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Abstract

Future, meaning any moment past this moment. Airfreight, meaning freight and cargo that is transported via aircraft. These are two concepts that are absolutely mind blowing to think about if thought about long enough. It is amazing that in 10 years, everything could be new, and it is amazing that a product can be ordered, and it will be flying through the air on its way in no time. Many people say, "live in the moment." Many people do not question the future, as it may scare them. However, it is interesting and important to research future innovations that will change everything. With anything that can be thought of, there will always be risks, and an extensive list of pros and cons to think of. These are what will persuade the future. The air freight industry has provided infinite possibilities and grown more than anyone could have expected. Within this research, the risks, benefits, insurances, and more are looked into, to begin to question what the future of aviation and airfreight will be.

Keywords: airfreight, industry, insurance, fuel, future

What is the Future of Airfreight Transportation?

Introduction

1903 is when it all began. “Orville Wright made the first sustained, powered flight on December 17 in a plane he and his brother Wilbur built” (*A Brief History of the FAA).* Just about seven years later, cargo was first moved via aircraft in 1910. “Air freight/cargo can be defined as all cargo moved by air except for mail and passenger baggage” (Airport Council, p. 8). Prior to moving via aircraft starting in 1911, mail was moved by balloons and carrier pigeons. Following mail being transported via air, aviation became a huge help to the war effort in the 1940’s. The next mark on the timeline is the 1970’s, when larger aircraft came into play to transport cargo even faster, which is how we began the path to where we are today (Airport Council, p. 8). Along the timeline, the Federal Aviation Agency/Administration, or FAA, was also born in order to establish guidelines involving air traffic and licensing pilots to maintain safety and security for aircraft and pilots flying in the air. After the terrorist acts on September 11, 2001, the Transportation Security Administration, or TSA, was established and took over the responsibility of security from the FAA. Aviation has become as successful as it is today due to these implementations keeping air travel safe (*A Brief History of the FAA).* Small shipment sizes, time sensitivity, security, cost of capital, and inventory cost are benefits of air cargo that have led the industry to success (Airport Council, p. 10). From 2016 to 2020, the air freight sector value has increased by three billion and increased volume by about four billion freight ton-kilometers (FTK). Air freight is transported domestically and internationally and is constantly growing every day (*Air Freight Industry Profile: United States,* Tables 1-3, 2021).

What is unknown about air freight transportation is where it is going from here. Marketline’s industry profile on air freight shows tables of future estimations and projections of where the

industry might go in the next few years. The first table shows that the air freight sector value forecast for the year 2025 will be 20.5 billion dollars, and the second table shows that volume will increase up to 49.1 billion freight ton-kilometers (*Air Freight Industry Profile: United States,* Tables 5-6, 2021). However, there are so many unexpected possibilities, for example, COVID-19. Greg Knowler (2020), of the Journal of Commerce, stated during the beginning of COVID-19, "The disruption caused by the coronavirus disease 2019 is raising major questions about the future of air cargo shipping, as forwarders and cargo owners prepare for a cautious return of capacity and uncertain demand from economies in recession." This industry was able to continue operation due to government aid and lots of problem solving; however, nobody can project growth or what the future may be of an industry when unexpectedness enters the picture (Knowler, p.11, 2020).

Although the air freight industry has shown tremendous growth and improvement since its beginning, the future of the industry is still unknown. There are a few areas worth investigating in order to solve or predict this unknown. Firstly, what are the risks involved in air freight transportation? It is important to understand the risks in an industry in order to plan around the challenges that come along with them. Some of these risks include general competition, general weaknesses, and also the risks more specific to aviation, such as security, potential maintenance, etc. The next question worth considering is, how is the air freight industry protected from these risks? This is where identifying risks and planning for them comes in handy. This is also where insurance needs to be identified, which happens to be another question of research: what are the roles of an aviation insurance manager/agent? It is important to understand the insurance coverage that is available for such a large industry, and more specifically what insurance representatives are going to do to ensure protection. Another large factor in general aviation is

the cost and amount of fuel needed to run a smooth operation. Fluctuation in pricing and methods of receiving fuel for aircraft will always be a determining factor in the future of the aviation industry. Lastly, we have to ask: what are the benefits of transporting cargo via air? These benefits will be the reasons to fight for the industry to continue and grow. Researching these questions is one method of getting closer to a preview of the future of air freight transportation. Personally, I have worked in air freight operations for the past two years, and it never fails to amaze me what my simple job is doing to continue the success of the large industry I am a part of.

