lufthansa's new business class seats, which offer a high degree of variability) (Expert 1). Finally, FSNCs need to leverage digitalization in a manner that gives customers control over their journey like real-time baggage tracking (Expert 6), enhancing both convenience and efficiency while collecting valuable data about preferences

and behaviors. To fully leverage all opportunities for differentiation, FSNCs must strategically implement customization through personal recognition, ancillaries, and customer control across every stage of the customer journey (Appendix N). In the following, steps with the highest potential to integrate customization touchpoints along the journey will be analyzed (Figure 15).

Figure 7: *FSNC customer journey*



Source: *Own illustration based on Wade, et al. 2020.*

Getting Inspired: The inspiration phase is where customers first interact with the airline's brand. This is the stage in which hyper-segmentation of customers comes first into practice by using advanced data analytics and AI to tailor marketing efforts, such as highly relevant advertisements or personalized email campaigns, perfectly tailored to each individual customer. For example, a business traveler who previously booked premium services could be presented with enhancements to those offerings, while a leisure traveler might receive recommendations for vacation packages similar to their past trips.

Planning and Searching: During this phase, FSNCs should focus on an intuitive and adaptive digital experience. Customization opportunities include websites that remember past queries, predictive destination suggestions based on travel history, and tools that allow customers to compare tailored packages. Features like AI chatbots should be implemented to provide immediate and personalized assistance.

Shopping and Booking: This stage is critical for revenue generation. Therefore, FSNCs should implement recommendation engines that suggest ancillary services based on the customer's profile. For example, if a customer frequently books window seats, the system could proactively offer premium seat options with additional legroom in this seating category.

Preparing to Fly: This stage offers various opportunities for customization touchpoints, including personalized pre-flight information, such as weather updates, airport navigation tips, travel checklists tailored to destination countries and customer profiles, and options to book last-minute add-ons like lounge access or additional baggage services via mobile app. For top-tier customers, concierge services could provide a more personal touch according to their preferences.

Check-In, Lounges, and Boarding: Check-in, lounge access, and boarding processes can be greatly improved through a mix of automation (Chapter 6.3.3.) and personalization. Furthermore, these stages also present ideal opportunities for customers to take control of their journey. By creating a seamless reflection of the customer's journey in the digital world, FSNCs can enhance required airport procedures, ultimately enhancing transparency and customer experience. Examples include the use of digital passports and boarding passes and real-time tracking of checked-in baggage.

Onboard Service and Catering: Onboard services represent a cornerstone of the FSNC premium promise. Tailored in-flight entertainment systems can provide customized content based on customer profiles, for instance, offering personalized playlists, movie recommendations, or the option to connect personal devices, like Bluetooth headsets, and access streaming services such as Netflix. Catering options should accommodate individual dietary restrictions or preferences, with customers having the ability to pre-select meals via the app, taking again control over their journey. Top-tier customers should be addressed by their preferred names during onboard interactions, adding a personal touch that reinforces their status.

Post-Flight Service: Finally, the post-flight phase is pivotal for building long-term loyalty and customer relationships. FSNCs can proactively follow up with customers, requesting feedback through tailored surveys that address their specific travel experience. Leveraging CRM systems,

FSNCs can identify pain points, suggest corrective measures, and save these insights to compensate the customer at later touchpoints. In particular, a customer affected by lost baggage could receive a personalized apology message or be offered an unsolicited gesture of goodwill, such as a complimentary drink, on their next flight with the airline.

The personalization and customization of the travel experience have great impact on several components of the FSNC business model. First, customer segments become more granular by transitioning to hyper-specific groups, or even individual profiles, which enables targeted marketing and service offerings. Second, revenue streams can benefit from tailored upselling opportunities, such as ancillary offerings, which provide customers with the benefit of a choice and maximize profitability. In terms of customer relationships, FSNCs can shift from transactional interactions to more meaningful and long-term relationships with customers. The value proposition is enhanced by offering unique, customized experiences that align with customer expectations which reinforces FSNC's premium positioning. Additionally, IT infrastructure development, utilization of advanced data analytics, and the integration of these insights into marketing strategies are becoming key activities.

The described measures also come with notable limitations as they require substantial investments in IT infrastructure, data analytics capabilities, and staff training, making a business case analysis essential to evaluate the financial viability of the mentioned customization efforts across different customer journey steps. Furthermore, the effectiveness of these initiatives heavily depends on the availability of customer data. For new customers who lack an internal data history, hyper-segmentation cannot be applied immediately. This potentially reduces the impact of personalized services until sufficient data is collected over time.

6.3.2 Reinvent loyalty programs

The next crucial recommendation for FSNCs is the need to reinvent their loyalty programs. This recommendation is primarily driven by the challenge of changing customer behavior and, again, the FSNC-specific vulnerability of a lack of differentiation. The most significant drivers for FSNCs to reinvent their loyalty programs in response to changing customer behavior are multifaceted. These include shifts in travel behavior following the pandemic and increased price sensitivity, especially among younger generations, due to improved comparison tools and greater market competition. Additionally, the devaluation of loyalty miles or points during the pandemic further underscores the need for transformation. This devaluation occurred either through the expansion of loyalty programs at an unsustainable rate or by raising redemption thresholds, requiring more points for the same benefits (Expert 10, Expert 11). Additionally, the lack of differentiation among FSNCs, largely arising from standardized service offerings, extends to their loyalty programs, which often display similar features (Expert 10) (Madgalina and Bouzaima 2021, Burns, Pierce and Motaal 2024).

To innovate their loyalty programs and win back customers' allegiances, FSNCs should focus on the following measures: First, pushing exclusivity and focusing on personal recognition for top-tier customers and second, extending the loyalty program ecosystem for all other, non-top-tier customers.

When it comes to their top-tier customers, FSNCs need to regain the exclusivity that makes loyalty programs valuable. This can be achieved through various possibilities, e.g., by establishing clearly defined tiers, tightening the criteria for achieving elite status, and reducing the over-distribution of high-tier benefits. Furthermore, the topic of personal recognition is of significant importance again to make customers feel delighted and special. Providing top-tier customers with unique and exclusive experiences, such as exclusive lounges for top-tier customers, enhances their sense of importance. Acknowledging them with personal attention, including

addressing them by their names and remembering their preferences in services and products, further strengthens this feeling. Leveraging technology to make them feel personally recognized at every touchpoint of their journey, e.g., through personalized messages, and priority notifications, will restore the sense of exclusivity that makes loyalty programs desirable. In this context, frontline staff has an important role to play. Their ability to execute customer service effectively is critical to creating a frictionless travel experience. To achieve this, employees must be equipped with comprehensive training and the necessary tools to meet customer expectations efficiently. Additionally, FSNCs must ensure that access to top-tier benefits remains strictly reserved for this specific customer group. This includes restricting alternative means of accessing loyalty benefits, such as lounge entry provided through external programs like those offered to American Express Cardholders, to preserve the exclusivity and value of these perks for the airlines' frequent flyers (Expert 6, Expert 11).

For loyalty members not being considered as top-tier customers, it remains important to have clearly defined tiers and associated benefits in place. However, the main development that will shape the design of loyalty programs for these members going forward will be the creation of a loyalty ecosystem with value-bringing partnerships that include companies beyond the travel sector (Expert 10) (Chapple, et al. 2023). The best partnerships create richer connections with consumers, boost engagement through thoughtful collaborations, and enable FSNCs to protect their interests, generate new revenue streams, and deliver added value to loyal customers. Examples include collaborations with lifestyle brands, such as Air Canada's partnership with Starbucks, which can offer customers everyday benefits that integrate loyalty programs into their daily lives. These partnerships also diversify touchpoints which strengthens the connections with customers. Additionally, it is important to offer these customers valuable benefits, which

convey a sense of status, and enhance their experience without compromising the benefits provided to top-tiers. For example, members could receive a limited number of annual entries to medium-tier lounges, such as Lufthansa's business class lounge (Expert 10, Expert 11).

As loyalty programs have traditionally targeted business travelers and older generations, FSNCs must also adapt to meet the demands and preferences of younger customers to ensure future relevancy. This demographic places less emphasis on status compared to traditional loyalty program users and tends to be more price-sensitive (Expert 11). For these customers, the focus should shift toward offering personalized, on-demand benefits without requiring long-term status commitments. Further, an increased focus on the user experience will be a key part for the younger generation, however there is hardly any investment in this area today (Expert 10). Also, the already addressed shift in behavior towards more environmental awareness needs to be considered. One approach could involve awarding "green miles" to loyalty members who frequently book "Green Fares," which compensate for CO2 emissions by paying extra for adding SAF (Chapter 5.1) (Expert 11).

The reinvention of loyalty programs significantly impacts the FSNC business model across several areas of the *Business Model Canvas*. First, FSNCs will cater to a broader range of customer demographics and retain their loyalty, from traditional business travelers to younger, more price-sensitive, and sustainability-focused customers. This will ensure the relevance of loyalty programs across generations. Second, revenue streams are enhanced by pushing repeat purchases of tickets and ancillary services, driven by the added value loyalty benefits provide. Additionally, an increased number of partnerships will generate further revenue streams. Third, customer relationships are enhanced as customers recognize the increased value offered by improved loyalty programs, rewarding FSNCs with greater loyalty and long-term engagement. Finally, the value proposition is reinforced through innovative and customer-centric loyalty

programs, underscoring FSNCs' commitment to their premium promise and increasing their differentiation in a competitive market.

While reinventing loyalty programs offers significant potential for FSNCs to achieve differentiation and emphasize customer centricity, there are notable limitations to consider. Efforts to attract more status and loyalty customers can lead to overcrowding in exclusive spaces, such as lounges, which undermines the premium promise and diminishes the overall customer experience. This can cause customers to question whether they are still part of an exclusive group. Additionally, delivering personalized experiences requires robust data collection and analysis, which demands substantial investment in IT infrastructure and analytics capabilities. Generally, high upfront costs also necessitate a thorough assessment of whether these measures will generate a sufficient return on investment. Furthermore, expert opinions on the value of loyalty programs vary widely. One expert even suggested discontinuing such programs altogether if they were not such an integral component of the FSNC business model (Expert 10). These differing perspectives highlight the complexity of these programs and demonstrate that clear, universally applicable recommendations remain challenging to establish.

6.3.3 Embrace technology for automation

The recommendation to embrace technology for automation is primarily driven by the key challenge of rising costs and margin decline, thus highlighting the vulnerability of the FSNCs' business model due to high operating costs and thin profit margins. Additionally, the significant size of their workforce amplifies the vulnerability of complex organizational and operational structures, further exposing FSNCs to inefficiencies. Consequently, the need for European FSNCs to reduce one of their primary cost driver, staff costs, presents not only a major challenge but also an opportunity to achieve long-term competitiveness and financial stability.

Embracing technology for automation involves leveraging advanced tools such as robots, artificial intelligence, and computer algorithms to perform repetitive tasks traditionally carried out by human beings (Institute of Data 2023). These technologies not only enhance efficiency by reducing errors but also improve quality and speed, therefore offering significant potential for FSNCs to leverage (Expert 8). In fact, automation could increase productivity by 0.8 to 1.4% annually (Manyika, Chui, et al. 2017). Increased productivity will, result in a reduced need for staff, hence cost savings. Moreover, according to a study by McKinsey & Company, 15% of the global workforce can be displaced by automation, thereby referring to the period of 2016 to 2030 (Manyika and Sneader 2018). Leveraging these new and rapidly evolving technologies offers FSNCs numerous opportunities for implementation across various administrative and customer-facing operational areas where repetitive tasks are performed (Table 4).

Table 3: *Overview of repetitive tasks within the FSNC business model*

Area of implementation	Tasks to embrace technology	Degree of repetitiveness	Customer facing
Administration	Recruiting and onboarding	High	No
	Regulatory reporting	Medium	No
	Cabin crew scheduling	High	No
	Payroll	High	No
Operation	Passenger check-in	High	Yes
	Boarding process	High	Yes
	Lounge processes	High	Yes
	Aircraft maintenance	Medium	No

Source: *Own illustration 2024.*

In the context of optimizing the business model of FSNCs, the following discussion will focus on the operational implementation area, illustrated through two specific examples. While the automation of repetitive administrative tasks is important, it is not uniquely relevant to the FSNC business model but rather applies broadly across various business models and industries.

The first example to embrace technology is the boarding process by taking advantage of quick biometric boarding gates. In this context, biometrics technology refers to the use of advanced

systems to identify individuals based on unique biological characteristics, thereby enhancing passenger experience and reducing the need for manual repetitive processes of FSNCs staff at gates (TSA 2024). While quick boarding gates have been partially implemented, for instance, by Lufthansa in Frankfurt and through a test run by KLM at Schiphol Airport in 2017, these technologies remain limited in scope and are not yet fully deployed at major hub airports or beyond (Schipol 2017, Fraport 2023). As a result, two to three employees are still required at each gate to manually check boarding passes and passports and monitor the process of passengers boarding the aircraft. In contrast, facial recognition is already more extensively integrated in the US, while Europe continues to lag in its implementation, resulting in FSNCs missing significant opportunities to reduce employee costs (Expert 9).

The second example considers the use of AI for aircraft maintenance (Expert 3). The primary focus is on leveraging the vast amount of data generated by aircraft, which is currently not fully analyzed. By implementing AI, this extensive amount of data can be processed and analyzed across fleets, enabling the early detection of maintenance requirements. This proactive approach can improve operational efficiency, reduce unplanned downtime, and optimize maintenance schedules (Expert 8). By identifying potential issues before they escalate, FSNCs can schedule maintenance tasks more efficiently, avoiding costly last-minute repairs that often require additional staffing or overtime pay. Furthermore, by enabling more predictable and planned maintenance operations, FSNCs can optimize the allocation of existing resources, such as technicians, thereby mitigating the impact of labor shortages. Since machine learning systems improve significantly as they process larger volumes of data, the accuracy of predictions will enhance over time (Brown 2021). As a result, it's essential for FSNCs to adopt these technologies as early as possible to maximize their benefits.

In general, FSNCs have to evaluate automation initiatives through detailed business cases to ensure measurable staff cost reductions and assess investment requirements. Identifying the

most promising areas with a high return on investment is crucial for improving financial performance and leveraging the benefits of reduced staff costs effectively. Preserving the value proposition of delivering high-quality service is equally important, making automation in non-customer-facing areas a priority, while customer-facing solutions require careful consideration to avoid negatively impacting the passenger experience.

This recommendation has a significant impact on the FSNC business model, primarily by addressing its cost structure. Reducing expenses related to staff costs enables FSNCs to streamline operations and achieve sustainable margin improvements over time. Furthermore, the adoption of technologies such as machine learning necessitates strategic partnerships with technology providers. These partnerships are not only essential for successful implementation but also for the ongoing adaptation and optimization of these technologies, thereby influencing the model's key partnerships. In addition, automating relevant tasks directly affects FSNCs' key activities. Safety, the top priority in the airline industry, must be upheld during technology implementation. Consequently, key activities will expand to include managing new technologies and ensuring IT system quality and reliability.

Every recommendation has its limitations. For European FSNCs, a major challenge is the high initial investment costs of automation, which are difficult to finance due to the precarious financial situation many carriers face post-COVID (Chapter 5.1). Additionally, the complex regulatory environment, particularly the stringent guidelines set by the European Union Aviation Safety Agency (EASA), can restrict the automation of operational activities (EASA 2024). Certain processes, despite their potential for substantial cost savings, may be prohibited by EASA for safety reasons. Lastly, workforce reductions through automation face strong resistance from European labor unions, which hold significant bargaining power. This is particularly evident in countries like France, where frequent strikes can further complicate the implementation of such recommendations (Zandt 2023).

6.3.4 Reduce dependency on individual markets

FSNCs are heavily impacted in their operations and revenue streams by geopolitical tensions, such as trade restrictions, airspace closures, and regional conflicts. These challenges are compounded by declining consumer confidence in travel, driven by economic uncertainty and geopolitical instability. To navigate these challenges, FSNCs must implement short-term adjustments, such as rerouting flights and renegotiating contracts, which often result in increased operational costs and logistical complexity. One example of that, is that many European FSNCs started to cancel the routes to China, as the restriction on flying over Russia has made it impossible for them to offer competitive prices compared to Chinese airlines (Expert 3, Expert 5). At the same time, FSNCs must develop long-term strategies to enhance resilience and diversify their revenue streams. One approach is to reduce the dependence on individual markets by further expanding internationally into emerging markets with high growth potential (Expert 4). This would, for example, mean for Lufthansa to become less reliant on the German market and adopt a more international focus (Expert 5). What also speaks in favor of this is the changing customer behavior in emerging markets in Asia, where travel, and therefore passenger numbers, is expected to grow significantly. It is forecasted to account for half of the global net increase, reaching 2.75 billion additional passengers by 2043. Furthermore, the region's share of global passenger traffic is anticipated to grow from 34.1% in 2023 to 46% by 2043, while Europe's share is expected to decline from 26% to 19.5% (IATA 2024 e). This is a trend that European FSNCs cannot afford to overlook (Expert 3). Additionally, Chinese airlines are expanding into Europe by introducing new routes, which increases competition in the market. At the same time, the influence of Gulf airlines is continuing to grow, leveraging their strategic geographic hubs and premium services to capture more market share. This further underscores the need for European FSNCs to strengthen their presence in the Asian market to remain competitive and tap into its growth potential (CAPA 2016 b). The CEO of Lufthansa, Carsten Spohr, has argued

that Lufthansa Group's challenges in Asia were not due to a lack of economic opportunities but rather due to *"overcapacity offered by Chinese carriers"* (Barrington 2024). Air France-KLM is facing the same issue, as the CEO Ben Smith argues that a lot of traffic to Southeast Asia is lost to Middle Eastern carriers (Georgiadis 2024).

European FSNCs have several options to expand their network internationally and reduce their dependence on their domestic markets and Europe. Traditional practices such as interlining, code sharing, and grouping loyalty programs within alliances remain widespread. However, to achieve more effective risk diversification, stronger forms of cooperation, such as joint ventures or equity investments, are recommended (Siapartners 2018). JVs represent one effective type of cooperation that does not require foreign investments but still offers various benefits for FSNCs. They expand networks, allowing access to more destinations worldwide and enhancing services through consistent schedules. Additionally, JVs streamline operations by coordinating aircraft schedules, sharing airport facilities, and jointly procuring fuel, which improves efficiency and reduces costs. They also reduce competition on overlapping routes, strengthen market positions, and create higher entry barriers (Ustaömer, Durmaz and Lei 2015). In contrast, equity investments imply that FSNCs acquire an ownership stake in a foreign airline. There have been numerous examples of successful equity investments in the past, particularly demonstrated by the American FSNC Delta. In 2012, Delta acquired a 49% stake in the British FSNC Virgin Atlantic, followed by a 3.55% equity investment in China Eastern Airlines in 2015 and a 10% stake in Air France-KLM in 2017 (Siapartners 2018). With these investments, Delta made significant advances to diversify across several markets in both Europe and Asia. Similar applies to another major US airline, American Airlines, which invested $200 million to get a small stake in China Southern Airlines (Donny Kwok; John Ruwitch; Brenda Goh 2017).

For effective international expansion, a step-by-step approach is recommended for FSNCs. European FSNCs are advised to start with joint ventures that involve revenue and cost-sharing.

These partnerships offer a lower-risk entry point that allows FSNCs to test operations and foster mutual trust with their partners. If these initial collaborations prove successful, FSNCs can gradually move to equity investments and acquire a stake in the partner airlines if the local regulations allow it. Specifically, European FSNCs should target the Asian market for the reasons mentioned above. Two options can be feasible: either forming partnerships with established FSNCs or with growing LCCs in Asia. The identification of potential partners and target markets for individual FSNCs must be carefully assessed on a case-by-case basis, as it cannot be generalized. These partnerships should bridge networks while complementing them with additional routes within the respective countries.

This recommendation to expand internationally impacts multiple components of FSNCs' business model, driving both growth and resilience. Most notably, it diversifies and strengthens revenue streams by unlocking new income opportunities in rapidly growing markets. Through joint ventures and equity investments, FSNCs can share revenues while reducing exposure to market-specific risks. Besides, FSNCs can boost growth for their primary customer segments, business and leisure travelers, through the growing Asian middle class. Regarding key partnerships, FSNCs gain better access to international markets and leverage local expertise. Through these partnerships, FSNCs can reduce complexity, share risks, and create synergies to improve efficiency and competitiveness. It also enhances their value proposition by offering seamless global connectivity and high-quality services aligned with customer expectations.

Nevertheless, there are some inherent limitations to expanding internationally. First and foremost, it requires a substantial investment in infrastructure, partnerships, and local regulations. Many Asian governments impose strict restrictions on foreign investments, necessitating innovative approaches to navigate these barriers. China, for example, employs a "negative" list to regulate foreign investments that are either restricted or prohibited. There, it says that public airline transportation companies must remain under the control of domestic Chinese entities,

with foreign ownership capped at 25% for any single investor. Also, the legal representative of these companies must be a Chinese citizen (Scannapieco 2022). Similarly, other Asian markets, such as Singapore and Thailand, enforce foreign ownership limits. In these countries, foreign investors are permitted up to 49% ownership in domestic airlines to ensure that local entities retain the majority of control (Christiawan, et al. 2024). Additionally, approval of antitrust authorities from all countries involved is necessary. These authorities may impose restrictions or even block consolidations (Expert 9). Another limitation to consider is the potential risk associated with expanding through partnerships or investments in rapidly growing markets, such as India. While these markets offer growth potential, challenges in personnel, decision-making, and operational control must be evaluated before committing to investments.

7 Limitations and Extensions

In every scientific study, there are certain limitations that can affect the validity and generalizability of the results. While this work aims to provide a comprehensive understanding of how European FSNCs must adapt their business model to stay competitive in the future, limitations are discussed both with regard to the methodology used and the focus of the recommendations. Additionally, potential extensions for further research are outlined.

The **methodological limitations** of this thesis stem from the qualitative nature of the expert interviews conducted. Despite the diverse perspectives provided by the broad selection of eleven experts (Table 1), these insights cannot encompass all possible viewpoints on the research question. Additionally, it cannot be ruled out that some expert statements may not be fully objective, as personal biases may arise due to their professional relationships with specific airlines or institutions. Further limitations arise from the use of the frameworks described in this study. This work focuses primarily on an in-depth analysis of the business model using the *Business Model Canvas* framework, while other frameworks, such as the St. Gallen Business Model Navigator or the McKinsey 7S framework, could also offer valuable extensions to the

analysis (Gassmann, Frankenberger and Csik 2017, McKinsey & Company 2008). For the evaluation of recommendations, the *modified NUF* framework is applied. To provide additional perspectives, a Cost-Benefit Analysis or a Balanced Scorecard could be used to further validate the evaluation of recommendations (Robinson 1993, Kaplan and Norton 1997).

Furthermore, there are limitations in this thesis regarding the **focus of recommendations**. While the recommendations outlined in Chapter 6 are specifically applicable for European FSNCs, it is important to consider geographical limitations as there are significant differences across markets especially regarding challenges and market dynamics. Therefore, building on this thesis by conducting an in-depth analysis about markets like Asia, Middle-East and North America could provide further insights about major differences across markets. Also, a generalized approach will not be sufficient to address the challenges faced by European FSNCs, as their shared similarities are accompanied by differences across regions, requiring each airline to analyze recommendations within their unique context and tailor them to fit their specific characteristics and operational needs. Moreover, the recommendations are not directly applicable to Hybrid 1 and Hybrid 2 business models and would require further analysis. Additionally, this study focuses on current challenges and market environment, which introduces a temporal limitation. Future challenges, such as increasing weather disruptions and their potential impact on European FSNCs' adaptation strategies, should be explored as a future direction of this thesis (Expert 1). Moreover, while recommendations related to sustainability and regulatory requirements are relevant to all business models within the European airline industry, they have been excluded from this analysis due to the main focus on FSNC-specific variations. Overall, this work focuses on a general optimization of the business model. Based on our conducted analysis and interviews, no indications about immediate disruptive changes were found and are therefore not recommended. Lastly, the recommendations provided within the four areas are not exhaustive and are limited to the scope of the research and expert estimations.

8 Conclusion

This thesis aimed to analyze the business model of European FSNCs and identify recommendations on how they can effectively optimize their business model to stay competitive in the long-term. The need for adaptation of the FSNC business model is driven by several key challenges the industry is currently facing, mainly rising costs and margin decline, geopolitical tensions, and changing customer behavior. While European FSNCs focused post-COVID primarily on rebuilding their traditional business model, the urgency to adapt to the changing environment was not sufficiently addressed. Additionally, FSNC face the issue that they lack differentiation, often finding themselves *"stuck in the middle"* through their largely standardized service offerings. This further highlights the need for FSNCs to develop a unique value proposition that aligns with changing customer expectations. Meanwhile, existing research has predominantly focused on isolated challenges and trends within the industry or adopted a narrow perspective on airline business models, rather than addressing the need for the adaptation of FSNCs' business model. This thesis, therefore, provided a comprehensive overview of the interconnections between challenges and trends and their impact specifically on the European FSNC business model.

Based on a literature review and qualitative analysis, including eleven expert interviews, key challenges currently faced by European FSNCs were identified and ranked based on relevance. Additionally, an in-depth analysis of the European FSNC business model was conducted by using the *Business Model Canvas* developed by Osterwalder and Pigneur (2010). Drawing from this analysis, the advantages and vulnerabilities of the business model were identified and used to derive recommendations for optimization. A comprehensive list of eleven recommendations across four key areas was systematically evaluated using the *modified NUF* framework, resulting in the identification of the four most relevant and value-adding recommendations.

First, customizing the travel experience as part of stronger customer centricity will play a vital role for FSNCs to differentiate themselves going forward. Second, reinventing loyalty programs designed to cater to the various needs of different customer tiers will not only enhance differentiation but also strengthen customer loyalty and retention through an ecosystem that ensures premium benefits that emphasize FSNC's value proposition. Third, embracing technology to automate repetitive processes will be crucial for European FSNCs to reduce staff costs and gain control over their cost structure. Fourth, reducing dependence on individual markets through the expansion of cost-revenue JVs and potential subsequent equity investments will be important to diversify revenue streams and risks while benefiting from market growth regions like Asia. These recommendations aim to position European FSNCs at the forefront of the industry, enabling them to address rising challenges, continuously adapt to changing market dynamics, and achieve long-term competitiveness through differentiation. The four recommendations identified are not exhaustive but serve as a foundation for a broader and more comprehensive transformation. By focusing on individual components of the business model rather than a complete overhaul, these recommendations allow for targeted improvements without disrupting the core of the existing business model.

Although the need to optimize the business model is pressing, the implementation of recommendations itself will represent a major challenge for FSNCs. Thin profit margins, prioritization of safety, and the resulting emphasis on established methods, as well as strict regulatory requirements limit FSNCs resources, scope, and flexibility for innovation. These constraints underline the importance for FSNCs to conduct a detailed business case analysis for each measure. Such an approach enables the identification of actions with the highest potential impact and strategic advantage, which allows FSNCs to prioritize those initiatives that can be implemented quickly and deliver measurable results in the shortest possible time frame.

Going forward, FSNCs must focus on continuously and effectively balancing the need for innovation with the constraints of ongoing investments and maintaining financial stability. By adhering to the key recommendations presented in this thesis, FSNCs will be able to deliver a unique service offering that will allow them to adopt a differentiation strategy. This will position them to stay competitive in an ever-changing environment and actively shape the European airline industry of the future.

