

Verena Charlotte Ehrler

# Taking Off

Does Electronic Documentation Make Air Cargo Fly High Again?

A systemic approach to understanding  
the complex dynamics of the air cargo system

**huss**

80912 München

Order No: 22604  
ISBN 978-3-941418-64-6

D 83

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Cover pictures: Fraport, Fotolia  
Product management: Simone Reiß, Elke Szelwis

Production: Fahner GmbH, 90431 Nürnberg

## To Maximilian and Florian

### Acknowledgements

It is my great pleasure to thank those who made this thesis possible. First of all I owe my deepest gratitude to Professor Dr. Barbara Lenz, who has been my supervisor during my studies. She supported me with most valuable and important suggestions, encouragement and advice. The joy and enthusiasm she has for her research was always a source of motivation and inspiration. Furthermore I would like to express my gratitude to Professor Dr.-Ing. Uwe Clausen. I appreciate his time and ideas with which he supported my research and the valuable contacts he provided to me.

I am especially grateful to Professor Dr.-Ing. Jürgen Thorbeck, who helped and encouraged me particularly in the final phase of my research.

Special thanks also go to Professor Dr.-Ing. Markus Hecht, who supported me with guidance throughout my doctoral studies at the Technical University Berlin.

Furthermore I would like to express my gratitude to all those who shared their valuable expertise and precious time in interviews and discussions with me. Without them this thesis would not have been possible: Henrik Ambak, Alain Chan and Franco Nana (Cargo Lux), Ivo Arisand Ronald de Reus (Rhenus Air), Andrea Bahn, Christian Portele and Susanne Schmoll (Lufthansa Cargo), Peter Baumgartner (Panalpina), Jos. R. Ensing (Customs, The Netherlands), Oliver Evans (Swiss International Airlines), Dr.-Ing. Heinrich Frye (Fraunhofer IML), Dipl. Geol. Gabriele Harrer (Malik Management Zentrum St. Gallen), Wolf Dietrich von Helldorff (Air Cargo Club Germany and Kühne + Nagel), Philipp Joeinig and Alan Wright (Swissport International), Agnieszka Kubiak (Traxon Global Logistics System), Didier Melet (Air France Cargo), Ram Menem (Emirates Airlines), Dirk Schneider (Roche Diagnostics), Steve Smith, Christian Gessner and Alex Popovich (IATA).

A special thank is owed to my friends Nicola Jessel and Dulcie Dixon who proof-read my thesis, to Léon Auffenberg who supported me with the lay-out and to Simone Reiss of Huss Publishing for her help on publishing my thesis.

I am indebted to my friends and family who supported me and accompanied me throughout the sometimes challenging phases which are part of such a project. They were always encouraging, positive and supportive, never allowing any doubt in regard to the success of my work. In particular I would like to thank my sister and friend Karin Dohm, Beate Richter and Dr. Gudrun Sander.

To my parents Brigitte and Claus Schmidt I am deeply grateful for having laid the foundation for my professional career and for having taught me the ability to realise my dreams.

Last but not least I want to thank my sons Maximilian and Florian for their inspiration, their patience and their support. This work is dedicated to them.

Berlin, June 2011

Verena Charlotte Ehrler

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# Introduction

Air cargo – one would expect the business to be owned by air carriers. In recent years though, not only due to the actual economic crisis, airlines are struggling to keep this part of their business profitable and competitive. At the same time it is striking that despite the fact that we are living in the age of digitalisation where real-time information on a global scale has become a basic commodity, most information processes related to air cargo are still exchanged in printed format with an average air freight shipment generating more than thirty different documents on its journey from shipper to consignee.

The central question of this research is therefore: Is a shift to electronic documentation the key to rendering air cargo competitive and profitable again?

Based on an analysis of the dynamics within the air cargo business, the introduction of electronic documentation allows a reflection on who is driving developments and structural changes within the air cargo system and in how far the currently ongoing changes can suffice to render air cargo competitive again. Sub-questions investigated in the course of the research are therefore:

- » Who is driving developments of the air cargo industry?
- » How are Information and Communication Technologies (ICT), namely the introduction electronic documentation, impacting on the air cargo industry, its structures and the relationship between its players?
- » Can these developments contribute to rendering the air cargo industry profitable again?

The research is structured into the following two central methodological parts, complementing each other: a theoretical and an empirical part (see also Figure 1: Methodology And Structure Of Research). In its theoretical part, the research analyses the current situation of the air cargo business based on a short overview of its historic developments

(Chapter 2). This overview shows that, due to its historic development, air cargo is still widely considered a business of linear structures, by its own players as well as by onlookers. Instead, like all transportation processes, air cargo has developed into a complex system requiring network structures and systemic thinking and acting by its players. A systemic analysis of the air cargo business, based on the New St. Gallen Management Model, is therefore one of the central methods applied for rendering the dynamics of the air cargo system more transparent (Chapter 3). This analysis also reflects shortcomings and vacuums of the current air cargo system. In order to further investigate these and to better understand the system's complexity, structured interviews were held with key players of the air cargo system during the empirical research (Chapter 4 and Chapter 5). Based on these findings, a model of the interrelations and dynamics of the air cargo system is developed and it is discussed, what the impact of the introduction of electronic documentation on these structures is (Chapter 6). As electronic documentation allows the physical separation of the flow of goods from the flow of information related to these goods it supports "working" of information in network structures, instead of linear structures. The introduction of electronic documentation therefore reflects the degree of network communication structures within air cargo and is an indicator for the extent of systemic thinking within the industry. The research concludes in the answer to the central question (Chapter 6): Can electronic documentation make air cargo fly high again? An outlook on further developments of the air cargo system and interesting next research approaches closes the research (Chapter 7). Figure 1: "Structure Of Research" gives an overview on the structure of the work and its logical build-up.



Figure 1: Structure Of Research