Future of Airfreight Transportation

There are many aspects that go into the operations of airfreight transportation. It is important for those in the industry to be on top of all aspects in order to be successful. Some of the topics that may play major roles in the future of airfreight transportation are current and possible risks in the industry, how the industry is protected from these risks, what insurance managers in the industry are doing, fuel costs, and the benefits of transporting cargo. There are many components that could take the industry down if they go in a certain direction; however, the benefits of the industry are what will keep it operating successfully. There will always be different risks in every industry, but there will also always be solutions.

What are the Risks Involved in Airfreight Transportation?

On September 11, 2001, terrorist attacks via commercial aircraft occurred, where two airplanes collided with the World Trade Center in New York City and one collided with the Pentagon in Arlington, Virginia. This only begins to cover the risks that go along with the aviation industry. “To prevent any further hijackings, FAA immediately put a ground stop on all traffic for the first time in U.S. aviation history” (*A Brief History of the FAA).* This is how the

Transportation Security Administration, or TSA, was born into the aviation industry (*A Brief History of the FAA).* "At a time of unprecedented risk and uncertainty for the industry, an examination of its fundamentals reveals nothing to suggest that this downturn will be any shorter or less severe than previous ones, which typically lasted at least three to four years" (Costa p. 89, 2002). This points to the conclusion that one of the greatest risks in the aviation industry is uncertainty. An event like this cannot be predicted but can cause such a massive impact on all industries involved.

Another uncertain event that occurred more recently and served as a risk in this industry was the Coronavirus disease, or COVID-19. As previously mentioned, Greg Knowler (2020) stated, "The disruption by the coronavirus disease 2019 (COVID-19) is raising major questions about the future of air cargo shipping, as forwarders and cargo owners prepare for cautious return of capacity and uncertain demand from economies in recession" (p.11). This was another uncertainty that the industry expected to cause a huge downfall for the industry. Knowler also states that a lesson that came from the unexpected increase in this pandemic is that all industries need to be flexible and need to be able to adapt quickly to unexpected changes (p.11).

Above are two events that have affected the airfreight industry in the past. There will always be the risk of unexpected events like these. However, there are more risks and issues that could potentially affect the industry further in the future. For example, the production of larger aircraft. "Most players in this sector must either buy or lease aircraft…Aircraft manufacturing is highly capital intensive; as such, there are very few players in the market. For large (wide body) aircraft, there are only two suppliers worldwide, Boeing and Airbus" (*Air Freight Industry Profile: United States*, p.19, 2021). According to Julie Johnsson in 2015, "Boeing Co. is considering slowing output of its two largest airliners, including the iconic 747 jumbo jet, as a

slumping airfreight market damps demand for the cargo versions of the planes." At the time, there was also discussion of decreasing production of the 777 aircraft by about 16 percent since a new model was to be expected later in the year (Johnsson 2015). Boeing and other aircraft manufacturers also need to keep in mind the demand of airfreight expected for each company, and how many planes will allow them to be successful in their operations. Therefore, the order from each company needs to reflect the expectation of volume ahead accurately (Burnson, p. 75-76, 2018). With large fluctuation or increase of volume, the production of enough aircraft could become a much bigger issue in the future.

Similar to aircraft, pilots are essential in any aviation operation, which leads to the next risk: a growing pilot shortage. "U.S. domestic capacity in 2022 is returning to 2019 levels, but this follows the early retirements in 2020 and 2021 of thousands of flight crew" (Goldstein, p.24, 2022). Due to this, there is currently a pilot shortage, and it is expected to worsen in the coming years. "Around 40% of all US-based airline pilots are expected to retire over the next decade, according to a report from Bloomberg Intelligence analyst George Ferguson" (Goldstein, p.24, 2022). Ferguson predicts 63,000 retirements between now and 2032. The larger air carriers do not have to worry about the number of pilots they employ; however, the smaller and less known carriers are the ones who need to worry, which may be the carriers specific to airfreight (Goldstein, p.24, 2022). Some of the larger companies in the airfreight industry have begun programs to assist young people in their flight education. For example, "FedEx Express created 'Purple Runway- A FedEx Pathways Program' to address the need to support the airline and its feeder operators with a pipeline of highly trained and qualified aviators" (Burnson, p.78, 2018). In addition to FedEx's new program, UPS Airlines has also launched the "UPS/Ameriflight Gateway Program," also to help young people accomplish all that is involved with flight training

(King, p.12, 2017). Hopefully, the solutions of these few larger airfreight companies will improve the pilot shortage for the future of airfreight transportation.