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Appendix

Appendix A: Risks of generic strategies 93

Appendix B: Variation of business models within the European airline industry 93

Appendix C: Challenge ranking by industry experts 94

Appendix D: Benchmark of largest European airlines 94

Appendix E: Financial overview across business models and regions 95

Appendix F: Airlines average number of employees by geography 95

Appendix G: Disruption of traffic flow 96

Appendix H: Projected annual passenger growth 2032 vs. 2019 96

Appendix I: Overview airline channels 97

Appendix J: Revenue per passenger 2023 97

Appendix K: Internal documentation reference 97

Appendix L: Cost structure breakdown and analysis 2019 vs. 2023 (in € million) 98

Appendix M: Glossary 98

Appendix N: Transcript expert interview 1 99

Appendix O: Transcript expert interview 2 111

Appendix P: Transcript expert interview 3 120

Appendix Q: Transcript expert interview 4 138

Appendix R: Transcript expert interview 5 146

Appendix S: Transcript expert interview 6 154

Appendix T: Transcript expert interview 7 164

Appendix U: Transcript expert interview 8 183

Appendix V: Transcript expert interview 9 191

Appendix W: Transcript expert interview 10 200

Appendix X: Transcript expert interview 11 208

Appendix A: *Risks of generic strategies*

Risk of cost leadership	Risks of differentiation	Risks of focus
Loss of cost leadership: • Imitation by competitors • Technological changes • Other foundations of cost leadership disappear	Loss of differentiation: • Imitation by competitors • The foundations of differentiation lose importance to customers	Imitation of the focus strategy: • The target segment loses attractiveness due to structural changes • Structural decline • Demand shrinkage
Loss of near-parity differentiation	Loss of near-parity cost position	Competitors with a wide range of target segments flood the segment • Differences between the segment and other segments disappear • The advantages of a broad product range increase
Cost-focused companies achieve an even larger cost advantage in their segments	Differentiation-focused companies achieve even stronger differentiation in their segments	Newly focused companies split the industry into further segments

Source: *Own illustration, based on Porter 1985.*

Appendix B: *Variation of business models within the European airline industry*

	Full-Service Network Carrier	Low-Cost Carrier	Regional Airlines	Charter Airlines
History	Since 1920s	Since 1970s	Since 1960s/1970s	Since 1960s/1970s
Service	Full service	Minimal service	Limited service	Modest service
Main revenue source	Fare price	Fare & ancillary services	Fare price	Bulk sales to tour operators
Routes	Long and short routes	Shorter routes on average	Short routes	Routes to travel destinations
Airports	Hub (primary) airports	Smaller (secondary) airports	Small city and hub airports	Hub and secondary airports
Connectivity	Hub-and-spoke system	Point-to-point system	Feed for Hub-and-spoke	Point-to-point system
Connecting flights	Check-in just once	Self-transfer/self-connecting	Check-in just once	Self-transfer/self-connecting
Travel classes	Economy, Business, and First	Single service class	Economy, often Business	Eco on short-haul + premium on long haul
Fleet	More diverse fleet	Uniform fleet	Small aircraft (e.g., turboprops)	More uniform fleet
Main customers	Business and leisure	Leisure	Business and Regional	Leisure
Frequent flyer program	✓	○	✓	○
	+ Hybrid Business Models			

✓ = available ○ = only sometimes available ✗ = not available

Source: *Own illustration 2024.*

Appendix C: *Challenge ranking by industry experts*

Challenges ranked by relevance		Individual ranking by Expert											
		#1	#2	#3	#4	#5	#6	#7	#8	#9	#10	#11	Avg. ranking
#1	Rising costs & margin decline	1	1	1	1	1	5	1	1	2	2	1	1,5
#2	Supply chain disruptions	2	3	3	3	3	7	2	2	3	3	5	3,4
#3	Geopolitical tensions	-	2	2	4	2	6	7	3	1	4	7	3,7
#4	Changing Customer behavior	4	5	5	5	4	2	4	5	5	1	4	4,0
#5	Regulatory requirements	3	6	4	2	6	4	5	4	4	5	3	4,2
#6	Threat posed by LCCs	6	7	7	7	7	1	3	7	6	7	2	5,5
#7	Market consolidation	5	4	6	6	5	3	6	6	7	6	6	5,8

Source: *Own illustration 2024.*

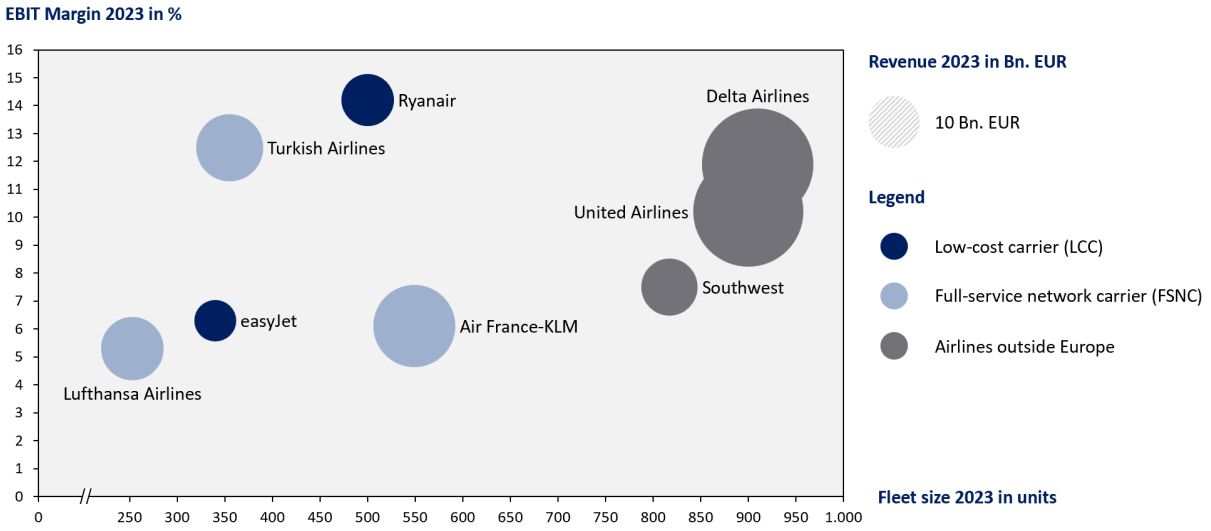
Appendix D: *Benchmark of largest European airlines*

	Employees [thou.]	Revenue [bn €]	Fleet [# a/c]	# Routes	Operating Margin [%]	Net Debt [bn €]	Market Cap [bn €]	Equity [bn €]
1.	130	50	940	2500	18.2	0.3	28.0	9.5
2.	93	49	910	1600	16.3	1.0	23.0	8.1
3.	90	45	900	1200	16.0	3.8	16.4	7.4
4.	85	30	540	1050	15.4	5.9	11.2	7.1
5.	74	27	530	1000	15.1	7.6	10.7	5.6
6.	66	23	500	880	10.7	7.8	9.4	2.2
7.	41	18	355	820	9.6	10.8	9.3	0.4
8.	40	16	340	700	8.6	15.3	4.5	2.1
9.	38	13	270	490	5.3	19.7	4.4	-4.1
10.	22	11	253	460	5.0	28.0	3.0	-2.2
11.	14	7	240	230				
12.	8	4	180	180				

= FSNC = LCC 2022 Q2/2023

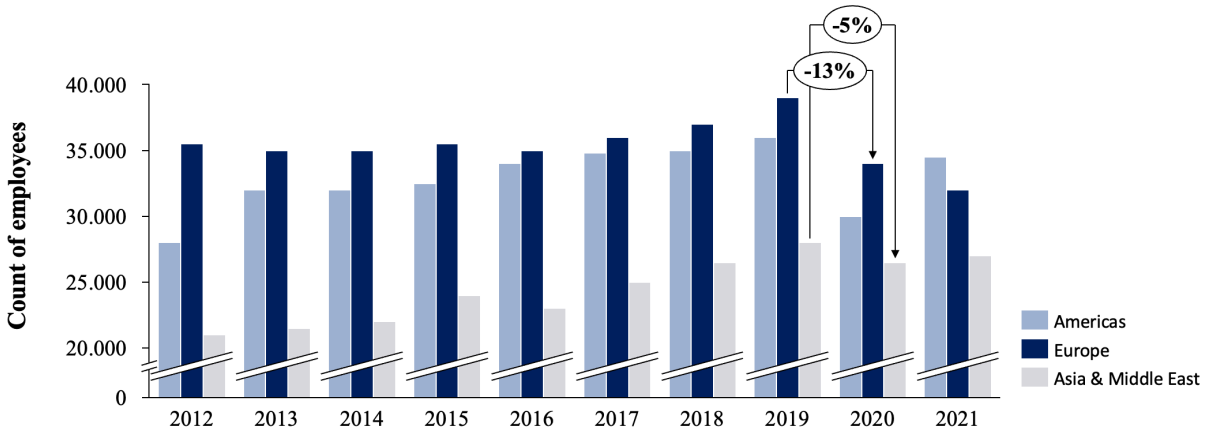
Source: *Own illustration, based on Internal Lufthansa Document.*

Appendix E: *Financial overview across business models and regions*



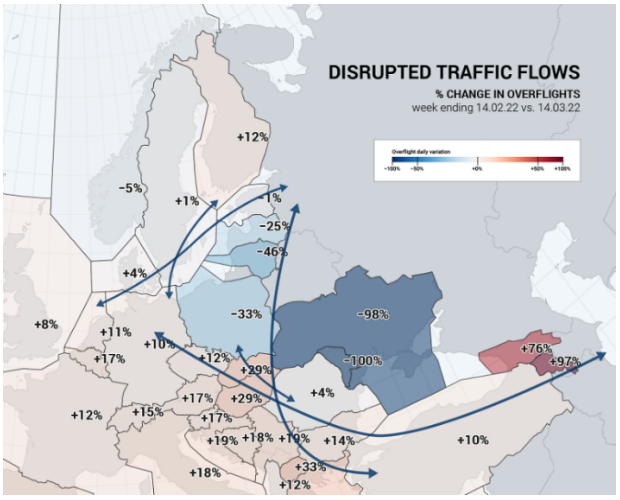
Source: *Own illustration, based on Lufthansa Group 2023 a, Air France-KLM Group 2023 a, Ryanair Group 2023, easyJet 2023, Turkish Airlines 2023, Delta Airlines 2023, United Airlines 2023, Southwest Airlines 2023.*

Appendix F: *Airlines average number of employees by geography*



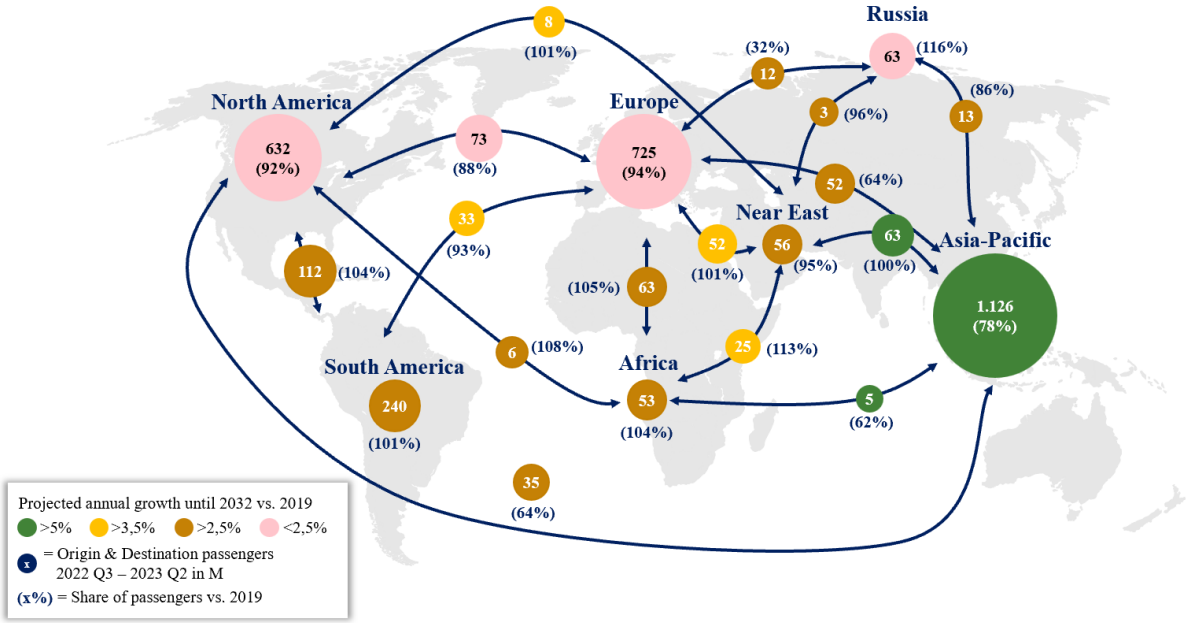
Source: *Own illustration, based on Latorre 2022.*

Appendix G: *Disruption of traffic flow*



Source: *Eurocontrol 2023.*

Appendix H: *Projected annual passenger growth 2032 vs. 2019*



Source: *Own illustration, based on Internal Lufthansa Document 01 (Appendix J).*

Appendix I: *Overview airline channels*

	Direct Channel	Indirect Channel
Online Channel	Airline Website	Online Travel Agency (OTA)
Offline Channel	Airline Call Center Airport Ticket Office City Ticket Office	Brick and Mortar Travel Agencies

Source: *Own illustration, based on Vinod 2023.*

Appendix J: *Revenue per passenger 2023*

	Lufthansa Group	Air France-KLM	IAG Group	Ryanair Group
Revenue* (in € million)	28,337	23,148	25,800	10,775
Passenger (in million)	122,535	93,600	115,600	165,000
Revenue per passenger	**231.26 €**	**247.31 €**	**223.18 €**	**65.30 €**

*Total revenue passenger airlines

Source: *Own analysis and illustration, based on Air France-KLM Group 2023 b, Lufthansa Group 2023 a, IAG Group 2023, Ryainair Group 2023.*

Appendix K: *Internal documentation reference*

ID	Document Title	Year	Organization	Type	Access Level
01	Lufthansa Group Strategy	2024	Lufthansa Group	Presentation	Internal
02	Sustainability Initiatives	2024	Lufthansa Airlines	Presentation	Internal

Source: *Own illustration 2024.*

Appendix L: *Cost structure breakdown and analysis 2019 vs. 2023 (in € million)*

	Lufthansa Group					Air France - KLM				
	FY23	as % of revenue	**FY19**	as % of revenue	CAGR FY19-FY23	**FY23**	as % of revenue	**FY19**	as % of revenue	CAGR FY19-FY23
Revenue	**35,442**		**36,424**		**-0.7%**	**30,019**		**27,189**		**2.5%**
Operating expenses										
Cost of materials	20,363	57.5%	19,827	54.4%	0.7%	n/a		n/a		n/a
thereof fuel and oil	7,931	22.4%	6,715	18.4%	4.2%	7,508	25.0%	5,511	15.1%	8.0%
thereof fees and charges	4,487	12.7%	4,523	12.4%	-0.2%	3,764	12.5%	3,648	10.0%	0.8%
thereof third-party services maintenance	2,104	5.9%	1,911	5.2%	2.4%	2,549	8.5%	2,628	7.2%	-0.8%
thereof charter expenses	878	2.5%	814	2.2%	1.9%	551	1.8%	525	1.4%	1.2%
Staff costs	8,310	23.4%	9,111	25.0%	-2.3%	8,650	28.8%	8,139	22.3%	1.5%
Depreciation and amortization	2,228	6.3%	2,692	7.4%	-4.6%	2,496	8.3%	2,987	8.2%	-4.4%
Other operating expenses	5,059	14.3%	5,494	15.1%	-2.0%	4,909	16.4%	3,581	9.8%	8.2%
Total operating expenses	**35,960**	**101.5%**	**37,124**	**101.9%**	**-0.8%**	**30,427**	**101.4%**	**27,019**	**74.2%**	**3.0%**
EBIT	**2,669**	**7.5%**	**1,857**	**5.1%**	**9.5%**	**1,712**	**5.7%**	**1,010**	**3.7%**	**14.1%**
Number of employees	**96,677**		**138,353**		**-8.6%**	**77,806**		**85,000**		**-2.2%**
Staff costs per employee	0.086		0.066		6.9%	0.111		0.096		3.8%
OPEX per employee	0.372		0.268		8.5%	0.391		0.318		5.3%

	IAG Group					Ryanair Group				
	FY23	as % of revenue	**FY19**	as % of revenue	CAGR FY19-FY23	**FY23**	as % of revenue	**FY19**	as % of revenue	CAGR FY19-FY23
Revenue	**29,453**		**25,506**		**3.7%**	**10,775**		**7,697**		**8.8%**
Operating expenses										
Cost of materials	n/a		n/a		n/a	n/a		n/a		n/a
thereof fuel and oil	7,557	25.7%	6,021	23.6%	5.8%	4,026	37.4%	2,427	31.5%	13.5%
thereof fees and charges	2,308	7.8%	2,221	8.7%	1.0%	1,241	11.5%	1,062	13.8%	4.0%
thereof third-party services maintenance	2,509	8.5%	2,092	8.2%	4.6%	374	3.5%	191	2.5%	18.3%
thereof charter expenses	0	0.0%	0	0.0%	n/a	0	0.0%	0	0.0%	n/a
Staff costs	5,423	18.4%	4,962	19.5%	2.2%	1,191	11.1%	984	12.8%	4.9%
Depreciation and amortization	2,061	7.0%	2,111	8.3%	-0.6%	923	8.6%	641	8.3%	9.5%
Other operating expenses	6,088	20.7%	4,814	18.9%	6.0%	1,578	14.6%	1,376	17.9%	3.5%
Total operating expenses	**25,946**	**88.1%**	**22,221**	**87.1%**	**4.0%**	**9,333**	**86.6%**	**6,681**	**86.8%**	**8.7%**
EBIT	**2,655**	**9.0%**	**3,285**	**12.9%**	**-5.2%**	**1,443**	**13.4%**	**6,681**	**86.8%**	**-31.8%**
Number of employees	**71,794**		**72,268**		**-0.2%**	**22,000**		**16,840**		**6.9%**
Staff costs per employee	0.076		0.069		2.4%	0.054		0.058		-1.9%
OPEX per employee	0.361		0.307		4.1%	0.424		0.397		1.7%

FSNCs	
Avg. staff costs as % of revenue	24%
Avg. fuel and oil costs as % of revenue	24%
Avg. airport fees & charges as % of revenue	11%

Source: *Own analysis and illustration, based on Lufthansa Group 2023 a, Lufthansa Group 2019 a, Air France-KLM Group 2023 a, Air France-KLM Group 2019, IAG Group 2023, IAG Group 2019, Ryanair Group 2023, Ryainair Group 2019.*

Appendix M: *Glossary*

ID	Abbr.	Terminus	Explanation / Description
01	SET	Single Engine Taxiing	SET refers to a procedure where twin-engine aircraft use only one engine while moving on the ground to save fuel and reduce emissions (Kameníková, et al. 2022).
02	RET	Reduced Engine Taxiing	RET refers to four-engine aircraft operating with one or two engines shut down while moving on the ground (Kameníková, et al. 2022).

Source: *Own illustration 2024.*

Appendix N: *Transcript expert interview 1*

ID	Current Role	Current Organization	Key Topics	Format	Duration
1	Head of Strategy	Leading European FSNC	Strategy, Cost Mgmt.; Out- and In-sourcing; Growth initiatives; Sustainability	Virtually	60 Min

Interviewer: Could you briefly explain your career path in the airline industry and what your current role and focus are?

Expert 1: *[Expert background anonymized due to privacy reasons]*

Interviewer: Okay, great, thank you very much. We had already sent you the top six challenges that we identified over the past few weeks. Maybe you've already had a chance to look at them, and we would love to hear your thoughts. First, are there any challenges we haven't included that you think are highly relevant? And second, how would you rank the existing challenges in terms of their relevance?

Expert 1: I definitely want to add Geopolitics as a major challenge block because it has a huge impact on both demand and operations. Examples include rerouting flights around Russian and Middle Eastern airspace, leading to massive detours, more complex crew planning processes, and route cancellations. For instance, Tel Aviv has been completely removed, along with many other destinations in the Levant. This has a significant impact, and it’s just as relevant as the other challenges you’ve listed.

In the long term, I also see challenges such as climate change and weather-related disruptions. We’re already experiencing significant weather impacts on our operations, both in winter due to snow and ice, and in summer due to thunderstorms. This hits network carriers like hard because they have a large geographical concentration risk at their hubs. For example, for the first time in history, there was a two-day disruption at Munich Airport due to snow chaos. Or multi-hour interruptions due to thunderstorms, disrupting operations for up to 48 hours.

From the challenges you’ve suggested, I would rank them in the following order: 1, 3, 5, 6, 4, 2. The rising costs (labor costs, airport fees, and ATC (Air Traffic Control) costs) pose the biggest challenges. The scarcity and cost of aircraft and engines is also an important issue.

In particular with labor agreements, we are facing strong union partners in negotiations. These agreements were also made during a period of high inflation. As for fees and charges, where airlines tend to be price takers at airports, they often face monopolies. For example, at Heathrow, we can simply look at the price list to see what a landing costs – there's no room for negotiation. Another major bottleneck is ATC capacity (Air Traffic Control), which is limited and expensive. That's my number 1 issue, and it's almost on par with issue 6.

Regarding suppliers like Airbus and Boeing, the situation is also strained and expensive. Aircraft and especially engines are a particularly interesting topic, as there used to be alternative engines available for specific aircraft models. However, today, many new aircraft models are certified for only one type of engine, which has significantly driven up prices. The situation is similar with airport operators.

Interviewer: Yes, let's dive back into the cost topic. You've already mentioned rising costs in all areas, with significant increases – fuel, personnel, and airport fees. Now the open but burning question: How can full-service network carriers, in light of these enormous cost pressures that won't decrease in the coming years, manage to maintain their full-service premium promise and continue offering it to customers?

Expert 1: Well, I would say there are two facets: competitive strength and competitiveness. Competitive strength refers to the ability to enforce prices, whether the customer likes it or not. This goes hand in hand with striving for high market shares in strong home markets. At our hubs we have a very strong market position, but also at other locations. Competitiveness, on the other hand, describes how well we can pass on cost burdens to customers compared to other FSNCs. We try to use the premium promise to ensure that customers' willingness to pay for our product is higher than for the competition. These are the two approaches: achieving a strong market position and high willingness to pay from customers, which stems from our brand and customer promise.

Interviewer: This has been very topical in the news lately: Ryanair and Eurowings are canceling many flights in Germany, especially in Hamburg. The cost burden at German airports has risen enormously. Operating a flight out of Germany often costs several thousand euros, while in Madrid or Sweden, it's only a few hundred euros. How can FSNCs deal with this issue? What measures are being taken to protect the home base, despite the high cost burden, especially considering that a withdrawal from the home market is not an option?

Expert 1: That's correct, and there are several approaches: First, passing on the costs, second, optimizing the traffic mix to ensure that the cost burden remains manageable. A third point is political lobbying to work on reducing these costs. One thing that helps us is our strong market position. For example, in some locations, our extensive network coverage means that it's hard to avoid us, which allows us to pass on the costs. However, the question remains as to how sustainable this is.

The traffic mix plays an important role, as some fees, like the air traffic tax, are either location-independent or location-specific. These fees are levied based on the original destination logic, meaning that the air traffic tax is ticket-based. For example, each ticket from Hanover to Beijing is subject to the international air traffic tax. If someone flies from Hanover via Istanbul to Beijing, the same tax applies. Conversely, if we manage to route many passengers through our hubs from non-German origin points, we will have a lower tax burden. For instance, by actively directing customers from Nordic countries to the Middle East, or from Southern Europe to North America, we can avoid this tax to some extent.

Another important point is political lobbying to raise awareness that other taxes are not levied according to this logic. One example is the quota for sustainable fuels, which does not depend on the passenger's travel route but on the physical refueling on EU soil. This puts us at a disadvantage compared to airlines that have a stopover outside the EU on international routes and refuel there.

I think it's also important to emphasize that, in addition to the cost burden, the restrictions we face are significant. For example, we can't operate 24-hour hub operations like Emirates or Qatar. This means that in certain cases, we can't respond as flexibly to demand fluctuations, since our labor laws are more restrictive. For instance, it takes longer to hire new staff. This means that the challenges don't just stem from the pure cost burden of regulatory pricing or taxation but also from the overall location-specific factors.

Interviewer: Okay, I understand. So, to a certain extent, you have to live with the situation and use lobbying to try to mitigate the worst burdens. Now, regarding outsourcing: Is there any consideration of continuing to outsource or insource core processes such as check-in, boarding, catering, or ground handling to reduce labor costs? Are there any trends you're observing, and what impact would this have on service quality?

Expert 1: This is definitely not a one-dimensional issue, as the question was framed around cost reduction. It's not that simple in any of these cases. It's always about balancing quality and CAPEX. For example, we sold shares of [*anonymized company name*] and outsourced [*anonymized business unit*]. However, this wasn't purely driven by unit cost savings, but rather by the fact that there were other high investment needs, and we needed capital for our core business – such as investing in new aircraft. It was a matter of prioritization. As long as there were no significant investment needs, this worked well. But if we look ahead, and if we wanted to fully automate a facility, we would need a lot of capital. However, this capital is required elsewhere, closer to the core business, where we expect higher returns.

As for quality, there is no one-dimensional logic in the industry that "doing it yourself" automatically leads to better quality. Otherwise, caterers like Do & Co, which provide services to airlines like Turkish Airlines or Austrian Airlines, wouldn't be so successful. In ground handling, we also often see that external providers like Nata in Europe perform extremely well,

while others might not. So, it's an ambivalent situation – there are always good and bad outsourcing or cooperation partners.

A clear trend cannot be established; anything is possible, including insourcing. We regularly review options when opportunities arise, especially when investment cases are presented. At the same time, we've noticed that ecosystem-wide management near the hub, closer to the core business, is often sensible. Our goal is to achieve this level of control even with partners in which we don't have equity stakes.

There are many examples from other industries, such as the software industry, where app developers work under strict rules set by platform operators (e.g., iOS) without the need for ownership stakes. Therefore, there is no automatic assumption that you always need an ownership stake to properly manage how you collaborate. In many countries, there are similar trends, for instance, in rail infrastructure. In Japan, the network is partially fragmented, and it's not strictly necessary for all parts to be owned by the same entity. Nonetheless, we regularly assess insourcing options when we realize that we cannot prioritize or manage things in line with our business model.

Interviewer: Yes, exactly. Let's take a look at the topline, specifically regarding revenue growth and ancillary services. What do you think, what role will these play in the future for full-service network carriers (FSNCs)? Do you think that the business model in this regard will become more aligned with low-cost carriers?

Expert 1: The role of ancillaries is clearly increasing for full-service network carriers as well. We benchmark ourselves against other airlines. We distinguish between flight-related and non-flight-related ancillaries. Non-flight-related ancillaries include, for instance, credit card partnerships, where American airlines are extremely successful. These also play a significant role for us, and we believe that we still have more potential in both areas.

On the one hand, we could market our existing retail offering more aggressively – meaning the products we already have. This includes obvious things like stricter enforcement of baggage rules. On the other hand, it's about using nudges to strategically place our offers at the right time through our customer channels – we still see room for improvement here.

In addition, we've made strategic investments, such as in our new business-class seats, which offer a high degree of variability. We are confident that we can charge passengers an ancillary premium for this individuality, allowing them to choose the exact seat that is optimal for their trip.

And I think this is more of a distancing from LCCs. It's more of a shift towards the hotel industry. Ancillaries are not something negative or something that doesn't fit with a premium offering. Nowadays, you pay extra for a bottle of wine, and I think we are still far from charging extra for catering in First Class. But my mantra is: "Choice is a premium" – having the option to choose is fundamentally meaningful and aligns well with a premium approach. So, for me, this doesn't mean weakening our model compared to the LCCs.

Interviewer: The next question builds on that a little. Are you pursuing specific growth initiatives to tap into new revenue streams in previously untapped areas? For example, Emirates introduced a subscription model where customers pay €500 per year to receive certain benefits in their loyalty program. Are you planning something similar or generally exploring new revenue sources?

Expert 1: I think we are very experiment-driven when it comes to new offerings. One example is "*[anonymized]*", a platform through which we market lounge access, for instance. There are many different initiatives, such as upgrades that we offer via bidding. We are also constantly experimenting with more aggressive ways of selling upgrades on the ground. Additionally, we've tested various door-to-door ground transportation offerings – some were discontinued, others are ongoing. We also had an integration with bus operators. However, at our hub, we

still have a bus that runs from the airport to the city center, which we market ourselves – our logo is visible on it.

I think this is a continuous optimization process, where we keep trying out new things and then decide whether they work and are worthwhile. Some things remain evergreens, such as our partnership with *[anonymized railway company]*, which we are continuously expanding to market ever-improving rail connections alongside our flight offerings. Naturally, we make increasing use of our own sales channels, like our app.

