Impact of Liberalisation on Environmental, Social and Economic Value Dimensions of Selected Airline Companies and their Coping Strategies

An Archival Research Based on Qualitative Secondary Data in Form of Relevant Publications and Other Sources

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Description

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Abstract

The liberalization of the aviation industry has ushered in significant changes in economic, environmental, and social dimensions, impacting selected airline companies worldwide. This study aimed to investigate the implications of liberalization on the economic, environmental, and social value of selected airline companies and explore their coping strategies. The liberalization of the aviation sector, marked by deregulation and market opening, has transformed the industry landscape, leading to increased competition and market access. This shift has prompted airline companies to reevaluate their business models and strategies to remain competitive in the liberalized environment.

The study sought to identify positive and negative impacts across these dimensions and explore the coping strategies employed by airlines to mitigate adverse effects. A mono-methods approach was employed, ensured by secondary data based on archival research. Selected airline companies were assessed based on key performance indicators related to economic profitability, environmental sustainability, and social responsibility.

Analysis of the economic dimension revealed both positive and negative impacts of liberalization, including increased market access and intensified competition. Environmental evaluations highlighted the challenges of carbon emissions and resource depletion, alongside efforts to adopt green technologies and sustainable practices. Social assessments identified job creation opportunities and cultural exchange benefits, counterbalanced by concerns of job insecurity and social inequality. Coping strategies varied across companies but commonly included diversification, strategic partnerships, and sustainability initiatives.

The findings underscore the complex interplay between liberalization, economic, environmental, and social dimensions in the airline industry. While liberalization offers opportunities for market expansion, it also poses challenges that require proactive measures and adaptive strategies. The study emphasizes the importance of integrated sustainability approaches that address economic, environmental, and social concerns concurrently. Recommendations include fostering innovation, enhancing regulatory compliance, and promoting stakeholder engagement to ensure the long-term viability and resilience of airline companies in the liberalized market.

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Description

Keywords/tags (subjects)

Liberalization, strategy, ecology, growth, competitiveness, international, regulation, sustainability, tourism, gas emissions, challenges.

Miscellaneous (Confidential information)

Confidential information is not disclosed in the paper.

Contents

1. Introduction

1.1. Background, motivation, and purpose

On May 30, 2023, French engineer and lecturer Jean-Marc Jancovici declared that no more than four flights should be taken in a lifetime.

Air travel is the most polluting mode of transport: "According to the International Civil Aviation Organization (ICAO), emissions generated by the aviation sector account for around 2% of global emissions. (According to ADEME, the figure could be as high as 3%)". Aircraft emissions are 45 times higher than those of a high-speed train, and 10 times higher than those of a bus.

The author decided to look into this subject for a number of reasons. The first is her own studies. Indeed, she is in an international program, and out of her 5 years of study, the author is abroad for 3 and a half. This means she has to fly regularly. So there's a moral battle between awareness of the ecological impact and the practicality of this means of transport. The second reason is the reason for thinking about this subject. During her first internship, she worked opposite an airport, and saw dozens of flights and landings a day. This got her thinking about how the industry worked, which airlines were the least polluting, and how they managed to do it.

According to international bank HSBC, the average traveller takes at least 6.5 flights per year in 2018. HSBC declared, still in 2018, that over 11.9 million people are flying daily. As the years go by, there is a growing desire to travel, and to travel far. In 2018, one-fifth of all flights were ultra-long-haul flights (more than 12 hours flight time)

1.2. Research objectives, questions, and approach

RQ1 : What are the impacts of liberalisation on environmental, social and economic value dimensions of selected airline companies and their coping strategies ?

RO1 : To find out what are the impacts of liberalisation on environmental, social and economic value dimensions of selected airline companies and their coping strategies based on Archival Research including Secondary Data Collection and Analysis

RQ1.1 : What are Social, Economic and Ecological negative impacts of airline industry liberalization?

RO1.1 : To find Out What are Social, Economic and Ecological negative impacts of airline industry liberalisation based on Archival Research including Secondary Data Collection and Analysis

RQ1.2 : What are Social, Economic and Ecological positive impacts of airline industry liberalization?

RO1.2 : To find Out What are Social, Economic and Ecological positive impacts of airline industry liberalisation based on Archival Research including Secondary Data Collection and Analysis

RQ1.3 : What are Social, Economic and Ecological Corrective Actions in the of airline industry liberalization?

RO1.3 : To find Out What are Social, Economic and Ecological Corrective Actions in the of airline industry liberalisation based on Archival Research including Secondary Data Collection and Analysis

1.3. Thesis structure

In order to have a brief overview, this thesis starts with an introduction. In this section, the thesis sets the stage, providing a background, motivation, and purpose for the study. Research objectives, questions, and the chosen approach are outlined, providing a clear roadmap for the reader.

In the second part, the literature review delves into the impact of liberalization on the environmental and social values of airlines. This section critically analyzes existing knowledge, paving the way for the thesis's primary research.

The chapter of Research Methods and Implementation outlines the research context, design, philosophy, purpose, and approach. Detailed explanations of the chosen methods, including qualitative data analysis, are provided. Ethical considerations are meticulously examined, ensuring the research adheres to ethical guidelines.

Presenting the findings, the fourth section discusses key results within the context of the existing knowledge base. It explores limitations, reliability, and validity, addressing the research questions effectively.

This final section synthesizes key findings, offering managerial implications derived from the research. It concludes by providing recommendations for future studies, fostering a bridge between academic inquiry and practical applications in the airline industry.

2. Literature review

2.1. Impact Of Liberalisation On Airlines' Environmental Values

Since the 1970s, ecological awareness has been gradually awakening in people's minds. At the same time, the term "globalization" has found its way into dictionaries. The coexistence of these two terms is dividing opinion and forcing certain sectors to find the right balance. Here we take a look at the airline industry and its challenges and innovations.

2.1.1. Evolution, Context and Environmental Impact

The first ticket for a commercial flight was sold on 1st January 1914. It was a short trip to Florida for $400, the equivalent of just over $9,000 today. Instead of 2,5 hours by boat, the « *St. Petersburg-Tampa Airboat Line »* has succeeded in reducing this time to 23 minutes La croissance du trafic aérien se poursuit en février, n.d.). In 2019, Statista counted 106,849 flights per day. This practice, which has become commonplace for most people, has a real ecological impact. According to Green Peace, the aviation sector contributes 6% to global warming. ICAO, the International Civil Aviation Organisation, estimates that aviation emissions could double or even triple by 2050. To fully understand the ecological impact of commercial aviation, we first need to talk about the carbon footprint. According to the Larousse dictionary, it is the volume of greenhouse gases produced by an activity. Greenhouse gases trap solar heat in our atmosphere and are therefore a major factor in global warming. According to researcher David Lee, in 2018, global aviation - which includes both passengers and freight - emitted an estimated 1.04 billion tonnes of CO_2. This represented 2.5% of total CO_2 emissions in 2018. Aviation emissions have doubled since the mid-1980s.

However, the 2.5% stated above does not correspond to the 6% claimed by Green Peace. This can be explained by the other polluting factors of aviation. In fact, even if carbon emissions, caused by fuel emissions, are the main cause, other criteria also come into play. Air transport causes long-term reductions in ozone (O_3), methane (CH_4), water vapour emissions, soot and sulphur aerosols (S). David Lee and his colleagues (2020) quantified the overall effect of aviation on global warming when all these impacts were included. To do this, they calculated what is known as "radiative forcing". Radiative forcing measures the difference between incoming energy and the energy radiated back into space. If more energy is absorbed than radiated, the atmosphere becomes warmer.

Let's focus on each emission factor that has a negative ecological impact. The first of these is fuel. As mentioned above, it is fuel emissions that lead to the increase in carbon emissions. The fuel used for aircraft is paraffin. It is produced by refining petroleum, which is a fossil fuel. According to the Greenly Institute, the consumption of paraffin on a single flight generates 84% of CO_2 (3.01 kg of CO_2 per litre). The combustion of the fuel is the source of these emissions, accounting for 54.6% of a flight's carbon footprint.

Another factor is condensation trails. These are the white streaks you see when you look up at an aircraft in the sky, and although they may seem harmless, they account for 45.2% of a flight's carbon footprint. Although they are nothing more than water vapour, they lead to the formation of clouds known as cirrus clouds. These clouds remain for long hours, trapping heat and preventing the greenhouse effect from working properly, i.e. they redirect the sun's rays towards the ground instead of space.

The final factor, which accounts for 0.2% of a flight's carbon emissions, is the construction of the aircraft. Among other things, it takes aluminium, metal and titanium to build an aircraft.

However, with a view to achieving carbon neutrality by 2050, players in the aeronautics industry have committed to reducing their carbon emissions by starting to decarbonise the sector. So let's take a look at the ecological footprint of various airlines and their methods of becoming more eco-friendly.

2.1.2. Comparison and Strategies Between A Selection Of Airlines

Each airline plays a more or less important role in reducing emissions. This depends on a number of factors, including whether the airline is a low-cost carrier or not. IATA, the International Air Transport Association, estimates that emissions per passenger kilometre have been halved. We will see in this sub-section that, while airlines are taking a stand and seeking more environmentally responsible strategies, governments are also taking part in the debate. For example, the French government has declared that if the journey can be made in 4 hours by train or less, then it is impossible to take the plane. Internal journeys are therefore minimised, and only flights of more than 2.5 hours are allowed.

But beyond government decisions, airlines are looking for alternatives to reduce their ecological footprint. To make a meaningful comparison, you have to compare like with like. For example, it is difficult to compare RyanAir and Emirates. Ryanair is a low-cost carrier (LCC), which favours shorter flights, whereas Emirates is a very international airline, with flights from Paris to Sydney, for example. Logically, the most polluting flights are the longest. So LCCs are not necessarily the most harmful to the environment.

The Paris Agreements, an international treaty taking measures to counter, or at least stabilise, climate change, set targets. According to a survey based on research by specialists at the Grantham Research Institute, none of the 20 major airlines have kept their targets up to date. However, the survey dates from 2019 and may have changed since then. Of the 20, the UK's EasyJet was named the least polluting airline. In 2020, it will have an emissions intensity of 75 grams of CO2 per passenger per kilometre, a reduction of seven grams compared with 2014 and the best score on the list of twenty airlines. It is followed by Alaska Airlines of the United States, which will have an emissions intensity of 87 grams of CO2 per passenger per kilometre by 2020, and Australia's Qantas, with 89 grams of CO2 per passenger per kilometre next year. Among the worst performers, the top three are Japan Airlines (125 gCO2/passenger km), the ANA group (133) and Korean Air (172) (Férard, 2019b).

Company	Emissions intensity of flight operations (gCO2/passenger kilometre)						
	2014	2015	2016	2017	2020	2022	2025
Air China	111	112	111	107	108		
Alaska Air	94	93	91	91	87		
American Airlines	119	116	116	115			
ANA Group	137	134	132	128	133		
China Southern	114	112	112	108			
Delta	118	116	115	113	104		
Easyjet	82	81	80	79	75	72	
IAG	125	119	116	112	112		
IndiGo	No data						
Japan Airlines	140	132	134	134	125		
Jetblue	101	101	100	101	98		
Korean Air	188	181	175	171	172		
LATAM	108	104	100	96	102		
Lufthansa	127	126	126	120	107		
Qantas	104	101	101	98	89		
Singapore Airlines	138	138	141	136			
Southwest	102	99	98	97	98		
Turkish Airlines		109	119	110	107	106	104
United	107	106	104	104	92		
Wizz Air	No data						
2D (High Efficiency)	129	125	121	118	106	99	88
2D (Shift-Improve)	129	126	123	120	111	105	96
International Pledges	129	126	124	122	115	110	104
Key	Aligned with 2C (High Efficiency)		Aligned with 2C (Shift-Improve)		Aligned with Internat'l Pledges		Not aligned

Figure 1. Emissions intensity of flight operations regarding different airline companies

Source: Transition Pathway Initiative

2.2. Impact Of Liberalisation On Airlines' Economic Values

The aeronautics sector plays a major role in the global economy. In fact, since 1995, the civil aviation sector has recorded a growth rate higher than that of GDP, the gross domestic product. GDP has grown by 2.8% since 1995, while air traffic has grown by an average of 5%.

The sector also contributes indirectly to the global economy. This can be through the jobs it creates, the tourism it generates, the stimulation of foreign investment and trade, or the local businesses that benefit from it. The key role played by the sector means that it cannot fail in its missions, which were undermined during the COVID-19 pandemic. We will therefore focus here on the sector's economic practices.

2.2.1. Evolution, Context and Economical Impact

Throughout its evolution, the global aviation industry has been confronted with major technological breakthroughs, most notably the advent of commercial jets in the 1950s, followed by the creation of wide-body aircraft in the 1970s. At the same time, international airlines were faced with extensive regulatory frameworks around the world, creating an atmosphere where technological progress and government policies overshadowed considerations of profitability and competition. It was not until the economic deregulation of the airline industry in the United States in 1978 that airline management refocused on issues of cost efficiency, operational profitability and competitive dynamics. Under the impetus of the United States, the process of airline deregulation or, at the very least, 'liberalisation' has now extended its influence to a considerable part of the developed world. This impact is being felt not only on domestic air transport in individual countries, but is also significantly shaping the ongoing transformation of a fiercely competitive global airline industry.

Here are some figures to prove the size of the aviation market: According to a report by MIT, the Global Airline Industry Program, there are more than 2,000 airlines that cover more than 3,700 airports with 23,000 aircraft. And these figures are those of 2006, and have therefore increased

well since. For example, in 2019 alone, 256 new airlines entered the market (*Tracking the Evolution of Airlines: 2019-2023 | Aviation Market Analysis, n.d.*)

However, the sector has been hit hard by the COVID-19 crisis. Considerable losses have been recorded and have unfairly affected every region of the world. In North America, traditionally a strong performer, airlines are estimated to incur a net loss of $23.1 billion in 2020, with a net loss of $38.15 per passenger, according to IATA Economics. Despite a relatively better net margin of –16.8%, supported by US government assistance, airlines are anticipated to face challenges in the recovery period, leading to a 10-point increase in breakeven load factors to 68.0%.

In Europe, breakeven load factors are expected to rise to 75.7% due to low yields, with an estimated net loss of $21.5 billion in 2020. While intra-regional travel is expected to resume in June, phased market openings may support recovery.

Asia-Pacific, being the first region exposed to the crisis, is anticipated to have larger losses compared to other regions, with an average loss per passenger of $30.1. Overall, net losses in 2020 for the region are forecasted at $29 billion, with a net margin of –22.5%.

Middle Eastern airlines, already undergoing restructuring, are expected to see losses rise to $4.8 billion in 2020. Latin America, facing mixed performance before the crisis, is expected to post a $4.0 billion net loss in 2020.

Africa, the weakest region pre-crisis, is anticipated to have a $2.0 billion net loss in 2020, further challenging an already difficult operating environment (Economic Performance of the Airline Industry Key Points, 2020)

Figure 2. COVID-19 Impact on the Airline Industry in all Regions (Economic Performance of the Airline Industry Key Points, 2020)

It is in this turbulent context that airlines seek sound economic practices to counter crises. Air transport economics is a cornerstone of the aviation industry, studying the financial and economic elements that shape the operational landscape of airlines. Here, we delve into the nuances of several key concepts in this field, which are essential to understanding and navigating the economic complexities of the aviation sector.

First of all, a key point in the aviation economic landscape is the cost structure. Airlines are faced with a particular cost structure, comprising high fixed costs such as aircraft acquisition and maintenance, combined with variable costs such as fuel and labor. The key to airline profitability lies in

Worldwide airline Industry	2018	2019	2020F
Africa			
Net post-tax profit, $billion	-0.1	-0.3	-2.0
Per passenger, $	-1.09	-2.67	-42.02
% revenue	-0.7%	-1.8%	-30.5%
RPK growth, %	8.0%	4.5%	-58.5%
ASK growth, %	7.5%	4.2%	-50.4%
Load factor, % ATK	60.7%	59.7%	52.2%
Breakeven load factor, % ATK	59.8%	59.1%	67.3%
Asia-Pacific			
Net post-tax profit, $billion	6.1	4.9	-29.0
Per passenger, $	3.74	2.92	-30.09
% revenue	2.4%	1.9%	-22.5%
RPK growth, %	7.0%	4.8%	-53.8%
ASK growth, %	6.8%	4.5%	-39.2%
Load factor, % ATK	72.5%	71.8%	61.4%
Breakeven load factor, % ATK	68.5%	68.4%	78.3%
Middle East			
Net post-tax profit, $billion	-1.5	-1.5	-4.8
Per passenger, $	-6.69	-6.75	-37.03
% revenue	-2.7%	-2.7%	-14.8%
RPK growth, %	7.0%	2.3%	-56.1%
ASK growth, %	4.9%	0.1%	-46.1%
Load factor, % ATK	65.2%	65.1%	57.1%
Breakeven load factor, % ATK	68.2%	68.5%	69.1%
Latin America			
Net post-tax profit, $billion	-0.8	-0.7	-4.0
Per passenger, $	-2.78	-2.24	-27.83
% revenue	-2.3%	-1.8%	-22.8%
RPK growth, %	8.0%	4.1%	-57.4%
ASK growth, %	7.5%	3.0%	-43.3%
Load factor, % ATK	67.9%	67.7%	56.9%
Breakeven load factor, % ATK	66.0%	65.7%	69.3%
North America			
Net post-tax profit, $billion	14.5	17.4	-23.1
Per passenger, $	14.66	16.95	-38.15
% revenue	5.7%	6.6%	-16.8%
RPK growth, %	3.5%	3.9%	-52.6%
ASK growth, %	3.4%	2.9%	-35.2%
Load factor, % ATK	64.9%	64.8%	56.1%
Breakeven load factor, % ATK	59.0%	58.5%	68.0%
Europe			
Net post-tax profit, $billion	9.1	6.5	-21.5
Per passenger, $	7.94	5.42	-34.39
% revenue	4.5%	3.1%	-22.1%
RPK growth, %	6.0%	4.3%	-56.4%
ASK growth, %	5.5%	3.6%	-42.9%
Load factor, % ATK	74.8%	74.4%	62.3%
Breakeven load factor, % ATK	70.2%	70.8%	75.7%

Note: RPK = Revenue Passenger Kilometers, ASK = Available Seat Kilometers, ATK = Available Tonne Kilometers. **Current year or forward-looking industry financial assessments should not be taken as reflecting the performance of individual airlines, which can differ significantly**. Sources: ICAO, IATA.

the meticulous management of these costs, which requires a constant search for ways to reduce expenditure while maintaining operational efficiency.