Another risk I feel is worth breaking down is all that goes into airfreight operations, specifically, how the customer need is met. A common negative experience while taking a trip is the delay of an aircraft. In the cargo/airfreight world, a delay means late packages to customers, or other important materials being shipped via air. "The route planning of time-sensitive cargo is becoming more important with the growing air-network congestion and delays" (Farshid et al. 2012). Departure delay estimation models and forecasting based on historical data have been formed because "dynamic routing improves delivery time performance by avoiding tardy deliveries" (Farshid et al. 2012). From my own personal experience in the airfreight industry, the most pressure that has been put on me in my position has been departure times of aircraft. It is my job to oversee aircraft and ensure the loading operations are completed with more than enough time to depart on schedule. It seems to be a very general timeline idea; however, pressure is high with departure times because of what a delay may cause. When an airfreight plane is delayed, a large number of people do not get their packages delivered on time, which further affects business. Unfortunately, delays cannot always be controlled, for example, maintenance or flight crew delays. Operations teams do everything they can to send every plane out on time; however, if delays occur too often, customers could be drawn away.

How is Airfreight Protected from Risk?

In my personal experience working in airfreight operations, I have dealt directly with one of the main forces that has worked extremely hard to protect incoming and outgoing flights, the Transportation Security Administration, or TSA. TSA took over aviation security responsibilities from the FAA in 2002, following the events of September 11, 2001 (*A Brief History of the FAA*).

TSA states that their mission is to, "Protect the nation's transportation systems to ensure freedom of movement for people and commerce" (*About).* The current administrator of TSA, David P. Pekoske (2021), issued a roadmap for Air Cargo Security. This roadmap reflects TSA's strategies, goals, and objectives for keeping air cargo safe. Pekoske states:

> TSA will continue to leverage innovative air cargo screening technologies and modernize policies to enhance security effectiveness, improve operational efficiency, and increase partnerships with air cargo stakeholders. These achievements will further secure the U.S. air cargo system, promote TSA's leadership and commitment to aviation security innovation and advance security standards for global aviation transportation. (p. 3)

This roadmap plans for the security of all aircraft within a five-year plan. TSA states that they are committed to the future state of air cargo operations, and a few of the focuses they will have to ensure a successful future are security operations, training of screening processes, information and knowledge sharing, screening technology, and enforced policies. TSA is prepared to adjust to economic changes, such as volume, as well as macro trends and unexpected events (Pekoske, p. 5-8), 2021. I believe that the Transportation Security Administration and all of its efforts will be the greatest protection for the future of this industry.

Personally, in my experience working in the airfreight industry and at an airport, in general, the security measures and awareness that every employee is taught is another safety net of protection that I have witnessed. First and foremost, every employee must have screening and background checks performed prior to working on the airfield. Within training for any job on an airport, potential security issues are discussed, along with how to escalate situations when

necessary. TSA has five guiding principles within their roadmap: responsiveness, coherence, efficiency, engagement, and consistency (Pekoske, p. 5, 2021). As TSA practices these principles among their organization, they also ensure that all involved in aviation operations are taught these principles as well. When an unknown person is in sight at an airport, it is expected that they are challenged and asked if they have the correct authorization to be there. It is expected that all aircraft go through an intensive security search before going into the skies to ensure safety from possible explosive devices or unauthorized persons. The expectations of employees at the airport are not limited to their job duties, but also to ensure the airfield is protected at all times, and that, I also believe, will ensure a safe future in this industry.