There are also a few trends that perhaps aren't really part of a future framework, like onboard retailing, where, for example, we fly a perfume bottle around the world five times before it's sold.

Interviewer: Interesting. Since we're on schedule, I'd like to add an extra question. There's a scenario where tech giants like Google or Amazon could dominate the booking market, causing airlines to lose direct customer interaction. How likely do you think this scenario is, and how quickly could it happen?

Expert 1: I think the scenario of super platforms is less far-fetched in the B2C area than in the B2B business. It's important to understand that a large portion of our profitability and revenue comes from B2B customers, who frequently book managed business travel. This means that large travel agencies provide these B2B customers with far more services than just the technical matching of supply and demand. These services include, for example, analytics, negotiated rates, or duty of care – employers need to know where their business travelers are. These services are provided around the flight booking by corporate travel agencies. That's why I believe our B2B offering will continue to be shaped by many different intermediaries and will not be dominated by a single super platform.

Loyalty is already a powerful tool for us today, even though there are typically two or three parties between us and the traveler – the employer, who sets the travel policies; the corporate

travel agency, which tries to implement those policies; and sometimes a technical intermediary like Amadeus. However, through our loyalty program, we are still able to maintain direct contact with the customer. In the end, we reward not only the large corporate customer but also the frequent flyer personally. Through status programs, we have a direct connection to travelers, and we are still very generous compared to hotels. Even with third-party intermediaries, we continue to offer miles and recognition. In hotels, bookings made through channels other than their own often don't earn miles or loyalty points. We see this as one of our defensive strategies, and that's why I believe we are well-positioned in this area.

In the leisure travel segment, I see the trend that a few large platforms will dominate the market. Platforms like booking.com are still relatively new in the flight booking business, but I expect that in the future, we will likely need to collaborate with a few large, powerful players. However, it's also important to note that we already pay extremely low commissions on many economy tickets.

So, to put it bluntly: In the end, it doesn't matter to me where the €500 booking for a flight to the US East Coast comes from – whether it's booked through Google, Expedia, or "Emma's Travel Box," it makes no difference. The commissions we pay for these bookings are already negligible.

Interviewer: Thank you very much. First, on the topic of sustainability: Currently, the challenge is that Sustainable Aviation Fuel (SAF) is very expensive and only available in limited quantities. What measures are you taking to achieve your sustainability goals?

Expert 1: You have to differentiate between meeting regulations and internal sustainability goals: We are fairly confident that by 2025, there will be enough SAF available to meet the regulator's required quota. The responsibility for this lies with the oil companies that supply the kerosene.

Our bigger problem is the so-called PtL (Power-to-Liquid) quota, which is a more specific SAF quota that has been introduced independently. There simply aren't enough physical quantities available yet. By 2030, a lot still needs to be done in the industry to create the supply needed to meet the regulatory demand.

We have already made large purchase commitments, hoping that demand will develop accordingly and supply will follow. At the same time, we are working on passing these additional costs on to our customers. For example, we have secured large volumes with suppliers like Weste over a multi-year period. We are also developing offers like Green Fares, where customers voluntarily share the additional costs. With these fares, 80% of the CO2 equivalent is compensated through climate protection projects, and 20% is covered with SAF.

Overall, we currently have eleven approaches for making flying more sustainable – both in the B2B and B2C segments. This is to ensure that our large purchase commitments remain economically viable.

In addition to selling to customers, research is also an important aspect. We are participating in various research projects, for example, in facilities that produce PtL fuels, the next generation of e-fuels. With these partners, we are testing both the climate impact and operational feasibility. As much as we can finance and afford it, we are supporting these research projects at an early stage.

Interviewer: Are there any other measures besides research, such as fleet modernization?

Expert 1: Of course, this doesn't just relate to meeting the SAF targets, but also to the broader sustainability goals, with fleet renewal playing a particularly important role. This naturally requires large investments and is operationally demanding, but it also brings cost benefits through efficiency improvements. Here, we are trying to make daily operations more efficient using existing technology and digitalization. This starts with weight reduction, for example, considering what items are actually brought on board – how heavy is a trolley or a tablet? We are also

optimizing flight routes and landing procedures, which the cockpit can adjust independently. One example is Single Engine Taxi, where only one engine is used to taxi to the parking position after landing. Another example is landing with adjusted flap positions, which reduces drag.

At the European level, we are advocating for the use of obvious savings potential in flight route management, which is currently hampered by the absence of a Single European Sky. There is still a lot of potential in the area of operations efficiency.

Additionally, as we work toward our climate goals, we are also focusing on intermodality. When it is economically viable, we shift traffic from short-haul flights to rail or other modes of transport. This is roughly the portfolio of measures we are implementing.

Interviewer: So that means rail is not a competitor, but rather part of the ecosystem, right?

Expert 1: Absolutely. At our hub airport, we already have a very good rail connection. Within Europe, we have continuously expanded this – particularly with the *[anonymized]* railway offering. The sales channels have been unified, so you don't need two separate tickets; everything is booked on one ticket. Transfer reliability is also ensured, and the customer experience has been improved. For instance, after arriving via escalator from the train station, you can drop off your luggage right away without having to walk through multiple terminals. This partnership works very well.

We have also conducted our own experiments with buses. For example, we replaced short-haul flights between *[Airport 1]* and *[Airport 2]* with buses. Additionally, we have created more bus services, such as a shuttle service as an alternative to flights. These offerings have been newly created, but they are not yet a valid alternative for a large part of our route network. Currently, we are not investing in rail infrastructure, but are focusing on partnerships like these.

Interviewer: So perhaps an outlook: How do you see the industry in 10 years?

Expert 1: I believe we will see an industry dominated by a few very large players who manage to take on a significant role in the travel behavior of their customers. At the moment, the USA

is ahead of Europe in this regard. There, as a customer, you feel fully aligned with either the United, Delta, or American Airlines ecosystems, including the credit card. In my opinion, this model will also establish itself in Europe. Even in smaller European countries, customers will likely align themselves strongly with the Air France-KLM, IAG-Iberia, or Lufthansa Group ecosystem, where they will handle both their business and private travel predominantly.

I think for those who do not belong to these three major groups, customer behavior will be very opportunistic and not very loyal. However, within the large groups, there will be high loyalty and customer retention. I also believe that the range of offerings within a full-service network carrier will continue to expand over the next ten years. On the one hand, there will be ultra-luxurious offerings in First Class, while on the other hand, there will also be cost-sensitive options for budget-conscious customers. Unlike in the hotel industry, where different chains are clearly separated, in the airline production world, it will be possible to cover a broad spectrum of offerings.

Interviewer: Just a quick follow-up question. You mentioned that the range of offerings will likely change. Do you see the development more to the direction of the top premium level, or do you see a shift towards low-cost?

Expert 1: Definitely in the premium segment. But I believe that there is a wide range. It's not like in hotel chains, where each hotel has a clear and distinct positioning. On an aircraft, there have always been different travel classes united, and there will continue to be gradations between Economy and First Class. We've had very good experiences with the introduction of Premium Economy so far.

I think that in the world of four classes – from Economy to Premium Economy to Business and First Class – this model will continue to prove itself. However, it might become even more fragmented within these classes, and the gap between Economy and First Class could grow

even larger. That said, there won't be an airline that only offers Business and First Class, just as it has been shown that a purely low-cost long-haul offering isn't sustainable either.

Interviewer: One last question: Where do you see the greatest optimization potential for airlines, and if you had to limit yourself to three measures, what would they be?

Expert 1: It's about both revenue and cost topics. On the revenue side, it's crucial to offer the customer the right product and monetize it consistently. This means having a truly premium offering for which the customer is willing to pay a premium price. At the same time, there must be a focused offering for price-sensitive customers, which is also appropriately designed.

On the cost side, I see two priorities. First, it's about managing all costs related to personnel and location effectively, while leveraging the support of politics or home markets to create a good ecosystem environment. This doesn't just apply to flight crews but also to ground handling, handling fees, and landing fees—essentially the entire cost block.

Second, the issue of fuel, specifically kerosene, plays a crucial role. Here, it's about reducing regulatory burdens, advocating for this, and at the same time, consistently investing in the latest fleet technology to best protect against price increases.

Interviewer: I might have one more question: We did some research, and there seems to be a trend in the digital world toward one-stop shops. You have a website that covers the entire customer experience, including bookings, transfers, and hotels. Do you think you will offer such a model in the future, where you can book the entire journey with one click? Or is that too cost-intensive and associated with too many processes?

Expert 1: The idea of a "super integrator" is definitely interesting. However, our current focus is more on the day of travel itself and covering the entire journey, including last-mile transportation. When it comes to accommodation or other aspects before or after the trip, we are content to earn commissions from them. We don't want to take on the risk of organizing the entire trip but rather focus on what we do best: flying people from point A to point B. For private trips,

which are particularly complex or individualized, we are happy to leave those aspects to other service providers. What we really want to perfect is the flight itself and everything that goes along with it.

Interviewer: Do you have any further questions for us?

Expert 1: No, that was a very interesting 360-degree overview. I would just add that partnerships are a very important topic for FSNCs—whether in the form of alliances or joint ventures. The ability to remain agile and quickly respond to changing market conditions will also be crucial for the future.

Appendix O: *Transcript expert interview 2*

ID	Current Role	Current Organization	Key Topics	Format	Duration
2	Partner	Leading international consultancy in operations	Cost Mgmt.; Supply-Chain; Partnerships Value-Chain Mgmt.	Virtually	30 Min

Interviewer: Could you briefly explain your career path in the airline industry and what your current role and focus are?

Expert 2: *[Expert background anonymized due to privacy reasons]*

Interviewer: Great to hear! I believe we really have the right questions today. As discussed, I will briefly share the challenges to give you an overview of our current challenges that we have identified. We have a total of seven. These are current challenges: rising costs and declining margins, regulatory requirements such as sustainability and safety quotas, increased market consolidation, a growing threat from the increasing market share of low-cost carriers, changing customer behavior, disruptions in the supply chain, and dependence on third-party providers. Finally, geopolitics also comes into play. Now, based on your gut feeling or your experience from projects, how would you rank these challenges in terms of relevance for full-service network carriers?

Expert 2: Ultimately, I would say that we are certainly seeing that the issue of cost and margin pressure is something many carriers need to focus on right now. This is due to the increasing competition post-COVID, where capacity in the market is rising, while on the other side, costs are significantly increasing for materials, labor, etc. These are really significant issues that an airline must deal with. You can see, and it's evident in the press, that there is a widespread need to address this. However, this is nothing new; it's a recurring issue in the industry.

Additionally, the geopolitical factors are certainly important. Crisis management and responses are becoming increasingly significant as the time between crises is getting shorter. Perhaps there is no longer any time without a new crisis, and this applies not only to aviation but to all industries. Therefore, the topic of risk assessment and predictive crisis management is being weighted more heavily in strategic considerations regarding how to position oneself. And it is clear that this immediately impacts supply chains, which strongly affects airlines' maintenance sectors, so it should certainly be ranked very high.

If we say that costs and margins are a 1 or 2, then geopolitics would also be seen as a 2. The consequences of that are supply chain issues. The topic of market consolidation goes hand in hand with this because size is important for market power and has relevance. I wouldn't categorize changing customer behavior under "Changing Customer Behaviour," but rather under "New Customer Demand," because competitors are constantly trying to improve. Different airlines are at different stages of innovation cycles. However, what is much more important is the topic of stability in order to deliver services. We see that not everyone succeeds in this. We in Europe particularly struggle, while others may have competitive advantages they can utilize. Therefore, the fight for customers is likely to intensify.

I would actually strike the rising threat from low-cost carriers for 2024. Why? Because they have been around for so long that there is a permanent state of competition. Anyone who believes it is a threat now is simply 20 years late. That was a threat 20 years ago, and even then,

it was already very dangerous. This should not be underestimated. Ultimately, it is a matter of cost pressure, so for me, that is a point we don't need to discuss further. Regulatory requirements are always in the background. They have to be met, which is a challenge that for most is just a routine issue. I would consider that less important. Perhaps you have an order that reflects how I personally see it.

Interviewer: Great, thank you very much. That's very insightful because we actually have two deep-dive topics today focusing on costs and supply chain, which, as you mentioned, is a consequence of geopolitics. Therefore, I would like to dive directly into the topic of bottom-line analysis. We have already discussed that we are seeing rising costs and declining margins. For example, at Lufthansa, we see an EBIT margin of 5.3% in 2023, while Ryanair has a significantly higher EBIT margin. This means we have rising costs across the value chain, putting pressure on full-service network carriers, especially those with currently lower margins. Recent examples include the easyJet CEO announcing last week that some costs are now twice as high as five years ago. We see Ryanair and Eurowings even withdrawing from German airports or minimizing their operations. We have already analyzed the three biggest cost drivers specifically for full-service carriers: we have personnel costs due to higher service levels and quality, fuel costs, and also fees from airports. Our question would be: as a cost expert in the airline industry, what specific steps can be taken for these three operating costs to reduce these costs and counteract the margin decline?

Expert 2: Yes, let's start with personnel costs. This is an area where we have two effects: on one hand, there is an industry-wide shortage of skilled workers, especially for qualified positions. But even in the crew area, depending on the location, we see that we have long training times. In some cases, it takes a while before employees are fully operational. The disruptions from the COVID years no longer align with the growth in the industry. As a result, there are too few people available, and the overall costs for employees are rising significantly.

The solution is not just about where I can find new talent, but I also need to consider whether increasing automation and the use of technology make sense. The trade-off between personnel costs and material costs has changed, and new opportunities are available. This means considering how I can substitute labor and make it more cost-effective. This applies to ground operations as well as technical areas. In all areas where repetitive tasks exist that can be replaced or supplemented, we need to evaluate the business cases and aim to move away from costs in the long term. This applies not only to airlines but also to system partners like airports and catering companies, etc.

That's one point. The second is that we certainly need to look at material supply, supply chain, and long-term collaboration. We need to avoid peaks to prevent having to pay high prices for shortages. This involves strategic procurement, which is becoming significantly more important, possibly through collaboration and exchange with key partners we need. This mainly concerns OEMs, but also suppliers that collaborate with system partners at specific points.

The focus for network carriers should always be on their own hubs because they handle at least 50% of my flights there, which fly somewhere and then return. Therefore, I have a significant leverage concerning fees. The last step on your agenda is difficult because fees are often influenced by public institutions, air traffic control, etc. But at this point, it's essential to examine: What are the requirements? Is there a possibility to reduce effort and costs through relocations or changes in regulations? Is new technology a possibility?

There is also, and this can be well quoted from the press, the EU's call for cooperation in airspace. The SESAR initiatives have been around for a long time, but they have been mentioned again to reduce costs in the fee structure and also to minimize detours in cooperation between different countries. This would not only affect the fee structure but also the fuel consumption and kerosene usage by airlines. I believe these are the measures that should be mentioned in this brief context.

Interviewer: OK, great. Then perhaps one final question regarding the bottom line. Legacy carriers, full-service network carriers, however you want to call them, do not only operate as brands, but they also represent a country, such as British Airways for the United Kingdom or Air France for France. They stand for a value promise, a full-service premium promise with high service quality. How do these rising costs and the pressure to reduce costs align with this full-service premium promise? How can they continue to deliver the highest service quality and differentiate themselves from other companies while simultaneously needing to cut costs?

Expert 2: We need to elaborate on this a bit. Let me ask a counter-question: A Louis Vuitton bag is certainly a luxury item with a certain quality. If they experience rising costs for leather purchases, what happens to the bag and what happens to the customer? If I have a customer promise and want to uphold it, then I can also demand a premium.

If I look at all airlines, they are more or less equally affected by rising costs; they need to handle it differently, but they do so to varying degrees. If I look at the Middle East with Emirates, Qatar, etc., we see consistently high service quality and service promises. Their costs are certainly rising too, perhaps not as sharply as with others, and they have to deal with it.

Ultimately, I have to create a value that remains attractive to the customer. I stay focused on quality. If I save, the customer should not notice. Therefore, as a network carrier, I need to consider where I can save without compromising customer service. I first look at costs that may occur internally and have to decide whether I actually implement them into the customer product or whether they might not be reflected there at all. For example, if I investigate what I can truly eliminate—what was nice-to-have in the past but does not influence customer value—then I would think more from a perspective like that of a point-to-point carrier. They say: OK, what is my baseline that I must meet to operate legally? And why does the customer accept that?

Then the network airline can consider what additional services it wants to provide on top of that, from this zero-base approach, to demonstrate added value to the customer as a premium, even though the customer says: This is what I look for; this is why I don't fly with the low-cost carrier. However, if I do not uphold the promise at this point, I will certainly disappoint the customer. It's a balance that needs to be found.

There are already means that network carriers keep and try to implement. Often, the size of the corporation is a challenge in making changes. There are also no differences; in North America, it can be just as difficult as in Europe. We see that it's a matter of size and fleet size before changes can be implemented. However, the decision-making processes in large corporations, where tasks are heavily divided, are often significantly slower than in smaller ones, where responsibilities may be more centralized and influence can be exerted more strongly.

Interviewer: Exactly, now we come to the deep dive on the supply chain and the dependence on external suppliers. Our question would be: You've already touched a bit on OEMs. There are increasingly frequent bottlenecks in supply chains, and there is a strong dependence on suppliers like Boeing and Airbus. These are currently significant issues that pose major problems for full-service network carriers. The question is: How should full-service network carriers manage this dependence, as much depends on the modernization of the fleet? What are long-term strategies to make supply chains more resilient?

Expert 2: Ultimately, when I purchase aircraft, my options are limited. I have two major providers, ultimately Boeing and Airbus, and if I operate commercial jets, I primarily have to choose between these two. I will leave out all the regional providers. When we talk about intercontinental connections or network carriers, we are primarily in this segment. There are ultimately few options. I could say I will operate very cost-sensitively, then I adopt a relatively uniform fleet strategy, as Emirates does with the A380 and Triple Seven. That is highly focused. Or I might be more like Delta, which operates a very large portfolio of aircraft, or the Lufthansa

Group or British Airways. That is not as tightly bundled; there is a different philosophy. This means either I am dependent on higher purchase prices and focus on one supplier, Boeing or Airbus, or I pursue the strategy of trying to always fit into market slots and gaps, having a size so that my subcontractors are large enough to operate it. This is somewhat an attempt to move away from dependence. Ultimately, there are only the two major suppliers, which creates a bottleneck, and it is extremely challenging for airlines to navigate this. They can order long-term, but costs come into play when changes are made. Whether that is right or wrong is always difficult to assess. Ultimately, it is about how well prepared I am, what I dare to do, and how accurate my assessment is. So, I wouldn't say there is a right or wrong; it depends. I think that is the right answer.

Interviewer: Then perhaps another aspect regarding the supply chain related to insourcing and outsourcing, especially regarding daily operations at the airport. Are there ways to reduce dependence on third parties, such as bringing certain steps back in-house in the value chain? Is there a trend you observe? Can we say something general about whether more insourcing or outsourcing is occurring?

Expert 2: Airlines have very different models. If we look at North America, certain parts are not outsourced, meaning there are fewer providers. However, there tends to be more outsourcing there, depending on the business model we consider. If I decide to outsource a lot because I think the costs might be cheaper, as I have higher rates and then tap into the market, I obviously need to manage providers much better. I may need to exert more influence through system partnerships and set more directives. Simply working with service-level agreements and penalties is insufficient. If I take the route of not outsourcing much and have more internal control capacity, the costs usually come, but I have a better response capability to handle changes or crisis situations more effectively. Then I do not need as strong provider management, and of

course, a different solution is necessary. Needs, such as further training in recruitment, execution, and coordination of trades, etc. What both models have in common is that extreme control competence is required to align and orchestrate the various process steps and the fragmentation in ground handling, etc. The interaction with the aircraft plays a significant role here. We see three distinct differences. If I look at the Middle East, often the airport and airline are in one hand, so I have a great opportunity to harmonize, and the conflict of interest is not as significant or even nonexistent. The second is, when I am in North America, airlines have a strong influence on airport operations since the airport is usually not privatized and instead acts as a system partner for the home carriers and network carriers, being governed through committees. There are great opportunities for influence here. In Europe, it is often the case that there are two different camps: the airport, which is commercially operated, and the airlines, which are also commercially operated. Both try to maximize profits, leading to greater friction loss. This indicates that the industry needs to rethink at this point, and it is starting to do so. Why? Because if system partners, airports and carriers, do not cooperate well, the product, the managed product quality, punctuality, everything becomes poorer or harder to handle. This leads the passenger to ask: Do I want to fly through this hub, or should I look for an alternative? And then it is crucial how I can serve my customers and whether I can strengthen my position in the market. This certainly cannot be achieved through poor quality.

Interviewer: Perfect, okay, thank you very much. Now, two questions to conclude. We have already touched on agility and resilience in corporations, as is often the case with full-service network carriers. We had already interviewed a head of strategy from a major FSNC. Could these topics, such as resilience and agility, be crucial for the future? And we subsequently asked ourselves how and through what measures one can become agile and resilient, given that these are often large companies with a lot of complexity and hard to maneuver like a tanker.

Expert 2: Exactly, right. I believe that we can look across many industries in large corporations and see what makes a large corporation and when it becomes fast. One key aspect is certainly to establish end-to-end responsibility for core processes. Why? Because this minimizes interfaces or makes them more manageable. Normally, this is the number one method. The second is to operate here through clear levels of competence so that decisions are made where they arise and do not have to be escalated too high, going through too many instances. This always ends in conflicts and loss of time. This naturally goes hand in hand: I am operating end-to-end, with the competence and responsibility there. I then need this through agile management. Traditionally, KPIs have always been related to revenue, how it has risen, retrospectively. Nowadays, I need to introduce an agile KPI management model to see how long I took to make decisions and over what time frame I am operating. I need to find other KPIs that allow me to track and manage while others always relate to outcome evaluation. This means I need to rethink here, as my colleague Tacker once said: What I do not measure, I cannot manage. This certainly applies here as well. If I want to manage change, influence, and speed, I also need to measure it. If I do not measure it and have not established other KPI management systems, then it will not work.

Interviewer: Okay, great. And then we come to the final question. Could you perhaps name three measures or specific areas where the greatest potential for improvement lies for full-service network carriers to remain competitive in the long term?

Expert 2: I do not think that three measures apply to everyone, but certainly, an important aspect is customer service and customer satisfaction, putting the customer truly at the center of thinking and action in all respects. I need to make them happy across my network, which is a significant challenge. Point-to-point is much simpler; guest expectations are different. If I am a Sky Airline, I need to offer a different customer experience if I promise that, so I can also obtain the premium for it. Point one: Customer at the center. The second is certainly a clear focus on

lean structures and end-to-end processes to avoid getting lost in the complexity of a large corporation and ultimately focusing more inward than on essential outward matters. The third is ultimately also trying to find ways out of many monopolistic structures and not becoming overly dependent on individual providers. If that is not possible, then one should aim for a system partnership that allows other options through profit-sharing or similar means to remain competitive and achieve an advantage. Those would be the three core measures I would pursue.

Appendix P: *Transcript expert interview 3*

ID	Current Role	Current Organization	Key Topics	Format	Duration
3	Aviation Mgmt. Professor, Board Member	Transportation consultancy	Cost Mgmt.; Digitalization; Process Optimization; Customer Behavior; Loyalty Programs; Sustainability; Financing; Regulatory Demands	Virtually	60 Min

Interviewer: What is your current role and area of focus?

Expert 2: *[Expert background anonymized due to privacy reasons]*

Interviewer: From your perspective, where do you see the biggest advantages for Full-Service Network Carriers, and where are the biggest disadvantages of this business model?

Expert 3: The business model of a Full-Service Carrier is always about providing customers with a reason to pay more for quality. The interesting challenge here is that they are moving into regions where price becomes more competitive. A Low-Cost Carrier simply positions itself as the cheapest provider and offers little beyond basic transport. As a Full-Service Network Carrier, however, you have the opportunity for customers to recognize the value of additional services – comfortable seats, good customer service, special services, and extra amenities – and thus be willing to pay more.

In my view, the biggest advantage is when you succeed in increasing the price. This theoretically brings more profit than trying to increase volumes or cut costs, which is always challenging. Full-Service Network Carriers are well positioned but must consistently provide a compelling reason: Why should the customer pay more, and is there really added value for them?

Another advantage lies in the hub system: it enables a wide range of connecting flights, which allows for higher productivity because you can carry many passengers you wouldn't have with direct flights alone. For example, from Lisbon to Rome. If you only offer direct flights, you're out of the market for those seeking a connecting flight. However, if you operate as a connecting carrier, you can also serve passengers wanting to fly to Rome via Munich or Zurich.

Hub-and-spoke connections offer tremendous advantages, and connecting flights are fundamentally the idea behind the hub system. If you find that a significant number of people are flying between Lisbon and Rome, you, as a network carrier, might eventually consider whether a direct flight would be beneficial. That's usually how it's done. When opening a new long-haul route, you typically start with connections, for example, via Washington to Charlotte or via New York to Charlotte. Eventually, you may consider: why not offer a direct route and open up a new destination?

Interviewer: Okay, great. Now we'll look at the challenge ranking. You've already seen the challenges. Based on your perspective, how would you rank them in terms of relevance from 1 to 7?

Expert 3: First, a quick note: try to avoid saying that the industry currently faces significant challenges. The interesting thing about the airline industry is that it always faces challenges – they just change each time. One crisis is always followed by another. That's what they say in the airline industry. So if you're making a statement about the current situation, I'd say it's not entirely accurate because it has always been somewhat turbulent. It's just different now, with new challenges that are important and need analysis. In this regard, your master's thesis is very

well-timed, as these challenges need to be addressed. It's a highly complex and often contradictory field, and the interesting question is: What do you tackle first in the face of all these challenges?

Otherwise, I would see the ranking as follows: Number 1 is geopolitics, number 7 is two, and numbers 2 and 6 are similar. Geopolitics and supply chain disruptions should be differentiated more clearly, as geopolitics often results in supply chain interruptions. But okay, that would be number 3. Number 4 would be changing customer behavior. Put simply: video conferencing instead of flights. I would consider regulatory requirements as a close tie with changing customer behavior at number 4. Maybe you could mark that as number 3 in your system if that's possible.

Yes, these regulatory requirements are on par with supply chain disruptions, which need to be managed. Market consolidation is business as usual; it's been happening for 20 years. The increasing threat from low-cost carriers, I don't see as something new. It's disruptive, but it's always been there. Nothing new.

Interviewer: Okay, got it. The geopolitical situation we're seeing today is, I believe, something we haven't experienced in recent years. With an increasing number of crises and wars, we now have conflicts as an ongoing state rather than just temporary exceptions. This also leads to disruptions in supply chains, route changes for airlines, or even complete shutdowns. In our recent interviews, for example, the Tel Aviv route came up, which was entirely suspended due to conflict. What measures should Full-Service Network Carriers take to respond to these short-term changes—or even to an ongoing state—and adapt their business model to meet these global and geopolitical challenges?

Expert 3: Well, the first and most important issue is always safety. The airline industry is built on safety, and nothing works without it. You can see this, for example, when airlines cannot prove that passengers can fly safely on certain routes. A single route can easily cost around a

billion euros, and in the case of Lilium, it's been as much as 1.5 billion euros so far. Often, there's no end in sight—that's really demanding. So, safety is the top priority. Geopolitical risks mean, specifically: Should you fly to certain regions or not? I've experienced this myself, for example, during the Iraq War. Should you fly to Erbil or Baghdad? In Erbil, we would descend in a kind of spiral flight, almost in a whirl, to avoid the range of ground-based missiles. Safety is absolutely critical here.

Risk models also need to be adjusted. Where are geopolitical risks emerging that will impact air travel? This needs to be anticipated. Risk models must therefore be adapted to ensure safety remains paramount.

In addition, it's essential to be able to quickly respond to route changes. This means a highly dynamic network is required, one that can flexibly adapt to such changes. Naturally, the ability to diversify the service offering is also important. I'm not sure how familiar you are with the aviation market, but what's the big issue if you're no longer flying to places like Tel Aviv or Tehran? Do you know why this is particularly challenging for Full-Service Network Carriers?

