AVIATION AND LOGISTICS THE DYNAMIC PARTNERSHIP OF AIR FREIGHT AND SUPPLY CHAIN*

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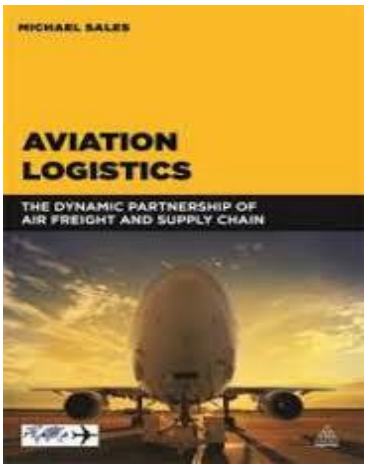

Introduction

This course examines the functions of air cargo transportation and its role in the continuously growing global supply chain and logistics sectors. As the global economy evolves, supply chains and transportation partners must anticipate and adapt to future situations. Therefore, technology, efficiency, and transparency are central to Aviation Logistics research. It explores understanding

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new methods and technologies to enhance ground and road transport management, traceability and barcode systems, safety and screening measures, and the safe transportation of perishable goods

Key Challenges for the Aviation and Logistics Industry

The main challenges facing the aviation and logistics industries today include volatile fuel costs, the fragility of global supply chains, stringent environmental regulations (e.g., carbon taxes), and the risk of cyberattacks that can disrupt operations. These include volatility in oil and energy prices, supply chain disruptions, environmental and sustainability measures, shortages of skilled personnel, and cybersecurity risks. The logistics and aviation industries are fully digitalized, from flight control systems and flight planning to warehouse management systems. If these systems are attacked by malware or ransomware, they can disrupt entire operations and cause immense damage.

This book addresses the functions of the air cargo business and its role in the global supply chain and logistics. As the global economy is constantly changing, supply chain businesses and transportation partners must be prepared for the future. Technology, efficiency, and transparency brought about by technology are the key components of this book. Aviation Logistics examines how airlines innovate and develop new technologies to improve ground and road transport management, traceability systems and barcodes, security, and screening. Additionally, it ensures the safe delivery of perishable goods (e.g., such as pharmaceuticals and medical sectors).

This book is endorsed by the International Air Cargo Association (TIACA) and is supplemented with case studies and articles from a team of experts, including Oliver Evans and Stan Wraight, who are experts in the field. The authors provide a practical perspective by discussing the aviation industry and logistics processes. There is ample evidence to support the authors' conclusions. The

book's strengths include up-to-date information, but its weaknesses lie in its presentation, which lacks the theoretical framework of advanced Eastern commerce in the colonial era. This is a limitation of our approach.

Body of Knowledge

Air cargo—Trying harder" refers to the focus on efforts toward development and innovation within the air cargo sector, emphasizing responsibility to meet user demands and current challenges.In selected and relevant contexts from the book Aviation Logistics, this concept aligns with how the air freight industry is adapting in a rapidly changing globalized world, prioritizing technology, capacity development, and professionalism.Air cargo operations in a fast-paced environment function within supply chain and logistics structures that require standards and expectations for substantial growth, which compels supply chains and transport partners to anticipate future demands. The "trying harder" of this rapidly growing industry is reflected in the commitment to developing and adopting new methods and technologies, enhancing service efficiency, organizational management, creating ground transportation strategies, and advancing capabilities in traceability through barcode systems, which reinforce security measures and screening processes. This book is therefore important as it chronicles the history, evolution, and growth of the aviation industry, which are crucial factors in academic development.

