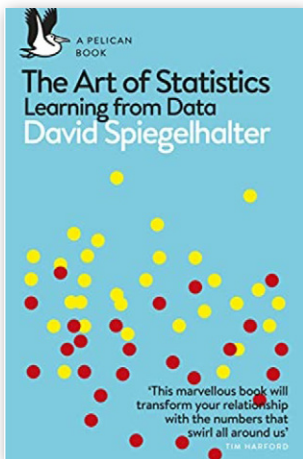


Book Review: Air Cargo Management: Air Freight and the Global Supply Chain

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Air-cargo transportation has now become increasingly important for global logistics systems (Wen, Xu, Choi & Chung, 2020). As a result, air cargo is a critical part of modern-day supply chains because it provides efficient and timely delivery of typically time sensitive products (Chen & Jiang, 2020). International airlines - like other third-party service providers – now conduct their business not simply within marketplaces but also within corporately structured supply chains reflecting particular logistics functions and spatial pathways (Robinson, 2005). Air cargo is defined as “anything carried in an aircraft except for mail or luggage carried under a passenger ticket and baggage check but including baggage shipped under an airway bill or shipment record” (Hui, Hui & Zhang, 2004).

In this book, the author, Michael Sales, provides a comprehensive overview of the global air cargo industry. This book consists of seventeen chapters. First, the preliminary section outlined the importance of the air cargo mode for international trade and this is followed by a section explaining how air cargo works. This introductory text helps set the context for what follows in the remainder of the book.

Chapter 1: The Air Freight Supply Chain. This chapter provides a comprehensive overview of the air cargo industry actors, the air freight process, industry documentation, and the role of surface transport modes and airports in air cargo supply chains.

Chapter 2: The Viability of Air Freight. The chapter discusses the factors that shippers must consider when considering shipping their consignment(s) by the air cargo mode.

Chapter 3: A Brief History of the Air Freight Industry. This chapter takes the reader through the historical development of the air freight industry starting with the birth of air cargo in 1911 through to the current air freight market. Readers will gain an understanding of the key conventions, the development of aircraft unit load devices, electronic systems, and humanitarian and relief charter flights. The chapter concludes with suggested additional reading and self-reflection review questions. Aircraft unit load devices, or ULDs, are pallets and containers which are used to carry air cargo, mail and passenger baggage on wide-body passenger and freighter aircraft (Baxter & Kourousis, 2015; Lu & Chen, 2011).

Chapter 4: Airports: The Vital Connection. This chapter provides insights into the function of airports as the key link between flights and the markets they serve.

Chapter 5: Ground Handling and IT Systems for Cargo Processing. The air cargo supply chain is responsible for articulating the flows, both physical and documentary, of air cargo consignments from their origin to their destination (Larrode, Muerza & Villagrasa, 2018). One of the key actors in the air cargo supply chain is the air cargo terminal operator (Chen & Chou, 2006; Chen, Chang & Chou, 2008; Rong & Grunow, 2009). For the global movement of air cargo from an airport to an airport, the air cargo terminal is a key success factor for the terminal operator's client airlines, and hence, for the quality of air cargo transportation provided (Rodbundith, Suthiwartnarueput & Pornchaiwisukul, 2019). Air cargo terminals are facilities in which individual air cargo consignments are processed into cargo loads ready for loading onto an airline's aircraft and, following transport to their destination, are broken down again into individual shipments for delivery to the ultimate customer (Chinn & Vickers, 1998). This chapter provides details of the role of cargo terminal operators, the International Air Transport Association e-freight initiative, Cargo-IQ, aircraft unit load devices, loose air cargo, dangerous goods, and dangerous goods training.

Chapter 6: Cool Logistics: Food – Flowers – Medicines. This chapter explains cool chain logistics and the role of the air cargo mode in cool logistics chains.

Chapter 7: Animals by Air. This chapter explains the carriage of animals by air and includes an overview of the relevant regulatory framework.

Chapter 8: Security: Keeping Cargo Safe. Following the September 11, 2001 terrorist attacks in New York and Washington, various types of air cargo

security measures have been put in place by national governments (Elias, 2007; Peterson & Treat, 2008; Salter, 2008). The purpose of these security measures is to mitigate: (1) the risks associated with placing air cargo on passenger and all-cargo aircraft; and (2) the high level of access to aircraft during cargo operations (Elias, 2007). International, regional, and national authorities have implemented a series of standards that specify various procedures and security measures to be put into practice to ensure the security of air transport (Glässer, Rastkar & Vajihollahi, 2008). The International Civil Aviation Organization (ICAO) provides guidelines at the international level which are defined in Annex 17 to the 1944 *Chicago Convention on International Civil Aviation* (International Civil Aviation Organization, 2011). In order to synchronize the operations amongst various countries in a region, regional authorities have also introduced security standards and regulations. This chapter explains the importance of air cargo security screening and the important role played by National Customs Agencies role in assessing the risks of air cargo consignments.

Chapter 9: Outsourcing: The Charter Broker. In the global air cargo industry, non-scheduled or chartered flights are typically arranged through a charter broker. This chapter explains the role of the charter broker and discusses how this industry segment has changed over time.