Interviewer: Feel free to elaborate on that

Expert 3: I'd be happy to explain this in detail. So, the air travel business is very seasonal. This means that in the winter—from November to March—there's relatively low demand, except for sun destinations; otherwise, there's not much happening. Nobody wants to fly to Chicago in February because it's freezing. However, there are stable year-round traffic flows of people visiting family, known as "Visit Friends and Relatives" (VFR). A lot of people from countries like Iran, Israel, or others fly to Germany, England, or the U.S. These VFR travel flows are essential to maintain capacity during the winter. The same applies to India: on routes from Europe to the U.S. or Canada, many people fly for family reasons. If an airline can't serve this market because it's unable to fly to a specific destination, it misses out on passengers for other routes, like flights to Chicago. You could call this a diversification of the offering. If there's a

crisis in a region and flights can no longer operate there, the airline must be able to attract passengers from other regions to maintain good occupancy levels.

There's also dependency on the supply chain. Airlines rely on manufacturers, who are in turn dependent on their production sites. An example from the automotive industry shows how critical this can be: after heavy rains and water damage, some suppliers in Slovenia stopped production, which led to production lines in Germany coming to a halt. While it might not be as severe in aviation, it's something to keep an eye on.

Another important point is that these restrictions in air travel don't affect everyone equally. If you look at Russia, for example, Chinese airlines continue to fly over Russia, while everyone else has to fly around. Lufthansa, for instance, has stopped flights to Beijing because they're no longer competitive due to the extended flight times, while Chinese airlines are taking the opportunity to position themselves as the best carrier on these routes.

Geopolitical risks often impact trade flows and interstate relations. This can mean that travel flows decrease, for example, if people don't travel as frequently between India and the USA or between Israel and the USA. Changes in trade relations, like tariff increases, have a direct effect on travel flows. If Donald Trump, for instance, were to increase tariffs as president, it would weaken trade relations, which would immediately lead to a decline in travel flows—and that would be a problem for Full-Service Network Carriers.

Interviewer: So it's mainly about understanding geopolitics, analyzing it, building risk models, and then developing strategies on how to respond.

Expert 3: Exactly. There are so-called hazards—events where you might say, "If it's not too severe and the likelihood is low, I don't need to focus on it intensely." But there are also hazards where the potential damage would be enormous. Such cases are increasing at the moment, which is why you need a risk matrix with factors like severity and probability of occurrence. You then need to categorize all your measures and contingency plans accordingly and decide

on actions to counter them. It's not just about assessing the risk but also developing mitigation strategies.

Interviewer: Thank you. Moving on to sustainability: from your perspective, how would you assess the regulatory requirements for Full-Service Carriers? What challenges do you think this creates for the airlines?

Expert 3: In principle, these requirements apply to all airlines. This isn't a topic specific to Full-Service Network Carriers. Low-Cost Carriers face the same issue. The regulations affect all airlines. You could argue that the impact might be greater for Full-Service Carriers, but the main point is that in Europe, the requirements are very strict, while in the U.S., the green transition is more supported through subsidies.

The industry aimed to avoid regulation through voluntary commitments made over 10 years ago, such as the goal of decarbonization by 2050. With these commitments, airlines hoped to deter lawmakers from imposing additional regulations. The argument was, "We're already on the right track, so don't worry about it; we're already committed." Unfortunately, this approach wasn't successful, leading in Europe to mandatory regulations and requirements to reduce CO_2 emissions.

Another aspect becoming even more pressing for the industry is "non-CO_2 issues," meaning additional environmental impacts. The industry must prepare for this and reposition itself. The most important action airlines can take is to purchase modern aircraft. But these are currently hard to acquire due to supply issues with Boeing and Airbus. Consequently, airlines are increasingly relying on Sustainable Aviation Fuel (SAF), which, however, is a scarce resource.

Airlines need to secure quantities of SAF early. This may not be an issue by 2025, but by 2030, I see significant challenges as production capacities are limited. This is uncharted territory for airlines: while they might have a good fuel management system, managing sustainable fuel is more complex than regular kerosene. They need to understand the market and decide whether

to secure quantities early and pay high pioneer prices or wait and risk not having enough SAF later, potentially facing penalties as a result.

Interviewer: How do airlines plan to finance the increasing regulatory requirements?

Expert 3: First, it's always about making governments aware that the green transformation comes at a price and raising the question of whether this transformation, as desired by the government, shouldn't also be supported by the government. A good example of this is the United States.

Secondly, it's about explaining to passengers what this means. Passengers generally view sustainability efforts by airlines positively, but they often don't initially accept that this might also come with a higher price. There's still a need for a lot of communication here: what does it mean to use sustainable fuel? What impact does this have on pricing, and how much more does it cost? Then, the passenger has to either accept it or decide to fly less—that's their choice.

People are enthusiastic about airlines that focus on sustainability. However, when the airline says it will be more expensive, they often respond with, "Oh no, I didn't mean it like that." There are many studies on how to stimulate passengers' willingness to contribute to the green transformation. For scientists, this is a fascinating field, but it's still unclear how this willingness could be increased.

Interviewer: Understood. So, if I see it correctly: on the one hand, lobbying to approach governments, and on the other, communicating the costs to passengers.

Expert 3: Higher prices are only reasonable and acceptable for customers if they perceive value in them. So, we need to create value that convinces customers it's worth it. Why do you buy an iPhone? You could get a cheaper Samsung, but you find the iPhone worth it because you see value in it – it's a sleek device, nicely packaged, offers top technology, and has many other advantages. When customers recognize this value, they're willing to pay more.

But with sustainability, there's often a gap: customers like the idea of an airline being sustainable, but they don't see personal value in it. I've worked on research myself on how to convey this value so that customers say, "Yes, it's worth it to me; I'll pay €10 more for that." A similar example is buying Fairtrade products – customers are willing to pay more for Fairtrade coffee because they know it's produced under fair conditions and that it feels better.

Interviewer: That falls under the term "value proposition."

Expert 3: Exactly. Airlines have yet to make it clear to customers that there's real value behind sustainability measures. That's the issue. There are different ways to explain this value. One example is the "social value": some people buy Fairtrade coffee and like to show it off. There's a kind of social value there—it's a bit like saying, "By the way, my coffee is Fairtrade." That impresses others, and it feels good. But how can you create something similar for airlines? How can you communicate a value that makes customers proud that they paid extra for sustainability with an airline?

Interviewer: What role do you think digitalization plays in optimizing internal processes, and which innovations are crucial for the future of airlines or FSCs?

Expert 3: You're addressing two aspects here. First, there are internal processes that have a huge opportunity for simplification through digitalization. Repetitive tasks can be more easily managed, and at the same time, new insights can be gained that weren't previously available. This means better interaction with other stakeholders in the industry, which is made possible by digitalization. Secondly, we have real-time data, which is extremely important in the airline industry. There's nothing more complex than the airline industry. The processes at the airport are of a complexity that is rarely found elsewhere. It's therefore crucial that stakeholders know what the others are doing and how well they are performing operationally. The common goal has become much easier through digitalization. When I started my role in England, I also worked with the team at London Heathrow Airport. It was simply stated, "We are delayed," and

the service provider said, "We are on time." Everyone had different data, which was obviously pretty pointless.

Digitalization also refers to advances that, as I mentioned, affect the customer experience. I always think of the personalization of the travel experience. I am rarely addressed personally when I fly, and I find that quite unfortunate because personalization begins with storing my preferences somewhere, if I agree, so they can be accessed later. If I travel and my suitcase is lost, will the carrier know next time that my suitcase was lost previously? There are many ways to say: "Mr. XY, we are sorry for the bad experience you had last time, we will make sure to do better today." There are many opportunities to offer the customer additional services. If it's already the case, they know my interests, but I see this as a huge potential outside the aviation industry. Amazon offers me things I don't need, and Netflix recommends movies where I say: "What's this? How did they come up with that?" So, there's still a lot of room for improvement. From my TV or streaming behavior or my shopping behavior on Amazon, I always think: "Is this really it? There's still a long way to go." You guys haven't figured out what I'm looking for or what I might find attractive. Theoretically, you could make an offer to someone who hints that they would enjoy a holiday in Portugal and turn that into an offer, like: "How about a few sunny days in Portugal now that it's rather gloomy here in Germany?"

Interviewer: Yes, I think that's very exciting if you can do that along the entire customer journey, whether pre-flight, to get customers on a flight, or even when the customer is already at the airport, providing the relevant offers as you rightly mentioned.

Expert 3: Personally, I have no problem being biometrically scanned. Everyone has to decide that for themselves. A few years ago in Boston, you would leave the lounge, a quick facial recognition, and the check-in or boarding process was complete. No one asked me if I wanted that; it was just done for all lounge guests, and it was, of course, very streamlined. European

airports and airlines are still falling behind when it comes to implementing this. Biometric processes are a huge opportunity in the customer journey at airports. What always surprises me is how poorly the duty-free offerings are tailored to my needs. I'm forced to look somewhere. I'm directed to offers through the layout, but it has nothing to do with my preferences. I rarely buy anything in duty-free because it's rarely cheaper. But when it is interesting, I'd be willing to buy.

What else do we have? Blockchain for ticketing, so securing and encrypting customer data. Forecasting, I see as a huge opportunity. On the one hand, it's about predicting maintenance processes, not waiting for specific cycles like the number of flight hours for the engine before it needs maintenance, but already figuring out from flight data that the engine might need servicing. Not waiting until, according to the manufacturer's recommendation, 4,000 cycles are done and then it must go for maintenance. Another great opportunity is forecasting, based on artificial intelligence, about future travel behavior. And of course, better ways to price dynamically. What we all don't like is that you use your computer and get one response on Amazon, while I get a different one because I have different buying behavior. That could be the price, it could be the offers, but ultimately, it's about dynamic pricing. Digitalization is a huge field; all airlines are doing something, but no one has yet made the breakthrough. There's still no groundbreaking technology, so it's exciting for research and scientists, but from a customer perspective, there's still a lot of potential.

Interviewer: Okay, so from the customer perspective, it's still very exciting, as well as from the airline perspective.

Expert 3: There's certainly still potential to make things a bit more user-friendly. The customer service that's provided through a chatbot is a nightmare. It understands nothing. I come with a delay situation and would like compensation, and the chatbot is overwhelmed. The first chatbot

I encountered was at Lufthansa, that was ten years ago. And somehow, I didn't really get anywhere. It's still a bit cute and funny, but it doesn't really help much. Then the question of whether they could improve inflight entertainment. It's becoming increasingly boring. You can't imagine how important the food onboard is because food means interruption. People aren't necessarily hungry when flying to Los Angeles, but they're in the forest. Food is always a small movement and action, and many people appreciate it because it provides a break. Now the question is what else is offered in inflight entertainment. Yes, everyone has their own screen, even in economy class, but inflight entertainment could certainly be improved. People bring their own devices, and now one could think about offering content during the flight. The question is always: Can they implement this consistently? Because it makes no sense to offer it here and there while it's not available elsewhere. You need to make sure it's rolled out globally for all aircraft, and that's always a bit tricky. It works in Japan, but not in the USA. Frequent travelers find that problematic. And what do you tell the customer in terms of promises? We have individualized inflight entertainment. You can, for example, continue watching Netflix if you have an account, but then it doesn't work in Japan. What's that about?

Interviewer: So, striving for a seamless experience.

Expert 3: Absolutely. A simple goal that has always been at the forefront. Alliances were formed so passengers could easily transfer, even in the U.S., between carriers that are friendly with Lufthansa or KLM. The issue of a smooth transfer experience has always been central, and we can now push that forward through digitalization.

Interviewer: Now, I'd like to move on to the cost question. Where do you see the greatest potential for cost savings for FSCs, provided that the service quality for passengers is not significantly reduced?

Expert 3: The biggest cost blocks are always airplanes and fuel. With airplanes, you need to make sure that you have easy identification of the fleet. Many airlines still don't have that, and

there's potential here. If you think you can switch manufacturers around smartly, you pay the price of high complexity in the system. The pilots are trained on Airbus and then fly Boeing. I don't know if you're aware of this: one is "flying by wire," the other is a traditional joystick. That means huge complexity when such different aircraft models are represented in a fleet. Modern airplanes are also cost-effective because they consume less fuel. And now we're talking about fuel. There's the current call to use Sustainable Aviation Fuel. That's a completely new topic. The belief that fuel management just buys Sustainable Fuel is wrong. It's a complex product, and the market for it has not yet formed. You need entirely different skills. A fuel manager buys fuel for the next 15 months. With Sustainable Aviation Fuel, you have to buy it for the next 10 years. That means you need to develop expertise to understand certain parameters over the next 10 years. Do you want that, or do you say: "I'll leave it to the producer, I'll just pay a higher price"? A fuel manager would never buy something like that because he always buys the cheapest fuel.

Another challenge is productivity. Many airlines' airplanes stay on the ground too long. There's a lot of potential for optimization here. Additionally, the crews don't work optimally. If you ask about cost cuts, you can always lay off people, which I don't think is a good idea. During Corona, that led to catastrophic damage: many employees were laid off, and when things started again, there were no bus drivers, no loaders, etc. That's why it's important to retain employees. You should maintain the status quo. If an employee has a high salary, they have it. There's not much to change about that, and it wouldn't be a good thing to do so. However, productivity needs to be increased. There are too many regulations that prevent working hours from being used optimally. Opportunities to take time off or request additional days off lead to potential being underutilized.

Interviewer: What specific measures could be taken to increase employee productivity?

Expert 3: You always have to look at what *[anonymized]* is currently doing. For example, offering employment contracts where employees have to work more but still receive the same salary. It's not about a 4-day workweek, but rather getting more out of the 5 days. Flight attendants and pilots don't work 5 weekdays, they work in shifts. It's about making the traditional working hours more flexible.

In the airline industry, there are always rules about how many days off crews must have after a flight, and this often depends on the destination. In the past, crews sometimes stayed in a destination for 5 days, which made the job attractive. Nowadays, it's often just 2 nights. When I see crews using those 2 nights to go out, that's not really the point.

The question of what's reasonable hasn't been addressed. It can't be that, in the name of cost reductions, airlines stick to a 4-day week when the market doesn't support it. Also, as I've already mentioned, digitalization must be consistent and always work, and it must be seen as an enhancement by customers. I often receive different gate change notifications, only to find out the final departure gate is somewhere else. That's a digital experience where I think, "Just leave me alone with your gate changes." I also see great potential in areas like predictive maintenance. If implemented correctly, this can lead to significant cost savings.

Interviewer: Thank you. How can full-service network carriers compensate for the lost revenue from business travelers after COVID? What alternatives are there to make up for the loss of business travel?

Expert 3: Business travelers no longer fully utilize the services, but you also asked about geopolitical risks, which I mentioned. The question is whether this will lead to even fewer business travelers, as business relationships may be interrupted or terminated due to security concerns. I always say, you have to diversify. This means we need to transport more than just business travelers with high ticket prices. Vacation travel and other offers need to be well covered, too. The business traveler needs personalized offers.

There's still potential, especially in personalization or individualization. A specific product that's important for Siemens, for example. But you need to be careful because Siemens has a travel management system, and the travel managers aim to reduce costs. This means they always want cheaper prices. Simply lowering the prices can't be the solution, because this would lead to fewer business travelers.

Low-cost carriers manage to attract people who otherwise wouldn't fly. Full-service carriers in the business travel market, however, can't generate travel occasions. Either you have a project in Hong Kong, or you don't. Just because you offer a great flight to Hong Kong doesn't mean new projects will suddenly appear there. Sometimes it works when a direct connection is established, but in most cases, that city is already being served.

Back to the point: you need to make individualized offers to business travelers. This is very complex and only works through digital solutions, so that these companies say, "Yes, I have fewer business travelers, but I will switch more to Lufthansa, British Airways, or other airlines." You need to capture higher market shares in a shrinking market, especially through business customer relationships. Don't forget the medium-sized businesses; this is a huge issue in Germany. Many medium-sized companies don't have large travel management offices.

Therefore, you need to quickly invest in digital solutions so that bookings and the corresponding invoicing can be done with as little effort as possible. Additionally, you need to market technical innovations on board effectively. If the customer is more interested in video conferences, you need to show how you can support that. I don't know if that would make sense on board, but it's worth considering.

A third topic is sustainability. Every company has sustainability goals, and as an airline, you have a significant share of Scope-3 emissions that come from business travel. As an airline, you should take this seriously and offer solutions to business customers, because they are accountable to their shareholders to reduce CO_2 emissions. So, you could say: "Travel with us, and still

reduce your CO_2 emissions. We do it better than other airlines." Companies tend not to book with airlines because they don't offer solutions. They prefer to travel by train. You must definitely counter that. It needs to be clearly communicated that the train also has a CO_2 footprint. Or even worse, the car.

Interviewer: Great, thank you. Let's move on to the last point in the topic of "Changing Customer Behavior." We've seen a study from McKinsey in November 2023 about loyalty programs, particularly in the airline industry. Customer loyalty is declining, with fewer recommendation rates, indicating that customers might be becoming disloyal. What do you think are the factors that have led to this development? And how can airlines strengthen their brand and possibly expand these programs, which are essential to their business model?

Expert 3: Loyalty programs are generally aimed at business travelers. If there are fewer business travelers, the programs naturally shrink. That's clear. Another issue is that when you offer frequent flyers miles or points, and they want to redeem them for a trip, you have to consider whether they even have any interest in that. If someone already flies 30 times a month, they might not want to fly again on the 31st of October.

Another problem is: What do you do with your miles? Are there attractive rewards? That's a big issue. There are too few incentives, and the traveler who wants to fly with their miles faces the challenge that everyone else wants to fly to Bangkok or Cape Town for Christmas. That leads to conflicts in revenue management. Should I give the seat to the frequent flyer who wants to redeem their miles, or to the one who is paying a lot of money for it?

This often creates tension between revenue management and loyalty programs. Airlines tend to raise the number of miles required for a flight because they feel safe. In the past, you could fly within Europe with 30,000 miles. Now, I looked up a flight to Vienna, and you'd need 120,000 miles. This is because the prices for a flight to Vienna in economy class are around 700 euros. So, the miles need to be raised accordingly.

This leads to the question of when you actually get something from your loyalty program. I collect miles, but I can't redeem them, or it's become so expensive that I have to collect forever before I get something. With loyalty programs at gas stations like Shell or Esso, it's similar: if I fill up often, I eventually get a plastic bag. What am I supposed to do with that?

Loyalty rewards are no longer attractive. The alternatives aren't very popular. Yes, there are World Shop products, but I can buy these things cheaper elsewhere. The customer starts doing the math: "This lamp costs me 100 euros normally, but my miles value for it is 150 euros," which doesn't make sense. There are too many loyalty programs, and everyone has one, so it becomes interchangeable. It's like hubs: when one of the first airlines has a clean hub system, Lufthansa introduced it with the idea of the Star Alliance, and others copied it. This means differentiation becomes difficult because what they introduce innovatively can be copied by others immediately.

Big programs – but what's the difference now? I once made a suggestion in Central America for an airline that had to be restructured. The question was: What to do with the loyalty program? Many loyalty programs have far too many customers who are really just basic customers who registered but don't really engage with the program. You need to offer those who fly infrequently other ways to collect miles – for example, through partnerships with shopping stores. The opportunities to collect miles or points need to be expanded. Not just through flights, because otherwise, you'll have all these occasional flyers who aren't loyal to you because they only fly once a year, and the frequent flyers will have too many miles they can't use.

Gamification is a great idea. It has to be fun and exciting. You should bring in some irrational behavior. That was done in the past by encouraging people to change their travel plans to get into a Hon Circle. Then they tricked the system to stay in. I once had to tell several Hon Circle members at the end of the year that they were no longer Hon Circle members.

Interviewer: A fun approach.

Expert 3: Exactly. There's a lack of emotion among top managers. I'm saying this with a bit of humor: sometimes you end up with tears in your eyes, and it gets loud on the phone. These are alpha personalities who say, "You're just a European manager. I'm talking to the CEO, but he's too busy for this. Sorry." But anyway, this irrational, playful aspect – the "I want to stay in" feeling – even when it doesn't make rational sense. Gamification needs the opportunity to collect miles. For the rare flyer, it's always hard, and even for the frequent flyer, it's hard to reach a status after traveling once a month. You need to offer more ways to collect miles.

I'm also for personalizing it as much as possible, being able to read it from customer behavior. I was a Senator, now I'm a basic customer, and I don't get personalized offers. Where's the whole digital solution? Then I get the general ads. I can't do anything with those It's much more about personalization. Gamification is a huge topic. And where can you collect points? Only by flying, or elsewhere? Where can you redeem them? These are big opportunities.

Interviewer: Just as an outlook: How do you think the airline industry will look in 10 years?

: The airline industry will change. There will need to be stronger consolidation, especially among the small airlines in Europe. These will disappear. There will be a significant shift in traffic flows towards Asia. Until now, the US and Europe have been the primary markets, with Africa having very little. Asia is booming, but India and China offer huge potential. They're buying 500 airplanes per order block – that's the largest order, around 500 aircraft for one airline in India. These are opportunities coming from a growing market. The middle class is growing, and more people in India and China will want to travel. So, there's a strong shift to the East in Asia, but also from Asia to Europe.

Imagine if as many Chinese traveled as Japanese. Japanese are well-liked in Europe, but there aren't many of them. But if you take 10% of 1.4 billion people, that's 140 million Chinese traveling. That creates enormous potential in Asia, a demand potential. European airlines need to find a solution because they want to participate in growing markets. They might say, "We'll

fly you via Europe to somewhere," but Asian carriers do that too. Sustainability will certainly become even more of a focus. We're talking about CO_2 and the decarbonization of aviation right now, but the non-CO_2 effects are neither researched nor under control. The most important one is the contrail – it's a non-CO_2 effect, and it's not under control because it's difficult to predict. These non-CO_2 effects influence the climate, and they're not covered yet. A lot will come from this. Sustainability will be a big issue. Last but not least, the exciting question: where will you find all the staff? The people who are willing to work with high productivity for relatively low pay. This industry has low margins and generally can't pay high salaries. Where will you find people who can bring high productivity for relatively low pay? You really have to come up with something. I personally am convinced that money won't motivate anyone in this industry because, compared to the pharmaceutical industry, you don't earn that much.

Interviewer: Where do you see the greatest areas for improvement for airlines, specifically for Full-Service Network Carriers, to remain competitive in the long term?

Expert 3: As a Full-Service Network Carrier, you primarily need to clearly highlight your quality. What exactly makes your product different, and why does it represent value? For example, if you offer a meal on board, many passengers appreciate it, but very few are willing to pay extra for it. Saying, "My value is that I offer a real meal" often isn't convincing because that was removed on many routes years ago. There's a lack of communication that this is a special value because customers often think, "Well, if need be, I can do without it." It's important to present quality as a service with actual value—and the customer must recognize this too. But it's always the customer who identifies the value, not the airline. You can say the seat or inflight entertainment is great, but when the customer is then asked if they're willing to pay for it, the response is often, "Oh my God, no, why should I pay for that?" Customers expect high quality, but ideally at no extra cost. That's a challenge. Another point is the network offering. A Full-Service airline enables passengers to reach any destination, which is naturally a

big advantage and contributes to loyalty. If you then add a smart loyalty program, you strengthen customer ties and increase the likelihood that they will book with you again next time.

Interviewer: Thank you very much for your insights.

Appendix Q: *Transcript expert interview 4*

ID	Current Role	Current Organization	Key Topics	Format	Duration
4	Senior Manager; University Lecturer	Leading international consultancy with a focus in finance	Customer Behavior; Loyalty Programs, Digitalization; Supply Chain; Partnerships; Organizational Mgmt.	Virtually	30 Min

Interviewer: Could you briefly explain your career path and what your current role and focus are?

Expert 4: *[Expert background anonymized due to privacy reasons]*

Interviewer: Great. We'd appreciate it if you could rank the challenges we've identified by relevance from 1 to 7. What is currently most important for network carriers? If you feel something is missing, we can certainly add it.

Expert 4: If you've already done several interviews, you'll immediately see how my assessments compare to others. I like to base my ranking on the specific region. For instance, if I see the first point, I would say Europe ranks at the top for me. We have extremely high regulatory requirements, which also impact costs. Labor costs are the highest that an employer has to pay. For Europe, I would consider this very relevant. In Asia or the Middle East, the ranking would likely look different.

Interviewer: Got it. Yes, we're also focusing on Europe, so that fits well.

Expert 4: Alright. Regulatory requirements are clearly a 1 for me, or maybe a 2. The IATA has set a goal to significantly reduce greenhouse gas emissions by 2050, and there is pressure in

Europe to reduce emissions. However, there's still a lot of work needed, as there isn't enough sustainable aviation fuel (SAF) available yet. So, I see a lot of regulatory pressure in Europe. Market consolidation I would rate more as a 2 or 3. It was a bigger issue in the USA, where there are now only four major airlines, plus the low-cost carriers. In Europe, we're also seeing some consolidation at the moment, like with ITA Airways, which might go to Lufthansa, or TAP Portugal. But it was definitely stronger in the USA, so I'd rate it more as a 2 to 3. Competition with LCCs, honestly, I don't see as particularly relevant, maybe more like a 5 or 6. In my opinion, the market is already quite divided. If I look at the USA and Europe, the market shares are clearly distributed. Ryanair tried at major airports in Germany and failed miserably. The routes and customers flying with Ryanair today probably wouldn't switch to Lufthansa or British Airways. The market shares have been set for years, and I don't think low-cost carriers are putting much additional pressure on FSNCs today. Five to ten years ago, there was constant fear in the press about long-haul routes from low-cost carriers. Norwegian tried it and failed. Norse is now flying Berlin-New York, but is also struggling. So far, no low-cost carrier has managed to pose serious competition to full-service carriers on long-haul routes in Europe or the USA.

Interviewer: Yes, and when you look at the prices, you can see that long-haul low-cost carrier prices aren't necessarily that much cheaper.

Expert 4: Yes. It's not like I can fly across the Atlantic for 11 euros. Low-cost carriers on long-haul aren't significantly cheaper than FSNCs. To put it simply, I would rank this point as a 5.

Interviewer: Yes, that makes sense.

Expert 4: Changing customer behavior is certainly a topic, but it's mainly about responding appropriately to it. I would rate this with a priority of around 3. Yes, there are changes in customer behavior, but does that put the structural business model of FSNCs at risk? No. The

companies just need to react accordingly. In other areas, the impact is more critical, but I don't see this as a threat to the companies. It's an important issue, but rather of medium priority.

Another problem I see is the extreme shortage of skilled workers, which has a strong impact on the supply chain. There is also a global shortage of aircraft, particularly at Airbus, where production is not keeping up. And this becomes even more relevant when you consider the global context: A billion people in India and a billion in China are reaching the middle class, and the first thing many do when they reach the middle class is to go on vacation and fly. So, we have about two billion people who have hardly flown yet but are now starting to. That's a huge market that lacks sufficient production capacity.

I would also rate geopolitical issues with a priority of around 3. It's a significant topic, but it doesn't fundamentally call the business model into question. Lufthansa, for example, stopped the route from Frankfurt to Beijing because the three-hour detour is no longer economically viable. Of course, that costs money, but Lufthansa mainly earns its long-haul revenue on transatlantic routes, similar to other Asian routes. It's unfortunate when a route like Beijing can no longer be operated nonstop, but it doesn't shake the business model.

Interviewer: Great, that reflects the ranking we've received from other interviewees. What strategies could FSNCs use to offset revenue losses, especially in light of COVID and the increase in remote work? In the past, business travel accounted for about 50% of Lufthansa's revenue. What do you think, if that stagnates or declines?

Expert 4: Yes, to be honest, that's a very good question, and I took a while to think about how to answer it. I can't give you an exact answer, but there is definitely a shift in travel behavior, and you can see it clearly. I'll go into it a bit without giving a direct answer: Premium Economy has gained a lot of importance. Twenty years ago, this class didn't even exist; today, almost every full-service airline has it. Premium Economy is – relatively speaking – the most profitable

class because it appeals to both private travelers and business travelers, as corporate travel policies are also changing.