Lastly, a common protection that any business has in place to protect their products and operations, is insurance and the coverage that it provides. Richard Bridges, in *Shipping Digest* in 2005 discusses how cargo insurance can save grief in the cargo industry. Bridges compares cargo coverage to a golfer who needs help with his swing, saying that he would be best off seeking a golf specific coach. In saying this, Bridges is saying that when it comes to insuring cargo, it is best to go with an insurer and policy that is specific to cargo and the type of transportation that is operated. He continues on to discuss a few specific case studies of cargo shipments, however, none of them specifically cover air transportation. A few key take aways from these case studies are that there may be extra expenses if something does not go specifically how the coverage is stated, damage needs to be reported very specifically in the event of occurrence, and the insurer of the cargo/company has the right to ask any questions they need in the instance of an incident (Bridges, p.5, 2005). These are all a few pointers that will ensure the best coverage for traveling cargo. Alberto Petroni (2000) discusses the importance of insurance coverage for any company and also briefly discusses a common coverage for air cargo:

> The buying and management of insurance for an airline has a crucial role in protecting the company's asset base…The range of risks faced by airlines is very wide and, accordingly, insurers offer a wide variety of cover but the main aviation risks are for hull and aviation liability. The hull policy, as its name suggests, covers air and ground risks from accidental damage. (p. 117)

Most airfreight companies seek insurance to cover, not only for damage to aircraft or flight, but also other vehicles and equipment owned by the company and used within operations. "Many years ago it was possible to include many of the associated risks in the main airline insurances, providing integrated cover, but the airline insurance market has turned its back on this approach" (Petroni, p. 118, 2000). Insurers are aware of the risks that the general aviation industry faces, and they work to cover all risks as best as they can.

What are the Roles of an Aviation Insurance Manager/Agent?

As previously covered, insurance is one of the many protections in place to keep the industry on its feet. Those behind the insurance policies are the ones that make that protection possible for the industry. It is especially important to understand the roles of the insurance agents and what specifically they are doing for the airfreight industry to keep it protected.

Insurers understand that there are many threatening risks that come along with transportation of cargo via air. "There are some specialist general aviation underwriters, but most of the business is underwritten by aviation insurers or the aviation departments of major insurers and reinsurers" (Petroni, p. 119, 2000). Many airlines work with skilled and experienced insurance brokers who specialize in the industry. This is helpful because these brokers will be able to assist with evaluating risks and their severity with their knowledge. These specialized brokers may also be interested in the specifics of the airline's operations, such as freight volume,

past risks, and specific operational procedures. This information can assist and has assisted the insurance industry in identifying future trends in the aviation/airfreight industry (Petroni, p. 121-124, 2000).

Those with the title "insurance manager," are usually those who have the most important roles in accordance with insuring airlines soundly. In some cases, the insurance manager also serves as a risk manager, however the role differs depending on the size of airline they are employed by and what departments they have within. The most important roles of the manager were summarized in Petroni's studies. Firstly, "to determine, in conjunction with the company's senior financial and legal staff and the airline's brokers, the level and range of insurance cover required" (Petroni, p. 123, 2000). This serves a particularly important purpose in the insurance process, considering pricing and costs have caused larger problems in the industry before. Some of the other important roles and duties of the insurance manager are as follows:

> to manage the placing of the cover, combining economy with adequacy of cover, paying attention to the security offered by the insurers used, and carefully analyzing the policy wordings; to monitor all developments in terms of new equipment, new routes and especially all relevant contracts, for example, for aircraft purchase, leasing and sale and for airfield and other operational services; to handle all claims against the airline with the legal and other staff involved and ensure all insurance claims are settled properly and fairly (the insurance manager's claims role has strong liaison and communication element, securing information for both sides and keeping his own management informed as well as explaining choices and decisions) and; to advice and report to airline management of insurance and risk matters. (Petroni, p.123, 2000)

The roles of the insurance manager serve as the sound communication between industries; without them, I do not believe insuring aviation operations would be as successful as it has come to be. Decades ago, it was difficult to imagine where the future of aviation would go, much like today. Aviation insuring was once a very difficult task to fulfill; however, it has come a very long way since 1921, "the first time insurers were required to report their aviation underwriting results" (Gjertsen 1997).

How do Fuel Costs affect the Future of Air Transportation?