In addition, revenue management is at the heart of maximizing economic profitability and involves the implementation of pricing strategies. Airlines rely on sophisticated software to analyze demand patterns in minute detail. Prices are then dynamically adjusted, taking into account factors such as time of day, day of week, season, and competitive landscape.

The load factor is an essential indicator of an airline's flight load factor. Calculated by dividing the number of passengers by the total number of available seats, a high load factor means optimum seat occupancy and maximum revenue generation for the airline.

Another important factor in assessing the economic health of airlines is yield. Yield, a central concept in air transport economics, refers to the average price paid per mile or kilometer flown by

a passenger. Effective yield management involves adjusting ticket prices according to factors such as demand elasticity and competitive dynamics, to ensure optimum revenue generation.

Network optimization enables the efficient design of an airline's route network, and is a multi-faceted process requiring a delicate balance between factors such as demand, competition and operational costs. The aim is to create a network that maximizes connectivity to various destinations while minimizing overall expenditure.

Economies of scale also play a key role in securing cost advantages for major airlines. These advantages derive from the ability to negotiate favorable agreements on key items such as fuel and supplies. Operating a larger fleet also enables operational efficiencies that contribute to lower unit costs.

Finally, government regulation is not insignificant in the economics of air transport. Airlines must navigate and comply with a myriad of regulations relating to safety, security and environmental impact. « In addition, governments may impose taxes and fees on airlines, which can significantly impact their profitability. » (*Uday, 2023*)

2.2.2. Strategies And Comparison Between A Selection Of Airlines

As stated in the section above, 256 new airlines entered the market in 2019. "However, 20% (50 airlines) of the original 256 failed to file any capacity this year, highlighting the tough challenge of managing airline start-ups." (*Tracking the Evolution of Airlines: 2019-2023 | Aviation Market Analysis, n.d*.).

Faced with this increase in supply, the sector is also seeing an increase in demand. Taking into consideration the fact that the amount of travelers is increasing, it is crucial to mention that the real cost of travel has fallen by about 60% over the last four decades (*IATA, 2011*)

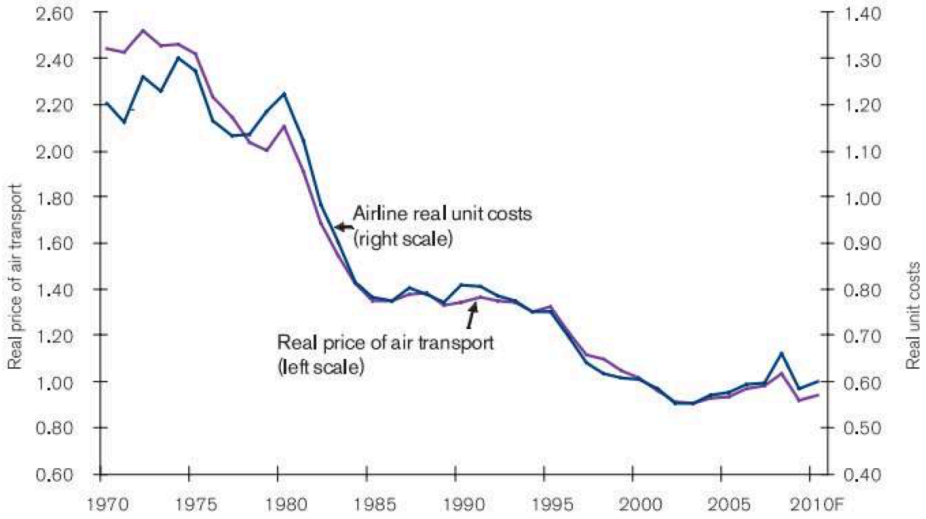


Figure 3. The real cost of air transport has more than halved (Source: *ICAO, IATA*)

Moreover, there is a noticeable expansion in the low-cost carrier business (LCC) model. “In 1994, LCCs provided less than 10 percent of all short-haul flights (less than 3,000 miles), the majority of which Southwest flew. Today, LCCs fly almost 30 percent of short-haul flights.” (*Boeing, 2015*). This trend is particularly pronounced in specific global regions, such as North America, Europe, and Southeast Asia.

This multitude of offers enables travelers to compare the best value for money and therefore increases competition between each airline. As no airline has a monopoly on the market, consumers have options: "Today, 85 percent of airline passengers have a choice of two or more carriers, compared with only two-thirds in 1978" (*Avjobs & Inc, 2015*). Low-cost carriers offer significant discounts to travelers, creating competition and disrupting the market share of traditional airlines. As a result, the growth of low-cost airlines is forcing traditional airlines to modify their strategies to avoid losing further market share (*Fedosova, 2016*).

So how do LCCs differ from traditional companies? How do these low-cost airlines manage to make a profit from their activity? Thanks to an article by Picardo, in 2022, here are a few tools to help answer these questions. Following deregulation, many major airlines quickly adopted the 'hub-and-spoke' model. In this model, a major airport becomes the hub and other destinations become the spokes. However, low-cost airlines have abandoned this system in favor of the point-to-point model.

The point-to-point model allows airlines to consolidate their passengers at the hub and then fly them to their final destinations (the spokes) using smaller aircraft. This increases the percentage of seats occupied, which helps to lower fares. In addition, the hub-and-spoke system increases the number of possible destinations. However, it also has its drawbacks, such as the high cost of maintaining such a complex infrastructure. The hub-and-spoke system also imposes longer journey times on customers who have to transit the hubs. Finally, it is vulnerable to cascading delays caused by hub congestion.

The point-to-point system, on the other hand, links each origin and destination with non-stop flights. It generates substantial savings by eliminating the intermediate stop at the hub, which eliminates the costs associated with developing the hub. The point-to-point system also reduces total journey time and allows better aircraft utilization. The main constraint of the point-to-point model is its limited geographical reach. Unfortunately, direct flights are not economically viable for many cities (*Picardo, 2022*).

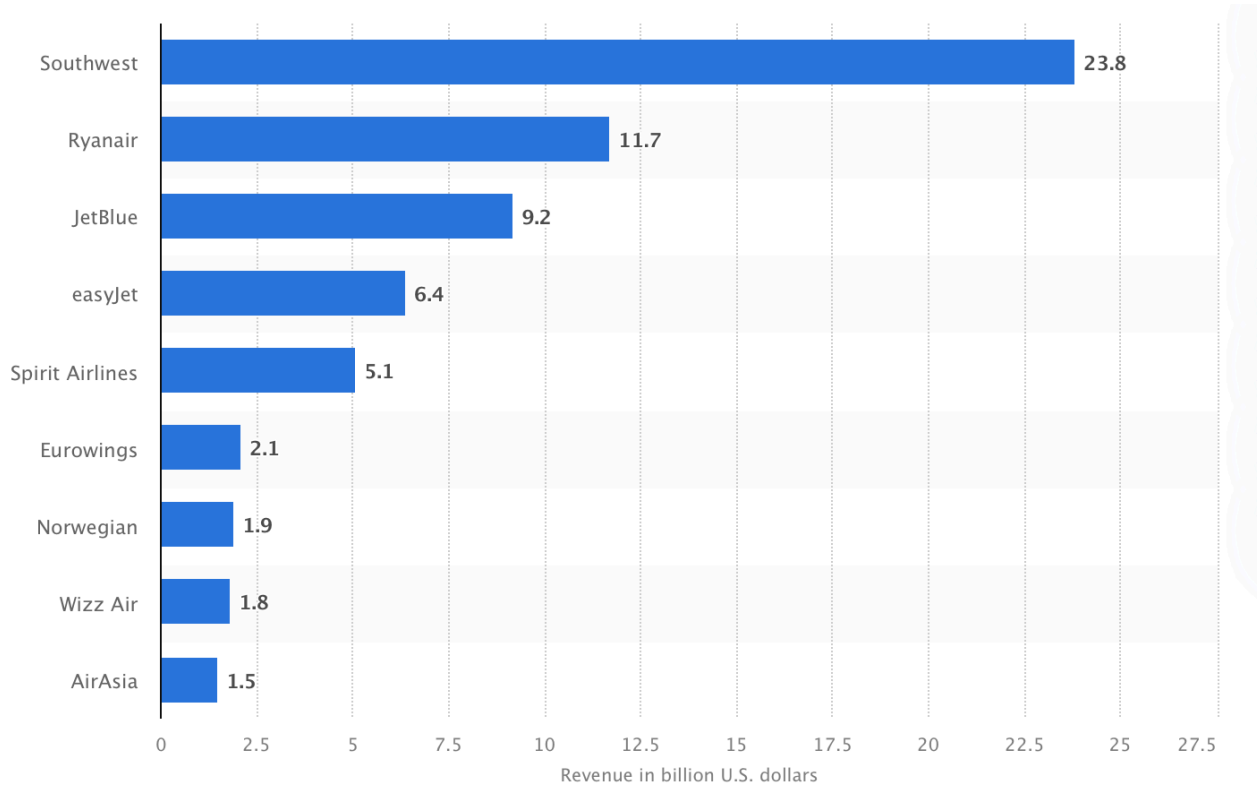
One of the key points of LCCs is discount pricing. Although at first sight, this may appear to be a brake on profits, the number of travelers interested in this quality-price ratio boosts airline turnover. Indeed, ticket prices are now the main competitive factor for airlines. Most consumers want to reach their destination quickly and cheaply and are prepared to forego food and in-flight entertainment to save money. This desire to save money also extends to business travelers, as companies are increasingly reducing their travel costs.

If we analyze the world's most lucrative airlines in 2022 (Figure 4), we see that they are exclusively LCCs. Geographically, most of them are European, which can be explained by the fact that journey times are shorter than in the United States or Asia, for example.

Figure 4. Selected low-cost airlines worldwide in 2022, based on revenue (in billion U.S. dollars) (Source : Low Cost Carriers - Revenue 2018 | Statista, 2018)

2.3. Impact Of Liberalisation On Airlines' Social Values

Air transport makes many social contributions. First and foremost, it is a sector that facilitates tourism, provides a means of transport linking isolated areas, or enables the repatriation of supplies or people in emergencies. As ATAG points out, "An enabler of tourism, 58% of all international tou-



rists travel to their destinations by air. Air transport allows people to have adventures in new countries, to relax on tropical beaches, to build business relationships, and to visit friends and family. As our global economy grows ever more linked, aviation is the factor that brings people together."

What's more, it's a sector that offers a huge number of jobs. For example, pilots, flight attendants, technicians, and control tower agents, not to mention all those who work within the airport itself. According to ATAG, this market offers 87.7 million jobs and 11.3 million direct jobs. Another interesting figure is 17. If aviation were a country, it would be the 17th largest economy in the world, with an economic impact of nearly 3,500 billion dollars. (*Supporting Economic & Social Development* | ATAG, n.d.)

2.3.1. Evolution, Context, and Social Impact

In September 2020, ATAG (Air Transport Action Group) produced a report entitled "Aviation: Benefits Beyond Borders", which explores the different ways in which aviation contributes to employment, to the lives of millions of people around the world and to sustainable development. It is thanks to this report that it is possible to quantify the number of jobs generated by the aviation sector and the spin-offs on each continent of the world (Figure 5).

In terms of quantifying the number of jobs, ATAG counted over 648,000 airport operators in 2020. This includes engineers, security, logistics, ... What's more, air transport accounts for around 35% of world trade by value. These figures are distributed worldwide (Figure 5). We can see that the majority of travellers who use this means of transport are to be found in the Asia-Pacific region. However, the volume does not allow them to be the first continent supporting their GDP. This trophy goes to North America, which is by far the most lucrative in terms of GDP. But if we refocus on the social aspect, the majority of the world's aerospace employees are to be found in Asia-Pacific, with 46.7 million jobs.

Region	Jobs supported	GDP supported	Passengers (2019)	% of global passengers
AFRICA	7.7 m	$63 bn	115 m	2.5%
ASIA-PACIFIC	46.7 m	$944 bn	1.7 bn	37%
EUROPE	13.5 m	$991 bn	1.2 bn	26%
LATIN AMERICA AND THE CARIBBEAN	7.6 m	$187 bn	356 m	7.7%
MIDDLE EAST	3.3 m	$213 bn	192 m	4.2%
NORTH AMERICA	8.8 m	$1.1 trn	1 bn	22.7%

Figure 5. Impact of air transportation by continent (Source: Sustainable Growth Plan for Building Global Connectivity Following the Worst Crisis in Aviation History, 2020)

The increase in cross-border travel is a reflection of the closer relations that are developing between countries, both between individuals and at state level. Similarly, the easing of restrictions on the cross-border movement of goods and people facilitates the development of social networks with lasting effects. This improvement in the movement of people and goods benefits both host and home countries, encouraging greater social integration.

Air transport is a vital lifeline for communities without adequate road or rail networks. For many isolated communities and small islands, access to the rest of the world and to essential services such as healthcare is often only possible by air : « In Malaysia, the Transport Ministry signed an agreement in 2019 to operate 40 rural air service routes in Sabah and Sarawak on the island of Borneo to help promote national connectivity and provide support for remote communities » (ATAG, 2020, p.28)

The speed and reliability of aviation is perhaps most immediately apparent in the delivery of much-needed aid in emergencies caused by natural disaster, famine or war. (ATAG, 2020, p.15)

Flying brings unparalleled network. It is an fundamentally portion of any future transport biological system. It gives by and large worldwide versatility and is in numerous cases the as it were down to earth association in a national and worldwide setting: both for worldwide courses between created and rising economies, between universal commerce centres conjointly get to to farther communities where building rail or street foundation would be as well expensive.

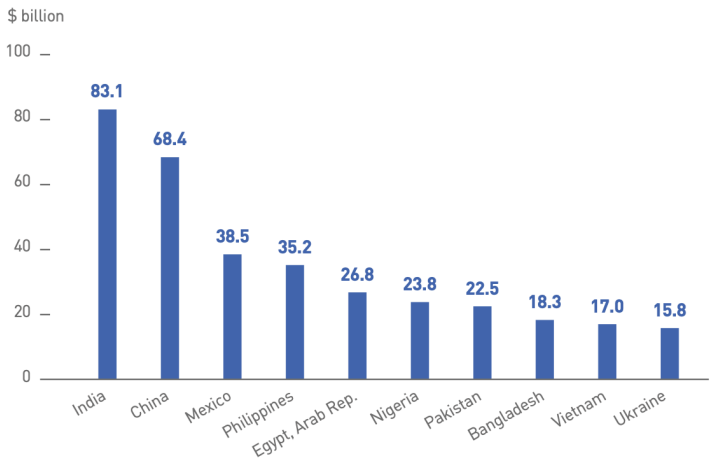
To analyze the social impact of this means of transport, the author has drawn on the United Nations' Sustainable Development Goals (SDGs). In fact, many of these 17 goals revolve around the social purpose, and thanks to the report drawn up by ATAG, an analysis was carried out on the success of its missions.

The third objective is well-being, which is today a key point of global social development, both in the East and in the West. Indeed, as highlighted in the previous section, the air transport sector helps to create links between regions, allowing families to reunite, which tend to be more dispersed in the 21st century. In addition, this means of transport allows people to move abroad in search of work, thus enlarging the area and, in the long term, avoiding unemployment by offering a new job market. The ATAG report states: "The United Nations' International Labour Organization estimates that in 2017, 164 million people were migrant workers - a rise of 9% since 2013, when they numbered 150 million. » (ATAG, 2020, p.28)

The aeronautics sector contributes directly and indirectly to social change. As mentioned above, it enables many workers to move abroad to work in a new market. This in turn enables them to send funds back to their countries of origin, thereby contributing to the first mission of the SDGs - no poverty. This transaction of funds is facilitated by maintaining physical links, i.e. to the air network. This helps to reduce poverty in certain countries (Figure 6), and indirectly contributes to the country's economy and the social status of its inhabitants.

Supporting those at home

Top remittance-receiving low- and middle-income countries, 2019[125].



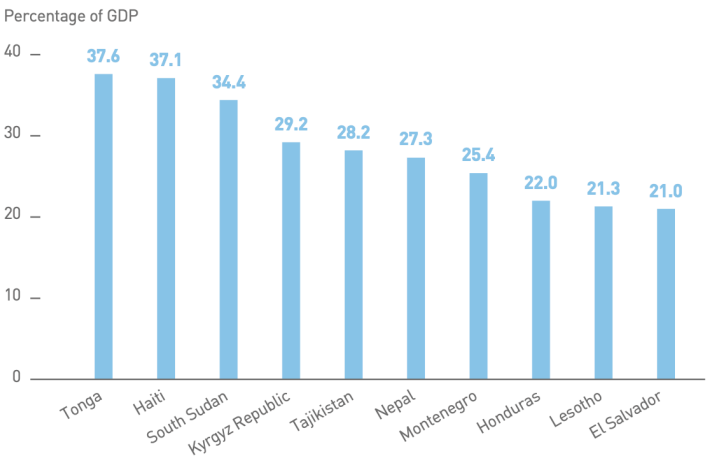


Figure 6. Top remittance-receiving low and middle-income countries in 2019 (Source: Tracking the Evolution of airlines: 2019-2023 | Aviation Market Analysis, n.d., p. 30)

2.3.2. Strategies And Comparison Between A Selection Of Airlines

As explained above, the social impact of airlines and the industry in general works on several levels. This can be external to the sector, such as tourism, the opportunity to work abroad, or connecting remote communities. But there is also an internal impact. The United Nations' 5th SDG focuses on gender equality, but this is a complex issue in the aviation market. Admittedly, a certain number of women - 2/5ths - are employed within the network. However, these are mainly stewardesses, with very few technical or pilot roles. Let's compare a few airlines and see how they are tackling this challenge. Low-cost carrier Easy-jet has set itself the target of having 20% female pilots by 2020, compared with the previous figure of 6%.