It's clear that the share of business travel has declined, and how to respond to that is a strategic process. One possible strategy that some airlines are pursuing is to make the business model a bit more tourist-oriented, so that more of the travel value chain is covered. This isn't new, but Lufthansa and British Airways, for example, already have small stakes in tour operators. This way, they cover the entire journey, from leaving home to the hotel and the attraction at the destination. The fact is, Lufthansa is now much more involved in the tourism segment than it was 20 years ago. Their subsidiary Discover, formerly Eurowings Discover, primarily serves the tourism segment with its route network and customer approach – something that didn't exist 20 years ago. In short, they have adapted to new travelers, and that's important.

Another point that Lufthansa and IAG are pursuing is consolidation and pushing M&A activities. The background is that two billion people in China and India are joining the middle class, and as a large corporation, you have to find ways to benefit from this growth. So the answer to the question is: You need to expand the value chain and especially focus on growing markets. In my opinion, this is still not being done sufficiently.

Interviewer: Interesting point. In another interview, someone mentioned that they'd prefer to focus on the core business rather than expanding the value chain. What would you say to that?

Expert 4: He's fundamentally right. Many companies are increasingly focusing on their own value chain, that is, on their core model, and I also think that's right and important. Nevertheless, you can try to map the value chain in a holistic network with partners. An example: When I book a Business Class trip with Emirates, a chauffeur service within a 50-kilometer radius is already included. Emirates doesn't own the vehicles and doesn't directly provide the chauffeur; they merely offer the platform, and the service is ultimately provided by providers like Uber or Blacklane.

In my view, the airline ultimately acts as a platform that integrates various service providers. Twenty years ago, you could only book a flight with Lufthansa, and that was it. Today, you can also book rental cars, hotels, or chauffeur services through Lufthansa. Does Lufthansa provide these services itself? No, other providers do. Is Lufthansa's booking experience and usability modern? No, it feels very outdated. So what I'm getting at is that the customer experience and usability in the booking process need to be significantly improved.

Interviewer: Understood.

Expert 4: The design could be more agile, and FSNCs should make an effort to keep customers on their platform instead of having them switch to third-party providers like booking.com or Expedia. When I plan a trip, I start with the carrier or wherever I book my flight. FSNCs should therefore try to keep customers on their site and offer the desired services there.

Interviewer: Got it. So, to build a partner ecosystem while retaining the customer interface?

Expert 4: Exactly. Also, they should try to participate in growing markets like India and China, which I feel is currently lacking, especially among European carriers.

Interviewer: Perfect. Let's move on to the next question: Loyalty programs - A McKinsey study mentioned that the effectiveness of these programs has declined in recent years. What measures can airlines take to strengthen customer loyalty?

Expert 4: Yes, good question. I would say that the benefits I get from a loyalty program today are significantly less than 10 to 20 years ago. If I look at what my points get me today compared to ten years ago, the difference is enormous. Inflation has taken its toll. To put it briefly: If airlines want to stick with loyalty programs – which they should – they need to bring the added value of these programs back to the forefront. Today, that added value isn't as evident as it used to be.

Interviewer: How should FSNCs manage their dependence on suppliers like Boeing and Airbus, and what long-term strategies could they pursue to make their supply chains more resilient?

Expert 4: Yes, also a good question. I think that aircraft spare parts are extremely heavily regulated and certified, so you can't just go to any supplier. That's the point – there probably aren't that many options. But what I find interesting is that if you look at fleets, there's usually a drive for fleet homogeneity, to avoid sub-fleets. That means it makes more sense to have fewer aircraft types.

Ryanair is the perfect example of this. They almost exclusively have Boeing 737s in the 800 and MAX variants, and through mergers they also have some A320s. But basically, Ryanair is a pure 737 operator. This makes it super easy to provide spare parts because they only need one model of spare parts that can be used across all aircraft. This high fleet homogeneity makes it easier to ensure spare parts availability and meet fleet demand.

On the other hand, you could also argue for the opposite, and that could work well too. In recent years, we've seen a lot of groundings of various aircraft types: the Boeing 787 was grounded for a long time due to battery issues, the A320s had engine problems that grounded hundreds of them, and the 737 MAX was also grounded, costing billions. Imagine if you're an airline with only two different aircraft types and one of them is grounded – that would be a huge challenge. So it might make sense to have some fleet diversity to become a bit more independent of individual aircraft manufacturers. There are not only Boeing and Airbus, but also Embraer and others. Ultimately, it's a strategic decision that depends on the business model you're pursuing.

Interviewer: Understood, that makes sense. And in which areas do you see the greatest potential for optimization for FSNCs?

Expert 4: I see two points: The first point where full-service carriers definitely need to improve is in intermodality, i.e., the connection between rail and air transport. In France, for instance, some short-haul flights are legally banned because they're too short and can no longer be flown. I think the entire travel chain needs to be designed to be almost seamless. If I could dream: I'm

originally from Hanover. Ideally, I would check in my luggage at the main train station in Hanover, get on the ICE train, and then transfer at the Frankfurt long-distance station to a Lufthansa flight to New York. In New York, I would collect my luggage again, without having seen it between Hanover and New York. If the ICE train doesn't manage to arrive on time at Frankfurt long-distance station, I, as the customer, wouldn't care – Lufthansa and Deutsche Bahn would take care of it. So I, as the customer, am no longer responsible for arriving five hours early to account for potential delays.

I think that's a very important factor, also in terms of sustainability. The topic will come up that you can't fly short-haul routes anymore. So, it's essential to improve the connection between rail and air travel.

Then I have two more points. The second point is agility, which large airlines often lack. I believe it's extremely difficult for airlines, especially full-service carriers, to find a good balance between a "no-frills" or "low-thrills" product – basically a low-cost carrier approach – and a premium product. They need to offer an economy class with competitive prices while still delivering premium quality. Regarding the self-service topic: I firmly believe that on one side, we will see a low-cost economy product that relies entirely on self-service, meaning there's practically no interaction with staff. The customer drops off their luggage digitally and then has minimal contact until they board the economy section with limited legroom. On the other hand, there will be a business class, as first class is more or less disappearing. However, the business class will retain the premium level of the old first class and be very high quality.

The last point, agility: For instance, *[anonymized]* is doing a very good job here, and I think it's also sensible. *[Anonymized]* is actually a group with several business units. The *[anonymized]* Group has managed to create internal competition. There are various brands within the group, like *[sub-brand 1]* and *[sub-brand 2]*, that compete with the main brand, and *[sub-brand 3]* operates almost like a startup. They are allowed to do things that the main brand can't.

They’re fast, agile, can try new things, and are incredibly successful in relation to their market position. This internal competition puts pressure on the core brand, and you can read about it in the media. The main brand itself is currently a bit of a problem child, as it’s recognized that the others are performing better. So, what I'm saying is that a group or a full-service carrier can create internal competition through smaller business units, diversifying themselves. The main brand stands for high-quality service and product quality, while other sub-brands follow a highly price-oriented approach.

Interviewer: Perhaps a quick follow-up: If agility is working so well with the sub-brand, why isn’t this success model being applied to the main brand as well? What factors prevent that?

Expert 4: I think it’s mainly due to the work mentality. The employees have a different mentality, which is more bureaucratic. This makes agility difficult to implement, also due to labor protection, workers' councils, and unions. These structures are very cumbersome, and it simply doesn’t work that easily.

Interviewer: Okay, so there would also need to be an improvement in employee productivity to bring more success in that direction?

Expert 4: Yes, and also increase speed. You can currently see this with Volkswagen – we could argue whether they have economic problems or not – but so far, none of the permanent employees have been laid off, which immediately causes a huge stir. A long-established corporation can’t just change its work mentality overnight. That’s a huge change process.

Interviewer: Yes, that aligns with what we’ve heard from other interviewees.

Expert 4: On long-haul flights, there are always rules about how long the crew can stay at a specific destination. So, either they return after 24 hours or stay three days. In recent years, these stays have been drastically reduced. It used to be 24 or 48 hours, but now it has been

shortened. That caused a huge uproar and power struggle because the crew had less time at the destination. At *[anonymized]*, however, they just implement it.

Interviewer: Yes, that's exactly what I wanted to say. Someone mentioned that these stays are often used for leisure time. If that's true, then it's not necessarily the type of recovery the crew might need. The time could be used more productively.

Expert 4: Exactly.

Interviewer: Thank you, that was really insightful. We've covered all the planned points. Any final advice?

Appendix R: *Transcript expert interview 5*

ID	Current Role	Current Organization	Key Topics	Format	Duration
5	Senior Manager Airline Strategy	Leading European FSNC	Synergies and Efficiency; Value-Chain Mgmt.; Partnerships; Group Mgmt.	Virtu-ally	30 Min

Interviewer: Could you briefly outline your professional background? What is your current role and area of focus?

Expert 5: *[Expert background anonymized due to privacy reasons]*

Interviewer: Perfect. I think that fits perfectly. We have seven challenges for you to rank. Could you tell us how you would rank them by relevance?

Expert 5: Got it. The topic of "Rising Costs and Margin Decline" is very relevant. I'd probably give this a 2. The main issue here is location costs, particularly airport fees and aviation taxes. For instance, taking off with an A320 from Frankfurt costs around €4,000, whereas it costs only around €1,000 from Lisbon. Wage agreements across the board have also increased significantly. Now, the challenge is how we can handle this. So we're developing concepts to ease this burden.

The topic of "Regulatory Requirements" is somewhat less relevant, as much of it is beyond our control. SAF (Sustainable Aviation Fuel) is a good example. It's difficult to meet the high requirements here, mainly due to the limited availability of SAF and "Power to Liquid" quotas that complicate matters further. On a relevance scale, I would rate it a 5. We know SAF will play a role in the future, but we're currently not focusing on extensive mitigation measures. Our primary focus is investing in modern, environmentally friendly aircraft. SAF alone won't save us, so for us, its relevance is relatively low.

Market consolidation is also a significant topic, especially in Europe. Compared to the U.S., where the consolidation rate is around 80%, we're only around 50% in Europe. However, the EU Commission and the political environment make it very challenging to make progress. I would assign this a 2 on the scale.

The topic of "Low-Cost Carriers" remains relevant, but for [*anonymized]*, the risk in the DACH market is limited. This is less about us and more about the market environment: The high location costs in Germany make it challenging for low-cost providers as well. I would currently give this a 4 on the relevance scale; it may become more important again in the future.

Regarding Changing Customer Behavior: We're observing a trend toward more seasonal demand. There's a significant increase in demand during summer, with more leisure travelers, while business travel remains flat. To respond to this, we've launched a new airline, [*anonymized]*, which targets the tourism sector. Although we're losing business travelers, which is a challenge, I would still rate the relevance here as a 3.

Supply Chain Disruptions are also an issue, especially with delays from Airbus and Boeing. Aircraft deliveries are delayed, which poses significant challenges. However, a more pressing issue for us is the availability of ground staff. After the Covid crisis, airports struggled to find sufficient personnel for baggage handling and similar tasks, which led to issues affecting us. I would rate this a 3 as well.

Geopolitics is always relevant. For us, as a European airline, the Russian airspace closure has been particularly painful. This causes our flights to be significantly longer, and, as a result, we've even discontinued the Frankfurt-Beijing route, which used to be one of the most important routes for our largest aircraft. The relevance here is high; I would give this a 2.

Interviewer: Yes, that's great and aligns well with many other interviews. We've also received answers to many questions in other interviews, especially on costs and geopolitics. In this part of our interview, we'd like to focus specifically on topics related to the airline group and partnerships. So, here's our next question: What synergies and efficiency potentials arise from coordinating multiple airlines within the [*anonymized]* Group and an overarching group structure? And what strategic advantages come from the joint use of resources?

Expert 5: I'd say the biggest leverage from a commercial perspective lies in a coordinated offering. This means coordinating network planning to determine which aircraft fly where and at what times. This way, we can create a complementary offering. For example, if there's a flight from Munich to New York at 12:00, we might add an option from Vienna to New York at 17:00. This gives someone traveling from Hamburg, for instance, multiple options throughout the day. The example may not be geographically perfect, but it illustrates the wider product portfolio enabled by this alignment.

In addition to network planning, there's the commercial offer. Our pricing structure is uniform across the entire group, so all fares and booking classes are consistent. This creates a much broader and more diverse offering than individual airlines could offer. Also, in terms of sales products, such as those for SMEs or large corporate customers, we can present a more comprehensive portfolio. All these processes generate economies of scale: By working as an integrated group, we can fully exploit these benefits. This is the advantage we see in coordination and what we aim to leverage.

Interviewer: Got it. Our next question is about insourcing. Are there any initiatives to internalize certain activities along the value chain? The goal would be to regain more control, especially in light of the current political landscape and supply chain issues. This would also help strengthen resilience and flexibility.

Expert 5: Yes, that's a great question. We're putting a lot of thought into it. One example I mentioned earlier is ground services, specifically ground staff. Take Munich, for example: The high cost of living in the surrounding area makes it challenging to find personnel for certain job categories, often with moderate pay. Currently, these tasks are often outsourced to external providers.

Here, the question arises as to whether we, as a global company, could create more attractive conditions—not necessarily through higher pay, but through a more attractive overall package. The goal would be to have this personnel in-house and gain greater control over them to ensure more stable operations. This is an example focused on operational personnel.

Another area relates to the supply chain. There were discussions about selling [*inhouse MRO supplier]*, as reported in the media. However, we ultimately decided against it to retain capacity and control. We've even expanded repair capacities and have brought tasks previously outsourced back in-house. Overall, we're trying to increase resilience and control in areas where it makes sense and is feasible.

Interviewer: Great, moving on: What role do strategic partnerships and alliances play in the long-term competitiveness of the group? Can you perhaps give examples of partnerships that have proven particularly valuable?

Expert 5: Partnerships are extremely important for us as a group. In this area, we also consider ourselves somewhat of a frontrunner. Around a quarter of our total revenue is related to partnerships: either through partners who sell our flights or through collaborations we leverage, like connecting flights in the U.S.

It's important to distinguish between different types of partnerships. Star Alliance, as a looser alliance of airlines, has somewhat lost importance and is now more of a brand and marketing platform. It still has value, but the main strategic initiatives come from bilateral partnerships.

For us the transatlantic market is by far the most important. Our Joint Ventures are central to this, and we plan to eventually include new partners in this network when possible. The North Atlantic remains, therefore, our most significant partnership region.

In Asia, the situation is currently more challenging, partly due to geopolitical constraints. Routes are now affected by necessary detours, and we're also facing unfair competition in China. While Chinese airlines can fly to Europe without restrictions, we have limitations on our routes to China. In summary, the transatlantic joint venture remains our most valuable partnership.

Interviewer: All right. Another question would be how competition is managed within the group. When airlines operate in similar markets, are there specific measures to avoid overlap while also expanding market share?

Expert 5: You mean, for example, ensuring that two airlines, don't both fly to San Francisco at the same time, thereby creating internal competition? Is that what you mean?

Interviewer: Exactly, yes.

Expert 5: On long-haul routes, we actually have centralized planning. The flight schedule is managed as a group function, as we operate within a matrix structure. The group has certain central functions, and then there are individual business units. The intercontinental network is one of these central functions, organized from the top down. We strive to make our flight offerings as complementary as possible to minimize overlap and provide a broad offering. If, for example, a new flight route is introduced, say from Munich to Mexico, the schedule would be set to avoid overlapping times with existing flights from other hubs. This allows us to achieve optimal alignment.

In the continental (short-haul) segment, we don't have as centralized control; there is some alignment, but the need for coordination is lower. This is because these flights are more point-to-point and driven by demand. Close coordination is less necessary here as there is generally less overlap compared to long-haul flights.

Interviewer: All right, let's move on to our final topics: outlook and recommendations. First, the fundamental question: How do you think the airline industry will look in ten years?

Expert 5: Sure, perhaps let's focus on Europe here. I believe consolidation will continue. There are two types of consolidation: on the one hand, consolidation through large airline groups like Air France-KLM, IAG, and Lufthansa. On the other hand, there's a kind of "predatory consolidation" driven by large low-cost carriers. Due to their cost structures, Ryanair and similar airlines are expanding so rapidly in many markets that smaller, national carriers will increasingly struggle to survive. My thesis is that in ten years, the airline industry might have a "3+3" model: we'll likely see three large airline groups—Air France-KLM, IAG, and Lufthansa - and two to three large low-cost carriers. Ryanair is already the biggest player in Europe and will likely continue to dominate in ten years. The question remains whether both easyJet and Wizz Air will survive or if one of them may eventually exit the market.

Regarding sustainability: In ten years, the industry may not yet have reached the major advancements it aims for in the long term. Significant progress in CO_2 reduction will probably only be possible with new aircraft technologies, which won't yet be available within this timeframe. Airlines will continue investing in more modern, lower-emission aircraft, which will reduce CO_2 emissions. However, in ten years, we'll likely still be far from a carbon-neutral aviation sector.

Interviewer: All right, as a final question before we wrap up: In which areas do you see the greatest potential for improvement for FSNCs? What concrete measures could FSNCs take to remain competitive in the long term? If possible, could you provide three measures?

Expert 5: Sure, I see three main areas with significant potential for improvement for FSNCs: FSNCs are often highly complex organizations, due to their long histories and associated legacy issues. This includes outdated wage agreements, a fragmented IT landscape, and a diverse fleet mix that has evolved over time. The focus should be on reducing this complexity, particularly through digitization and standardization. The fleet should also be further harmonized by reducing sub-fleets and increasingly using uniform aircraft types. These measures could be implemented more quickly if the new aircraft weren't frequently delayed, but there is still strong potential for efficiency gains here.

Another important area is cost and risk management, which involves reducing dependence on individual markets and becoming more resilient to crises. This might mean becoming less reliant on the home market and adopting a more international focus. One way to do this could be through additional investments abroad, for example, in Asia, to diversify revenue streams and spread risk. This is particularly important since many international competitors, like Chinese airlines or Gulf carriers, benefit from government support and face fewer sustainability requirements.

A stronger international presence is a strategic lever for long-term competitiveness. Additional investments or partnerships in high-growth regions could help expand the business and diversify revenues. This helps to become more resilient to crises in specific regions while also capitalizing on growth potential in other markets, such as Asia or the Middle East.

Interviewer: Thank you very much! We have one more general question that has been on our minds as a group. Our impression is that FSNCs make a premium promise: they offer high service quality, for which customers pay a higher price. How do FSNCs justify this significant price difference to customers? What are the convincing arguments that justify customers being willing to pay twice as much, even compared to other European full-service airlines?

Expert 5: Yes, of course— the primary focus is indeed on positioning ourselves as a premium provider. The term "premium" isn't fixed or protected, but it mainly refers to our premium cabins, such as Business and First Class, and the respective customer segment. Management often focuses heavily on promoting the premium cabins, and sometimes this can lead to the Economy Class being somewhat overlooked—despite it being the area where most of our customers are. Some competitors, as you mentioned, offer good onboard entertainment and thoughtful basic features in the Economy Class, which are important to a wide range of customers. We certainly have room to further develop our service for Economy customers.

As for the price differences, the Nonstop versus One-Stop argument plays a significant role. For business travelers the nonstop experience is highly valued—it saves them from a nighttime transfer. For private travelers or students, this might be less important, as a stopover may not be a big issue if the price difference is substantial. Ultimately, the price also depends on the flight's load on a specific day and which price segment is being offered at that time.

Interviewer: One more thought I had—this isn't a direct question—is that Full-Service Network Carriers, especially in Europe, have quite promising prospects over the next 15 to 20 years, in my opinion. Sociodemographically, we see a growing number of older people during this period who appreciate security and feel comfortable when someone at the counter speaks their language. Many of these travelers may also be less familiar with English or other foreign languages. I think there's great potential here that you could leverage: This older customer group tends to have more disposable income and can afford a premium flight offering. Eventually, there may be a shift when younger, more price-sensitive travelers enter the market. But for the coming years, this demographic shift definitely offers opportunities.

Expert 5: Exactly, just to clarify how we're approaching this: Our airline group operates several brands. We serve different demand streams across various platforms. For example, we have *[anonymized]* and *[anonymized]* — the latter being a joint venture with *[anonymized]*. These

airlines operate at lower costs and target different customer segments. We're aiming to broaden the portfolio. However, on the Singapore route, for instance, only *[anonymized]* and *[anonymized]* currently offer direct flights; there's no additional option through another brand.

Interviewer: Excellent. No more questions from me. Thank you very much for the insightful information.

Expert 5: You're very welcome.

Appendix S: *Transcript expert interview 6*

ID	Current Role	Current Organization	Key Topics	Format	Duration
6	CEO	Global Alliance Network	Global Alliances; Competitive Scenarios; Competitive Strategies; Customer Behavior; Loyalty Programs; Digitalization	Virtually	30 Min

Interviewer: In the airline industry, and also regarding your current role and area of responsibility, could you share more about it?

Expert 6: *[Expert background anonymized due to privacy reasons]*

Interviewer: That sounds impressive, thank you. Now, to dive into the first part of our discussion, we have already identified, since we're in the final phase of our master's research, some of the major challenges within the industry—particularly for full-service network carriers. Selena will share her screen as we go through the interviews. We aim to establish a benchmark, so now we're starting to rank these challenges from your perspective. This will help us create a benchmark. From 1 to 7, what would your rankings be?

Expert 6: I would place the low-cost carrier (LCC) threat as number one. Changing customer behavior would be two. These are all important, though. I would rank market consolidation as three, although I don't see it as a threat. I actually think it's an opportunity, so let's put it there. Regulatory requirements would be four, rising costs five, geopolitical challenges six, and supply chain issues seven.

Interviewer: Is this ranking based on a global market perspective or more focused on Europe?

Expert 6: I was actually thinking more about Europe, but I believe it's also relevant globally.

Interviewer: Okay, interesting. It's particularly noteworthy because when speaking with interview partners from European full-service carriers, they all mentioned rising costs and margin decline as the most urgent challenges at the moment.

Expert 6: Yes, and as I said, all these challenges are important. The reason I would rank rising costs fifth rather than first is that the rising cost issue becomes irrelevant if you don't respond to the low-cost carrier threat appropriately. If you don't have the right business model, the cost issue doesn't matter. What I've observed in Europe, which is different from North America, is that network carriers in Europe have not responded as effectively to low-cost carriers. In the United States, they have been much more successful in marginalizing the low-cost carriers. For instance, if you look at Southwest Airlines, its influence in the U.S. market is nowhere near what it used to be, and Spirit Airlines is nearly bankrupt. The full-service carriers are the ones that are most successful right now because they pivoted and adapted effectively. European carriers, on the other hand, haven't followed the same path.

Interviewer: Great, thank you. That's very helpful for our benchmark. Moving on to the second part, we'd like to discuss airline alliances and partnerships. To start with a simple question: As we've identified, airlines play a significant role in the industry, especially with the growing importance of alliances like Star Alliance, Oneworld, and SkyTeam. In your view, what is the primary benefit for a full-service carrier in joining an alliance?

Expert 6: There are two main benefits. First, an airline cannot fly to all destinations in the world on its own. Through alliances, they can leverage partner carriers to reach destinations they otherwise couldn't serve. So that's the first key benefit. The second is that an alliance can provide customer experience services and conveniences that individual airlines may not be able

to achieve on their own. So, one is about extending global reach, and the other is about enhancing the customer experience in a more cost-effective and practical way. Both benefits stem from the fact that you can't do everything alone, and alliances allow you to do things more efficiently.

Interviewer: Got it. Yes, thank you. For the next part, we would like you to imagine the following scenario: What if tech giants, such as Google or Amazon, entered the full-service network carrier market? Suppose they've found their own solution to cope with the complexities of airline reservation systems, which, as you know, are a major challenge. They then offer airlines a new approach in terms of their B2C relationship, purchasing all the airlines' capacity to integrate flights into a full door-to-door travel solution—so that airlines wouldn't need to handle any customer interaction anymore. What do you think about the likelihood of this scenario, and if it's likely, how quickly could this change occur?

Expert 6: This is such an important question. I was actually discussing this with someone the other day. On one hand, if you look at companies like Google, they have the ability to completely disrupt this industry. I've argued for many years now that the aviation industry has not taken advantage of technology as quickly as other industries. When you talk about reservation systems, for instance, the centralized Passenger Service Systems used by airlines are outdated. I'm sure you're familiar with this, and do you know much about NDC (New Distribution Capability), the new distribution standard coming to the industry?

Interviewer: Yes, we are aware of NDC.

Expert 6: Great. NDC is a very good example. It was first introduced in 2012, and it's still not fully adopted today—about 20% of airlines have adopted it. In the past, distribution through these reservation systems was based on two criteria: schedule and price. That's it. But now, we live in a world driven by rich content—differentiation, customization, and giving customers what they demand, not just what they expect. The aviation industry has lagged behind in adapting to this change, which leaves the industry vulnerable to disruption by companies like Google.

It's similar to the disruption we saw with Uber in the taxi industry. It's a massive threat. My initial reaction is that sooner or later, it's inevitable. The only reason I don't think it will happen immediately is that the margins in this industry aren't high enough for Google to justify the massive investment needed to disrupt it.

Interviewer: So you think they probably won't enter the market due to the low margins?

Expert 6: Yes, that's my conclusion. However, the unknown is that even though the industry is low-margin, it's also disproportionately powerful. Tech companies like Google may find a way to leverage the emotional power of the travel industry to upsell other products. Travel is an emotional purchase, and they could use it to sell higher-margin products in parallel industries.

Interviewer: So, you think they could offer a complete travel experience, using it as a tool to sell other products?

Expert 6: Exactly. For example, let's look at Google Flights. It's a great tool, and Google could have easily taken it further, potentially disrupting OTAs (online travel agencies). They seemed to be heading in that direction, but then they backed off. The question is: Why? I believe it's because there's no money in it for them—at least not directly within the airline sector.

Interviewer: Right, that makes sense. Thank you for sharing your perspective. What do you think? Should full-service network carriers respond, or at least invest in modernizing their reservation systems, as you mentioned, to meet this new standard? What role will airline alliances play in this?

Expert 6: Look, the challenge for the airline industry has always been that the product has been commoditized. I'm tying this back to the PSS system, because the product has historically—up until now, though it's changing slowly—been based on two main criteria: schedule and price. In the meantime, different airlines have introduced all kinds of products, like premium economy or upsell products offering more legroom, but there's no proper way, other than on your own

website, to capitalize on this with technology. The low-cost carriers succeeded by unbundling their products, which allowed them to sell ancillary revenue. Customers could choose what they wanted, whether just a seat or more options. The full-service carriers in the U.S. adapted, introducing basic economy to compete directly with low-cost carriers, and offering additional options for people who want bundles or premium services. They effectively unbundled their offerings, and now, if a customer just wants a seat, they can go to a full-service carrier and get it. The differentiation from low-cost carriers has largely disappeared.

Interviewer: OK, so choice has become a premium now.

Expert 6: Absolutely.

Interviewer: Perfect. Let's move on to the next topic, which is changing customer behavior. How are full-service network carriers addressing the decline in business travelers, especially since the COVID-19 pandemic and the rise of remote work, as well as corporate cost-saving measures? What strategies might be employed to offset this critical revenue loss, and what alternatives are available to compensate for the drop in business travel-related revenue?

Expert 6: The big change since COVID involves two key factors. First, business travel has definitely dropped, largely because many companies now use video conferencing as a substitute. However, the premium leisure sector has grown and sustained that growth. The theory I subscribe to is that middle to upper-income individuals, having tried premium travel during the pandemic, want to continue it. Airlines have pivoted their marketing and distribution strategies for premium cabins to cater not just to business travelers, but also to premium leisure travelers. This trend is seen globally, in Europe, North America, and Asia, and it seems to be continuing. Airlines now have to ensure that their premium product reflects the changing mix of customers, since what premium leisure travelers want can be quite different from what business travelers expect.

Interviewer: OK, perfect. We also researched loyalty programs and found that their effectiveness has declined significantly in recent years. What factors have contributed to this trend, and how can airlines strengthen customer loyalty again?