The world of air cargo Oliver Evans Former TICA

Oliver Evans is a renowned air cargo executive, best known as the Chief Cargo Officer of Swiss International Air Lines and President of the International Air Cargo Association (TIACA). He is recognized for leading modern industry transformation, particularly in the global drone logistics business. Known for his deep industry understanding, his book, "Aviation Logistics," analyzes operations,

success stories, and driving international business growth. Decades of success, Swiss World Cargo's speed, professionalism, and efficiency as a team have propelled the organization to increasing global success, focusing on automated drone logistics and urban delivery networks. Furthermore, his thought leadership, numerous academic publications, and experience in overcoming obstacles during his tenure at TIACA have contributed significantly to the organization's achievements.

Air cargo history

This is a list of events related to air cargo, airmail, and air transportation, including a summary of the decade seven years after the Wright Flyer made the first sustained flight with a pilot in control—a heavier-than-air craft. The modern history of airmail and air cargo began, and this decade saw many "firsts," such as the world's first commercial air cargo flight, the world's first successful airmail delivery by airplane, the world's first charter flight, the world's first official airmail stamp, and the evolution of Boeing's journey through the challenging years of World War II. Historically, transportation experienced rapid growth fueled by e-commerce, emergency management, and the movement of perishable goods. This growth was strongly supported by international business networks, complex international regulations and agreements, import barriers, market access, and the producer-to-consumer (PCC) process.

Airport connectivity refers to the complex network of direct and connecting flights linking airports worldwide, facilitating international movement and economic integration. This system is supported by models such as the hub-and-spoke framework, which optimize passenger flow and route efficiency. Historically, airport connectivity has evolved from simple point-to-point flights into complex global networks formed through airline alliances and market liberalization. In practice, efficient airport connectivity enhances accessibility,

supports tourism and trade, and improves logistics operations, although challenges such as delays and passenger management remain. Advancements in technology, including AI-driven scheduling and biometric systems, are transforming connectivity management, while social and cultural factors influence passenger experience and equality of access. Economically, airport connectivity stimulates both local and global markets, creates jobs, and drives infrastructure investment. Environmental considerations focus on reducing emissions and promoting sustainability within aviation networks. Legal and ethical frameworks ensure passenger rights and security protocols are upheld during connections. Educational initiatives equip industry professionals with the necessary skills for operations and customer service. In the future, airport connectivity will face challenges related to increasing travel demand, sustainability, and technological integration, requiring interdisciplinary approaches to maximize efficiency and passenger satisfaction.

Cargo Agent – impact of IT

Information technology (IT) has revolutionized cargo management by increasing efficiency, accuracy, and communication. IT systems enable real-time tracking, automated documentation, and streamlined customs clearance, reducing delays and errors. Integration of IoT devices and AI analytics optimizes cargo flow and resource allocation, improving overall operational efficiency. Road Feeder Services Road Feeder Services (RFS) serve as a critical link between airports and domestic destinations. They provide scheduled ground transportation for air cargo, ensuring timely and cost-effective distribution. RFS supports multimodal logistics by supplementing air transport, reducing airport congestion, and increasing supply chain flexibility.

Temperature-controlled logistics Temperature-controlled logistics refers to the management of temperature-sensitive goods such as pharmaceuticals,

perishables, and chemicals. It involves specialized packaging, refrigerated transport, and monitoring systems to maintain cold chain integrity. Advanced sensors and IoT technologies enable continuous temperature tracking, reducing spoilage and ensuring compliance with regulatory standards.

Express and Postal Services Express and postal services focus on rapid delivery of small parcels and documents. These services rely heavily on air transportation for speed and global reach. Automation in sorting, tracking, and last-mile delivery enhances customer experience and operational efficiency. Integration with e-commerce platforms has broadened the scale and volume of express shipments. Special Air Cargo Special air cargo includes dangerous goods, live animals, oversized cargo, and valuables. Handling these items requires strict compliance with safety regulations, specialized packaging, and trained personnel. IT systems facilitate risk assessment, documentation, and tracking to ensure shipment safety and regulatory compliance.