US carrier Alaska Airlines brought together industry leaders to discuss the role men can play in advancing the position of women in the sector. The program is called "Forum for Engaging Men, Advancing Women".

British Airways is also active in this field. It ensures that gender equality is achieved, particularly in management positions.

In addition to employees, some female passengers have also been assaulted. Two Indian airlines, Air India and Vistara Airlines, are fighting this scourge. Both airlines have created special rows for women or no women in the middle row. It's a non-paying option that has proved popular with customers. (SDG 5 Gender Equality, n.d., p. 5)

The aeronautics sector is also contributing to the first MDG, "no poverty". With this in mind, UNICEF has teamed up with a large number of companies under the "Change for Good" program. The coin drive raised $150 million for children around the world. As explained in the previous section, aviation plays an indirect role in the fight against poverty. Its economic development raises the social status of some people. Some airlines play a direct role in this fight: "The Virgin Atlantic Foundation invests in communities in Africa, India, and China through the WE villages program, where they invest in long-term development to alleviate poverty." (SDG 1 No Poverty, n.d., p. 1). Belgian airline Brussel Airline also invests in Africa to alleviate poverty, with the b.foundation. Finally, "The

Emirates Airline Foundation is a non-profit charity organization which aims to improve the quality of life for children, regardless of geographical, political, or religious boundaries."(SDG 1 No Poverty, n.d., p. 1)

The aeronautics sector is also acting in favor of the 10th SDG, the reduction of inequality. As announced in the introduction, the first flight cost over $9,000. According to ATAG's 2020 report, the real cost of a ticket has fallen by 60% since 1970. A greater number of people therefore have access to this means of transport. Some airlines support student expatriation abroad. For example: « Airways New Zealand runs the First Foundation scholarship, which funds young people with limited financial resources to attend university for four years. It is open to students intending to study a career in engineering from disadvantaged areas. » (SDG 10: Reduced Inequalities, n.d.)

The social impact of the airline industry extends both externally and internally. Externally, airlines promote global connectivity, tourism and community links. Internally, gender equality remains a challenge, but companies such as EasyJet, Alaska Airlines and British Airways are working hard to address disparities. The sector actively contributes to the UN's Sustainable Development Goals, fighting poverty through initiatives such as UNICEF's "Change for Good", and supporting the reduction of inequality, as evidenced by lower ticket prices and the provision of scholarships. Overall, the sector demonstrates a commitment to social responsibility and sustainable development.

2.4. Research Gap

In researching the results of the thesis, the author observed heterogeneity in access to information. When it comes to documents on the environmental impact of civil aviation, a multitude of sources are available. The same applies to the positive impacts of the sector's social and economic values.

However, the author had more difficulty finding articles or publications on the actions taken to counter the negative impacts. There is a lot of observation and very little action proposed by the market. This gap in the research proves that the market, and more specifically the airlines, are not taking this into account or projecting ahead.

Let’s identify 5 publications and analyze them in terms of context, methodology, and framework. The first publication, "The effects of airline strategies on environmental sustainability" (G.Orhan,

2021), examines how airline business strategies within a liberalized and globalized air transport industry impact environmental sustainability. It conducts a literature review and calculates emission rates for aircraft landing and take-off phases on a global scale. The study suggests that airline strategies, driven by liberalization policies, may contradict environmental sustainability, leading to projected increases in aircraft departures and emissions. It emphasizes the importance of shaping airline strategies to achieve corporate and environmental sustainability, offering insights for policymakers and airline managers. By linking environmental impacts with airline strategies, the publication provides a unique perspective on the subject, addressing a gap in the literature.

The second publication, « Low-cost airlines in Europe: Reconciling liberalization and sustainability » (Graham & Shaw, 2008) examines the conflicts arising from the growth of European low-cost carriers (LCCs) within the context of air transport liberalization and sustainability concerns.Using a qualitative approach, the study analyzes the interconnections between liberalization, economic development, and environmental sustainability through literature review and empirical evidence. It presents three interconnected networks: liberalization's impact on LCC emergence, economic benefits from air transport growth, and the tensions between economic development and environmental sustainability. The study finds that while LCC expansion drives economic growth, it poses challenges to environmental sustainability. Efforts to mitigate environmental impacts are outweighed by forces promoting air transport development, highlighting the complexities of reconciling growth with sustainability goals.

"Air Transport Liberalization and Its Impacts on Airline Competition and Air Passenger Traffic" by Xiaowen Fu, Tae Hoon Oum, Anming Zhang, investigates the impacts of air transport liberalization policies on economic growth, traffic volume, and traffic flow patterns.Through empirical analysis, the study examines the effects of liberalization on competition dynamics, network optimization, and passenger traffic. It identifies three key findings:

1. Liberalization fosters economic and traffic growth by enhancing competition and efficiency in the airline industry.
2. Airlines optimize their networks under liberalization, leading to changes in traffic flow patterns.
3. The expansion of low-cost carriers (LCCs) stimulates traffic and competition, necessitating further liberalization for maximum benefits.

The study underscores the importance of liberalization in driving economic growth and traffic expansion in the airline industry, emphasizing the need for continued regulatory reforms to maximize benefits.

Let’s move to "Air Transport Liberalization and its Effects on Airline Competition and Traffic Growth – An Overview" by Xiaowen Fu, Tae Hoon Oum. It examines the effects of air transport liberalization and the role of airport-airline vertical arrangements in liberalized markets. Through a review of literature and empirical analysis, the chapter investigates the impacts of liberalization on economic and traffic growth in the airline industry. Key findings include that airlines optimize their networks under liberalization, leading to demand and financial uncertainty for airports. Also, vertical arrangements between airlines and airports offer benefits but may also create entry barriers, limiting the effects of liberalization. The publication emphasizes the importance of understanding the complexities of air transport liberalization and suggests utilizing analytical, econometric, and computational network methods in policy studies to model its effects accurately.

Last but not least, the publication "Airport-airline coordination for the decarbonization of the aviation sector" by Aasheesh Dixit , Patanjal Kumar , Suresh Kumar Jakhar is relevant to identify the research gap of the thesis. The paper investigates how agreements between socially responsible airports and environmentally conscious airlines impact profitability and coordination for decarbonizing the aviation sector. Using theoretical models and numerical analysis, the study examines the effects of these agreements under two settings: with and without government interventions.

Key findings include the coordination agreements between airports and airlines improve channel performance, leading to better economic, environmental, and social outcomes. Also, the revenue sharing and linear two-part tariff agreements effectively coordinate the airport-airline channel, while government taxation also improves greening levels but is less effective than coordinating agreements. Finally, the environmental considerations affect factors such as airport charges, ticket fares, and air travel demand, with implications for airline profitability and greening investments. The study underscores the significance of airport-airline coordination in achieving sustainable growth in the aviation sector. It suggests that coordinating agreements, along with government interventions, can enhance decarbonization efforts and overall outcomes for airlines, airports, and the environment.

2.5. Research Framework

The research framework of this thesis was based on Helen Ross, Michael Cuthill, Kirsten Maclean, Danni Jansen and Bradd Witt (2010) « Understanding, Enhancing and Managing for Social Resilience at the Regional Scale: Opportunities in North Queensland »

The concept of the research framework are introduced above in the literature review.

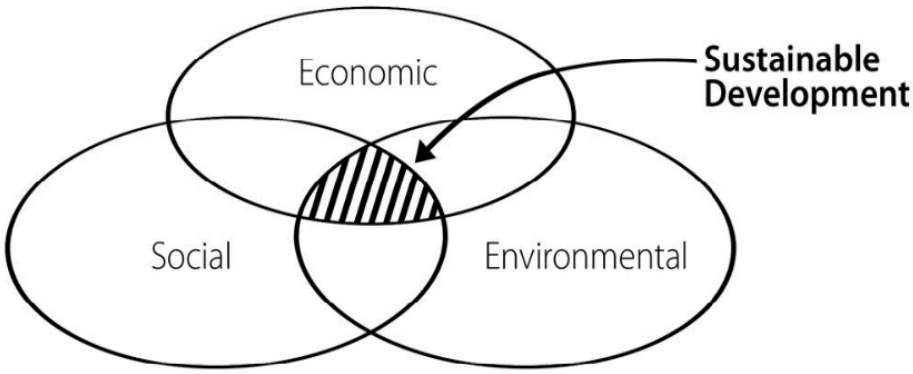


Figure 7. The model of the Interrelationship between social, environmental and economic factors in sustainable development by Ross, Cuthill, Maclean, Jansen and Witt (2010)

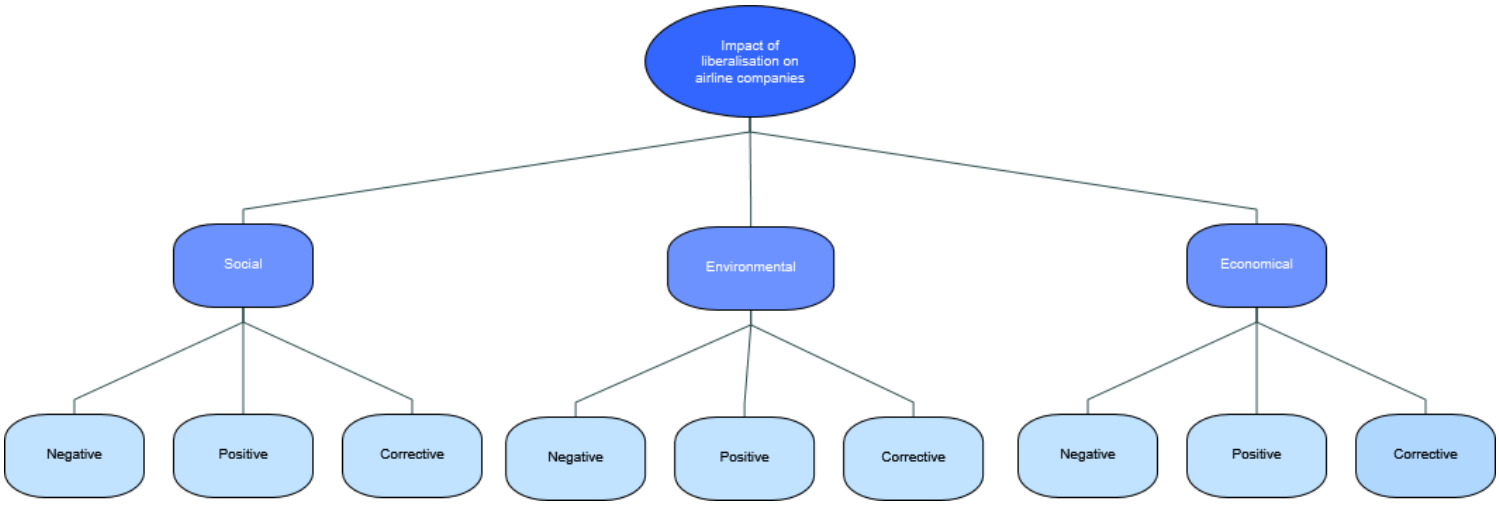


Figure 8. Research framework based on the model of the Interrelationship between social, environmental and economic factors in sustainable development by Ross, Cuthill, Maclean, Jansen and Witt (2010

3. Research methods and implementation

3.1. Research context

The aviation industry has recently undergone significant transformations, placing a greater emphasis on sustainability. Within this sector, there are numerous challenges related to sustainability, such as pollution, safety concerns, unemployment, and efficiency issues.

In response, many airline companies are striving to tackle these challenges through various strategies.

The aim of this bachelor's thesis is to investigate how different practices, encompassing social, environmental, and economic values, contribute to sustainability within the commercial aviation industry. Through an analysis of existing research and case studies of airline firms, this study intends to provide insights into how the aviation industry can effectively leverage these practices to promote sustainability in this mode of transportation

3.2. Research design

The foundation of the author's study rested upon a 2012 article titled "The Saunders Research Onion," which intricately outlined the various developmental stages of a research project. This article delved deeply into the research methodology, offering a comprehensive understanding of the intricacies involved. What set "The Saunders Research Onion" apart was its structured, layered framework, which proved instrumental in assisting researchers to methodically organize their research endeavors.

The metaphorical representation of an onion was employed to symbolize the layers inherent in the research design. These layers spanned from overarching philosophical considerations, forming the outermost layer, and progressed inward, gradually narrowing down to specific decisions regarding methods and techniques. By employing "The Saunders Research Onion," researchers were equip-

ped with a systematic and organized approach, ensuring that every facet of the research process, from formulating the research question to evaluating the results, was meticulously considered and addressed.

Utilizing this framework became invaluable in guiding the research process of this thesis. It not only provided a clear roadmap but also acted as a structured guide, guaranteeing that all essential elements were thoughtfully incorporated into the final product. This methodical approach not only streamlined the research process but also enhanced the thesis's overall coherence and completeness.

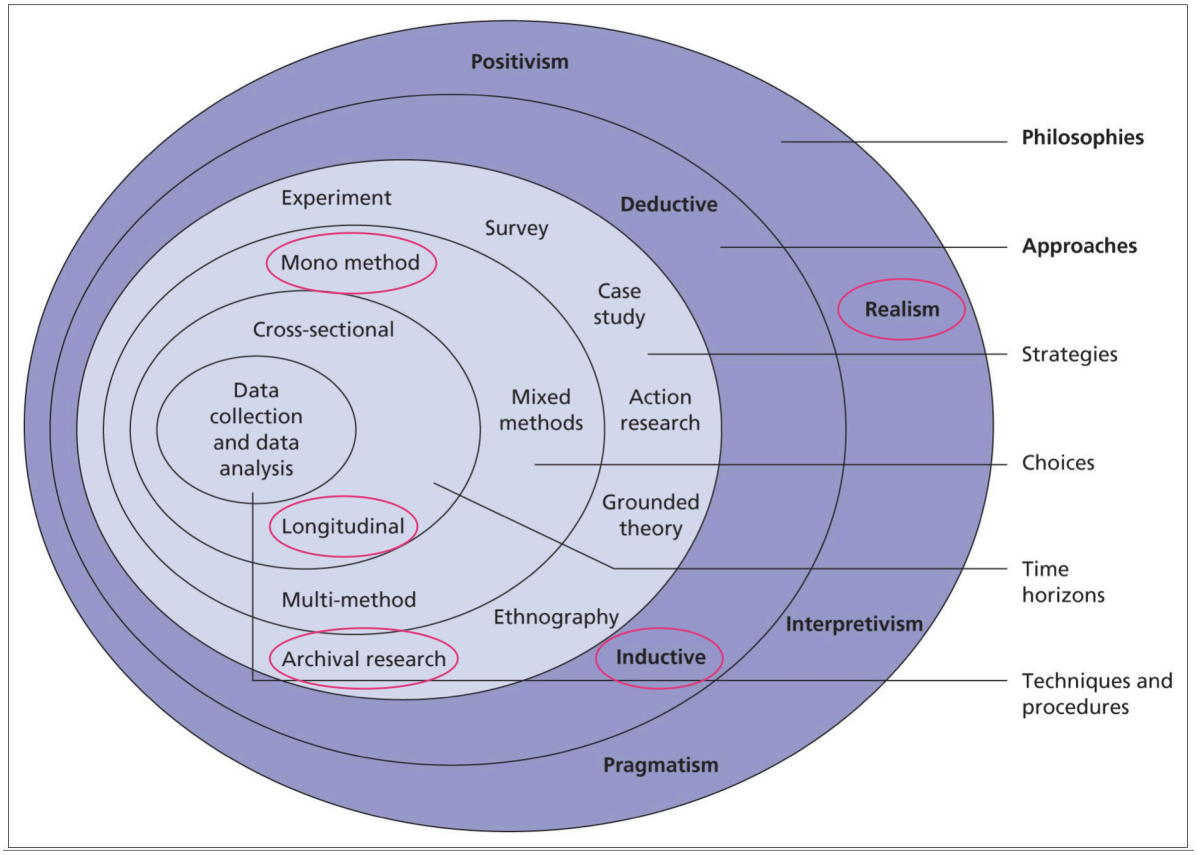


Figure 9. Research philosophy in the research onion (Table adapted from Saunders et al., 2012)

3.2.1. Research philosophy

The research philosophy that aligns with this study is realism.

Realism is a fitting research philosophy for this study because it emphasizes an objective understanding of reality. This philosophy allows for an empirical investigation into the actual impacts of liberalization on environmental, social, and economic dimensions within selected airline compa-

nies. Realism also facilitates the identification of causal relationships and practical coping strategies for sustainable development, aligning well with the applied nature of this research.

3.2.2. Research purpose

The research objective of this topic is exploratory.

The thesis aims to study and understand the impact of liberalization on the environmental, social and economic values of selected airlines. In addition, it seeks to explore the adaptation strategies employed by these airlines for sustainable development. Exploratory research is conducted when the subject is not well defined or understood, and the researcher intends to explore new phenomena, acquire knowledge and generate hypotheses for future research. In this case, the study looks at the relatively unexplored area of the impact of liberalization on airlines, examining multiple dimensions and coping strategies.