Expert 6: A couple of things. First, many airlines have undermined the value of their loyalty programs by growing them too quickly and then compromising their value. As the programs grow, they lose their exclusivity. I've seen this anecdotally and the data supports it. For example, I've walked into airline lounges recently and left because they were too busy. They've lost their exclusivity in pursuit of revenue, which devalues the loyalty proposition. Airlines often try to compensate by creating new loyalty classes, but this only increases costs without sustainable value. Airlines need to focus on not compromising the exclusivity that makes loyalty programs valuable. The second point is the importance of recognition. Many travelers who earn and burn miles actually value recognition more than the miles themselves. They care about being acknowledged when they arrive, especially in irregular situations. I fly with Singapore Airlines frequently, and they've nailed the recognition piece. When I show my boarding pass, they address me by name, even using my full name. That level of personal attention is incredibly powerful, and for frequent travelers, recognition often trumps the miles.

Interviewer: OK, very interesting.

Expert 6: So, I would argue that recognition is more important than the rewards themselves for many frequent travelers.

Interviewer: OK, one more question. We're thinking about recommendations and considering that it might be beneficial for airlines to expand the ecosystem around loyalty programs. Many people only register once a year and don't collect many points, but there's potential to increase ways to earn and spend points—such as through retail partnerships. For example, if someone doesn't fly often, they could earn points by shopping, or alternatively, someone with a lot of

points might not want another free flight, but could use their points in other ways. What are your thoughts on this?

Expert 6: So you're talking about expanding the choices for redemption?

Interviewer: Yes, exactly.

Expert 6: I think the frequent flyer programs already offer a broad range of options for redemption. However, there are costs involved when airlines partner with retailers, so they must ensure the value of these partnerships justifies the investment. That said, I think airlines should keep exploring these opportunities, as long as it's beneficial for their membership. The real value, though, comes from focusing on the most profitable customers and ensuring that loyalty rewards align with that. Airlines should be looking at high-value customers and determining how to maximize ROI from them. For instance, Singapore Airlines used to have a Silver Kris lounge, but as it became too busy, they created a new, exclusive lounge for their top-tier members, which was a much more targeted, value-driven approach. The focus should be on qualitative, not quantitative, loyalty. As programs expand, they need to maintain that exclusivity.

Interviewer: OK, so focusing on making loyalty programs more exclusive and appealing to top customers.

Expert 6: Exactly. Airlines like Lufthansa have similar tiered lounges—business, senator, and first class—each offering a different value proposition. It's an approach that's evolved as they've expanded their loyalty programs, and it's important to keep that exclusivity.

Interviewer: Right, I understand. Lufthansa's business class lounge is so crowded now that it doesn't feel like a lounge anymore.

Expert 6: Exactly. I was there last week, and I walked into the business lounge but quickly left because it was too busy. I didn't realize I could use the first-class lounge, but when I did, I found even that was crowded. But much better, obviously.

Interviewer: OK, really interesting. Yes, OK. So maybe one last question on the topic of changing customer behavior: Are customers increasingly expecting a seamless digital self-service experience, or would you say, that there is still strong demand for personal, high-touch service within the full-service network carrier model—or perhaps a combination of both?

Expert 6: Yeah, the answer is yes, they are expecting it, but there's a condition. It has to leverage digitalization in a way that makes things easier for the customer, not more bureaucratic. For example, we use digitalization for call centers, and people hate it. They press this, press that, say this, say that. People hate that, and we all know it's a cost-driven decision, but we get it. So it's not about those kinds of systems; it's about making things simple and efficient.

The language I use when I do media interviews or conferences, and I believe this passionately, is that people want to control their own destiny. You need to leverage digitalization that gives people control. For example, if my flight is late and I'm going to miss a connection, I want to know where my bag is. If I can monitor my bag on the app and see that it's still there, I can talk to the staff and say, "Hey, my bag is still there. Can you get it for me?" This is about control. It's about having touchpoints where the customer can take charge and use their time more efficiently.

That's the real value. I know that's what we're working on right now. For example, we're creating a system that helps airlines accommodate customers more easily during irregular operations. Right now, if a flight arriving in Frankfurt on United connects to Lufthansa and is delayed, it's chaotic. Airlines are scrambling to figure out what to do, whether to put passengers in hotels, if there are seats available, etc. We're building a tool that will give airlines real-time access to inventory across their member carriers, so they don't have to call or email another airline to make accommodations. This will make the customer experience much smoother. So yeah, I think it's crucial. It's the future—using technology wherever we can, as long as it allows the customer to feel in control.

Interviewer: Cool. Very nice. What do you think the airline industry will look like in 10 years, from your point of view?

Expert 6: I would hope—I'd really hope—that in 10 years, the airline industry will have caught up with other sectors and will be leveraging technology and digitalization the way it should. It's a very complex business, and we all understand that, but I also believe that because of this complexity, technology can simplify a lot of the challenges.

Since COVID, the industry has made significant strides, and I think COVID served as a bit of a circuit breaker. The industry was forced to use technology in ways it hadn't before. For instance, biometrics were something nobody was really focused on pre-COVID, but because of the health benefits, people started adopting them. And now, they realize it's much more efficient. I think you'll see more of this kind of technology in the future, and that will speed things up. People dread airport security, check-in lines, and waiting in long queues. Technology will play a much bigger role in the next 10 years, and that can only be a good thing for everyone.

Interviewer: Cool. Yeah. And then the last question, also part of our thesis, from your perspective: Which areas have the greatest potential for change or improvement within the full-service network carrier business model? What are the main recommendations you would give to a full-service network carrier in Europe to stay relevant and competitive in the future?

Expert 6: From a commercial side, I think distribution is key. You need to make sure that you're presenting your value proposition in a compelling way, not just the commoditized way that many airlines are doing right now. Airlines often complain about the fact that everything is focused on price, but they created that situation themselves. They're not giving customers a reason to choose them, or to see why they're different. You need to sell it to them—show them why it's different. If you think about any other industry, like when you go to buy a car, you can choose a Toyota or a BMW. They both have four doors, wheels, and a steering wheel, but there's a clear differentiation between the two, and that's why BMW charges a premium. The

same principle applies here. Airlines talk about all the features they have that others don't. But if you're only showing customers price and schedule, how are they going to know the value of those features?

That's where the new distribution capability (NDC) comes in. It enables airlines to present rich content and communicate those differentiators to customers, something legacy systems can't do. So, from a distribution perspective, that's a game-changer for me.

From an operational perspective, as I mentioned earlier, it's all about leveraging technology to make the customer experience easier at every touchpoint. Think about the opportunities when people make a booking, when they check in, when they're at the airport, or when they're connecting to another flight. Loyalty programs—there are so many touchpoints where we're not using technology effectively right now, and we could be alleviating so many pain points for customers.

Interviewer: Yeah, and regarding the value proposition, I mean, in the end, the customer decides what's an added value, not the company itself.

Expert 6: Exactly. You hit the nail on the head. The customer will make that decision. The opportunity right now, or the gap, is that customers aren't being given the chance to make that decision, because it's not being communicated to them. If you're not communicating why your product is better, how do you expect the customer to choose it? If you've invested $100 million more in your business class product, how is the customer going to know that?

You've got to differentiate, and you have to communicate it clearly. You can't just throw everything at the wall and hope something sticks. You have to say, "Here's the offering, here's the audience, and now I'm going to communicate this effectively." There's a huge opportunity here.

Interviewer: I think that helped us a lot. Yeah, thank you.

Expert 6: Glad to help, guys. I wish you all the best with your thesis.

Appendix T: *Transcript expert interview 7*

ID	Current Role	Current Organization	Key Topics	Format	Duration
7	Operations Director	International trade and aviation organization	Organizational Mgmt.; Employee Productivity; Operational Efficiency; Fleet Mgmt.; Regulatory Demands; Growth and M&A	Virtually	60 Min

Interviewer: Maybe you can give us a brief overview of highlights from your professional background, your current role, and the thematic focus?

Expert 7: *[Expert background anonymized due to privacy reasons]*

Interviewer: Yes, very impressive career path. We had of course seen that beforehand. Very exciting. Now we can move on to the second part. We have seven challenges, and we would like to have them ranked by relevance from 1 to 7, with each position assigned only once. What do you consider the most relevant challenges for full-service network carriers in Europe?

Expert 7: Ah, okay, yes. So, I would rank "Rising Costs and Margin Decline" in position 1. "Politics" would be position 7. "Regulatory Requirements" would be position 5. "Supply Chain Disruptions" would be position 2. "Threats by LCCs" would be position 3. "Change in Customer Behavior" would be position 4, and "Market Consolidation" would be position 6, because the market in Europe is already quite consolidated. Apart from the issues with ETA and SAS, not much has changed in the European market.

Interviewer: Just for clarification, we had already assigned 5, so "Market Consolidation" would be number 6.

Expert 7: Yes, exactly, correct.

Interviewer: Now, let’s dive into our first topic, which I think ties well with your operational background—organizational and employee productivity topics. In interviews, we’ve heard repeatedly that full-service network carriers often have high overhead cost structures. There are many employees involved in ensuring service quality, which makes the organization hard to maneuver due to its size. We’ve been wondering what options full-service network carriers

have to increase their agility. For instance, we've heard about a competitive model within one Airline Group, where different airlines compete with each other. Or the idea of start-up brands, which have now been established within the group. Do you have any ideas or measures you would recommend to promote this agility?

Expert 7: Well, first of all, it has to be said that Lufthansa follows a different strategy compared to other carriers in Europe. Lufthansa pursues a diversification strategy, meaning they serve almost every segment, from the super premium segment to the ultra-low-cost segment. Whether it's about warm-water destinations on short or long-haul flights, with Eurowings, which differs from Discover. The two were originally together but were separated because they wanted to distinguish the warm-water destinations on long-haul flights from those on short-haul. A city airline was introduced, which now replaces CityLine. This has more to do with unions and collective bargaining laws. But fundamentally, Lufthansa's strategy is designed to cover the entire range from super-premium first class to the LCC segment.

When compared to Air France or British Airways, the situation is different. British Airways is part of the IAG group together with Iberia and Aer Lingus, while Air France stands with KLM and SAS on the other side. These groups focus more on the mid-market segment and don't have a strong presence at the high or low ends of the market. Iberia competes more with Vueling and is present in the regional segment with Ernostrum, but not to the extent that Lufthansa is, which covers a much broader spectrum. Therefore, Lufthansa has a larger market coverage. It's also no coincidence that Lufthansa has drawn a north-south axis from the north (Germany) through Austria and Switzerland to Italy. This was a strategic decision aimed at the Italian market, while Air France tried to establish a similar axis with KLM and SAS.

Interviewer: Understood.

Expert 7: Exactly, and this portfolio thinking within the company: Air France had to shut down its low-cost subsidiary Hop! and then transformed Transavia from being more of a "warm-

water" airline, similar to Eurowings, into the low-cost role—but only for short-haul flights. For long-haul, they use French Bee. So, Air France is trying to copy the Lufthansa model, but they face the problem that in the premium segment, they already have competition from La Compagnie and the Petroleum Club. However, the dynamics in the French market are different, as they mostly fly to French-speaking regions, whereas Germans are more flexible with their destinations. But strategically, British Airways, or IAG, is the least flexible in its positioning.

Interviewer: I see.

Expert 7: Exactly, so the order would be: IAG is the most focused, followed by Air France, and then Lufthansa, which is the most diversified. That's the market approach. When comparing the three alliances: The Star Alliance is obviously the largest. Its goal is to achieve the greatest network coverage. SkyTeam doesn't aim to be the largest, but rather the most integrated alliance. As for Oneworld, it's still unclear where exactly they want to go, as Oneworld is now heavily dominated by Qatar Airways. Qatar has acquired 25% of the entire IAG group, and is steering the whole thing with different interests than a European airline would have.

Interviewer: Understood, yes.

Expert 7: You just need to distinguish between these market models and then see that in Germany, airlines complain about high fees. But if you look at the routes that Ryanair is currently abandoning, Condor and Eurowings are taking over those domestic routes because they want to secure market shares. So, in a way, you can accept that even though Ryanair is complaining loudly, when they leave the market, they also leave behind market segments. And those are being taken over by the routes that Condor is currently attracting. I don't know if you've been following the news lately, but both Eurowings and Condor recently announced that they plan to take over these markets. So, it's quite a different strategy.

Interviewer: Yes, just to briefly return to the point. You mentioned earlier that many employees are present regardless of the market position. But how would you say that operational measures could be taken to increase agility? Do you have something in mind?

Expert 7: So, the differentiation is that Lufthansa works much more centralized within the group, that's very clear. Decisions are made in Frankfurt, not in Zurich, Vienna, Düsseldorf, or Cologne. But the airline deliberately allows some operational freedom in the product area to give it the chance to develop its own profile. That is a conscious decision. Of course, they accept that the overheads are higher. On the other hand, Lufthansa has always pursued a strategy of an integrated product. This means they outsource as little as possible and try to do as much in-house as possible, in order to retain better control. For example, with LSG, they have their own catering and duty-free operations, their own airport services, and their own subsidiaries for airports. They also think of Aerologic, which has a partnership with DHL. Lufthansa follows a very strong portfolio strategy. Behind this is also the network concept, and this is where the origin of the Star Alliance strategy comes into play. The so-called "cross-feeding" from the network is the clear strength of the Star Alliance, and it creates a system where routes feed into each other. That's also the strategy Emirates uses, and it's what made the hub in Dubai so large.

Interviewer: If I could ask a follow-up question: You just mentioned that Lufthansa makes decisions relatively centrally. Now, there is also the trend towards agility and the tendency to decentralize decisions. For example, handing decisions over to teams that are relatively close to the customer. Would you say that this trend is also observable in airlines? Does it make sense for airlines to decentralize decisions and give teams more responsibility?

Expert 7: I believe the point of tension lies in the economic value chain, on one hand, in purchasing market services and utilizing the cost benefits of large-scale procurement, for example in fleet acquisition or ground handling contracts, and on the other hand, in customer proximity

and product design. As I see it, customer proximity and product design definitely lie with the individual airlines. They also have a certain decentralization when it comes to the product: How do I design the product, how do I price it? On the other hand, topics like fleet purchasing are clearly managed from the headquarters. The "asset-heavy" areas, meaning the capital-intensive areas, like fleet structure and fleet purchases, are organized from headquarters. So, there is a kind of mixed structure, like a matrix structure.

Interviewer: So, theoretically, one could say that there are areas where economies of scale make sense and bring benefits. These should still be centralized, while areas that require customer proximity could be managed more agilely. Could one say that?

Expert 7: Yes, one could say that. But it's the "asset-heavy" areas, like the fleet, where significant investments are made and where you can achieve volume discounts through large-scale procurement. That is the area that is centralized. So, the standardized fleet buildup, for example, where the entire short-haul network is handled by an Airbus fleet. Lufthansa has ordered 30 737 Max aircraft, but I think that was only the third order in a row after several Airbus orders. They didn't want to become completely dependent on Airbus. But otherwise, Lufthansa's fleet is largely Airbus-based, particularly for short and medium-haul flights.

Interviewer: Great. I think we've received some good input there. Maybe to move on to the second part: We had also discussed the topic of cultural change in the airline industry. Many corporations have taken measures to increase employee productivity in the long term. Often, we hear that a more innovative and agile mindset is necessary, as well as a cultural shift, to remain competitive outside of Europe.

Expert 7: Yes, that's one side of the coin. The other side, however, is the company's identity. Lufthansa still has a strong family culture, even though it has faced plenty of criticism over the years for not always treating its employees well. But it still has this family concept, which I can

personally attest to as a former employee. Lufthansa is still home for me. When I visit the base or go to a Lufthansa department where people know me, I still feel a sense of belonging - both ways. That's very different from many other airlines. British Airways also has that, and some other large airlines still have it, but with a Liberian airline, for example, that's completely gone; it has deteriorated over the years. If you look at Aer Lingus or South African Airways, you'll see that the family feeling no longer exists. However, Swiss still has a very strong bond. The attachment is so strong that some employees have been with the airline for three generations.

Interviewer: I'm going to be a bit harsh now. One could say that such family ties are very positive when it comes to community spirit and culture, but on the other hand, they might also foster a certain comfort culture that leads to employees not always achieving maximum productivity.

Expert 7: Yes, but then let me put Richard Branson in front of you. He says: "You don't take care of the customer first, you take care of the employees, and the employees take care of the customers." That's basically the counter-statement to what you just proposed. There's a very famous quote from Richard Branson.

Interviewer: Okay, I'll have to look that up.

Expert 7: You can Google it for this topic. The quote roughly goes like this: Many business leaders or entrepreneurs argue that one must focus primarily on the end customer. But Branson says it's the employees you need to focus on first. When employees feel comfortable and secure, they take great care of the end customer. So, that's the counter-thesis to what you just stated.

Interviewer: That's fair. Probably these are just two different approaches, depending on how you tackle it.

Expert 7: Yes, they are two poles. The truth is probably, as it often is, somewhere in between. But it also swings a bit. If we look at how you buy a ticket today—whether directly from the airline or through an online consolidator like Expedia—it's really nothing more than the web-

based version of a traditional consolidator. The consolidator buys larger blocks from an airline and resells them. The first time the customer notices the airline, their contractual partner, is usually only at boarding. Everything else is outsourced.

Airlines have already realized a few years ago that branding and brand identity have become extremely important in order to make it clear to the passenger that a certain terminal in Frankfurt is the Lufthansa terminal. The color scheme at the gates and similar elements help the passenger recognize the airline. That's a big topic that strongly connects the passenger to the brand. If you look at Terminal 1 in Frankfurt, you can see that Lufthansa plays a much more dominant role there than in Terminal 2. But if you look at Terminal 5 at London Heathrow, you can see that everything is focused on British Airways.

Interviewer: Awesome, thank you so much. But yeah, anyway, I think we've answered most of the questions already. You just mentioned the standardization of aircraft fleets. I looked it up yesterday, and I think Lufthansa has around 17–18 different models, with about 700 individual aircraft. Where do you see the trend going? Should airlines generally go for a more diversified fleet because it brings different advantages, or should they focus on a standardized fleet?

Expert 7: Well, when you look at Lufthansa's fleet, you first have to consider the technical side. If you compare Airbus aircraft, like the A319, A320, and A321 in their respective variants, they have a high parts commonality, around 80%. If you switch from a Lufthansa narrow-body to an Airbus wide-body, from an A320 to an A330 or A350, you still have about 25 to 30% parts commonality.

Interviewer: Parts commonality means that the components are the same within these aircraft types, right?

Expert 7: Let me give you an example: When you board the plane, the door you enter through—door 1 Left, 1L—this door is the same whether you're in an A319, A320, A321,

A330, or A350. It's the same door with the same mounting system. The cargo door in the hold is also the same. The engines of the A320 are the same as those on the A319 or A321—they're just tuned differently. Even the A220 follows the "Common Cockpit" philosophy of Airbus. The cockpit on all aircraft, up to the A380, is essentially the same.

Interviewer: But only up to 30%?

Expert 7: Yes, the cockpit is largely identical. I mean, the A380 has four engines, while the A320 only has two, but otherwise, the cockpit configuration is the same.

Interviewer: Okay, so you would still opt for a standardized fleet?

Expert 7: Yes, exactly. And that's precisely why Airbus has a huge advantage over Boeing, because Airbus recognized this and ensured their fleet has much higher standardization. If you compare Boeing to Airbus—look at the 737 NG, the Max, the 787, and the 777—each generation of Boeing aircraft has a completely different spare parts inventory. There's little parts commonality. Yes, Boeing has no real parts commonality. The engines on the A320 are basically the same generation as those on the A330. But that's not the case with Boeing.

Interviewer: Can one say how many aircraft types a specific carrier should have? Perhaps, I don't know, 2 types for short-haul and another 2 for long-haul flights? Is that feasible?

Expert 7: No. You have to think about it differently. You have a route network, and that network isn't static—it evolves. So, you have a development plan for your routes, let's say for the next five years. In two years, you'll have a pretty clear idea of where you want to fly. Based on that, you choose the aircraft. That's the commercial side. The second component is the technical side—the parts commonality between the aircraft, the interchangeability. I need less training for technicians, less training for the crews. My crew can fly multiple types of aircraft, which obviously saves costs. For example, if I don't need three different crew programs for the 777,

the 787, and the 737, but just one set for the A319, A321, and A350. That's where the efficiencies come in. So, you try to standardize as much as possible, especially with narrow-body and wide-body aircraft.

Lufthansa is a bit special here, because they're currently in a transition phase, especially because after COVID, they're getting back into business, and the suppliers aren't able to deliver the fleets yet. That's why older aircraft like the A340-300, A340-600, and 747-400 have been reintroduced. That's actually a good thing because the A350 and the 777X weren't delivered quickly enough. The 777X isn't even certified yet, and it's already been delayed by six years. We're now expecting the first delivery at the end of 2026, which means Lufthansa as the lead customer will probably only start flying the aircraft by the summer 2027 schedule. So that's still a ways off.

Interviewer: Yeah, that's still quite a while.

Expert 7: Exactly, that's 6 to 7 years after the original first delivery of the model. This period has to be bridged, because if Lufthansa isn't flying it, another carrier will. That's why Lufthansa has reintroduced the A340, even though they're more expensive—but it's still cheaper to continue flying a route than to give it up and later try to reactivate it.

Interviewer: Got it, I understand.

Expert 7: So that's one strategy. The second strategy is to say, okay, I need a certain level of flexibility based on route length and volume. That means I start with the A330, then move on to the A350, the 777X, and finally the A380.

Interviewer: Then perhaps again...

Expert 7: And maybe in between, the 747. Those would be effectively 1, 2, 3, 4, 5 aircraft models.

Expert 7: Yes, that's the minimalist version of what the Lufthansa Group will fly on long-haul routes. It will probably just be 4 models.

Interviewer: Okay, and that's already a reduction from the current 16 or 17 aircraft types.

Expert 7: Exactly, on long-haul flights, it will be 4 to 5 aircraft types, and on short-haul, they will basically focus on the Airbus fleet. Then the A220 will come in for the regional segment. And then you'll have the feeder carriers operating Embraer fleets or similar. Although the E2 jets probably won't make much of an impact in Europe.

Interviewer: You mentioned 4 to 5 aircraft types for long-haul flights. Would the fleet for short-haul be a similar size?

Expert 7: For short-haul, it would be the A320 and A321. That counts as one family, so the A320 family. There might still be a few A319s around that will fly for a few more years. And then, below that, we would probably have the Embraer fleet or the Bombardier jet for the smaller feeder aircraft, like with the smaller carriers, like Air Dolomiti or similar.

Interviewer: Okay, good. So, overall, it would be 3 aircraft families/types.

Expert 7: Yes, exactly, 3 aircraft models.

Interviewer: Yes, okay, wonderful, thank you.

Expert 7: From the 16 or 18 aircraft types you mentioned earlier, we're now down to 7.

Interviewer: That's definitely a significant reduction, and it will probably be cheaper for the carriers as well.

Expert 7: Exactly, that's something to keep in mind. Right now, Lufthansa, like many other airlines, is in a tough spot because Boeing and Airbus simply can't deliver fast enough. Due to COVID, production capacities were massively reduced, partly because of pressure from the airlines, who said, "We can't take it, we don't want it, we don't have the capacity." So, everything was scaled back. And when production ramped back up, it couldn't keep pace. Scaling up takes a lot longer than scaling down.

Interviewer: Yes, and that brings us back to the issue we mentioned earlier—the supply chain problem. I think you referred to “Supply Chain Options.” Yes, that really is a critical issue for the airline industry.

Expert 7: Exactly. It’s not about technical development. The next generation of aircraft is already in the wings. The real problem is that the production of market-ready products can’t keep up with demand. A typical example is Pratt & Whitney with their Geared Turbofan engines. Pratt & Whitney, with the GTF 1100 series. An absolutely outstanding engine used in the A220, and, to my knowledge, currently grounding about a third of the global A220 fleet because Pratt & Whitney hasn’t been able to fix the engine problem related to corrosion in the hot section. This has been known for three years, and it will probably take another two years to resolve. It’s costing a lot of money. What this means is that there’s simply not enough supply of engines, both for new builds and for overhauls. This means that a manufacturer like Lufthansa or even Airbus can’t build faster because they don’t have engines for the aircraft. It doesn’t make sense to put the shell of an aircraft somewhere in the corner and say, "I’ll wait for months until I get an engine." Everything has to be scheduled.

Interviewer: Yes, that makes sense.

Expert 7: That’s just one side of the problem. Engines are a very sensitive issue. But even if I order a specific seat for the premium segment today, the delivery time for a simple seat is 9 months. And another example: I have to make a decision today, and I know that if I order now, the seat won’t be delivered until the end of 2025, and then I can install it into the aircraft. I can’t just pull the plane out of service; I have to wait for the next scheduled maintenance and installation slot. This means I can’t install the seat until 2026. If you order an A320 from Airbus today, they’ll tell you straight: "Come back in 2023."

I spoke with Airbus about half a year ago, and the production plan was for the end of 2030, early 2031. Currently, I’m working with an airline, and we were informed last week that we’re

delayed by a year. Aircraft that were ordered three years ago and were supposed to be delivered early next year are now not coming until early 2026.

Interviewer: Are there penalties for suppliers when delays like this occur?

Expert 7: If the customers are smart enough, they write penalties into the contracts. But the supplier won't just point that out to you.

Interviewer: Right, I understand.

Expert 7: The experienced airline customer will definitely include such clauses. On the other hand, there are also many legal tricks. But a strike, like the one we're seeing at Boeing right now, also has massive consequences. The production lines are standing still, and it's not just about the strike period being added, but by the time operations are back up and running to the point where they can deliver, we're quickly talking about 6 months.

Exactly, and that's in addition to the 9 months of delay that were already in place. So, we're talking about 15 months of additional production delays.

It's a very delicate issue. Now we get to a really interesting question. So, if I'm an engine manufacturer. and I deliver the engine, where does it go? Does it go to the new aircraft that Boeing ordered from me, or to Airbus, or does it go to the customer who needs a replacement engine for an existing aircraft? The new engine, the new aircraft—the airlines have real problems. If I need to overhaul an engine, I take it off the wing, send it to the workshop, and have it overhauled. But I can't just keep the aircraft on the ground for four weeks because the engine is missing. So, I need another engine as a backup, about 10% of my engine fleet, so I can rotate them. And if those 10% aren't available, what do I do? After a certain number of flights, the engine has to come off. That means the aircraft is grounded.

Interviewer: Yes, and that leads to downtime.

Expert 7: Exactly. Let's say you know what the leasing rate for an A320 is.

Interviewer: I'm not familiar with that, no.

Expert 7: Okay, let's talk about $425,000 per month. So, if you have an aircraft that costs $425,000 per month, but it's on the ground for a month because the engine is missing, you still have ongoing costs. And on top of that, you have to maintain the aircraft because other components, like the hydraulics, still need to be operational. Then there are about $100,000 in maintenance costs. So, you have nearly half a million dollars in costs, and the aircraft doesn't earn a single penny.

Interviewer: That's super interesting. Especially, and we've heard this a lot, it's not just about the lost revenues, but older aircraft are, of course, much more expensive to operate than newer ones. These additional costs come from the longer wait times.

Expert 7: Exactly, especially with the savings from the next-generation engines. Then the question becomes: Do I fly the route with an old aircraft, occupy the route, and not lose the market? Or do I give up the route because I don't have an aircraft and try to reclaim the market in a year, possibly at a discount price?

Interviewer: Yes, that's really interesting. But I'd like to move on to the next topic, if that's alright with you. And that's expansion: What we've heard from many of our interviewees is that the Asian market offers huge growth opportunities due to demographic growth. Would you say that European carriers also have opportunities in this region, and how should they expand there?

Expert 7: A classic "yes and no." Demographic growth is of course only one side of the coin. Population growth needs to go hand-in-hand with GDP growth. GDP drives disposable income, and that drives purchasing power. Purchasing power leads to consumption behavior, and with that, the willingness to travel and fly by plane increases—that's the value chain. That's one side.

The second aspect is that as a European carrier, I'm relatively little on the ground in Asia. If I want to fly with an aircraft, I not only have to fill 120 to 150 seats, but 400 to 500 seats – that's a completely different scale.

Another example: If I want to fly from Mumbai via Frankfurt to New York, there are 15 different carriers offering this route. Nonstop flights via Russia, then the American carriers, the Gulf carriers via Dubai and Abu Dhabi, and European carriers via London, Paris, Frankfurt, Munich, or Barcelona. That means huge competition. To say that I now need to rush into Asia just because the population is growing by 5% is too simplistic. It doesn't work like that.