Cargo security and risk Cargo security involves measures to protect goods from theft, tampering, and terrorism. Risk management includes threat assessment, screening technologies, and secure handling protocols. Surveillance via IT systems, blockchain for transparent documentation, and real-time alerts enhance cargo security and reduce risks throughout the supply chain. Environment Environmental concerns in air transport focus on reducing carbon emissions, noise pollution, and waste. Initiatives include optimizing flight routes, using sustainable fuels, and adopting eco-friendly packaging solutions. Information technology supports environmental goals by enabling data-driven decisions for fuel efficiency and environmental impact monitoring.

Discussion of limited academic contributions: The book provides knowledge in the fields of supply chain, warehousing, and freight modeling. It discusses the global transportation industry and the TIACA system, highlighting its contribution to aviation logistics literature. It incorporates the history of aviation, the industry during Berlin's World War II, and the growth of commercial

aviation, from its development to marketing and advertising in the present day. This book differs from other aviation and logistics books by combining content from both, showcasing the success of the logistics industry and its significant impact on the global economy, including the current conditions affecting transportation processes. The target audience that would benefit most is likely to be academics, business professionals, university students, and researchers, who can utilize this work as a standard piece of literature suitable for practical application. The original text is largely a transcription or paraphrase of The Air Logistics Handbook. Sales' (2013) Air Freight and the Global Supply Chain differs in its narrative. Aviation and Supply Chain: The summary differs in its historical context and pre-existing aviation industry, including transportation routes and flight paths, ground management and operations, and product damage assessment. The topics covered included live animal transport, rescue operations, and heavy cargo handling. The reviewer's self-assessment revealed differences in writing from books produced prior to 2016. Contexts regarding drone transport and urban delivery networks require credible evidence; some historical claims should be supported by references; these aspects should be thoroughly examined against the original texts.

Conclusions

Air transport and the supply chain form a dynamic partnership that coordinates the rapid and efficient movement of essential goods around the world. This integration combines the unparalleled speed of aviation with the strategic planning of logistics to ensure that high-value, time-sensitive, and perishable goods reach their destinations smoothly. Key drivers of value Unmatched speed: Air transport can cover long distances within a matter of hours instead of weeks, making it indispensable for just-in-time manufacturing, disaster relief, and time-critical shipments. Global connectivity: By leveraging major

international aviation hubs such as the nearby Suvarnabhumi Airport (BKK), the supply chain can connect remote or international markets without dependence on slower maritime routes. Optimized inventory management: High-speed air transport enables businesses to maintain smaller inventories, reduce holding costs, and minimize the risk of obsolescence for technology and electronics. Specialized handling: Modern, cargo-friendly airports feature cold chain infrastructure that preserves the integrity of temperature-sensitive goods like pharmaceuticals and fresh perishables. Technological integration Traceability: The use of advanced barcodes, real-time tracking, and IoT sensors provides end-to-end visibility, enabling logistics providers to ensure traceability. Managers closely monitor shipments at every stage of their journey. Airport efficiency: Airports focused on cargo streamline aircraft turnaround times and pallet handling processes to prevent supply chain bottlenecks. Industry trends and innovations The role of freighter aircraft: Wide-body freighters serve as a flexible core solution, accounting for a significant share of global cargo volume and allowing airlines to swiftly adapt to sudden supply chain disruptions. Sustainable operations: The air logistics sector is actively pursuing partnerships and long-term agreements to adopt Sustainable Aviation Fuel (SAF), targeting reductions in the carbon footprint of global cargo transport. If you are looking to optimize your own operations or explore air freight strategies, please let me know: What type of goods are you shipping? Do you need local, regional, or global transport? I can help you evaluate freighter aircraft options, transit times, and specialized handling requirements that best suit your needs.

This manuscript demonstrates a fundamental understanding of the book and presents its key topics systematically. However, at present, it reads more like a descriptive summary than an academic review. Significant revisions are needed to incorporate a critical evaluation, enhance academic analysis, fact-checking, improve the English language quality, and position the book within the broader context of aviation logistics literature before it can be published.

Reference

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