3.2.3. Research approach

The research approach is inductive.

Inductive research involves moving from specific observations and data to broader generalizations and theories. In the context of the thesis topic, which focuses on studying the impact of liberalization on environmental, social, and economic value dimensions of selected airline companies and their coping strategies for sustainable development, an inductive approach would entail collecting specific data related to the selected airline companies' experiences with liberalization and their coping strategies. Through in-depth analysis and interpretation of this specific data, the researcher can develop broader theories and generalizations about the impact of liberalization on airline companies and their sustainable development strategies.

"The Saunders Research Onion" often encourages a bottom-up approach, starting with specific data and moving towards developing theories and concepts based on the collected data. This aligns with the inductive research approach, making it suitable for this thesis subject as it aims to explore specific cases (selected airline companies) to draw broader conclusions and theories about the impact of liberalization and coping strategies in the airline industry.

3.2.4. Research strategy/method/s

In this thesis, the chosen research philosophy of realism is applied to comprehensively study the impact of liberalization on environmental, social, and economic value dimensions within selected airline companies. Realism, emphasizing an objective understanding of reality, allows for an empirical investigation into the tangible consequences of liberalization in the airline industry.

The selected research method for this study is archival research, primarily relying on secondary data derived from relevant publications. This approach involves scrutinizing existing records, reports, and scholarly works related to the liberalization policies and practices in the airline sector. By leveraging secondary data, the study aims to provide a robust analysis of the historical context and trends, offering valuable insights into the long-term effects of liberalization on the environmental, social, and economic aspects of airline companies.

The archival research method aligns with the realist philosophy by allowing for a meticulous examination of past events and outcomes. It facilitates the identification of causal relationships and patterns, enabling a deeper understanding of how liberalization has influenced the sustainable development strategies adopted by the selected airline companies. Additionally, the reliance on secondary data provides a practical and efficient means to access a wealth of information, contributing to the comprehensive exploration of the subject matter.

3.2.5. Methodological choice

The decision to employ a mono-method approach is underpinned by several key considerations. First and foremost, the complexity of the research questions necessitates a focused and in-depth exploration of a specific research method. By concentrating efforts on a single methodological approach, the study aims to achieve a profound understanding of a particular dimension of the research problem, ensuring that the analysis is rigorous, nuanced, and methodologically precise.

Furthermore, the choice of a mono-method approach is influenced by the strategic focus on the depth of analysis. In exploring the coping strategies employed by selected airline companies, a mono-method approach enables an exhaustive examination of qualitative, allowing for meticulous interpretation and extraction of meaningful insights. By dedicating attention to one method, the research endeavors to uncover the underlying intricacies of the coping mechanisms utilized by

these companies in the face of liberalization challenges, shedding light on the effectiveness and sustainability of their strategies.

Additionally, practical considerations such as resource constraints play a pivotal role in shaping the methodological choice. Conducting research involving multiple methods can be resource-intensive, requiring significant time, and human resources. Given these limitations, opting for a mono-method approach proves to be pragmatic, allowing for the optimization of available resources while ensuring the research remains focused and methodologically rigorous.

In essence, the mono-method approach, carefully tailored to the specific objectives and scope of this study, is poised to yield comprehensive and insightful findings. By adopting a methodological strategy that emphasizes depth, precision, and rigorous analysis, this research endeavors to contribute meaningfully to the understanding of the impact of liberalization on airline companies and their sustainable development coping strategies.

3.2.6. Time horizon

The time horizon used in this subject is longitudinal. Indeed, the author bases her analysis on the origins of aviation, enabling her to better analyze the current context of global commercial aeronautics. The author must also take into account the future of this sector, as a key part of the thesis is based on the strategies chosen by airlines for a more sustainable business. The research focuses on the early days of civil aviation (in the 90s) through to projections for the future of the sector over the next ten years. A cross-sectional time horizon would therefore not be sufficient to study the subject in depth.

3.3. Data collection

I used only qualitative secondary sources and the collection of primary data is beyond the scope of this thesis

This thesis draws on secondary qualitative data that was found in pertinent books, journals, papers, and reports. The report may contain data that is based in part on quantitative findings or information. Here is a table that serves as an example of the codebook that was employed for data collection and analysis:

3.4. Data analysis

3.4.1. Quantitative data analysis

Quantitative data analysis is beyond the scope of this thesis.

3.4.2. Qualitative data analysis

Code	Definition	When to use	When not to use
Social Value	Social value measures the positive value airline companies create for the economy, communities, and society. The units of social value measurement relate to (Equality, inclusion, community development, labour standards).	Use this code to identify the passages of texts that address Social Value in airline companies. Use this code to identify social values measured by relevant units.	Don´t use for passages of texts that address other issues than social value in airline companies. Don´t use for publications that talk about creation of other values than social values.
Positive Impacts along Social Value Dimension	Any positive impacts on Social Value as measured by equality, inclusion, community development, labour standards.	Use this code for any passage of text that describes positive impacts along Social Value Dimension.	Don't use this code when the text passage does not describe positive impacts along Social Value Dimension
Negative Impacts along Social Value Dimension	Any negative impacts on Social Value as measured by equality, inclusion, community development, labour standards.	Use this code for any passage of text that describes negative impacts along Social Value Dimension.	Don't use this code when the text passage does not describe negative impacts along Social Value Dimension
Corrective Actions along Social Value Dimension	Any corrective actions that help to preserve or add social value as measured by equality, inclusion, community development, labour standards.	Use this code for any passage of text that describes corrective actions along Social Value Dimension.	Don't use this code when the text passage does not describe corrective actions along Social Value Dimension.

Environmental Value	Environmental values that take into consideration reducing the impacts on natural resources and the environment. The units of environmental value measurement relate to (Renewable resources, low emission, charity for environmental purpose)	Use this code to identify the passages of texts that address environmental value in airline companies Use this code to identify environmental values measured by relevant units.	Don´t use for passages of texts that address other issues than environmental value in airline companies. Don´t use for publications that talk about creation of other values than environmental values.
Positive Impacts along Environmental Value Dimension	Any positive impacts on Environmental Value as measured by equality, inclusion, community development, labour standards.	Use this code for any passage of text that describes positive impacts along Environmental Value Dimension.	Don't use this code when the text passage does not describe positive impacts along Environmental Value Dimension
Negative Impacts along Environmental Value Dimension	Any negative impacts on Environmental Value as measured by renewable resources, low emission, charity for environmental purpose.	Use this code for any passage of text that describes negative impacts along Environmental Value Dimension.	Don't use this code when the text passage does not describe negative impacts along Environmental Value Dimension.
Corrective Actions along Environmental Value Dimension	Any corrective actions that help to preserve or add Environmental value as measured by renewable resources, low emission, charity for environmental purpose.	Use this code for any passage of text that describes corrective actions along Environmental Value Dimension.	Don't use this code when the text passage does not describe corrective actions along Environmental Value Dimension.

Economic Value	Financial values that affect airline companies organizers and participants. The revenue in processes, services, and products that reduces the costs and/or increases revenue (sales) improving the bottom line of profitability. The units of economic value measurement relate to (Earnings, shareholder value, financial resilience)	Use this code to identify the passages of texts that address economic value in airline companies. Use this code to identify evidence of created economic values measured by relevant units.	Don´t use for passages of texts that address other issues than economic value in airline companies. Don´t use for publications that talk about creation of other values than economic values.
Positive Impacts along Economic Value Dimension	Any positive impacts on Economic Value as measured by equality, inclusion, community development, labour standards.	Use this code for any passage of text that describes positive impacts along Economic Value Dimension.	Don't use this code when the text passage does not describe positive impacts along Economic Value Dimension
Negative Impacts along Economic Value Dimension	Any negative impacts on Economic Value as measured by earnings, shareholder value, financial resilience	Use this code for any passage of text that describes negative impacts along Economic Value Dimension.	Don't use this code when the text passage does not describe negative impacts along Economic Value Dimension.
Corrective Actions along Economic Value Dimension	Any corrective actions that help to preserve or add Economic value as measured by earnings, shareholder value, financial resilience	Use this code for any passage of text that describes corrective actions along Economic Value Dimension.	Don't use this code when the text passage does not describe corrective actions along Economic Value Dimension.

3.5. Ethical considerations

This research on the impact of liberalization on selected airlines and their coping strategies adheres to rigorous ethical standards. Data collection and analysis were conducted with utmost integrity and transparency. Confidential information from the airlines was handled with care, ensuring compliance with data protection and privacy regulations. The study prioritized the unbiased representation of findings, steering clear of any undue influence. Additionally, acknowledgment of potential conflicts of interest and the adoption of ethical research practices were central to maintaining the credibility and reliability of the study. The ethical considerations underscore the commitment to responsible and principled research within the realm of aviation liberalization.

4. Research Results

Research into "the impact of liberalisation on the environmental, social and economic values of selected airlines and their coping strategies" has produced insightful findings that highlight the complex interplay between market liberalisation and the various facets of airline operations. The study examines the economic, environmental and social impacts of liberalisation on selected airlines, identifying the positive and negative consequences of each dimension. In addition, the research explores the adaptation strategies employed by these airlines to mitigate the negative effects and capitalise on the positive outcomes. The author used NVivo 12 to gather and analyze data from the relevant publications on Nvivo12 (See Appendix 1) and coded them into the related nodes (See Appendix 2).

4.1. Economic Value

The economic analysis reveals that increased market access, cost reduction, and revenue growth are key positive impacts of liberalization. However, these benefits come with challenges such as intense competition and economic volatility. To address these challenges, airlines adopt corrective actions like diversification, strategic partnerships, and cost optimization.

4.1.1.Positive Impact Among Economic Value

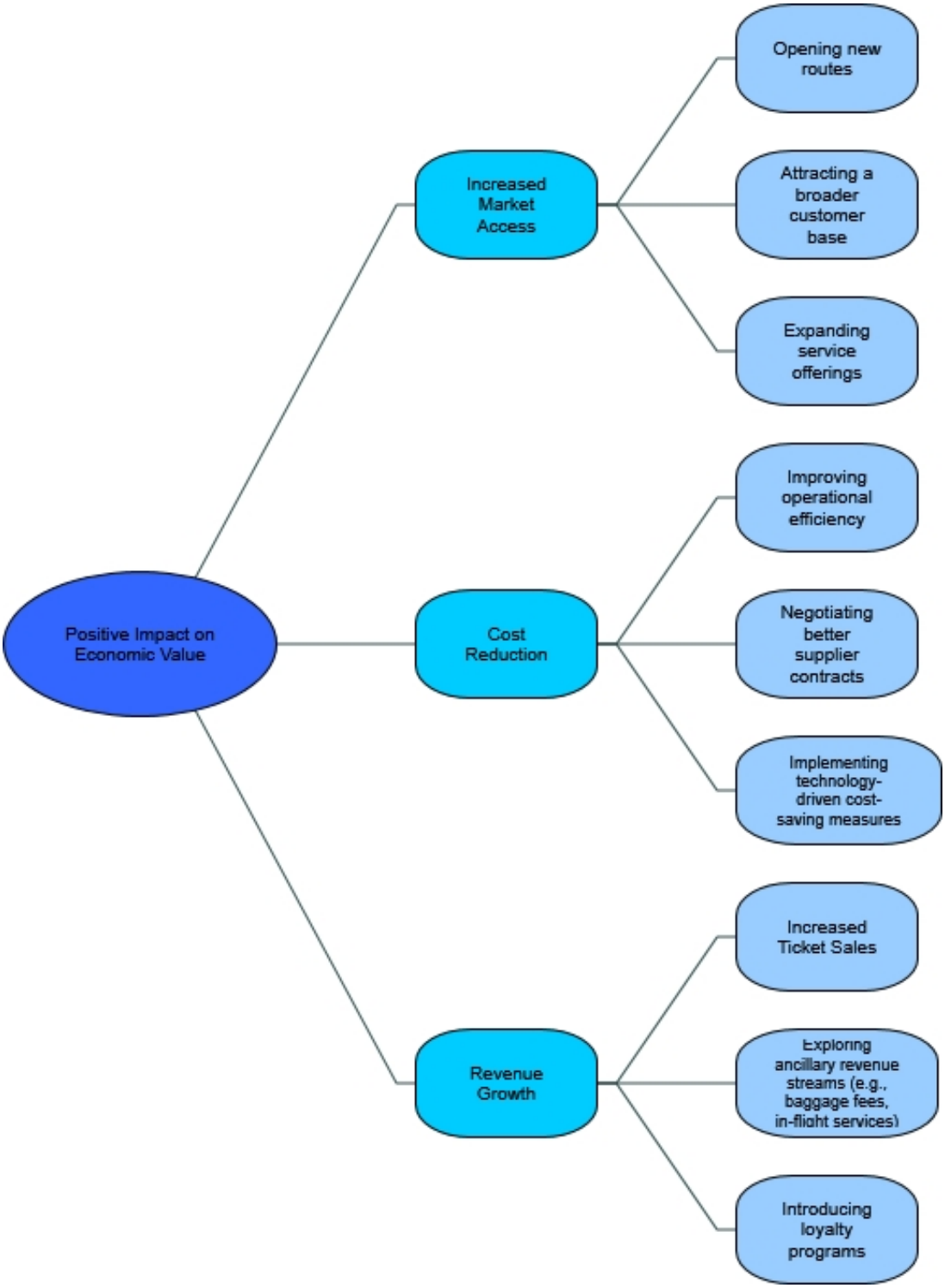


Figure 10. Mind map generated from NVivo 12 illustrating Liberalisation Positive Impact on Economic Value of Airline industry

The mind map above shows the Positive Impact of Liberalisation on the Economic Value of the Airline industry based on relevant publications.

Increased Market Access

Opening new routes and expanding the service offering are strategic measures to access diversified markets. The positive impact includes increased revenue streams and a broader customer base. However, navigating the complexities of diversified markets requires meticulous planning and a high degree of adaptability. It is vital to ensure sustainable growth without compromising service quality. Indeed, this market has been booming for years, as the ICAO, the International Civil Aviation Organization, observed in 2007: "Worldwide, the total number of annual passengers has grown by 46 percent in the past ten years, from 1.457 billion passengers to 2.128 billion per year » ***(Appendix 3.1)***

Moreover, Koo et al. (2016, p. 2)« The liberalisation of air transport markets in Europe means that airlines have greater freedom to choose where they fly to and from, and generally set fares, frequencies, capacities and routes according to commercial considerations. This has provided opportunities for airports to grow and expand their services » ***(Appendix 3.1)***

This economic growth is enabling airlines to perfect their skills. It also means that governments can help out financially, and thus make money from this flourishing market. As Graham and Shaw reported : « That growth is perceived to be advantageous to strategies promoting national and regional economic growth and, consequently, the provision of LCC services is being supported by an array of national and local government agencies throughout the European Union (EU) » (Graham & Shaw, 2008) ***(Appendix 3.1)***

Cost Reduction

Improving operational efficiency and negotiating better contracts with suppliers are integral to reducing costs. While this has a positive impact on the bottom line, a delicate balance needs to be struck. Too much emphasis on cost-cutting measures can compromise service quality and customer satisfaction. Effective cost reduction requires a nuanced approach that takes into account both financial and operational aspects. However, reducing costs in certain areas does not necessarily mean lowering consumer opinion. « For example Merkert and Pearson (2015) report a lack of significant relationship of passenger satisfaction and service quality on airline profitability, signifying that investments in such aspects may not reap financial benefits. As such, management may have a degree of freedom on selecting the service quality levels of the airlines, though, an after-effect of

cost reduction policies is the degradation of quality standards offered to passengers. » (Stamolampros & Korfiatis, 2019, p.7) ***(Appendix 3.2)***

Furthermore, IATA, the International Air Transport Association reported « Air transport is key to global economic development. This wider economic benefit is underpinned by both the direct connections between cities - enabling the flow of goods, people, capital, technology and ideas - and falling air transport costs. » (IATA, 2021) ***(Appendix 3.2)***

Once again, IATA has highlighted an interesting point. Although airports have increased their infrastructure budgets, airlines have not adopted the same strategy and have not increased their costs: « Infrastructure partners play an important role in the service that airlines provide to their customers, affecting the experience, the timeliness of the journey, as well as its cost. Overall, the cost of using airport and ANSP infrastructure has risen steeply over past decades, partly because competitive pressures are very weak in this part of the supply chain. This sits in contrast with the relatively limited rise in non-fuel airline costs. » (IATA, 2021) ***(Appendix 3.2)***