That's where the alliances come into play. The big airlines fly the major routes – let's say from Frankfurt to Singapore – but then I have local partners like Singapore Airlines, Thai Airways, or Air China, who cover the short- and medium-haul routes with their fleets and take over the connecting flights. That's the concept of the alliance. Moreover, the network size and reach of the network also play a role.

Interviewer: Okay.

Expert 7: If you look at the fact that airspace is restricted for airlines, the planes have to fly around it. The flight time to Asia, for example to China or Japan, has increased by 2 hours because of this. So, many European carriers are currently pulling back from China and leaving the field to Chinese airlines, who happily fly over Russia and save 2 hours.

Interviewer: Thinking about M&A – would it make sense for Lufthansa, for example, to acquire a regional carrier in Asia, outside of networks and alliances?

Expert 7: Actually, I don't think that would make sense. It only makes sense if the company is on the edge of the network and strengthens the network. That means expanding the network by adding a feeder that covers certain routes. Another point is that each region has its own dominant partner – whether it's Singapore Airlines, Air China, United, or whoever.

Acquiring a regional carrier in Asia could be problematic because the partner might not be too thrilled about it, which could lead to conflicts. Also, Asia is geographically and culturally very far away. If I want to manage this from Europe, it's not easy. I can't control the nuances of domestic traffic in Indonesia from Frankfurt. There's also the question of whether a non-Indonesian company would even be allowed to take a majority stake in an Indonesian airline.

Interviewer: And when you think about cultural differences – where do you see the biggest challenges between the European and Asian landscapes?

Expert 7: There are very big cultural differences. In India, Indonesia, or China, travel behavior is very different from that in Europe. These differences also affect the shopping and consumption habits of the population. And that's exactly where you need local expertise. You can't manage that from a distance, for example from Frankfurt or Paris.

Interviewer: Yes, understood. Thank you. I'd then move on to the last question, the final category. And that's improvement potential: Where do you see the biggest potential for improvements? What measures should airlines take to stay competitive in the long term? Maybe three areas you see.

Expert 7: Right now, we're seeing a lot of experimentation. One area that is coming is moving away from traditional in-flight entertainment. The screens in the seats are being removed, and now there are just holders for tablets or smartphones because passengers bring their own entertainment. Essentially, everyone has a phone with them, and many use it for movies or games. Then, you can offer streaming or other services via a Wi-Fi system. This saves weight, and thus fuel, and the passenger has their own content.

Another area is catering. Here, airlines are moving toward pre-ordering meals. This reduces waste, as less catering is left over, and it also leads to less food waste. At the same time, passengers are more satisfied because they get exactly what they ordered.

Interviewer: Personalization.

Expert 7: Personalization, exactly. It's sold to the passenger as personalization, but the real argument is that the airline saves costs. This happened a few years ago when smoking was banned on board. Back when there were smoking zones on planes, the walls had to be ripped out and replaced twice a year because nicotine and tar from cigarettes were so aggressive that they damaged the material. The smoking ban on planes actually has nothing to do with health – absolutely nothing. It's purely a marketing gimmick. It's more about the airline saving the cost of ripping out the wall panels. Yes, that's not a joke. It's all about how you package it to the customer. So, they tell the customer that they care about their well-being and health and that's why smoking is no longer allowed on board.

Interviewer: Understood.

Expert 7: Then, of course, there's the issue of contactless service and self-service. The big wave of self-service – whether it's baggage drop, ticket purchase, or rebooking. AI (artificial intelligence) and NFC (near-field communication) come into play here. We are just at the beginning of a development that will go much further and has a lot of potential. It's about using these technologies to personalize the experience for each customer and simultaneously make operations more efficient. The advantage is that you create a smooth flow, especially on the ground.

Interviewer: Interesting. Yes, that's probably something customers are expecting more and more.

Expert 7: It's related to customer expectations, of course.

Interviewer: Great. Then we've covered the cost aspect and also the area of personalization. Do you have any additional points? Otherwise, we've already gained many interesting insights from you.

Expert 7: There are, of course, topics in materials management, where technology is still being worked on to improve efficiency. Computers are being refined to achieve higher efficiencies.

Another big topic is airspace. In many countries, 30 to 50% of airspace is restricted for military purposes. In Germany, it's about 30%, in Saudi Arabia even more, and there are many other examples. This means that the flight routes and altitude structures are not optimal. If we switch to the so-called free-flight concept, where you can fly directly from point A to point B without being tied to rigid route structures, we can save time and fuel. Flight time is reduced by an average of 10 to 15 minutes. That's about one ton of fuel per flight sector. If you have 6 to 8 sectors a day, you save 8 tons of fuel, which equals about $8,000 per day and per aircraft.

Interviewer: That would definitely pay off in the long term.

Expert 7: Yes, and projects like the "Sesam" project, supported by the European Union, are working in this direction. The goal is to develop free-flight concepts so that you can fly from one navigation aid to another without fixed route structures.

Interviewer: Yes, the whole topic of flight route optimization is really fascinating. Maybe one last question on that. I've been looking into it a bit because we're really focusing on this topic. We've noticed that the update and implementation of the Single Aviation Market in Europe has huge potential, not only to reduce costs but also to improve the customer experience. We've come across open recommendations that we would like to bring forward, particularly in the area of lobbying. If you have a minute, could you explain how you would approach lobbying to push through the implementation and update of airspace management?

Expert 7: The issue is that we're still dealing with a certain level of egocentrism from individual countries, who are reluctant to give up national sovereignty. This applies not only to airspace but also to other areas like foreign policy or defense policy. Ultimately, the countries would need to give up their individual rights to a collective group, and that's something they find difficult to do.

Interviewer: I see.

Expert 7: In aviation, however, we're already a step ahead. For example, in air traffic control, areas have already been merged across countries, such as in the Area Center in Maastricht – covering northern Germany, Belgium, the Netherlands, Luxembourg, and northern France. There's also another merged area that includes Austria, Switzerland, southern Germany, parts of northern Italy, and the Balkans. A lot is already being consolidated here, but there's still plenty of room for improvement, especially when it comes to further harmonizing airspace structures. Okay, and how do you see the airspace structure in the Balkans, or over the Czech Republic, Slovakia, Hungary, and so on? Why do these countries each have their own structures? Couldn't all of this be consolidated? Why should each of these countries have its own structures if they could be easily consolidated?

Interviewer: Understood. And from the perspective of a network carrier: How would you, as a European network carrier, go about implementing these changes? Should one approach the European Parliament directly? We've also seen a letter from "Airlines for Europe," in which the CEOs of airlines are appealing to European decision-makers. What steps or strategies should be followed to implement such changes? Is this mainly about lobbying, and how could one approach that effectively? Do you have any ideas?

Expert 7: Well, I think this needs to be approached on several levels. First, all the participants – whether it's the ADV, BDL, ACI, or the relevant industry groups – need to come together. That means the entire aviation sector needs to move in the same direction.

Interviewer: Yes.

Expert 7: So, we need to bring together ACI, the airports, and the airlines, because airports also have an interest in ensuring that things are implemented properly. Otherwise, their planning base is destroyed, since planes won't fly as scheduled. Airports need reliable flight schedules to operate efficiently, and these are disrupted by unpredictable flight movements. There's still

room for improvement here, and this really needs to be addressed. As long as individual countries structure their air traffic taxes differently – for example, Germany constantly has outliers, while Sweden has removed this tax and therefore follows a clear policy direction – the situation becomes problematic. Germany, on the other hand, uses air traffic politically to serve the interests of a red-green constituency, and this is implemented by continuously making air traffic more expensive, which in some cases even hampers it.
It's political clientelism, which doesn't work the same way in other countries.

Interviewer: Okay, so you need to come together, cooperate with competitors, and push for more collaboration on the EU level – country by country – in order to achieve more cooperation and highlight the benefits of such a market.

Expert 7: Yes, although a Lufthansa won't cooperate with a Ryanair. Ryanair's success lies in the fact that, in Germany, where air traffic is being held back for political reasons, they continue to rely on affordable offers that undercut almost everything else.
This has now led to Eurowings and Condor suddenly taking over routes that were previously operated by Lufthansa.

Interviewer: Yes, interesting.

Expert 7: That's what you call a "give and take" process.

Interviewer: Yes, that's an interesting point. I read that "Airlines for Europe" also includes the CEO of Lufthansa and the CEO of Ryanair in this initiative and the proposal to the European Parliament. They may not be cooperating directly, but they are kind of pulling in the same direction. I found that very interesting.

Expert 7: Yes, exactly. But this also shows that even if you're not directly cooperating, you can still pursue common interests.

Interviewer: Great, this is a fascinating topic.

Expert 7: You also need to look at the route structures. If you look at Ryanair, 60% of their routes are to warm-water destinations. They fly basically from northern Europe to southern Europe, to the Mediterranean, and back. And that's 60% of their total traffic. That's a completely different structural pattern than Lufthansa or other major airlines.

Interviewer: Understood, yes. Really fascinating points. Thank you so much. I think this was very helpful for us. Really insightful, thank you.

Appendix U: *Transcript expert interview 8*

ID	Current Role	Current Organization	Key Topics	Format	Duration
8	Project Manager Airline Efficiency	Leading European FSNC	Operations; Airline Efficiency; Value-Chain Mgmt.; Process Optimization	In Person	30 Min

Interviewer: Today we want to focus primarily on the area of operations. I think you're the right person to talk to. Can you start by briefly explaining what you do and where your focus lies?

Expert 8: *[Expert background anonymized due to privacy reasons]*

Interviewer: That sounds exciting. Let's jump straight in: Which processes in Operations would you say are currently running particularly well and reliably? And where are the weak points that you are currently looking at?

Expert 8: I would start with the weak points. These are not so much individual processes, but two central issues - especially with regard to Germany.

1. personnel problems in ground handling: There are major bottlenecks, particularly in the "below the wing" area, i.e. ramp services and everything that happens on the apron. This affects our location at the hubs in particular, where the situation is especially critical. These staffing problems lead to considerable follow-up problems, and this can also be seen time and again at smaller German airports. However, the challenges are most pronounced at the largest airports.

2. supply chain problems in Technical Operations: There are also ongoing difficulties in materials procurement that we need to address in order to stabilise our position. However, this requires a paradigm shift, particularly with regard to warehousing. Our fleet is very heterogeneous - it includes models from almost all age classes, from over 30 years old to ultra-modern aircraft. This poses major challenges for Technical Operations in particular.

However, there are also areas that have developed positively, especially the 'above the wing' processes. We have made significant progress in passenger processes in particular, e.g. check-in and gate processes, although these used to be a major weak point. They now run more smoothly, which benefits passengers. Flight operations also work reliably - staffing and processes are stable.

One important thing I have learnt: Every station is different. Problems at international stations such as JFK, Singapore or Shanghai can look completely different to our hub airports. So you always have to consider the local context. For our major hubs, however, I see precisely these two major issues as key weaknesses - and at the same time the areas in which we have achieved a lot.

Interviewer: What specific measures are you currently taking to tackle the weaknesses mentioned? For example, are there any approaches to increasing efficiency or digitalisation, and what are you doing to tackle challenges such as supply chain problems or staff shortages? Do you already have projects in the area of predictive maintenance?

Expert 8: A lot is happening at the moment and we are bundling these initiatives in the turnaround programme in order to increase efficiency. I would differentiate between short-term and long-term measures:

With the short-term measures up to 2025, our aim is to make operations more stable and offer a reliable product for our customers. This means

- Greater warehousing: we are focussing on improved material availability to mitigate supply chain problems.
- Longer block times: By allowing more time for floor processes, we create buffers to avoid bottlenecks. Although this reduces efficiency, it increases reliability.
- Adapted flight schedules: In some cases, we have thinned out flight schedules in order to cushion peak loads.
- Closer cooperation with service providers: Particularly in our hubs, where we do not carry out ground handling ourselves, we are orientating ourselves more closely to the capacities and availability of our partners. These measures should ensure that processes become more stable in the short term and that we can guarantee punctuality and reliability.
- In the long-term measures up to 2028 and beyond, the focus is on digitalisation and automation. The main examples here are
- Passenger processes: We want to automate as many processes as possible, e.g. check-in via app, self-bag drop and automated boarding. This reduces manual touchpoints and makes processes less prone to disruption.
- Predictive maintenance: A major focus is on making better use of aircraft data. Modern aircraft provide enormous amounts of data that we are not yet able to fully analyse. We want to integrate AI-based approaches here in order to recognise maintenance requirements at an early stage and plan them more efficiently. It will also not only enhance operational efficiency but would also reduce unforeseen downtime and optimize maintenance schedules for our technicians.
- Flexibility in the processes: Examples such as petrol tankers standing on the other side of the airport and travelling long distances show how important dynamic models are. Such processes should become more flexible and faster.

- Personnel planning: We want to use smart forecasting software to improve planning, e.g. for expected sick leave or seasonal peaks.

One topic that is particularly evident is innovation in the area of ground handling. Many devices, such as high loaders, have been in use since the 1980s. Although these systems have been adapted externally, the technology behind them often remains unchanged. This shows how long innovations in such areas take and how much they depend on external factors.

Despite all the automation, manpower remains essential. A suitcase does not load itself, and recruiting and retaining qualified personnel remains one of the biggest challenges. We are working intensively on improving recruitment and making working conditions more attractive.

Interviewer: We have compiled a list of processes and services in Operations: Passenger services such as check-in, boarding or airport customer services (e.g. ticketing), aircraft handling (loading on the ramp, fuelling etc.), cleaning, catering and aircraft maintenance. Are there any processes that we have overlooked? And what is your opinion on the topic of in- and outsourcing in these areas? It would be great if we could go through the individual areas against the background of the service promise to FSNCs and then, of course, we would also have to look at whether these processes should really be handed over to third parties or whether they are better kept under our own control.

Expert 8: This is definitely an important question. Let's start with the first one: it depends on whether we're talking specifically about the ramp. But the key point to emphasise here is the baggage process. This is one of the biggest issues and also a major weak point for passengers. You often hear in the press about cases where baggage doesn't arrive for weeks. This is not only annoying, but also a particularly important process that differs fundamentally from other means of transport such as rail. When flying, we separate passengers and their luggage at an early stage - a procedure that is otherwise only found to a certain extent on cruises. This is what makes the process so special and sensitive.

The question of whether processes are insourced or outsourced depends on the situation. For example, we handle passenger handling ourselves at our hubs. This includes ticketing, check-in and other services. At other locations, we mainly work with service providers, with a few exceptions.

In Porto, for example, our aviation services Portugal operates remote services for major hubs in our home country, but also handles local handling. In Thailand, they performs similar tasks and also supports us at peak times, for example during the summer months. At the same time, we have closed some locations at smaller airports. These branches had been part of our network since reunification, but were closed due to changes in the general conditions.

Whether insourcing or outsourcing makes sense depends heavily on the circumstances: Flight schedules, frequencies and staff availability play a decisive role here. For a single flight per day, it is rarely worth keeping your own staff on hand. At our hubs on the other hand, with their high frequency, it makes perfect sense.

In an international comparison, we are in a special position. While other major airlines such as handle almost all services at their hubs themselves, we rely more heavily on service providers. There are historical reasons for this, but it also has to do with the higher personnel costs.

Our strategy is therefore to analyse precisely where there is real added value in using our own staff. This added value clearly exists in the passenger area: our own staff identify more strongly with the brand and often act differently when dealing directly with guests. On the ramp, on the other hand, where there is no direct customer contact, outsourcing can often work just as well, as practice shows.

Other business areas such as cleaning and catering were also adjusted. We sold *[business unit]* because this division no longer fits in with our core model. Of course, there were operational challenges as a result, but this was a conscious decision.

In aircraft maintenance, on the other hand, we continue to rely heavily on our own operations, both. Controllability and safety relevance are decisive factors here. Safety is always our top priority. It is more important to us that an aircraft takes off safely, even if this means that food cannot be served on a 14-hour first-class flight.

The decision as to whether processes are insourced or outsourced is highly station-dependent. Insourcing makes sense at hubs, whereas it is often not economical at smaller stations. Each decision must be evaluated individually, although there are convincing arguments in favour of both approaches - insourcing and outsourcing.

Interviewer: Okay, so if I understand correctly, there are no clearly recognisable trends in this area. Rather, as you said, it depends on various factors, such as staff availability, service quality and, ultimately, costs, right?

Expert 8: Exactly. If I had to name a current trend, I would say that considerations are increasingly focussing on insourcing. That's remarkable, because it was practically not an issue in recent years. To put it bluntly: from 2010 to 2020, outsourcing worked well and there were no major discussions about it. The COVID pandemic has changed that. Many jobs were cut and now - especially against the backdrop of problems with service providers - insourcing is being increasingly discussed again.

One of our hubs in *[city]* is a good example. The focus there is on challenges with external service providers. Some of these issues have also been taken up in the press, and even political players have shown an interest in improving the quality of the hub. Not only operational but also legal aspects play a role here, as the market is highly regulated. Nevertheless, there are clear arguments in favour of insourcing if you look at the management, the employer brand and the long-term improvement of operational processes.

Interviewer: Do you closely monitor the performance of your service providers? Are there mechanisms in place to respond to poor performance?

Expert 8: Yes, every commercial contract naturally contains clear regulations. I am mainly referring to ground services, as I am not so familiar with flight operations issues (take-offs). In the area of ground handling, there are certain performance standards that must be met, as well as tolerance limits for underperformance. The latter can be accepted to a certain extent, but if there are safety-related offences, the discussion ends. There are no compromises.

We currently manage service providers mainly via service level agreements. These are often based on a system of bonus and penalty payments that are linked to compliance with certain KPIs (key performance indicators). The exact parameters naturally vary depending on the service provider. However, there are clear differences in the market: some airlines, such as Ryanair or Qatar Airways, apply much stricter penalties and monitor their service providers more intensively. We often take a different approach because we have a dominant position in many markets. We are already the largest provider at our local hubs. But even at London Heathrow, where we are the second-largest player with a market share of around 11%, we cannot exert unlimited pressure. Our aim is to build partnership-based relationships with service providers. This allows us to optimise costs together without necessarily having to operate everything ourselves. Of course, this approach has its limits. If a service provider fails badly - be it in terms of quality or security-related issues - there are always exit strategies to end the collaboration.

One example: If baggage is regularly damaged by a ground service provider, this indicates a systemic problem. Especially when it comes to safety-critical aspects, such as a faulty safety management system, we have reached the limit. This is not about individual errors, but about fundamental system deficiencies.

Another problem is the limited number of providers. In highly regulated markets, there are often only a few service providers. In Frankfurt, Düsseldorf and Berlin, for example, only two external providers are authorised to carry out loading and ground handling. There are also two self-

handling licences. This restricts competition and makes the situation more complicated for everyone involved. We have been working for years to break down this regulation, but it is proving extremely difficult. In comparison, there are significantly more providers in the USA - sometimes up to six per airport. Although this has the advantage that there is more choice, it also has disadvantages: Too many providers can reduce economies of scale and drive up costs. Ultimately, the scope for change here remains limited.

Interviewer: In conclusion: Where do you see the greatest potential for improvement for Operations in the next 5 to 10 years?

Expert 8: I believe that the greatest potential for improvement lies in digitalisation and automation. We need to create systems that can make decisions automatically, validate them and then implement them reliably. This applies to all areas: from rebooking and check-in processes to personnel planning. The aim is to drive forward, test and integrate such improvements at all these points. I see enormous potential here, particularly in terms of getting a better handle on personnel issues and other challenges.

We currently work with experienced experts who are excellent at their jobs and are very familiar with operations. However, it is becoming increasingly difficult to find specialists of this calibre. That's why my goal would be to automate many processes so that we can focus more on core areas such as service and security.

The aim is to manage secondary conditions such as material requirements or sickness rates more efficiently. The idea is to relieve us of these issues and utilise the available resources where they are essential. However, I don't think it's realistic that trolleys will be travelling through the cabin and serving food on their own in the near future - that wouldn't correspond to my understanding of service. Instead, we should concentrate on using these automated processes to improve personalised service and safety.

My vision for the next 5 to 10 years is a highly automated operations structure. In five years' time, I want us to have a stable operations base that offers guests a reliable experience. People should be able to trust our carrier will be on time - whether it's for a business meeting, a visit to the family or a holiday. Reliability is the foundation of our business, and that's where we want to be.

Interviewer: Thank you very much!

Expert 8: My pleasure.

Appendix V: *Transcript expert interview 9*

ID	Current Role	Current Organization	Key Topics	Format	Duration
9	Head of Partnership Management	Leading European FSNC	Human-Resource Mgmt.; Legal; Partnerships	Virtually	45 Min

Interviewer: Perhaps you could briefly tell us about your professional background, your current role, and your area of expertise.

Expert 9: *[Expert background anonymized due to privacy reasons]*

Interviewer: Perfect, that sounds like an ideal setup for the topic and focus of the interview. We've identified specific challenges for both full-service network carriers and low-cost carriers or other business models. In all of our interviews, we are creating a benchmark where the expert ranks the challenges from 1 to 7. What, in your opinion, is currently the biggest challenge for full-service network carriers?

Expert 9: Well, actually, it's hard to distinguish between number 1 and number 7. But generally speaking, I'd almost say geopolitical risks are a big issue. For example, if China were to attack Taiwan, we'd have a huge problem. That would certainly have a significant impact on us. But in this context, margin pressure and rising costs are also very important. It all depends on the severity of the geopolitical event. Overall, I have to say that airlines are more affected by these risks than other industries. So, I would rank "geopolitical risks" first, followed by

"costs and margins." After that, I'd place "supply chain disruptions" as one of the toughest challenges, followed by "regulatory requirements," then "changing customer behavior," and "threat by LCCs." "Market consolidation" would be less relevant. It's an important point, but not necessarily a major challenge.

Interviewer: Okay, great, that helps a lot. Thank you. Let's jump straight into the second topic: partnerships and airline alliances. Here's an easy opening question: What do you see as the most important key partnerships for full-service network carriers? We're trying to break this down into operational partnerships, such as flight-related partnerships, corporate business partnerships, and supporting partnerships. Do you think this distinction can be made, and what partnerships do you consider the most important?

Expert 9: So, you're asking not just about airline-to-airline partnerships, but also partnerships in a broader context?

Interviewer: Yes, exactly. It's about the whole business model: what partnerships do full-service network carriers need to maintain their flight operations? But also, which other partnerships are important, such as alliances that support the entire model?

Expert 9: Right, this ties into the project I was most recently involved in, where we were differentiating the highly integrated production of the flight product – what are partnerships and what are supplier relationships? For example, when you think about companies that clean airplanes, it's clear that this is more of a supplier relationship. We have a close connection with airports, but often these don't evolve into real partnerships. Airlines and airports are often in a tension relationship.

True partnerships are areas where you develop a joint business model and a common goal, whereby very often supplier relationships are not sharing common goals. Partnerships primarily exist in the area of airline-to-airline partnerships, especially with joint venture partners. An example of this is the partnership of United with Lufthansa. The partnership with United alone

makes up about 50% of the Lufthansa Group's total partnerships, both in terms of volume and impact on airline revenues. The impact on revenue is more than 20%. If Lufthansa were to lose this partnership, a significant portion of business volume would be gone, although that doesn't directly mean we'd lose 20% of revenue.

In terms of airports, there is unfortunately not this kind of collaboration to the same extent. Also, most of what happens in this partnership happens behind the scenes. A passenger who books a ticket with United or Lufthansa often isn't aware that they're part of a joint business agreement. For them, it's primarily about the alliance.

This also shows how important alliances still are. Even though many in the industry say that alliances no longer have the significance they once had, in practice, nothing better has emerged yet. For the customer, it remains what they perceive.

Interviewer: So, there's a big difference between suppliers and real partnerships, as the latter actually pursue a shared goal, while suppliers tend to be in a dependency dynamic, right?

Expert 9: Yes, exactly. Of course, for instance Lufthansa Group, like other airlines, is heavily dependent on IT service providers, ranging from Amadeus to Google, which now has a huge influence on our sales activities. For example, Lufthansa Group is one of Google's 100,000 largest customers. This will also have an impact on how we are perceived in the industry. Even though Lufthansa is a big player, compared to tech giants like Google, its just a small player.

What I would say is this: Partnerships are aimed at pursuing a common goal, whereas suppliers and buyers don't have this shared objective. That doesn't mean that you shouldn't treat each other respectfully – for example, a cleaning company has a huge influence because a clean airplane is important for customer satisfaction. But you wouldn't develop a shared vision for the future with a cleaning company, whereas with true partners, that's exactly what you should be doing.

Interviewer: Got it, great. Yes, let's continue. Can you identify any trends, perhaps on a global level, but also on a European level, that are currently happening in partnership management, especially in joint ventures and alliances? Specifically in partnerships with other airlines?

Expert 9: I think one trend is that much is being dictated from the outside, especially by anti-trust authorities, who also need to approve joint ventures. Over the last few years, it's become very restrictive, both on the European and the American side. So, there's not much movement at the moment. Maybe you've noticed: A few years ago, even before the pandemic, a joint business agreement between Latam and IAG (International Airlines Group) was blocked. In the U.S., alliances were prohibited, most recently between American Airlines and JetBlue. Even consolidations were blocked, for example, between JetBlue and Spirit. So, things are very restrictive right now, which only solidifies the situation further, as everyone knows that if you want to make significant changes, you have to submit new applications, and it's questionable whether you would even get approval again.

This is making everyone cautious right now. An example of this is that Air France only bought 20% of SRS – this consolidation is no accident, it's being done in exactly such a way to stay below the threshold that would trigger intense scrutiny from the EU Commission, as happened with mergers of airlines like Ita. This currently limits the room for bigger, riskier steps.

However, one thing that is still a topic within alliances is that the "customer-facing" aspect is becoming increasingly important. Delta and Air France, I believe, are a bit further along in jointly marketing their JBA and making it more visible to the customer. For Lufthansa Group and United, or IAG and American Airlines, to my knowledge, this is still not as prominent. It's still happening more behind the scenes. Honestly, it's also not entirely clear what the customer truly gains from it, since alliances already offer quite a lot, such as shared lounge access or mutual miles recognition. So, what else do you want to offer the customer? It remains an important question, which often manifests in less obvious areas, such as baggage handling. This

is more of a technical issue, but still, in most cases, there's no unified solution, which can cause real frustration for the customer if not properly addressed.

One last big trend, which is still somewhat happening behind the scenes, but in my opinion, will have a very significant impact, is the change in the airlines' operating system, which is run by IATA. One of these is the "One Order" system, which will overhaul the entire ticketing infrastructure. What we currently do with tickets, such as through booking systems and passenger service systems, will be replaced by the One Order system. It will be much more open in terms of the data that can be integrated – especially regarding things like "I have ski luggage," "I'm vegan," or "I have ski luggage and I'm transferring at my destination airport." Even hotel and taxi bookings will be enabled, all within an "order" network. This will be connected to the New Distribution Capability (NDC), which means that, as a customer, I'll also have a different way of viewing how I can book. IATA plans to finish this by 2030, but the major airlines claim they'll be done with it even earlier. The transition to e-tickets took 15 to 20 years, so this will take some time, but it will definitely change a lot. This will also have an impact on partnerships, as it will raise new questions about collaboration, such as connecting LCCs (low-cost carriers) with network carriers. This will become much easier. The big question, though, is whether we even want this. For example, would we accept easyJet as a partner, but exclude Ryanair from this network?

Interviewer: This is very exciting. The whole NDC topic is, I believe, very interesting and highly relevant. Now, a bit of a shift to intermodality. What role do you think intermodality concepts play? For example, the Lufthansa Group's partnership with Deutsche Bahn, or Swiss with the Swiss Federal Railways, and so on, but especially in the future. How could these concepts evolve? Do you believe intermodality concepts will continue to be pushed at the alliance level, with all carriers working with local rail partners to develop such concepts?

Expert 9: Yes, that clearly depends on the rail infrastructure. In Germany, it will play a role, in Japan it could play a role, and also in France and Spain. However, in the U.S., it's already clear that it won't play a role, nor will it in South Africa or Colombia, where there is simply no adequate rail infrastructure. India could become interesting in the long term, but in China, there are developments that might link rail with air traffic. But where the necessary infrastructure exists, intermodality will definitely play a role. I would also say that it's not an option to not push this development further.