In order for an airplane to fly, aircraft need fuel, obviously. However, fuel is a huge expense in general. It is important to evaluate the effect of fuel and fuel costs on the future of this industry. "As the cost of jet fuel escalates, causing dozens of airlines to post huge losses or go out of business, one of the most prominent ways to stabilize these soaring fuel costs is by hedging, experts say" (Shapiro 2008). Hedging is a process that allows a company to cap fuel prices for a specific period of time. There was not much motivation to use the hedging process when fuel prices were lower; however, costs have gone up tremendously recently. Companies can do very well with hedging results, or they can do poorly, if fuel prices drop dramatically and they are stuck at the cap they set for themselves. Fuel will always be a factor that the aviation industry is dependent on and unfortunately it has become a risk that the industry takes daily. An aviation plaintiffs' attorney, Arthur Alan Wolk, stated, "The fuel prices have caused airlines not to carry as much fuel as they used to, which runs a critical risk of fuel in flights getting down to levels that pilots are uncomfortable with" (Shapiro 2008).

"Aircraft fuel is sold by major oil companies and airlines will usually enter into long-term agreements with them" (*Air Freight Industry Profile: United States,* p.16, 2021). Fuel, in accordance with airfreight, has a bigger effect on the airfreight industry than anyone would

guess. “Airfreight rates were of little importance in 2005…But while basic rates showed little change, the surcharges that cargo carriers imposed to keep up with surging fuel prices pushed up the cost of airfreight” (Putzger, p.92, 2006). In order to solve this issue, airfreight companies need to aim to increase volume in order to balance out the costs and surcharges of fuel for aircraft. This could serve as a wonderful opportunity or a terrible risk for airfreight companies. The benefit of fuel costs forcing costs of airfreight up is that it gives airfreight companies an opportunity to regulate to increasing volume along with larger aircraft. One of the negative factors of the relationship between fuel and airfreight costs, is that when this relationship first started having an effect, production of larger aircraft was fully booked. Therefore, there is possibility that fuel pricing could force airfreight companies into a position that they are not able to increase volume to regulate fuel costs (Putzger, p.92-93, 2006).

Looking into the future of fuel in the aviation industry, a potential of a hybrid-electric propulsion system powered aircraft is beginning to be explored in order to decrease fuel expenses in aircraft by 2035. This new system would power aircraft via one conventional gas turbine and one electric motor powered by batteries. The current issue with this idea is battery technology and its ability to make electric propulsion possible for something as large as an aircraft. We are beginning to see electric vehicles being produced, which is progress. Joris Van Bogaert, a student of the Delt University of Technology, authored a 109-page thesis in 2015, going through all aspects that need to be researched and made possible before a hybrid-electric propulsion system powered aircraft is ever produced. This research includes explanations of the system, visual models, battery technology, methodology, results that have been found in the current research, and all the way down to the possible wiring of the aircraft (p.1-5). At this rate, I

do believe it is possible we will see such an aircraft in the future, which will be a production that will change many industries and operations tremendously.

What are the Benefits of Transporting Cargo via Air?

After discussing topics of why it will be difficult for the airfreight industry to be successful in the future, there are also benefits in the industry that point towards a successful future. “The air freight logistics industry has become an increasingly important part of the modern world economy. In 2018, airlines transported just over 63 million metric tons of goods valued at USD 6.5 trillion, including products as diverse as cut flowers, cool chain pharmaceutical products, consumer electronics, perishable foodstuffs, and medical diagnostic devices (Debbage, p. 361, 2021). It is no doubt that the impact of the airfreight industry has made a difference. It is extremely efficient to be able to order a necessity online and receive it on the doorstep the next day. The ability to do so was also extremely helpful during the COVID-19 quarantining times. “Your credit card can buy goods from over 1 million outlets. Your telephone can call 2.2 billion other phones. Scheduled flights, which might have taken off from opposite sides of the world, land on the same small area of runway” (Shawdon 2003). There are many industries that are extremely dynamic and innovative, the efficiency and advances they have already succeeded are reason alone that they should continue to advance in the future.

“Despite recent trends, air freight has experienced a relatively steady long-term growth rate over the past fifty years, and in its recent World Cargo forecast, Boeing projected that from 2019 to 2038 air cargo operators will need more than 2800 additional freighters” (Debbage, p.361, 2021). These freighters carry more than 50% of all air cargo. Another benefit of this industry is all of the companies that support the operations that make airfreight transportation possible. “Freight forwarding is fragmented. It takes the top 25 forwarders to process just half of

the world's air shipments" (Shawdon, 2003). Not only is the airfreight industry growing to be very successful, but they are also supporting the companies that provide them aircraft, operating equipment, pilots, and cargo. "Air freight plays a crucial role in the air transport chain and in the larger globalized economy…they are surrounded by a complex web of players including handling companies, customs brokers, and maintenance and fuel suppliers" (Debbage, p.363, 2021). The airfreight industry has not only kept itself successful, but helped other companies succeed along the way.