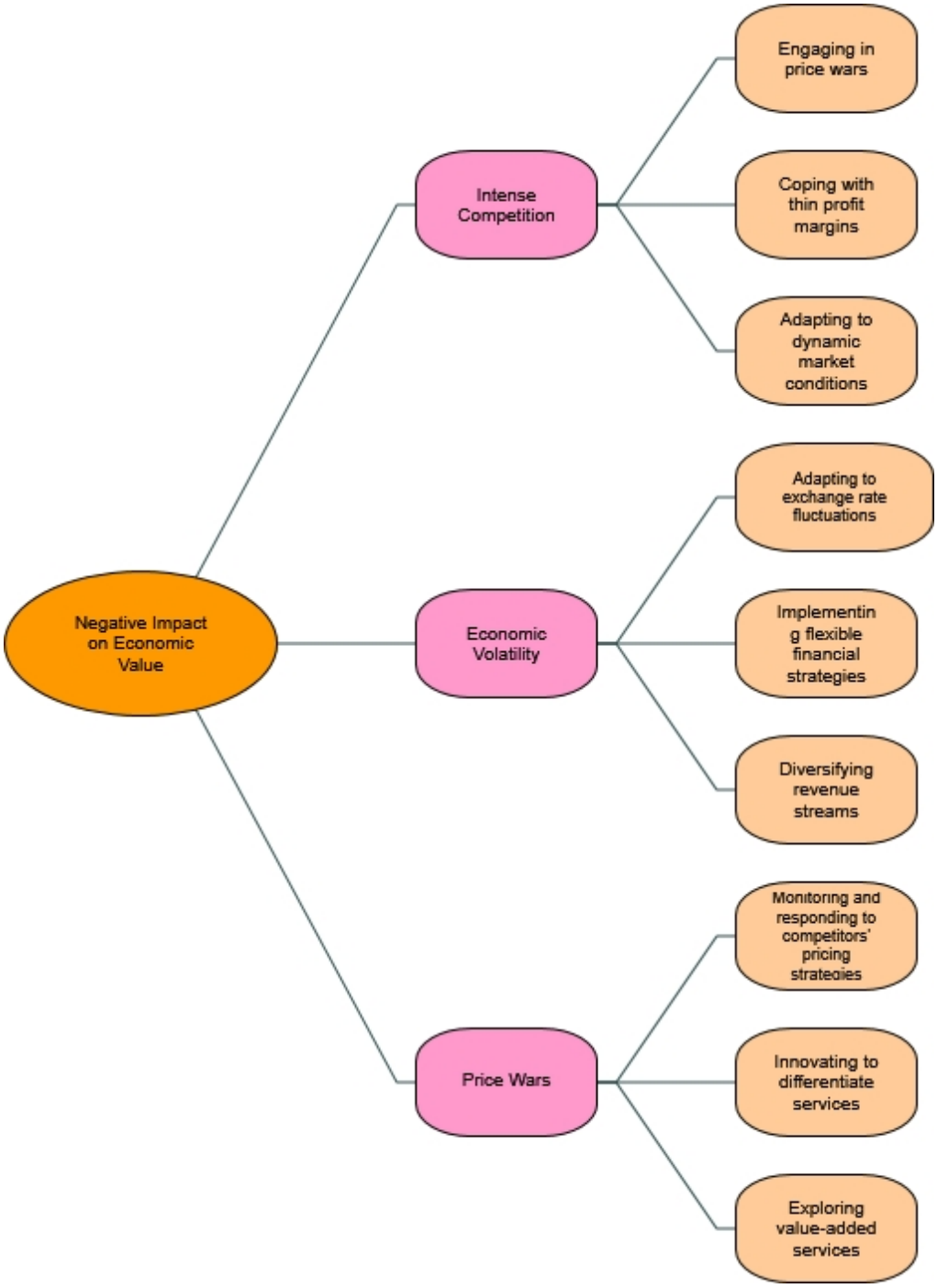
Revenue Growth

Revenue growth strategies, including increased ticket sales and ancillary revenue streams, contribute to the airline's financial health. Loyalty programs play a crucial role in customer retention and repeat business. However, maintaining a balance between revenue generation and customer expectations is key. Sustainable revenue growth requires continuous innovation and a keen understanding of market dynamics. As G. Burghouwtin confirmed in « Assessing consumer welfare impacts of aviation policy measures, International Transport Forum Discussion Paper » : « When assessing consumer welfare impacts in aviation, both direct and indirect travel options and their associated generalised travel costs need to be taken into account. Affected relevant markets need to be identified carefully » (Burghouwt, 2019) ***(Appendix 3.3)***

According to Sharma « The global airline industry’s revenue is projected to grow 7.6 per cent year on year to a record $964 billion in 2024, driven by high demand for travel, according to the International Air Transport Association(Iata). » ***(Appendix 3.3).*** Naturally, revenue in this sector is growing rapidly, without the airlines even having to offer additional paying options. However, for some years now, low-cost airlines have been offering more flexible services, and supplementing their revenues with paying options, such as baggage size or seat choice.

« Revenue from in-flight services can prove vital for airlines' sustained profitability. While legacy carriers will charge for things like high-speed WiFi and meals onboard short-haul flights, budget airlines can charge for nearly everything. Some airlines, however, operate business models free from inflight service revenue, such as JetBlue which offers completely free high-speed WiFi on all flights. » (Mitchell, 2023) ***(Appendix 3.3)***. Every airline has its own way of increasing profits. But as mentioned above, there are two main approaches: low-cost airlines offering additional options for a fee, and airlines that include everything in the final price. We more often find the first pattern on short-haul flights and the second on medium- or long-haul flights.

The aeronautics industry is therefore a major contributor to the global economy, both directly and indirectly. Whether through the employment of people "The air transport industry directly provided an estimated 11.3 million jobs worldwide" (Aviation: Benefits Beyond Borders, ATAG, 2020, p. 19) (***Appendix 3.3)***, or, as mentioned above, through strategies specific to the airlines themselves. Taking the first point alone, the employability offered by the sector, "the industry generated 11.3 million direct jobs and added $961.3 billion to global gross domestic product (GDP). To put that into context, that is equivalent to 1.1% of global GDP, or similar to the basic metals industry ($968 billion)" (Tracking the Evolution of airlines: 20192023 | Aviation Market Analysis, n.d., p. 19) (***Appendix 3.3).*** The ATAG report added « If aviation were a country, it would rank 17th in size by GDP (similar to Indonesia or the Netherlands) » (Tracking the Evolution of airlines: 20192023 | Aviation Market Analysis, n.d., p. 11) (***Appendix 3.3)***



4.1.2. Negative Impact Among Economic Value

Figure 11. Mind map generated from NVivo 12 illustrating Liberalisation Negative Impact on Economic Value of Airline industry

The mind map above shows the Negative Impact of Liberalisation on the Economic Value of the Airline industry based on relevant publications.

Intense Competition

Intense competition in the aviation industry poses challenges in maintaining profit margins. Airlines must carefully strategize to differentiate themselves in a crowded market, balancing competitive pricing with the need for quality service.

The risk of price wars impacting profitability necessitates continuous innovation and effective marketing strategies: « Customers consider a price as unfair when they recognize that the company is using a price strategy to get more profit instead of carrying relationships with customers. » (Kees Correia Nunes da Silva, p. 6) (***Appendix 4.1***)

Stamolampros et Korfiatis confirment en 2019 la dégradation du service causé par la baisse des prix des compagnies : « After-effects of shocks on such critical cost factors may also affect the level of service quality offered to passengers leading to a degradation of service quality levels » (Stamolampros & Korfiatis, 2019) (***Appendix 4.1***)

Economic Volatility

Economic volatility presents risks to airline operations, requiring adaptive financial strategies. Airlines should focus on building financial resilience through effective risk management, hedging strategies, and diversification.

The ability to withstand economic fluctuations becomes crucial for long-term sustainability : « Variations in economic conditions measured by the cost of borrowing and the pricing of important industrial commodities such as oil, as well as, in the market structure reflected by the consolidation of major players, have a direct or indirect effect on the financial performance of individual airlines, but also on the whole sector. » (Stamolampros & Korfiatis, 2019) (***Appendix 4.2***)

Covid-19 is a perfect example of the instability the aerospace industry can face. Whether it's a pandemic, war or natural disaster, the economy of a company can be damaged time and time

again. They must then find strategies to counter this economic abyss. During the health crisis, for example, airlines were unable to operate flights, so they reoriented their business, using flexibility and imagination to generate revenue: « To alleviate the strain on medical supplies during the Covid-19 pandemic, aerospace manufacturers redirected their technical expertise, infrastructure and resources to develop life-saving equipment for the healthcare community. » (Tracking the Evolution of airlines: 20192023 | Aviation Market Analysis, n.d., p. 8) (***Appendix 4.2***)

Price Wars

Price wars in the airline industry pose significant challenges, often resulting in reduced profitability and financial instability for carriers. It becomes imperative for airlines to navigate these challenges judiciously, steering away from unsustainable price reductions. As noted by Brian Graham and Jon Shaw in 2007, « First in North America, then in the EU and, now, elsewhere in the world, the dramatic growth of LCCs has been the most important outcome of liberalization » (Brian Graham, Jon Shaw, 2007) (***Appendix 4.3)***

Due to strong competition from Low-Cost Carriers (LCCs), airlines need to move away from just competing on prices and instead focus on pricing strategies that highlight the value they offer. The wisdom of Brian Graham and Jon Shaw highlights the prevalence of a "cult of cost reduction" among LCCs, a business model characterized by the commitment to low fares, meticulous cost-cutting measures, and the maximization of both human and material assets: « All LCCs share a commitment to the ‘‘cult of cost reduction”, a business model that offers low fares, strips out overall costs and leverages assets – both human and material – to the full. » (Brian Graham, Jon Shaw, 2007) (***Appendix 4.3***). This strategy, while driving affordability, also demands innovation in service offerings and customer experiences.

In this price-competitive environment, where airlines strive to differentiate themselves, innovations become critical. Carriers must go beyond traditional approaches, exploring novel service offerings and enhancing the overall customer experience. By doing so, airlines not only position themselves strategically against competitors but also establish a sustainable framework that goes beyond engaging in price wars. The emphasis on value creation becomes a key factor in ensuring long-term profitability and financial resilience amid the dynamic landscape shaped by the growth of LCCs following liberalization.

4.1.3.Corrective Actions Among Economic Value

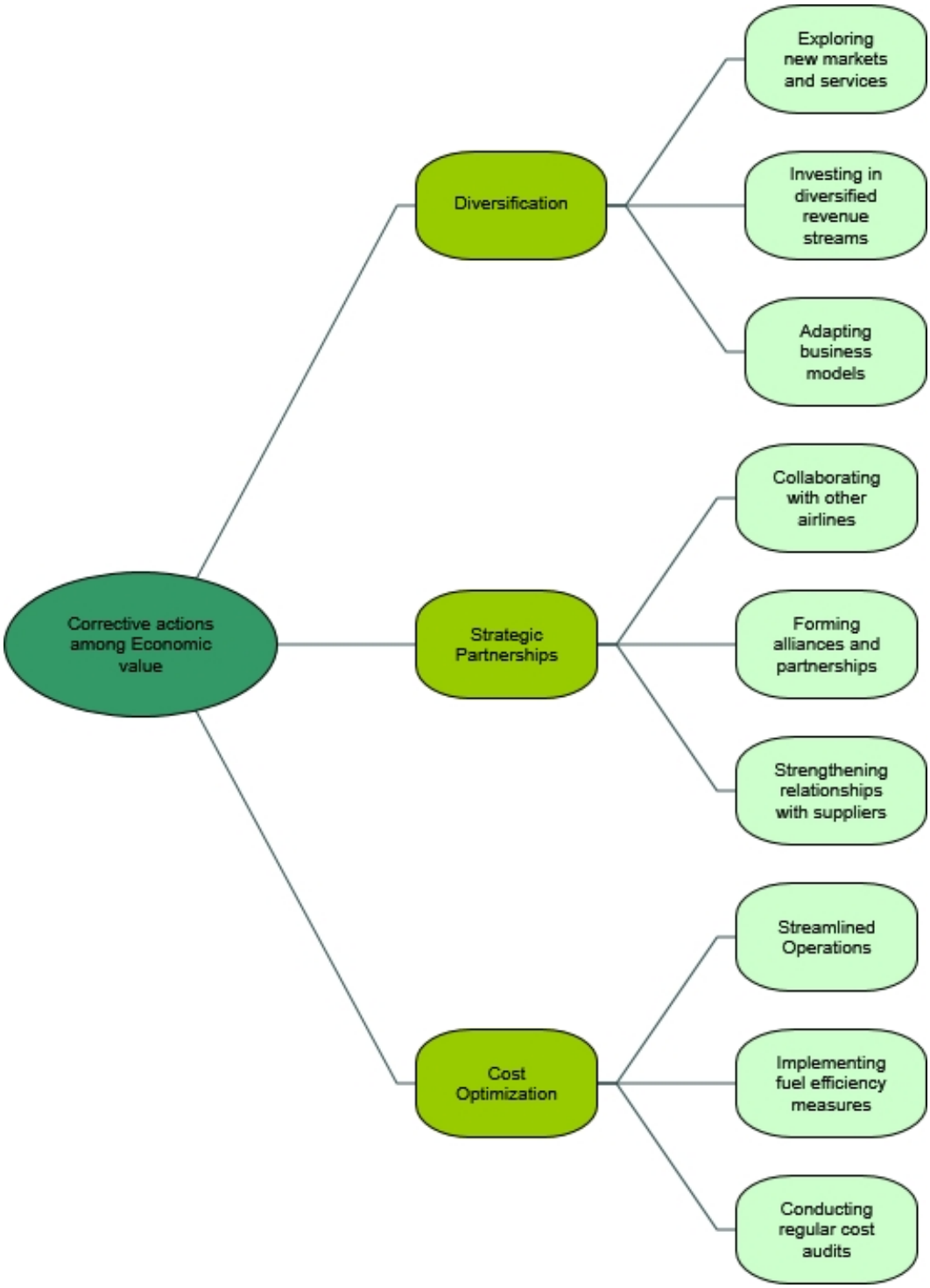


Figure 12. Mind map generated from NVivo 12 illustrating The Corrective Actions of the Airline Industry to cope the Liberalisation on the Economic Value

The mind map above shows The Corrective Actions of the Airline Industry to cope the Liberalisation on the Economic Value based on relevant publications.

Diversification

Diversifying into new markets and services mitigates risks associated with market dependency. This corrective action enhances the airline's resilience to market fluctuations: « the degree of airport dependency in terms of market, spatial and temporal concentration is important to know from an economic geography and risk management perspective » (Koo et al., 2016) **(Appendix 5.1)**. The Aviation outlook added in 2021 : « By diversifying their revenue sources, airlines can reduce their reliance on traditional revenue streams and improve their financial performance, customer satisfaction, and overall competitiveness in the aviation industry. » **(Appendix 5.1)**

Redpath et al. found in 2017 that : « The areas investigated were Cargo, Maintenance, Catering and Travel Services. » **(Appendix 5.1).** He added : « The research found that whilst diversification may not always present the most attractive option financially, strategic factors can often outweigh such concerns. » **(Appendix 5.1)**

Strategic Partnerships

Forming strategic partnerships strengthens the airline's competitive position. Collaborations with other airlines, suppliers, and industry stakeholders enable shared resources and risk-sharing mechanisms. Effective partnerships require alignment of goals and mutual benefits for sustained success.

The airline alliance has several objectives: « Within these collaborations, airlines can share resources, pick up or extend partner routes and even offer the ability to earn and redeem miles through each others' rewards programs. » (Koomsap P., 2023) (**Appendix 5.2)**

There are three main alliances within airline companies. These are Star Alliance, Sky Team and One world. And while some airlines are not part of these three major groups, they do tend to join forces, according to Riva: « Often, airlines outside alliances partner up with one another. You can for example transfer American Express Membership Rewards points to Emirates' Skywards program, and use the resulting miles to book a flight on JetBlue. » (**Appendix 5.2)**

Cost Optimization

Implementing cost optimization strategies enhances efficiency and financial stability. Streamlining operations, investing in fuel-efficient technology, and optimizing supply chain processes contribute to cost reduction. A continuous focus on cost optimization is essential for maintaining competitiveness. Satair noticed it : « In a market hugely affected by the COVID-19 pandemic on top of shrinking ticket prices and increased competition, airlines have to look for new ways to operate efficiently – without compromising on customer experience. » (**Appendix 5.3)**

« According to a report from international management consulting firm, McKinsey & Company, “an airline that fully adopts lean techniques can cut its costs significantly while enhancing the experience of employees and customers by sharpening on-time performance, reducing wait times for guests, increasing the working availability of aircraft and ground assets, and helping employees to make the most productive use of their valuable time. » (Satair, n.d) (**Appendix 5.3)**

4.2.Environmental Value

In the environmental dimension, technological innovation, sustainable practices, and compliance with regulations emerge as positive impacts. Yet, concerns such as increased carbon emissions and resource depletion pose challenges. The airlines respond through the adoption of green technologies, sustainable resource management, and a commitment to regulatory compliance.