An important factor, of course, is environmental reasons, but I think the biggest impact will come from the convenience for the customer. It's still the case that many customers want to stay within one system, but if the rail services are well connected to airports, they will use it. In Frankfurt, for example, we have excellent connections because the long-distance train station is directly at the airport. In Munich, on the other hand, you first have to go to the main station and then take another 40 to 50 minutes by S-Bahn to reach the airport. That makes a big difference, but overall, intermodality concepts are definitely a growth area. Our bus services, for example, from Strasbourg or Nuremberg, are also well received. The deciding factor, however, I believe, remains customer convenience. And yes, these concepts will continue to grow. But to put this in context: It's not a total game changer for the airline industry. It will certainly be one piece of the puzzle we have to deal with, but it won't revolutionize the industry. And by the way, we also know from our partners that almost everyone flying to Frankfurt works with Deutsche Bahn – and it works well.

Interviewer: Okay, perfect. Now we come to our scenario. You've probably read it already, and we also had a brief touchpoint about it earlier. Please imagine the following scenario: Tech giants like the big players – Google, Amazon, you name it – enter the airline market and have found their own solution for the complex airline reservation systems, like Amadeus. With a system like NDC, it could become much simpler and less complex. They offer airlines to buy

all their seat capacities to provide their customers with a door-to-door solution. Airlines would lose direct contact with their customers. How likely do you think this scenario is? And if you consider it likely, how quickly could this happen?

Expert 9: Yes, that's really a very difficult question and quite speculative. On one hand, there's definitely concern among airlines. But I think two points can be observed. The first point that stands out to me is that airlines are ultimately too uninteresting for the tech giants to really enter this market. It would require too many resources and bring so many challenges that it simply wouldn't be worth it. This might seem like a cynical answer at first glance, but on the other hand, it's actually not that bad. In a sense, it protects us, in quotation marks, because the airline industry is too complex, too margin-thin, and also too asset-heavy.

On the other hand, "You never know" – of course, a lot could still happen on the side of the tech giants. But the idea that airlines would just sell their capacities is hard for me to imagine. Likewise, the notion that tech companies would buy capacities directly is also difficult to picture. There are simply too many risks they would take on, such as the risk of being stuck with unsold capacity. What we've seen in other industries is that these companies rather use the platform logic to offer customers a wide range of options through access. A good example of this is Amazon, which not only sells its own products but has also become a huge platform for third-party sellers. I think the tech giants might try to push out companies like Amadeus or similar providers and take over the NDC model in order to profit from customer data. But I don't think they will enter the hardware side of things or take over full capacity. How likely it is that the tech giants will really enter the airline industry, I can hardly say. I must admit that I don't know the tech world well enough to judge where companies like Google, Apple, or Microsoft stand in this area. But I think, for now, they are mainly focused on artificial intelligence.

Interviewer: Yes, that would be the point.

Expert 9: Exactly, that gives us a bit of breathing room.

Interviewer: Would you say airlines should work on offering door-to-door solutions to cover the entire travel chain? Or should they focus more on their core processes and perhaps expand cooperation with the rail sector, but keep flying as the main focus?

Expert 9: Yes, that's my impression. I believe the concept of the "German village" hasn't worked so far. It sounds good, but I always wonder if it really works. It's a bit like those advertising pictures where it looks great when people fall into the grass and read a book. But who actually does that in real life? If you look at the infrastructure of airports and taxis or Uber, it's already well linked. But what does the customer really save if you pre-book their taxi for them? And then the question arises: When will they actually arrive if the flight is delayed?

I think the airline industry is currently in a phase of self-reflection, focusing on offering the core product reliably and on time. We have a lot of issues to deal with, and I don't believe the customer needs to book the entire journey with an airline. Of course, there are additional offers like loyalty programs, for example when booking with Hilton or Marriott, but these have been around for a long time. But why should the customer book the entire trip with an airline? I don't see a real advantage at the moment.

Interviewer: Understood.

Expert 9: Yes, this is just my personal opinion.

Interviewer: Then let's move on to the next point. How do you think the airline industry will look in ten years? We didn't set a specific framework, so feel free to give your answer.

Expert 9: I think, fundamentally, not much will change. The airline world has a lot of gravity, if you will. Many processes will certainly change in detail, but if we're honest, flying 30 years ago wasn't that much different from today. The booking process has changed, and it may continue to change in the 2030s. Perhaps there won't be a traditional check-in anymore, and I'll just go to the airport with my phone and automatically check in. With facial recognition, I'll go through security, and so on. But fundamentally, I don't think the core process will change: the

customer wants to go from point A to point B or C and will get on a plane to reach their destination. Even if there are ideas like lie-flat cabins or similar concepts, the basic process won't change much. We'll try to improve customer comfort, become faster, but the process will remain the same. One exception might be in the area of sustainability, which I personally still underestimate. I mean, airlines have plans, but that will largely depend on geopolitical factors. If we have five or six consecutive extremely hot summers in Europe, with droughts, water restrictions, crop failures, and rising food prices, the airline industry will face massive challenges. There could be regulatory measures, like we've seen at airports, where growth freezes were discussed. The U.S., China, and India, of course, are still forging ahead, but these countries are already massively affected by climate change. I believe these changes could lead to regulatory measures that will impact the airline industry.

Interviewer: Yes, that's a fascinating point, especially considering the increasing weather challenges we've seen in recent years. Even in Germany, places like Munich are facing more and more challenges due to extreme weather events.

Expert 9: Exactly. And it could get a lot more difficult in the future.

Interviewer: Finally, to wrap up: In which areas do you see the greatest potential for improvement and adaptation in the business model of full-service airlines to remain competitive in the long term and address the challenges we've discussed?

Expert 9: That's a tough question. If I knew the answer, I'd say it right away. But I think, for now, we really need to focus on reliably delivering our core product in good quality. If we fail to do that in the long run, we'll lose customer trust. Flying might still be an option for many people, but there are more and more alternatives, like video calls or car journeys. If we offer a bad product for years, customers will eventually stop accepting it.

That's why we need to work on the resilience of the system and get better, especially with respect to external factors like climate change, which will continue to challenge us. Another

point is that we need to stay up-to-date with technological developments without chasing the hype. What artificial intelligence will specifically mean for us is still hard to tell, but we definitely need to make sure we stay accessible through digital channels and remain in touch with customers. In the end, our carrier should remain the preferred carrier for customers, even as we move to new channels. One point that I no longer see as a significant threat are the Gulf carriers or low-cost carriers (LCCs). Ten years ago, I would have seen it differently, but by now, that's become less of a concern.

Appendix W: *Transcript expert interview 10*

ID	Current Role	Current Organization	Key Topics	Format	Duration
10	Managing Director Loyalty and Customer Engagement	Leading European mobility provider; Former leading European FSNC	Loyalty Programs; Customer-Centricity; Customer Behavior	Virtually	30 Min

Interviewer: Could you briefly explain your career path in the airline industry and what your current role and focus are?

Expert 10: *[Expert background anonymized due to privacy reasons]*

Interviewer: That's amazing – it sounds incredibly exciting, and you're clearly the perfect expert for today's topic! Across all our interviews, we're trying to create a small benchmark. The ranking naturally pertains to the airline industry. We've identified seven challenges and would love to hear your perspective. It's not about detailed explanations, just your instinctive assessment, ranking them from 1 to 7, where 1 represents the biggest challenge.

Expert 10: I'd rank costs as a 2. Regulatory topics would be a 5, market consolidation a 4. Low-cost carriers would also be a 5, customer behavior would take the 1st spot, supply chain disruptions a 3, and geopolitics a 4.

Interviewer: Perfect, thank you very much! Let's move directly to our next topic: loyalty programs. What strategic role do these programs currently play, especially for Full-Service Network Carriers?

Expert 10: First of all, there aren't really any true "loyalty programs" because loyalty cannot be programmed. I understand what you mean, but the term itself is misleading. Loyalty is an emotional concept, and that doesn't fit within the framework of a program. This is why I prefer the term "customer retention programs."

Customer retention programs serve two primary functions for me:

1. They often cover up the shortcomings of the core product. The products—flights—aren't always great: flights are delayed, meals aren't satisfactory, or other issues arise. Through additional services, status benefits, or perks, these programs attempt to offset these weaknesses.
2. For established programs, another element is the fact that "a mile" is often more accessible than a euro as a currency that customers can use.

However, customer data in Europe remains vastly underutilized. The current model still operates largely on principles established during the creation of Miles & More, with minimal evolution since then.

In fact, I would argue that no one today would launch a frequent flyer program from scratch. Flying frequently isn't appealing to customers. Instead, the focus should be on building a user-driven, data-based program that offers personalized value.

Interviewer: There's a McKinsey study from last year that concluded the effectiveness of customer loyalty programs in the airline industry has declined—particularly in terms of recommendations. What do you think are the reasons for this?

Expert 10: First of all, I don't believe there's an NPS for frequent flyer programs. Customers don't recommend programs; they recommend airlines. A frequent flyer program is just part of

the overall product promise. One reason for the decreasing relevance is the significantly reduced value for customers. In the past, after 10 flights, you could earn a free flight. Today, the reward is often minimal—you have to spend an enormous amount of money to receive any noticeable benefit. This deters customers.

Another factor is the complexity of the programs. They are often difficult to understand, and there's no new generation of customers interested in them. The target group is small and aging, while younger customers have different expectations and want more individualized offerings.

Additionally, airlines are highly regulated, with restrictions and conditions attached to almost everything. This contradicts key loyalty drivers like convenience (seen with Amazon) and goodwill (seen with Zalando). Airlines often offer the opposite: complex rules, little flexibility, and a one-sided customer relationship. This significantly weakens both loyalty and customer retention.

Interviewer: OK. Those are certainly very interesting factors. Currently, we see increasing hybridization in the business models of the European airline industry. Full-Service Network Carriers are increasingly adopting characteristics of Low-Cost Carriers, such as ancillary revenue strategies. At the same time, Low-Cost Carriers like Ryanair are offering business fares. As a result, differentiation between airlines is steadily decreasing. Virtually all legacy carriers offer their own loyalty or frequent flyer programs. What do you think legacy carriers should do to stand out in terms of their loyalty programs? Are there specific examples you can share on how to enhance the effectiveness of such programs and reverse the current trend?

Expert 10: The first step they should take is to return to being true to their brand. Airlines like Lufthansa or British Airways need to deliver on their brand promises and communicate them clearly. The problem today is that the brand is often no longer tangible. You purchase a ticket through a platform with one name but then sit on a plane with a completely different name.

This raises a fundamental question: Am I an aggregator, a sales platform, or a brand? This is a question network carriers urgently need to address. Currently, business models are often so hybridized that no one knows anymore what the core brand is and what truly differentiates it. Returning to how things were in the past is, on one hand, logical but, on the other hand, completely unrealistic.

This is where my loyalty drivers come into play: convenience and goodwill. These could be the key differentiators compared to Low-Cost Carriers, as Low-Cost Carriers generally only focus on point-to-point flights. They care little about the overall customer journey experience—they're solely focused on getting the customer to their destination at the lowest possible cost.

That gap—unchanged for the past 25 years—should ideally be addressed through customer retention programs or personalized solutions. These programs should cater to the individual interests of customers and offer added value beyond the basic service. I believe this is more critical than whether someone books their ticket on e.g. lufthansa.de and ends up flying on an Eurowings aircraft.

Interviewer: One of our interviewees suggested that loyalty programs should be made more exclusive. What's your take on that?

Expert 10: It depends on who the exclusivity is aimed at. In a segment that already operates with thin margins—or none at all—making a program more exclusive would simply mean further commercializing it. Sure, that's an option. But honestly, if there weren't already frequent flyer programs, no one would propose launching one to their board today.

These programs remain because airlines fear that if they abolish theirs, competitors won't follow suit. That's why I don't think making loyalty programs more exclusive is the right approach. Instead, I'd focus on identifying which elements of the product portfolio can better meet the needs of the target group.

Interviewer: What about the trend where Full-Service Carriers increasingly adopt practices introduced by Low-Cost Carriers?

Expert 10: That's nothing new. Full-Service Carriers have been copying Ryanair and easyJet for years. They typically wait three years to implement similar measures and then just give them a different name.

Interviewer: Yes, that's true. But how can they stand out in this environment?

Expert 10: The real question is whether they need to differentiate—or want to. And if so, in what areas do they aim to differentiate themselves?

Interviewer: Understood. Are there any current trends in frequent flyer programs that you've noticed?

Expert 10: There used to be a trend of loyalty programs being distanced from airlines, allowing them to establish their own brand and ecosystem. However, the current trend is the opposite—bringing these programs closer to the airline's core brand. Strategically, I don't think this is the best approach, but it makes sense in times of crisis when companies focus on their essentials. Instead of supporting external partners like hotels, airlines prioritize strengthening their own brand. This "back to the roots" approach results in more insularity and less emphasis on alliances. In the past, there were efforts to virtually merge loyalty programs between airlines. For instance, Lufthansa could have managed customer loyalty for United passengers in Europe, while United did the same for Lufthansa customers in the U.S. But this practice is now being scaled back.

Interviewer: Got it. And what's your opinion on the development toward a "one-stop-shop" solution like Amazon? Would you see that as a negative trend?

Expert 10: It's difficult to say. Originally, miles were introduced as a currency for free flights. Later, airlines realized that these free flights often had to be restricted to avoid cannibalizing cash fares, so they became available only on short notice. This led to concepts like "Cash and

Miles," where miles were positioned as a currency, albeit with a poor exchange rate. While it's possible to expand this system further into the payment space, miles no longer hold much value. I believe the inflationary devaluation of miles has already significantly diminished their worth. Ultimately, a "one-stop-shop" alone isn't enough to foster customer loyalty. Instead, the focus should be on understanding purchasing behavior and enhancing the overall user experience. For the younger generation, this is a central part of the product experience. However, there's currently very little investment in this segment.

Interviewer: Interesting, thank you. Looking ahead, how do you think the airline industry will evolve in the next 10 years? And what role will loyalty programs play in that future?

Expert 10: I believe airlines will lose significant relevance in the future and primarily become "people movers." Ecosystems and brands beyond airlines will emerge to manage the entire mobility experience. The focus will no longer be on the act of flying itself but rather on getting from point A to point B as efficiently and comfortably as possible.

Flying used to be a special experience. People dressed up for flights, as it was seen as a luxury. Today, passengers wear comfortable clothing because travel is often perceived as inconvenient or stressful. Airlines will increasingly become mere transport providers, much like scooter or car-sharing services. Their brand identity and emotional connection to customers will diminish over time.

In the future, integrated ecosystems could decide which mode of transport best suits a customer's needs—whether it's a plane, a train, or even a virtual alternative like a video conference room. Flying could become the fallback option, used only when no other solutions are available. When this shift happens, airlines will lose significant relevance.

Interviewer: So, you're saying airlines could be absorbed into overarching ecosystems where transportation itself is no longer the primary focus?

Expert 10: Exactly. For example, imagine a scenario where all travelers in Germany are brought to Stuttgart using scooters, cars, or trains, while in China, they all gather in Shanghai. Instead of everyone traveling physically, they work together virtually. Models like these could define the future.

Interviewer: How should Full-Service Network Carriers (FSNCs) respond to these developments?

Expert 10: There are two options: either you lie on your back like a turtle and wait for things to happen, or you actively participate. I believe the better choice is to participate. A good example is the integration of Deutsche Bahn into the Star Alliance—a step in the right direction, but far from sufficient. In Europe, there's often a lack of long-term thinking, as measures are typically implemented only if they generate immediate revenue. Of course, it's always a question of investment, but larger tech giants are already exploring and potentially implementing such concepts. For instance, Uber could invest even more heavily in this direction.

Interviewer: Yes, very interesting—especially since we developed a scenario where major players like Facebook, Amazon, or Google might approach airlines, offering to purchase their capacities for the next three years. This would mean airlines would lose direct contact with their customers. That seems to align with what you're describing.

Expert 10: That's already happening to some extent. Amazon, for example, has demonstrated that they can sell flight tickets directly on Amazon.com.

The future is already here. The key question is: what kind of ecosystem can you build around it? A great example is American Express and their Platinum card. They've created their own experience: you might not be a Lufthansa Senator and therefore not entitled to enter the lounge, but with your Amex card, you can. Other companies are solving these issues for customers.

What's frustrating now is the need for 125 different cards. But imagine having just one card, universally applicable. The technology for this already exists. A card that changes color to signal your status instantly. However, airlines continue to heavily invest in existing systems. That's why I struggled with your matrix. Post-COVID, European full-service network carriers have focused on restoring their traditional business models, but this short-term approach will not be sufficient to remain competitive in the long term.

Interviewer: Yes, absolutely.

Interviewer: Currently, we observe two main directions in the evolution of loyalty programs: on one hand, increasing exclusivity, and on the other, expanding the ecosystem to include more customers, even those who only collect points occasionally. What's your take on this?

Expert 10: Personally, I wouldn't recommend that approach. Why isn't the best loyalty program for an airline something like Amazon Prime? Many people think within existing systems and try to optimize them. Instead, we should question these systems entirely, potentially dismantle them, and rebuild them from scratch. The best loyalty programs in the world aren't frequent flyer programs. The real question is: how do you reach the next generation? Perhaps Apple's ecosystems are smarter. You could integrate additional services and position yourself more strategically.

Interviewer: Excellent point. It's about thinking outside the box and breaking free from existing structures. Thank you so much for your time and the insightful perspectives.

Expert 10: My pleasure, anytime.

Appendix X: *Transcript expert interview 11*

ID	Current Role	Current Organization	Key Topics	Format	Duration
11	Director Loyalty	Global Alliance Network	Loyalty Programs; Customer-Centricity; Customer Behavior	Virtually	30 Min

Interviewer: Could you briefly explain your career path in the airline industry and what your current role and focus are?

Expert 11: *[Expert background anonymized due to privacy reasons]*

Interviewer: Okay, perfect, that fits perfectly because today we also want to focus on customer loyalty programs. Great, then we'll dive right into the first part, which is our challenge ranking. We've done this in all our interviews so far. It's about identifying the most pressing challenges currently faced by the airline industry. It would be great if you could rank these for us. Specifically, from 1 – the biggest challenge – to 7, the least relevant challenge among the points we've listed.

Expert 11: Ok, that probably depends a bit on which airlines are affected, I think. It depends on the current business model of the airlines or where they are located. I believe your focus is mainly on Europe, correct?

Interviewer: Exactly, European full-service network carriers, like Lufthansa, Air France, and British Airways – the classic major players.

Expert 11: Right. So, I'll just start with the most significant or impactful factors and then work my way down to the less relevant challenges. As number 1, I would probably name "Rising Costs and Margin Decline." Number 2 would likely be "Sustainability Targets." Then "Regulatory Requirements" as number 3, and "Changing Customer Behavior" in 4th place. After that, I would mention "Market Consolidation," followed by 6th place. And finally, "Geopolitical Risks" as number 7.

Interviewer: Perfect, that fits very well! Let's move on to our second section – customer focus and loyalty. The first question here would be: We found a study by McKinsey which states that

the effectiveness of loyalty programs for full-service network carriers has been steadily declining in recent years. Customers no longer see the value in loyalty programs as they once did. What would you say are the factors that contributed to this trend, and how can full-service network carriers strengthen customer loyalty again?

Expert 11: Well, I think one fundamental factor is likely, that if we assume there was an event that strongly influenced traveler behavior, it was the pandemic. Covid-19 undoubtedly had a significant impact on airlines and especially on the loyalty programs in the industry. Maintaining customer loyalty during this time was a major challenge simply because most loyalty programs are designed to be based on flight activity. During the pandemic, this was, of course, very limited, which led to customers having very few opportunities to interact with airlines at all or to demonstrate their loyalty in their everyday lives. I would say this hasn't fully returned to the previous level even after the pandemic because overall travel behavior has changed as a result. I also believe the perception of loyalty programs among customers has shifted.

The pandemic was a pivotal event that made loyalty programs seem less relevant to many customers. At the same time, the pandemic also generally changed customer behavior. I think there is now a greater price sensitivity among customers.

Traditionally, loyalty programs in the airline industry have been more tailored to customers who pay less attention to price and instead place more value on service and additional benefits. In principle, customers are willing to pay more if they are treated better in return. However, I believe there is now a significantly higher price sensitivity than there was a few years ago. This is certainly reinforced by the fact that there are many more options available in the market. At the same time, customers now find it much easier to compare prices and offers.

In the past, this was somewhat less transparent. Today, I can go online, compare offers across countless platforms, and even have the best option personalized for me. This means customers are less tied to a specific airline and pay much more attention to price than they used to.

I would say these are two key factors that have a major influence. Additionally, there are also aftereffects from the pandemic. Many airlines had to adapt their business models, which also brought changes to their loyalty programs. Frequently, the value of miles or points was adjusted. For example, today it often takes more points to achieve a status or more points to redeem for rewards.

Another major problem is that rewards are often not even accessible to customers. Customers who accumulate a lot of miles nowadays often struggle to use them meaningfully – at least for flights or with the airlines themselves. This is, of course, problematic. A loyalty program should enable customers to redeem their accumulated points or miles for something valuable.

If that's not possible, and as a customer, I see my points balance growing without being able to benefit from it, that's definitely not a sign of a well-functioning loyalty program.

Interviewer: Absolutely, that makes sense. Thank you, that was already very interesting. If we now shift our focus more toward the present – what trends do you currently see in the area of loyalty programs? And could you give us some examples?

Expert 11: In general, I think a big topic is that airlines and loyalty programs are trying to differentiate themselves more strongly. The way they do this is primarily through personalization – even though this is not always easy. However, it is especially important when airlines aim to compete with low-cost carriers.

Airlines and loyalty programs collect an incredible amount of data, giving them access to valuable information. If this data is used effectively, they can, for example, analyze travel behavior and identify what is truly important to customers. Based on this, offers can be created that are tailored specifically to the needs of individual customers or particular frequent flyer groups.

Personalization is a major trend in which many airlines and their loyalty programs are currently investing – and this trend is not limited to the airline industry. We are seeing this in many sectors, with an increasing number of offers being tailored to individual customers.

For instance, a customer who frequently flies a particular route could be offered special benefits or discounts for that route. If it's known how far in advance a customer typically books, they could receive a timely offer or travel suggestion – perhaps based on the points they have in their account. There are so many possibilities, and I believe personalization is something that captures much more attention from customers, giving them the feeling that the programs truly care about them and aim to provide real added value. Additionally, during the pandemic, we saw how crucial it became to form partnerships outside the airline industry to offer customers additional benefits. This was particularly necessary during the pandemic because many customers couldn't fly at all. Therefore, it was essential to find ways to create added value for customers in their everyday lives.

These could be benefits or offers loosely related to travel or partnerships with lifestyle brands that are not directly connected to flying. Such partnerships provide additional opportunities to strengthen customer loyalty and make loyalty programs more relevant in the daily lives of customers.

And the last point I'd like to mention is more general: I believe what has also changed significantly is the type of customers that loyalty programs were originally tailored to. Previously, these programs primarily focused on business travelers. That has changed considerably since then – especially after the pandemic.

This is particularly important because business travelers usually fly in higher classes, such as Business Class, and in rare cases, First Class. When traveling in Business Class, you already receive better service and certain advantages. Therefore, the area where loyalty programs can truly make a difference is with customers who travel in Economy Class.

In Economy Class, you typically don't have access to such benefits unless you have a status in the loyalty program. This is exactly where the key lies to creating real added value for customers.

Many business travelers accumulate points during business trips but often want to use them for private trips with their families. However, this can sometimes create a problem: Imagine a customer has access to premium services at the airport but can only use them for themselves because the rest of the family doesn't have status. The father or mother is unlikely to take advantage of the premium service alone while leaving the rest of the family behind.

In this regard, we're seeing more and more airlines introducing so-called family pooling accounts. These allow families to collect miles together and offer benefits that can be used as a family or at least with an additional person. This is an important development to better meet customer needs. In the past, loyalty programs weren't designed with such aspects in mind, and this is an area where a lot is currently happening.

Interviewer: Yes, gladly. The next question ties in a bit with that. In our previous interviews, we identified two different directions in which customer loyalty programs could develop. On one hand, it was suggested that they should return to focusing more on exclusivity, as nowadays many customers – for example, through an Amex – have access to lounges. This has diminished the exclusivity that used to exist. On the other hand, we also heard the opinion that the ecosystem should be expanded, meaning that points could be redeemed in other areas, such as in everyday life. What is your take on this?

Expert 11: Yes, that is definitely a very good issue, and it is actually being discussed within the alliance as well. You can see that different airlines respond to it in different ways. However, there is always this conflict. As you mentioned, there are now many credit cards, like Amex, but also other products, that offer status benefits – especially lounge access or other premium services, sometimes even concierge services at the airport. There are significant issues with airport lounges in particular. Many airlines are already struggling with capacity constraints, which is a huge pain point. On the one hand, they want to attract more status and loyal customers, but on the other hand, overcrowded lounges naturally diminish the customer experience.

This raises the question: Am I still part of an exclusive status program, or is it simply accessible to everyone?

I believe there is no simple or universal answer to this problem. To address it, it is probably necessary to create differentiated offers for different status levels. What I mean by that is: For top-tier customers – and many airlines have two, three, or even four or five status levels – it is particularly important to preserve the exclusive experience.

These customers are often the ones who invest the most in the airline, whether financially or through their loyalty and travel activities. For these customers, it is crucial that the status can only be achieved through flying and not through points collected in everyday life.

One solution that many airlines are already pursuing is the introduction of differentiated status benefits. Top-tier customers might, for example, receive access to their own lounges, which are more restrictive and thus convey a sense of special treatment. For the broader customer base, on the other hand, you could offer benefits that don't necessarily include access to exclusive areas or services but still provide a small taste of status.

For instance, customers in lower status levels could be given vouchers for two lounge visits per year instead of permanent access. This keeps the balance: real benefits are offered without compromising the exclusivity for top-tier customers.

I think that's exactly what customers expect. A complete focus on just one of the two directions – either pure exclusivity or a comprehensive opening – will not work in the long term and could alienate many customers.

Interviewer: Maybe just one more thing regarding the target group: When we look at loyalty programs, they currently seem to primarily address older generations or are most relevant to them. Is Star Alliance doing anything to tailor its offerings more toward younger generations?

Expert 11: Yes, I would say not directly from us as an alliance, but we do try to have these discussions with the airlines to see how they can better prepare for this. Ultimately, the alliance

depends on each airline managing its own program and having its own authority to design these programs.

However, we try to initiate the right discussions and bring in ideas to prepare for the future – particularly regarding what might be necessary. As I've already mentioned, many programs and what is currently offered are still heavily tailored to target groups that were relevant 10 years ago and not necessarily to younger generations.

I think personalization is a major topic for younger generations, as I've already hinted at. However, for many airlines, it is still a challenge to fully understand the travel behavior of younger generations. What do they really expect? How can they be won over in the long term?

For younger generations, I also see an even higher price sensitivity. At the same time, there are assumptions that they have a stronger environmental awareness. This is reflected in some loyalty programs that are beginning to introduce so-called "green miles" or allow miles to be redeemed for environmentally friendly purposes.

However, many studies show that the actual purchasing decision for flights by younger generations is often less influenced by the environmental friendliness of an airline than one might initially assume. This could change in the future, but for now, the impact of this factor is limited.

There are, however, some approaches that airlines are trying to better adapt to younger generations. Much of this revolves around integrating more into the daily lives of customers. As already mentioned, there are, for instance, partnerships with brands that appeal to younger generations. A good example is a successful partnership in Canada between an airline and Starbucks.

I also think that for younger generations, it's often less about achieving a certain status. They are more interested in using benefits precisely when they need them – whether tailored to a specific trip or a particular moment. It's not necessarily about reaching a high status like "Hon Circle Member" or "Senator." Instead, they want personalized benefits that meet their needs

without relying on permanent concierge services or lounge access. Once a certain number of points has been accumulated, customers want a benefit that truly provides value. But I think it will no longer be the case that you have to wait until, for example, you've collected 100,000 miles before you gain access to benefits. I believe this will be designed more dynamically, and this would especially appeal to the younger generation. Long answer to a short question.

Interviewer: That's great, that definitely helps us a lot. Thank you very much

Expert 11: You're very welcome.