

# Networks in Aviation

## *Strategies and Structures*

With this book one can discover the main aspects of an airline's network structure. It is written clearly, which allows also people without profound knowledge about network management to understand the topics adequately. The book is, however, also interesting for managers in the industry: the preface written by Dr.Christoph Franz (CEO of Lufthansa) welcomes readers. Since Lufthansa Group serves more than 270 destinations under various brand names such as Lufthansa, Swiss, Austrian, bmi, Brussels Airlines, and Germanwings, Dr.Franz's foreword is symbolically important.

By Philipp Goedecking

Book Review by: Abdullah Nergiz

In the first chapter, one can find the basic concepts and definitions of the aviation market such as market types, O&Ds, Routes and Flights as well as some analysis methods like time series, up scaling, gravitation models and reverse engineering.

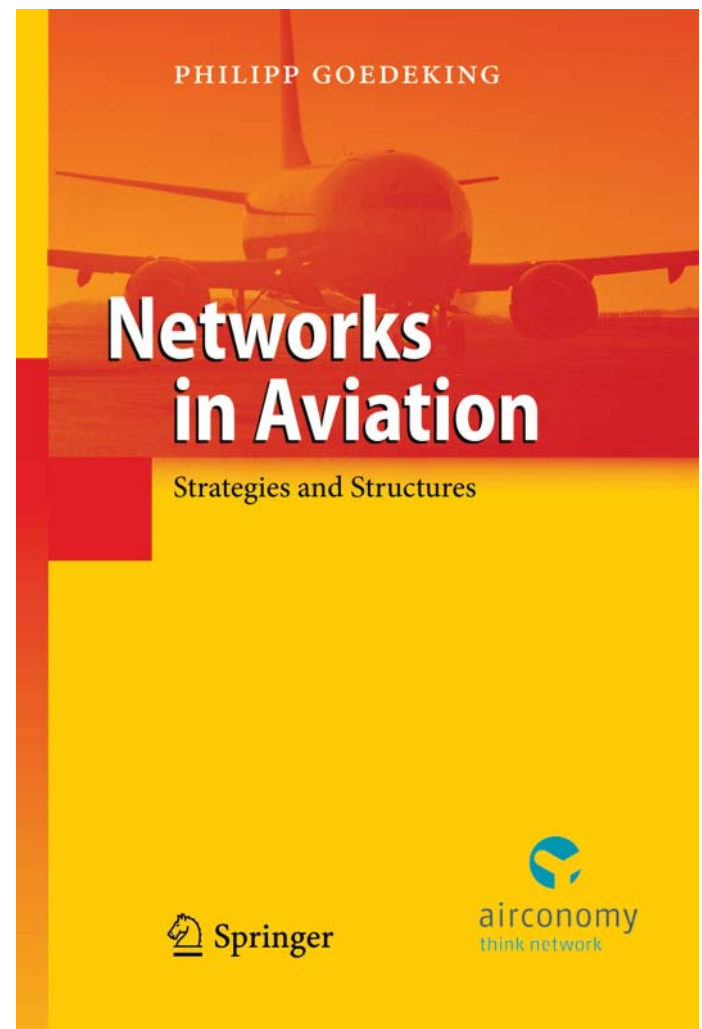
In the next chapter, there is a comparison of the structural, economic and strategic rationales of hub-and-spoke and point-to-point network architectures. Beside that the operational basics of aviation network structures and key tools needed to master complex planning and the controlling of aviation networks can also be found in this chapter.

The third chapter analyzes the connectivity and the hub structures. The writer claims that the most effective driver of connectivity is the number of flight movements at a given hub, as the number of feasible hits greatly rises when compared to the number of underlying flight movements.

And to the contrary of what every other human in the aviation industry believes, the number of banks (a temporal cluster of inbound and outbound flights) correlates conversely with connectivity: the fewer the better.

Optimum asset utilization for airports is discussed in the fourth chapter. The productivity of the assets deployed is at least as important as commercial objectives like connectivity. Infrastructural constraints can significantly impact efficient asset utilization. One of the most severe infrastructural constraints is the opening hours of airports.

In the fifth chapter two case studies are discussed: one generic bottom-up case study and the other one examines the top-down redesign of KLM's hub for the winter schedule 2009 – 2010.



The sixth chapter is related to the key organizational, structural, and procedural options for network management, the basic fundamentals of network control, and the most important IT tools for supporting such processes.

Here, the route profitability concept is defined as “dangerous” and “toxic”. Instead, the writer suggests a “negative opportunity cost” concept. This is especially valid for airlines with a high transfer passenger share. He argues that “network value contribution” must be by no means favored against route profitability concept.

Next, Goedecking explains and discusses competition and alliances among airlines in terms of network structures. The main issue here, is the overlapping networks of airlines. He claims that the overlapping networks of two merging airlines are more advantageous than the complementary ones. Additionally the author emphasizes that the potential synergy of a merger is highly unlikely to predict before. Goedecking also examines the strengths and weaknesses of multi-hub structures, and introduces the tactics for assessing and improving synchrony within such complex networks. Soon after the domestic market deregulation (in 1978), networks with multiple major transfer hubs emerged in the United States. European and Asian airlines followed quickly.

In a multi-hub system scope and scale are considered to be important. With scope a high yield is aimed, whereas with scale the goal is to reach a large number of transfer passengers. US carriers have been following the multi-hub system for many years. For European counterparts, however, it is a relative new phenomenon. Air France KLM and Lufthansa are two good examples for multi-hubbing.

In the last two chapters of the book you can find how to examine the performance of a network and Goedecking's hierarchically layered networks concept. He combines the revenue management, scheduling and network planning components of an airline.

He assumes a network in five layers. At the bottom there is the passenger demand. On top there is the network structure. Scheduling is added as the third layer. After this point, revenue management comes into the play. As the last layer the communication, i.e. distribution channels take place in the layered network concept of Goedecking.

Since network planning can be described as the heart of an airline's operation, I recommend everyone in airline business to read *Networks in Aviation* in order to get a very useful insight in this important point of airline management.

**About the author**

Dr. Philipp Goedecking advises airlines, airport operators, air navigation service providers (ANSPs), governmental authorities, and financial institutions around the world. His expertise includes network and alliance strategies, network synergy assessment, and airline mergers and acquisitions. Prior to founding airconomy, for 15 years he ran the aviation practice of the largest Europe-based strategy consultancy, including two years as managing director of the firm's operations in China and five years on the firm's supervisory board. Before that, he worked for Lufthansa in various senior positions in information technology, corporate strategy, and network management.

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**About the reviewer**

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