4.2.1. Positive Impact Among Environmental Value

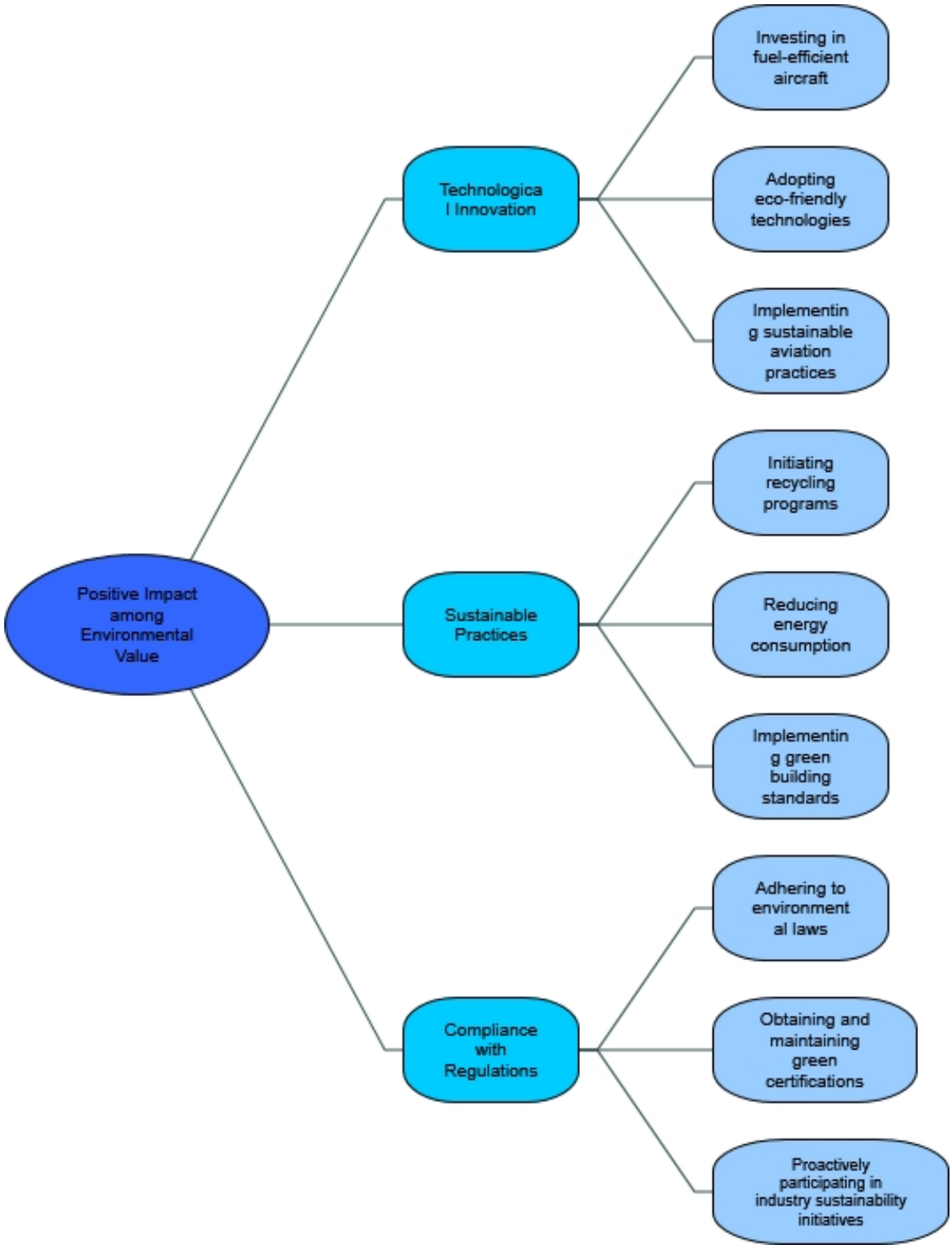


Figure 13. Mind map generated from NVivo 12 illustrating Liberalisation Positive Impact on Environmental Value of Airline industry

The mind map above shows the Positive Impact of Liberalisation on the Environmental Value of the Airline industry based on relevant publications.

Technological Innovation

Investing in fuel-efficient aircraft and eco-friendly technologies showcases a commitment to environmental responsibility. However, the aviation industry faces the challenge of balancing technological advancements with economic viability. The transition to greener technologies requires substantial investment and collaboration with technology providers and regulatory bodies.

ATAG highlighted in 2020 that fuel could be a huge innovation in this field: « Sustainable aviation fuels (SAF) could be the key to sustainable long-haul air travel, contributing hugely to the industry's » (**Appendix 6.1)**

Airlines and the industry, in general, have already made great strides in this area: « Since the year 2000, industry fuel efficiency has cumulatively improved 38% and CO2 tonnes per thousand kilometres performed has decreased from 1.84 to 0.84. This improved fuel efficiency has been driven by airlines investing over $1 trillion in 15,000 more efficient new-technology aircraft since 2009 » (ATAG, 2020, p.34) (**Appendix 6.1)**

Many aircraft have already made efforts in terms of fuel consumption: « 40 million liters of neat sustainable aviation fuel used by commercial flights in 2019 (32,000 tonnes). This was blended with traditional fuel in over 65,455 flights from five international airports (Los Angeles, San Francisco, Bergen, Oslo, and Stockholm). Whilst this only represents less than 1% of the current fuel used in aviation globally, as this new source of fuel takes off, we will see this figure rise substantially. » (ATAG, 2020, p.12) (**Appendix 6.1)**

Sustainable Practices

Initiating recycling programs and reducing energy consumption are commendable sustainable practices. However, maintaining consistent adherence to these initiatives across the airline's operations and supply chain poses challenges. Overcoming these challenges necessitates ongoing monitoring, employee engagement, and integration of sustainability practices into the organizational culture : « Over 11 billion tonnes of CO2 avoided since 1990 through a combination of new technology, operational efficiencies and infrastructural improvements, including airlines spending over $1 trillion on 15,000 new aircraft since 2009 » (ATAG, 2020, p.13) (**Appendix 6.2)**

Furthermore: « These aircraft use lightweight materials, such as carbon fiber composites, to reduce weight and are designed with more efficient engines and aerodynamics. » (How Airlines Are Making Air Travel More Sustainable | Clyde Travel, n.d.) (**Appendix 6.2)**

Compliance with Regulations

Adherence to environmental regulations enhances the airline's reputation and regulatory relationships. Staying compliant in a dynamic regulatory landscape demands continuous monitoring and adaptation. Airlines must not only meet current standards but also anticipate and prepare for future regulatory developments, showcasing proactive commitment to environmental stewardship.

Some airlines have already taken the first step: « British Airways made a world-first move to use SAF produced on a commercial scale in the UK after signing a multi-year agreement with Phillips. » (Airways) (**Appendix 6.3)**

The fact that some airlines are complying with the regulations enhances the image of big, noisy, polluting planes, and thus improves the market's view of them: « There are wide-ranging benefits of operating a modern fleet, and with Emirates' policy of investing in the most modern, eco-efficient technology available it also means that they have one of the youngest fleets in the industry. The modern, wide-body fleet reduces both noise and engine emissions, with the Airbus A380s among the quietest large aircraft available. » (Department, 2023) (**Appendix 6.3)**

4.2.2.Negative Impact Among Environmental Value

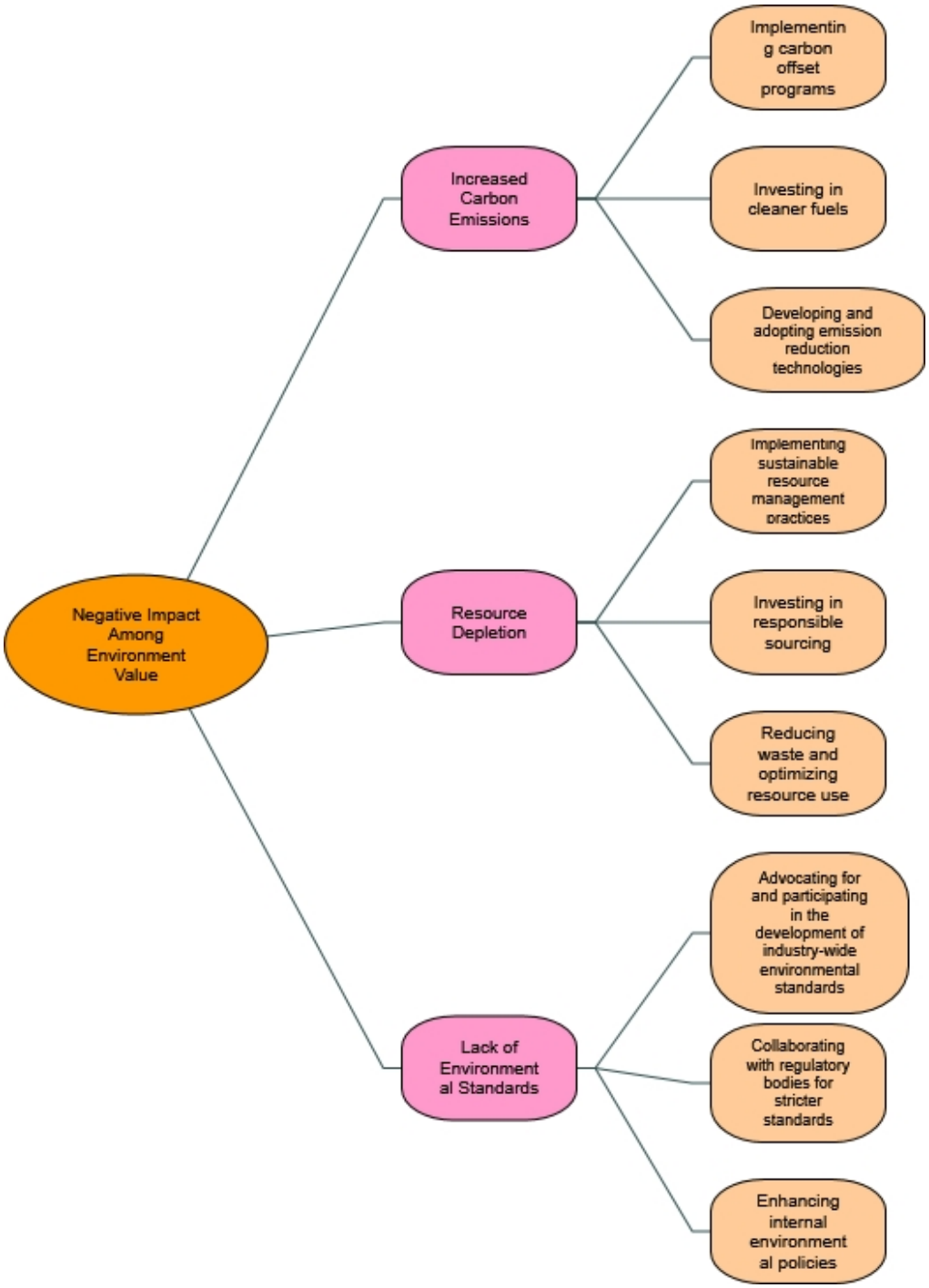


Figure 14. Mind map generated from NVivo 12 illustrating Liberalisation Negative Impact on Environmental Value of Airline industry

The mind map above shows the Negative Impact of Liberalisation on the Environmental Value of the Airline industry based on relevant publications.

Increased Carbon Emissions

The negative impact of increased carbon emissions highlights the urgency of addressing environmental sustainability. Indeed, as highlighted Sgouridis in 2011 : « CO2 emissions from air transportation are expected to increase significantly in nominal terms. While the relative contribution of the aviation sector to the global anthropogenic carbon emissions is currently estimated at about 3%, the higher potential for improvements and emission reductions from other sectors are likely to contribute to an increase in the aviation's relative contribution. The 1999 IPCC report suggests that this contribution may rise to 5% and could reach up to 15% by 2050 (IPCC, 1999).» (Sgouridis et al. 2011). (**Appendix 7.1)**

Graham and Shaw added in 2007 : « the incompatibility of environmental sustainability with a business model that promotes rapid growth in air travel without meeting its external costs » **(Appendix 7.1)**

Airlines must proactively invest in technologies and operational practices that reduce their carbon footprint. Transitioning to cleaner energy sources and adopting fuel-efficient aircraft is imperative to mitigate the environmental impact.

Resource Depletion

Resource depletion calls for responsible resource management. Airlines should implement sustainable sourcing practices, reducing reliance on finite resources. Collaborative efforts within the industry are essential to develop and adopt sustainable practices that minimize resource depletion across the aviation value chain. « Emissions from flights stay in the atmosphere and will warm it for several centuries. Because aircraft emissions are released high in the atmosphere, they have a potent climate impact, triggering chemical reactions and atmospheric effects that heat the planet. » (Aberšek, B., & Flogie, A., 2022) **(Appendix 7.2)**

A few solutions are emerging, but they do not apply to the majority of flights: « Requirements around biofuels and electrification could help. Because of battery weight, electrification fits for flights under 1,500 kilometres. That's a problem since 80 per cent of flying is for flights longer than that. » (Suzuki, n.d.) **(Appendix 7.2)**

Lack of Environmental Standards

The absence of consistent environmental standards underscores the need for advocacy and industry leadership. According to Timperley in 2021 : « All this feeds into a wider need for strong policy to tackle aviation emissions, which has largely been lacking so far. “International aviation sits outside the Paris climate agreement, because that agreement is about a country’s domestic emissions,” says Harvey. “So there was a real push to have a scheme for international aviation.” » **(Appendix 7.3)**

Airlines should actively engage with regulators, industry associations, and environmental organizations to drive the development and adoption of stringent environmental standards. Leadership in this area can enhance the industry's overall commitment to sustainability. That's the role the United Nations has taken on, according to Timperley : « After years of inaction, in 2016 countries at the UN aviation agency, ICAO, agreed on the Carbon Offsetting and Reduction Scheme for International Aviation (Corsia), a global deal to “offset” the growth in aviation emissions above the average levels in 2019 and 2020 » **(Appendix 7.3).** Moreover : « ICAO is also in discussions over a long-term climate goal for aviation for 2050, but it is not clear when this will be agreed or what the target will be. » (Timperley, 2021) **(Appendix 7.3)**

4.2.3.Corrective Actions Among Environmental Value

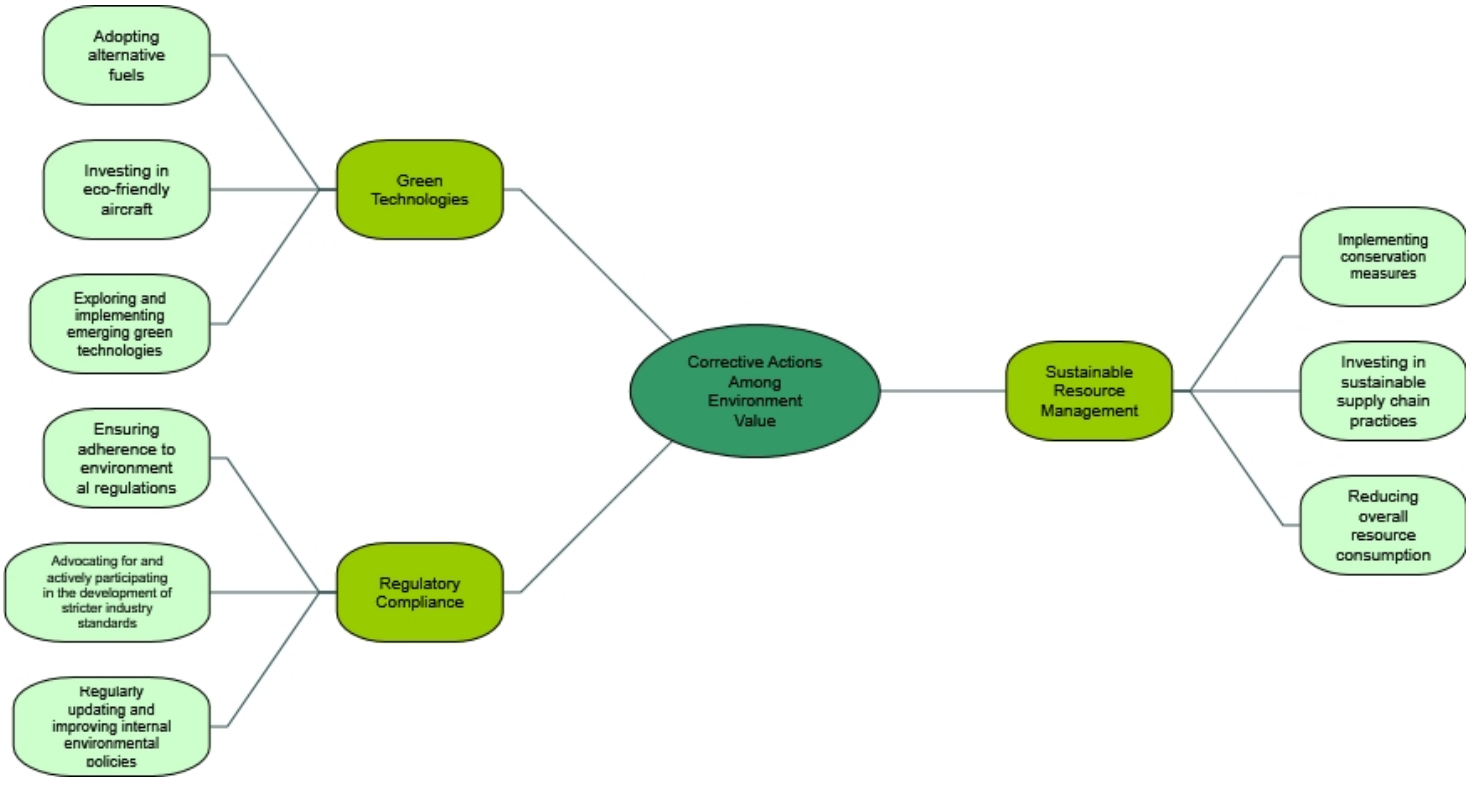


Figure 15. Mind map generated from NVivo 12 illustrating The Corrective Actions of the Airline Industry to cope the Liberalisation on the Environmental Value

The mind map above shows The Corrective Actions of the Airline Industry to cope the Liberalisation on Environmental Value based on relevant publications.

Green Technologies

Adopting green technologies, such as alternative fuels and eco-friendly aircraft, advances the airline's commitment to cleaner energy sources. Consciences have awakened: « Demand for air travel continues to be strong; however, there are signs that the sentiment towards flying is changing. Ethical questions are being raised concerning air travel, including around equality, and an increasing number of organizations are setting carbon reduction targets for employee air travel » (Gössling et al., 2019) **(Appendix 8.1)**

This corrective action not only reduces environmental impact but also contributes to industry-wide efforts for a more sustainable aviation sector : « In addition to the latest propulsion technology, additional technological features have been included to maximise fuel efficiency. Improved aerodynamics, new manufacturing techniques and composite materials play a prominent role in determining how much fuel is burned on any given flight » (ATAG, 2020, p.35) (**Appendix 8.1).**

Furthermore: « The aviation industry is working together through groups such as the Sustainable Aviation Fuel Users Group (SAFUG) and sustainability certification schemes such as the Roundtable on Sustainable Biomaterials (RSB) to make sure that any fuels used by the industry are, in fact, sustainable. » (ATAG, 2020, p.36) **(Appendix 8.1)**

Sustainable Resource Management

Sustainable resource management, including conservation measures and responsible sourcing, aligns with sustainable supply chain practices. Airlines implementing these strategies contribute to environmental preservation and demonstrate a commitment to responsible resource usage.