Another benefit that promotes the furthering of its future, is how far freight is able to go and the success the industry has already had. Aircraft is the only form of transportation that can travel across the world to deliver packages as quickly as they do.

> Marine transportation is a cost-effective alternative for long distance transportation…However, air transportation possesses the major advantage of being able to deliver goods over longer distances significantly quicker than road, rail, and marine transportations. This weakens the power of substitutes, especially in the case of those buyers who require their goods to be transported and received on an urgent basis. (*Air Freight Industry Profile: United States,* p.23, 2021)

As of 2018, the United States only has four cargo airports in the top 20 of cargo airports (Debbage, p.363, 2021). The opportunity of increasing international business is huge and will continue to grow. With the growth that the airfreight industry has had in the past 50 years in the United States alone, there is hope for further growth and development in the future. "The US air freight sector experienced volatile growth during the historic period. This sector is expected to be more stable somewhat over the forecast period and grow at a slow rate" (*Air Freight Industry Profile: United States,* p.8, 2021). The airfreight industry was forced to enforce restrictions due

to the COVID-19 pandemic, and still managed to have a compound annual growth rate of 4.5% between 2016 and 2020. “The United States accounts for 16.2% of the global air freight sector value” (*Air Freight Industry Profile: United States,* p.2, 2021). The industry had a few disruptions due to the pandemic, however, it also had the highest international demand due to the speed of delivery that air transportation ensures. This industry managed to maintain its strength through the COVID-19 pandemic, which changed everything, and will continue to face more challenges in the future.

Concluding Section

The general aviation industry allows so many possibilities to occur. Anyone can get on an aircraft and fly across the country in a day. Anyone can order any product and expect to see it on the doorstep the next day. Anyone can order something from another country and expect that it will still show up on the doorstep in a very quick amount of time. Aircraft have changed everything in terms of possibilities, and it is worth improvements and innovations to ensure a successful future. Every event pertaining to aviation in history has pushed the industry to become what it is today, and better. The curiosity lies in the question of, what is the future of airfreight transportation?

The airfreight industry has come so far since the Wright Brother’s made flying in the air possible. There are many huge risks in the industry, including security issues, unexpected events, such as, September 11, 2001, and the COVID-19 pandemic, issues with aircraft production, pilot shortages, and every process involved in making airfreight transportation possible. These risks will always be present in the industry. Luckily, there are protective measures that will continue to fight against these risks. The Transportation Security Administration has worked very hard to fulfill the mission of, “Protecting the nation’s transportation systems to ensure freedom of

movement for people and commerce" (*About).* TSA has also been very successful at educating airport employees to ensure the same safety within operations. Insurances are in place to protect the industry from the risks ahead of them. The processes of insuring airfreight transportation have come a long way in the past several decades and will continue to improve to keep the industry protected. Insurance managers usually run the show and have several duties that they perform daily to maintain constant communication and transparency with the companies they are insuring. Another challenge in the airfreight industry is the obstacles of fuel prices and understanding the hedging method. The relationship between fuel and airfreight opens up numerous possibilities of growth in the future, that will hopefully be taken advantage of in the future. To fight against the risks and uncertainties of the future of this industry, are the benefits that it serves to the world. This industry supports many people in careers, makes transport of items possible in a quick period of time, supports other companies and whole industries while maintaining its own success, and achieves constant annual growth as it improves the operations that make it possible. The opportunity for development of airfreight transportation is infinite and the future appears to be very optimistic.

As stated before, airfreight transportation uses many companies to operate as it does. The risks will increase, the methods of protection will increase, and the general operations will develop further. There will be further questions that will arise for research in transportation of goods. New methods of transportation will be created to increase competition for what aircraft are able to do. The fueling industry may be obsolete if the possibility of electric aircraft come true. Before 1903, when the first aircraft was flown, people would have never expected such an invention. Future generations will continue to create and innovate in every industry; we will never know what new inventions will arise. As I have tapped into a few questions that could

affect the future of the airfreight industry, there will always be more research to be done, and we can hope that there will always be success and innovation in the industry to come from every question that arises.

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