Chapter 10: Air Freight to the Rescue: Care by Air When Disaster Strikes. When a disaster occurs and human lives are at risk, a rapid response is essential, and air cargo plays a key role in speeding supplies and services to the places where they are needed. These services are governed by the rules of humanity, neutrality, impartiality, and independence (Sales, 2017). This chapter presents an overview of the role of the air cargo mode in transporting disaster relief goods.

Chapter 11: Aircraft: The Role of Freighters – Past – Present and Future. Freighter aircraft play a very significant role in the global air cargo industry by providing sustained economic gains both to a local community in jobs and to a country's global trade (Hailey, 2017). As a result, the services provided by freighter services has become vital to the global economy (Baxter, Srisaeng & Wild, 2018; Davies, 2013). Freighter services are operated by dedicated all-cargo airlines, the integrated carriers, and by the combination airlines, for example, Cathay Pacific Airways and Singapore Airlines. This chapter examines freighter aircraft fleets, the

provision of aircraft, crew, maintenance, and insurance freighter aircraft leases, air freight charters, freighter conversions, and freighter aircraft retirements. The chapter also explains the importance of jet fuel costs for airlines. Jet fuel accounts for the major share of an airline's energy consumption (Baxter, 2021). Furthermore, jet fuel typically represents the highest cost for an airline (Turner & Lim, 2015; Vasigh & Rowe, 2020).

Chapter 12: Heavy Lift Transportation. An important air cargo market segment is the carriage of over-size cargo. This chapter explains the transportation of over-sized and heavy cargo and describes the process that underpins the safe and efficient movement of oversize and very heavy air cargo consignments.

Chapter 13: Express and Mail: Fast and Faster. The integrated carriers – DHL Express, FedEx, and United Parcel Service (UPS) are now a major and growing part of the global air cargo industry. The growth of the world's integrated carriers over the past three decades has been most extraordinary. These carriers offer door-to-door services usually in accordance with time-definite service standards (Ashford, Stanton, Moore, Coutu & Beasley, 2013). These carriers are not only extensive users of information networks; they also make use of very diverse transport networks (Button & Stough, 2000). The integrators 'integrate' the air and ground service functions performed by airlines, international air freight forwarders, and other associated service providers (Dempsey & Gesell, 1997). This chapter examines the integrated carriers, the major postal administrations, and the air courier business.

Chapter 14: Technology in Air Freight: The Impact of Technology on the Air Freight Process. Air cargo logistics is information intensive (Leung, Cheung & Van Hui, 2000). Furthermore, there is increasing value being placed by shippers on full-service, integrated door-to-door air cargo services, which most importantly includes the physical product and information flows. The provision of information is indeed critical (Hebert, Chen & de Gozzaldi, 1998). Thus, it has become an extremely important requirement in the air cargo business for shippers, buyers, and agents to be able to track and monitor the safety, status location and delivery time of the shipment (Zhang, Van Hui & Leung, 2004). Most airlines heavily involved in air cargo transportation have developed cargo computer systems that are designed to enhance efficiency and deal with the problems created by the large number of participants in air cargo supply chains (Nelms, 1999). This chapter explains the role of

information technology and IT systems in the air freight process, the evolution of air freight related technology and air freight industry related information technology initiatives.

Chapter 15: The Environment: The Challenge of Noise and Pollution. This chapter explains the impact of aviation emissions on the environment, the use of alternative fuels, which are seen as the best option to reduce the industry's carbon footprint, and the policies introduced by governments to combat climate change. As an important element of global economy, carbon reduction in the aviation industry is urgent and pressing issue (Sun, Tian, Li, & Zhou, 2021). Consequently, there has been growing pressure for the air transportation industry to reduce its greenhouse gas (GHG) emissions (Bows-Larkin, Mander, Traut, Anderson, & Ruth Wood, 2016; Sgouridis, Bonnefoy & John Hansman, 2011). This is because the aviation industry generates a substantial carbon footprint (Ahmad, Xu, Greening, & Ouenniche, 2019; Filimonau, Mika, & Pawlusinski, 2018).

Chapter 16: Crime in Air Logistics. This chapter explains the various types of crimes committed in the air logistics industry.

Chapter 17: Careers in Air Freight. This chapter explains the types of employment opportunities in the air freight industry.

Epilogue: This chapter outlines the views of an industry expert on the challenges confronting the global air freight industry, the regulatory approach, the impact of changes in manufacturing processes, the future of air freight forwarding, and future career opportunities in the industry.

The end-matter consists of the Freedoms of the Air, a glossary of key terms used in the air freight industry, and an index.

In summary, the book is very well written and organized. It is informative, illustrative, and provides excellent insights into the key aspects of the global air freight industry. The book includes many case studies, industry expert insights, and photographs that help illustrate the points being made. A strength of the book is that it includes several research questions at the end of each chapter to help the reader assess their grasp of the topic. The book is an ideal reference source for industry professionals, air freight policy makers, and for students studying air freight and its role in supply chains and who may decide to make their career in the industry. For all these groups this textbook is highly recommended.

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