The ATAG report stated page 42: « There are currently 314 airports in 72 countries, covering nearly 45% of global air passenger traffic, accredited to the Airport Carbon Accreditation Programme. More than 320,000 tonnes of CO2 were reduced between 2018 and 2019, equivalent to the emissions from 767 million hours of video streaming in HD » **(Appendix 8.2)**

As the report underlines, every operational details are important to take into account : « The operations pillar of the industry's climate strategy deals with how aircraft are run once they are in service to ensure that all flights maximise fuel efficiency. At every step of an aircraft's operation — at the gate, during taxiing, take-off, cruise and landing — there are opportunities to reduce fuel burn and consequently, emissions. » (ATAG, 2020, p.38) **(Appendix 8.2)**

In addition, infrastructure efficiency plays a key role in sustainable resource management.: "By using an array of new satellite-based navigational technologies and procedures collectively referred to as 'performance-based navigation', aircraft are able to follow optimised, more direct routes with greater accuracy and efficiency. Cutting out unnecessary travel time can save fuel, reduce CO2 emissions « (ATAG, 2020, p.39) **(Appendix 8.2)**

Regulatory Compliance

Ensuring compliance with environmental regulations demonstrates the airline's commitment to environmental stewardship. Going beyond regulatory requirements by actively participating in the development of stricter standards showcases industry leadership and a proactive approach to sustainability. Some airlines take the lead : « Nineteen airlines are actively considering alternative fuels to supplement or replace fossil fuels. » (Becken & Pant, 2022) **(Appendix 8.3)**

The ATAG report from 2020 highlighted : « To meet these goals, the industry has put in place a collective strategy that takes account of all means of reducing aviation emissions, in the air and on the ground. The industry has been implementing many of these measures for years and has made significant progress in fuel and CO2 efficiency. In fact, per passenger a flight taken today will produce around half of the CO2 produced by the same flight in 1990. This has been achieved through technological advancement and improvements in operations and infrastructure. » **(Appendix 8.3)**

4.3.Social Value

The social dimension highlights positive impacts like job creation, cultural exchange, and enhanced connectivity, while acknowledging challenges such as job insecurity and social inequality. Corrective actions include employee training, social responsibility programs, and community engagement initiatives to address these challenges and foster a positive societal impact.

4.3.1.Positive Impact Among Social Value

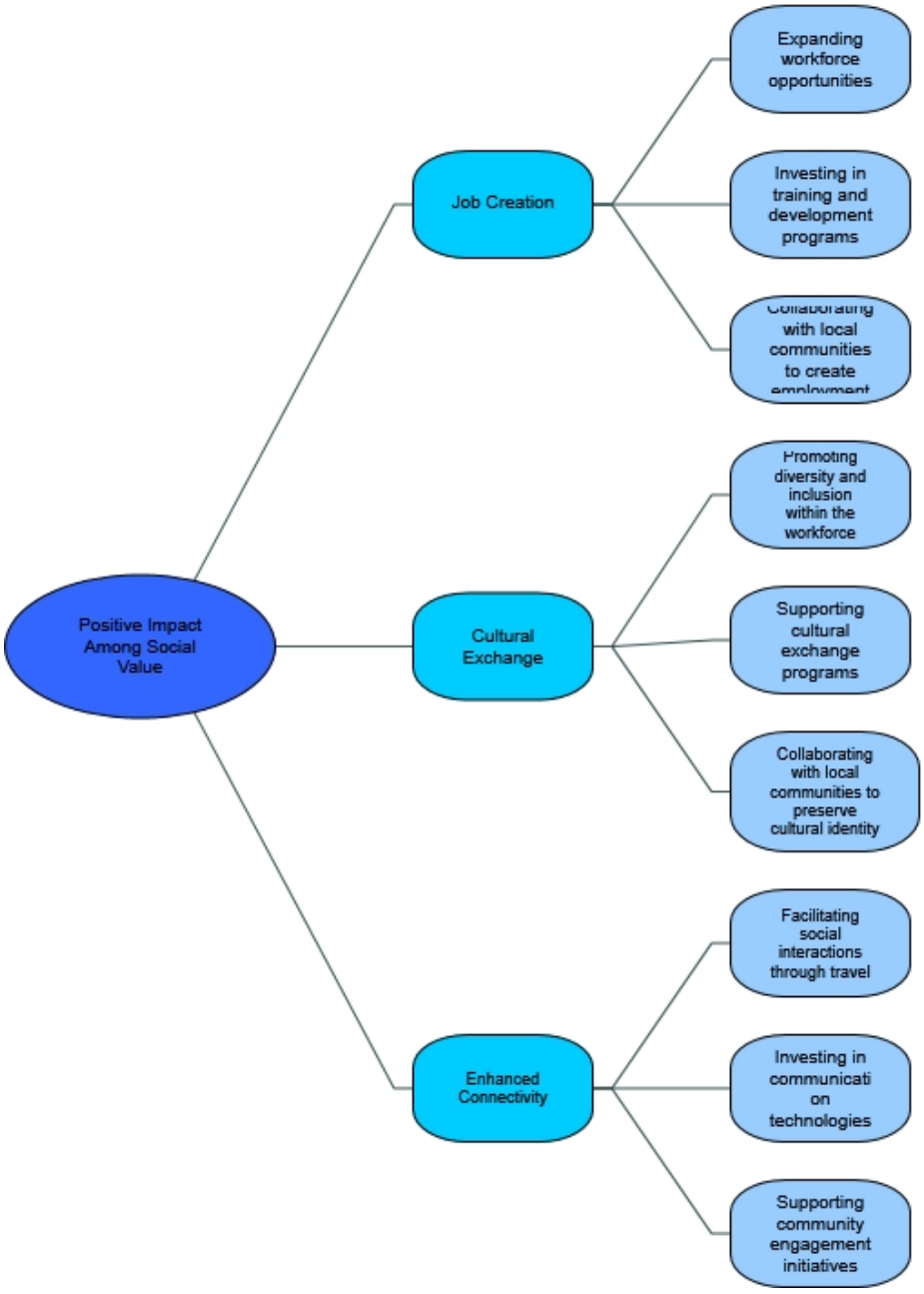


Figure 16. Mind map generated from NVivo 12 illustrating Liberalisation Positive Impact on Social Value of Airline industry

The mind map above shows the Positive Impact of Liberalisation on the Social Value of the Airline industry based on relevant publications.

Job Creation

Creating employment opportunities positively impacts local and global economies. However, balancing job creation with the need for efficiency and productivity is a delicate task. Airlines must ensure that job creation aligns with long-term business sustainability, employee well-being, and overall operational efficiency: « Additionally, air transportation generates nearly 9% of domestic jobs, over one million direct and another ten million indirect and induced. » (Air Transport Action Group, 2005) **(Appendix 9.1)**

According to the ATAG report page 20, the impacts of employment go further than direct employment: « Indirect impacts include employment and activities of suppliers to the air transport industry — for example, aviation fuel suppliers; construction companies that build airport facilities; suppliers of sub-components used in aircraft » **(Appendix 9.1)**.

Moreover: « Just over 18.1 million indirect jobs globally were supported through the purchase of goods and services by companies in the air transport industry. » (ATAG, 2020, p. 20) **(Appendix 9.1)**

Cultural Exchange

Fostering diversity within the workforce through cultural exchange initiatives is essential for a global industry. It contributes to a rich and inclusive organizational culture. However, ensuring a harmonious organizational culture that values and respects diverse perspectives requires ongoing efforts, including diversity training, inclusion programs, and leadership commitment. This mean of transport helps inclusivity in education : « To access higher-quality education for many means travelling to another country, sometimes in another region of the globe. Without air transport, these opportunities simply would not be feasible » (ATAG, 2020, p. 30) **(Appendix 9.2).**

According to the ATAG report, the sector is not only beneficial for education: « Aviation helps foster educational connectivity for students and it has also been shown to increase scientific collaboration, particularly when more affordable airfares enter a market. Analysis of data from 1991–2012

shows that the entry of a low- cost carrier into a route increased scientific collaboration by 30% » **(Appendix 9.2)**

Enhanced Connectivity

Facilitating social interactions and community integration contributes to enhanced connectivity. While positive, airlines must be mindful of the potential social and cultural implications. This requires a nuanced understanding of local values and customs, ensuring that the airline's operations align with and contribute positively to the communities it serves. As the ATAG report stated, it can connect isolated communities : « There are other ways that air transport can bring about rapid change in development for remote communities and emerging markets. Airfields can provide access to areas where road construction proves too challenging or expensive » **(Appendix 9.3)**

The connectivity enabled by air transport is also crucial for good health around the world : « A prime example of how aviation plays a role in public health is the ability to transport vaccinations. Not only are these vital medical supplies time sensitive, making other modes of transport unviable over long distances, but their temperatures must also be carefully regulated, something in which cargo airlines are very experienced. » (ATAG, 2020, p. 32) **(Appendix 9.3)**

4.3.2.Negative Impact Among Social Value

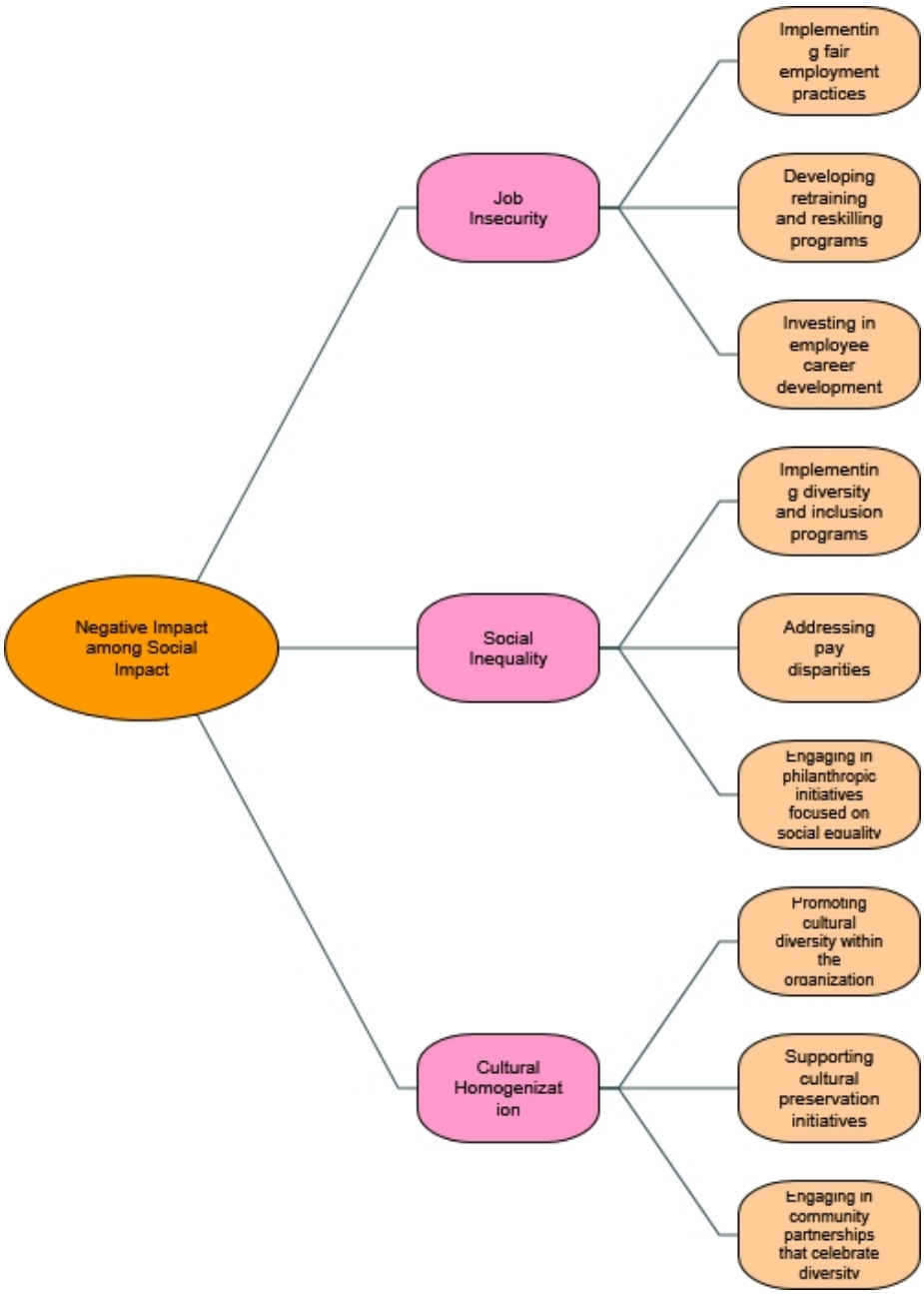


Figure 17. Mind map generated from NVivo 12 illustrating Liberalisation Negative Impact on Social Value of Airline industry

The mind map above shows the Negative Impact of Liberalisation on the Social Value of the Airline industry based on relevant publications.

Job Insecurity

Job insecurity poses challenges to employee well-being and organizational morale. Airlines must prioritize fair employment practices, provide training opportunities, and offer clear communication to address employee concerns. A commitment to employee welfare is crucial for maintaining a positive organizational culture. It's very difficult to enter the aviation job market: « One of the most

immediate challenges facing the global aviation industry today is a labor shortage. The shortfall is being felt in every category — from pilot, to baggage handler, to ticket agent, to flight attendant, to aircraft mechanic. Because these workers are responsible for the lives of millions of travelers every day, all must go through extensive background checks, drug testing, and training » (T. Stalnaker, K. Usman, A. Buchanan, 2021-2022) **(Appendix 10.1)**

According to the ATAG report, this is a very demanding sector: « Aviation (particularly the airline, airport operator, ANSP and civil aerospace categories) tends to have a relatively high proportion of highly skilled jobs that require constant certification to keep current ratings. » **(Appendix 10.1)**

The Covid crisis is the perfect example of how the sector is dependant of the world situation and how jobs bear the brunt : « 4.8 million Direct aviation jobs may be lost due to Covid-19 impact (a 43% reduction from pre-Covid levels) » (ATAG, 2020, p.5) **(Appendix 10.1)**

Social Inequality

Social inequality within the organization calls for strategies to address disparities. Airlines should implement policies that promote diversity, equity, and inclusion. This includes fair hiring practices, diversity training, and equal opportunities for career advancement. A socially responsible approach contributes to a more inclusive work environment.

The main noticeable inequality is the gender one: « evidence suggests that aviation still tends to be a male-dominated industry. Statistics for Europe show that women make up 43% of employees, although technical positions will likely skew towards men. » (ATAG, 2020, p. 31) **(Appendix 10.2)**

Cultural Homogenization

Cultural homogenization raises concerns about preserving diversity. Airlines must actively promote and celebrate cultural diversity, both within their workforce and in the communities they serve. Supporting initiatives that preserve cultural identities and engaging with local communities fosters a positive social impact.

The homogenisation imposed by the increase of airline transportation, hence traveling further, implies the lost of certain cultures : « This cultural homogenisation impacts both identity and culture and in turn creates a mixture of different cultures as people become aware of each other's cultures and adopt elements of these (Ritzer, 2004). » (C. Evans, 2015) **(Appendix 10.3)**

4.3.3.Corrective Actions Among Social Value

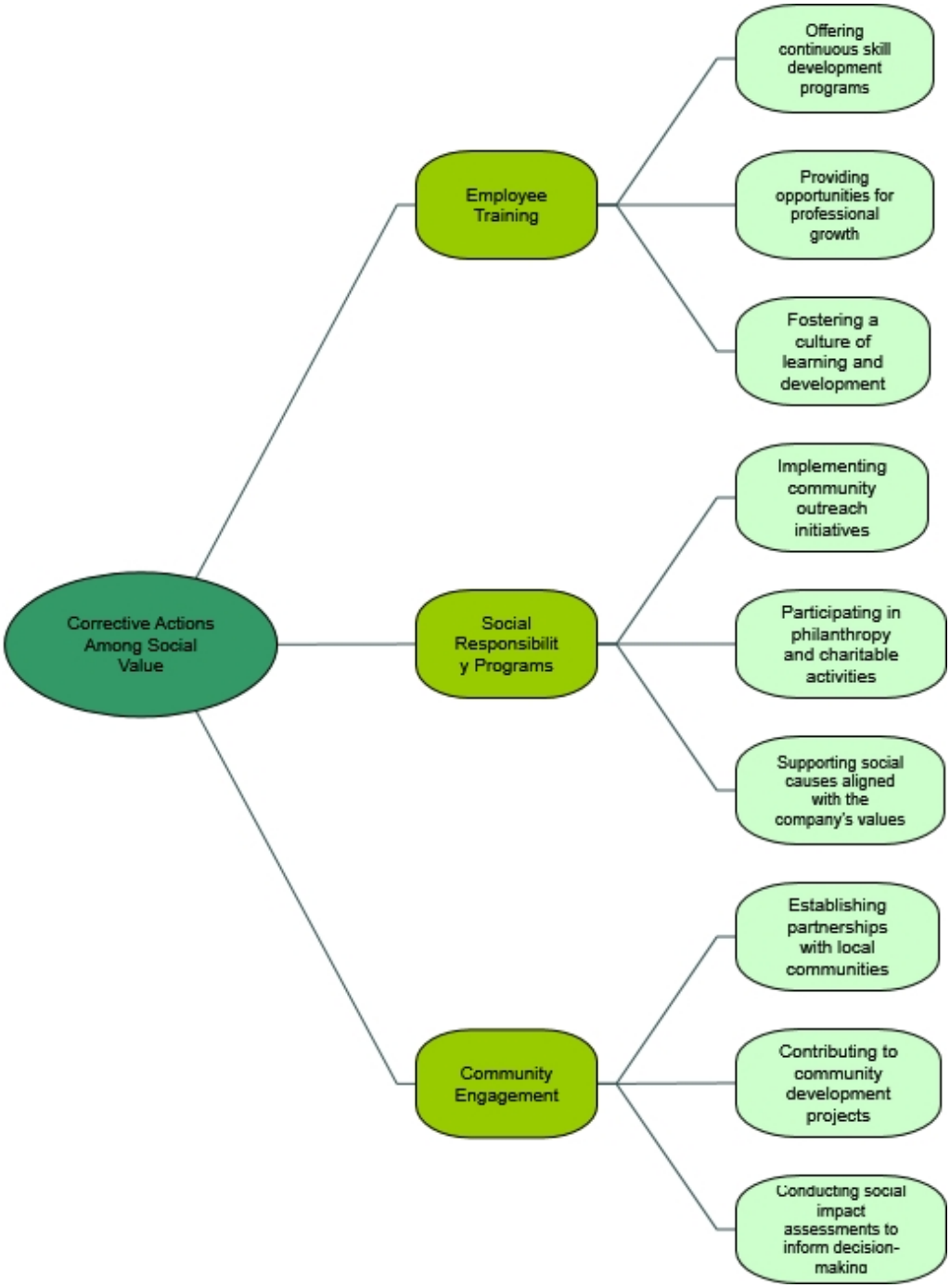


Figure 18. Mind map generated from NVivo 12 illustrating The Corrective Actions of the Airline Industry to cope the Liberalisation on the Social Value

The mind map above shows The Corrective Actions of the Airline Industry to cope the Liberalisation on Social Value based on relevant publications.

Employee Training

Investing in employee training enhances skill development, job security, and adaptability. This corrective action addresses job insecurity concerns and fosters a culture of continuous learning. Employee training contributes to a skilled and motivated workforce: « The importance of training and development of the employees assist the business to increase the quality of service and productivity. » (Beena, 2019) **(Appendix 11.1).**

Furthermore, employees are the ones who ask for training according to IATA: « Some 80% of workers believe they would be more productive if they learned new skills. » **(Appendix 11.1).** According to IATA, the three reasons for staff training are: « Bridge knowledge gaps quickly, increase regulatory knowledge, retain top talent » **(Appendix 11.1).**

Social Responsibility Programs

Engaging in social responsibility programs, including community outreach and philanthropy, demonstrates a commitment to ethical and responsible business practices. These programs address social inequality concerns and contribute positively to the communities in which the airline operates: « It is possible that relevant CSR initiatives, e.g. community services, voluntary humanitarian airlifts akin to JetBlue's, can help customers identify a positive image in the airline and stay loyal to it. » (D.So, 2020) **(Appendix 11.2).**

Derek So added: « It is visible from these examples that social and environmental CSR could better an airline's reputation among its stakeholders and help it differentiate itself from competitors. » **(Appendix 11.2).**

Community Engagement

Actively engaging with local communities through partnerships establishes mutual benefits. Community engagement initiatives address concerns related to cultural homogenization and streng-

then the airline's ties with the diverse communities it serves: « To illustrate, Alaska Airlines' Charity Miles Program provides air transport for charities and communities in need in the US and is well received by the public and employees. » (D.So, 2020) **(Appendix 11.3).**

The ATAG report of 2020 highlights : « Studies have shown that access to air services not only helps remote communities with vital lifeline needs but also economic development, including the ability to attract and retain businesses and professionals, particularly those with travel needs to maintain proficiency in their field. » **(Appendix 11.3).**

5. Discussion

5.1. Limitations, reliability and validity

This study faces difficulties related to data availability and quality, particularly about the social impact of the aviation sector. In addition, the reliance on publicly available financial reports and environmental information may limit the depth of the analysis, while the inclusion of a limited number of airlines could limit the generalizability of the results. Many airlines may be reluctant to disclose information about their operations.

To improve reliability, the study uses multiple sources for data collection and standardized measurement tools. Triangulation of data from various sources enhances the reliability of results and reduces the risk of bias, such as Google Scholar or articles from direct sources (ATAG, IATA).

Construct validity is ensured by a comprehensive conceptual framework that aligns with established theories and literature. Relevant key performance indicators for each dimension are included, reinforcing the validity of the study by capturing the multidimensional nature of the effects of liberalization. Internal validity is ensured by rigorous analysis techniques, which minimize the risk of confounding variables. While external validity may be limited by sample selection, efforts are made to ensure representativeness and strengthen generalizability through comparisons with existing research and industry references.

Overall, while study limitations may impact the depth of analysis, the reliability and validity of results are supported by robust methodologies and adherence to established frameworks.

5.2. Answering the research questions

Throughout this research, these main questions were asked by the author:

RQ1: What are the impacts of liberalization on environmental, social, and economic value dimensions of selected airline companies and their coping strategies?

The study comprehensively examines the effects of liberalization on environmental, social, and economic dimensions within selected airline companies. Through qualitative assessment and secondary data analysis, the research sheds light on the multifaceted impacts of liberalization and explores how airline companies cope with these changes.

RQ1.1: What are Social, Economic, and Ecological negative impacts of airline industry liberalization?

Liberalization has resulted in various negative impacts across social, economic, and ecological dimensions. Socially, it has led to increased job insecurity and labor disputes within airline companies. Economically, intensified competition has triggered price wars and reduced profitability for some carriers. Ecologically, liberalization has contributed to higher carbon emissions and environmental degradation due to increased air traffic.

RQ1.2: What are Social, Economic, and Ecological positive impacts of airline industry liberalization?

Conversely, liberalization has also brought about positive impacts across social, economic, and ecological dimensions. Socially, it has fostered cultural exchange and enhanced connectivity, promoting greater social integration and cultural diversity. Economically, liberalization has facilitated market access and stimulated innovation, resulting in increased revenue streams and economic growth. Ecologically, it has incentivized airlines to adopt fuel-efficient technologies and implement sustainability initiatives, reducing environmental impact.

RQ1.3: What are Social, Economic, and Ecological Corrective Actions in the airline industry liberalization?

In response to the identified negative impacts, airline companies have implemented various corrective actions across social, economic, and ecological dimensions. Socially, they have focused on employee training and engagement programs to address job insecurity and enhance morale. Economically, companies have pursued diversification strategies and formed strategic partnerships to mitigate adverse effects of competition. Ecologically, airlines have invested in green technologies and adopted sustainable practices to reduce carbon emissions and promote environmental stewardship.

Overall, the study's findings provide valuable insights into the multifaceted impacts of liberalization on airline companies and their coping strategies. By addressing these research questions, the study contributes to a deeper understanding of the challenges and opportunities associated with liberalization in the airline industry, informing future policy decisions and strategic planning efforts.

5.3. Dialogue between key results and knowledge base

The key results of this study indicate that liberalization has both positive and negative impacts on the economic value dimension of selected airline companies. These findings are consistent with existing literature, which suggests that liberalization can lead to increased market access and revenue opportunities for airlines as shown in **section 2.2.1**. However, **section 4.1.2** also highlights the challenges of intensified competition and price pressures, aligning with previous research on the economic implications of liberalization in the airline industry.

In terms of the environmental value dimension, the study's results reveal the complex relationship between liberalization and environmental sustainability. While liberalization has spurred innovation in fuel-efficient technologies and sustainable practices, it has also contributed to higher carbon emissions and environmental degradation due to increased air traffic as shown in **section 2.1**. These findings echo existing research on the environmental impact of aviation and the importance of balancing economic growth with environmental stewardship in the context of liberalization.

Similarly, the study's findings shed light on the social implications of liberalization for airline companies. The positive impacts shown in **section 4.3.1,** include enhanced connectivity and cultural exchange, aligning with literature on the social benefits of increased air travel accessibility. However, the study also identifies in **section 4.3.2** challenges such as job insecurity and labor disputes, reflecting existing research on the social consequences of liberalization in the airline industry.

The coping strategies adopted by airline companies in response to the challenges of liberalization further enrich the dialogue between key results and the knowledge base. The study's findings in **sections 4.1.3, 4.2.3, and 4.3.3** underscore the importance of diversification, strategic partnerships, and sustainability initiatives as effective coping mechanisms for addressing the negative impacts of liberalization. These strategies are consistent with previous research on adaptive management and strategic planning in the airline industry.

In summary, the dialogue between key results and the existing knowledge base highlights the significance of this study in advancing understanding of the impact of liberalization on airline companies. By building upon and expanding existing literature, the study contributes to a nuanced understanding of the economic, environmental, and social dynamics of liberalization in the airline industry. The findings offer valuable insights for policymakers, industry stakeholders, and researchers seeking to promote sustainable development and resilience in the face of ongoing liberalization trends.

5.4. Compliance with research ethics guidelines

This research examined the impact of Liberalisation on airline companies by using secondary data from relevant publications. In conducting this study, the author took great care to ensure that our research adhered to ethical guidelines. Several key ethical considerations were carefully addressed to uphold ethical standards and protect the rights and welfare of participants.

In sourcing data for this study, the writer accessed reliable sources such as academic literature, governmental reports, and news items. All sources were meticulously referenced to adhere to copyright regulations, ensuring transparency and accountability. It's important to note that no copyrighted or intellectual property-protected information was included in this work.

Furthermore, the author was mindful of the potential risks associated with sensitive information, particularly concerning individuals' data. To mitigate such risks, only publicly available and previously published data were utilized, with strict avoidance of any involvement of human subjects. Careful consideration was given to avoid using statistics that could potentially reveal individual identities or specific groups, thereby minimizing risks.

In terms of data confidentiality, the author took proactive measures to safeguard the integrity of the information. All data were securely stored in a restricted-access location, and no information was shared with third parties without appropriate permissions. Additionally, any data that could be traced back to specific individuals or organizations was anonymized to protect confidentiality and privacy.

Lastly, recognizing the inherent limitations and challenges of secondary data analysis, the author employed rigorous methods to mitigate potential biases and inaccuracies. Cross-checking data from multiple sources and adopting a critical, unbiased approach to data analysis were key strategies employed to enhance the reliability and validity of the findings. By addressing these considerations, the study maintains ethical standards and ensures the integrity of the research process.

6. Conclusion

6.1. Key Findings

- Economic Impact: The liberalization of the airline industry has led to both positive and negative economic impacts. On one hand, increased market access and competition have stimulated innovation and economic growth. However, intensified competition has also resulted in price wars and reduced profitability for some airlines, particularly smaller carriers. Coping strategies such as diversification and strategic partnerships have emerged as effective measures to mitigate economic challenges.

- Social Impact: Liberalization has facilitated greater connectivity and cultural exchange, enhancing social integration and diversity. However, it has also resulted in job insecurity and labor disputes within the airline industry. Coping strategies such as employee training and engagement programs have been implemented to address these social challenges and enhance employee morale.

- Environmental Impact: The liberalization of the airline industry has led to increased air traffic and carbon emissions, contributing to environmental degradation. However, it has also incentivized airlines to adopt fuel-efficient technologies and implement sustainability initiatives. Coping strategies such as green technologies and sustainable practices have been embraced to mitigate the environmental impact of liberalization.

- Coping Strategies: Selected airline companies have implemented various coping strategies to address the challenges posed by liberalization. These strategies include diversification, strategic partnerships, and sustainability initiatives. Additionally, the study identifies emerging best practices in overcoming the impact of liberalization, such as enhancing collaboration, digitalization, and risk management.

The findings of this study highlight the multifaceted nature of the impact of liberalization on the economic, social, and environmental dimensions of selected airline companies. While liberalization has brought about positive changes such as increased market access and innovation, it has also presented challenges such as intensified competition and environmental degradation. Effective coping strategies play a crucial role in mitigating these challenges and ensuring the long-term sustainability of airline companies in a liberalized market environment.

6.2. Managerial implications

Given the competitive nature of the liberalized airline industry, the first managerial implication would be diversification. Airlines should explore diversifying their revenue streams by expanding into ancillary services, exploring new markets, and offering innovative products to meet evolving consumer demands.

Secondly, partnerships and collaboration. Strategic partnerships with other airlines, industry stakeholders, and government agencies can provide airlines with access to new markets, resources, and expertise. Collaborative initiatives can help airlines leverage economies of scale, reduce costs, and enhance their competitive position in the market.

With growing concerns about environmental sustainability, airline companies also need to prioritize sustainability initiatives to minimize their environmental footprint. This may involve investing in fuel-efficient aircraft, adopting renewable energy sources, and implementing carbon offset programs to mitigate emissions.

Furthermore, addressing social challenges such as job insecurity and labor disputes requires proactive measures to enhance employee engagement and morale. Airlines should invest in employee training and development programs, promote a positive organizational culture, and foster open communication channels to address employee concerns and build trust.

Additionally, embracing digitalization and technology adoption can enhance operational efficiency, customer experience, and decision-making processes within airline companies. From implementing digital booking systems to leveraging data analytics for demand forecasting, technology can play a crucial role in driving innovation and competitiveness in the liberalized airline industry.

Finally, compliance with regulatory requirements and industry standards is essential for maintaining the trust and confidence of stakeholders. Airlines should stay abreast of evolving regulations, ensure compliance with safety and environmental standards, and actively engage with regulatory authorities to shape industry policies and practices.

6.3. Recommendations for future research

Based on the thesis study, other angles of research could be recommended.

First, comparative studies across different regions or countries can offer valuable insights into the variations in the impact of liberalization on airline companies and their coping strategies. Comparing regulatory frameworks, market dynamics, and industry practices can help identify best practices and lessons learned for improving the effectiveness of coping strategies.

Additionally, future research could delve deeper into assessing the sustainability implications of liberalization on airline companies. This could include evaluating the effectiveness of sustainability initiatives, analyzing the carbon footprint of different airlines, and exploring the potential for greener aviation technologies and practices.

Also, with the increasing digitization of the airline industry, research could explore the role of digital technologies in shaping coping strategies and enhancing competitiveness in a liberalized market environment. Topics for investigation could include the adoption of artificial intelligence, blockchain, and Internet of Things (IoT) solutions in airline operations and customer service.

Furthermore, investigating the impact of regulatory policies and government interventions on the liberalized airline industry can provide valuable insights for policymakers and industry stakeholders. Research could focus on analyzing the effectiveness of regulatory frameworks in promoting competition, ensuring consumer protection, and addressing environmental concerns.

By addressing these areas of future research, scholars can further advance our understanding of the complex dynamics of liberalization on airline companies and contribute to the development of strategies and policies that promote sustainable growth and resilience in the aviation industry.

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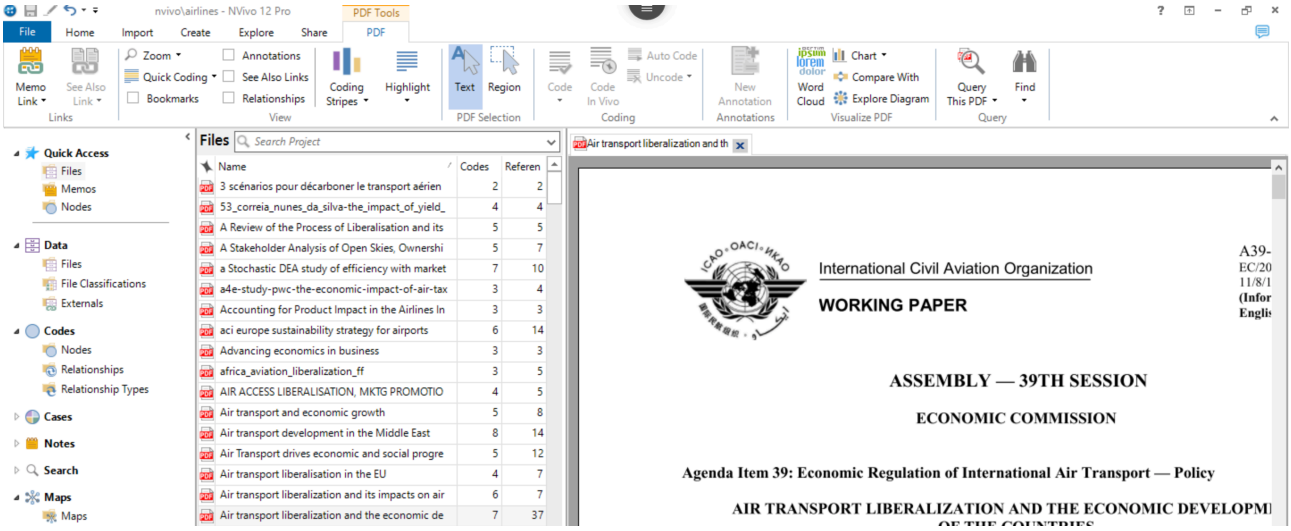
Appendices

Appendix 1. A screenshot showing the publications uploaded as secondary data from the NVivo 12 program



Appendix 2. A screenshot showing the nodes created during data analysing phase (from NVivo 12 program).

Appendix 3. Quotes from relevant publications to highlight the evidence of Figure 10

The Positive Impact of Liberalisation Impact on the Economic Value of the Airline Industry	
Appendix 3.1 Increased Market Access	« Worldwide, the total number of annual passengers has grown by 46 percent in the past ten years, from 1.457 billion passengers to 2.128 billion per year » (ICAO, 2007) « The liberalisation of air transport markets in Europe means that airlines have greater freedom to choose where they fly to and from, and generally set fares, frequencies, capacities and routes according to commercial considerations. This has provided opportunities for airports to grow and expand their services » (Koo et al., 2016, p.2) « That growth is perceived to be advantageous to strategies promoting national and regional economic growth and, consequently, the provision of LCC services is being supported by an array of national and local government agencies throughout the European Union (EU) » (Graham & Shaw, 2008)

Appendix 3.2 Cost Reduction	« For example Merkert and Pearson (2015) report a lack of significant relationship of passenger satisfaction and service quality on airline profitability, signifying that investments in such aspects may not reap financial benefits. As such, management may have a degree of freedom on selecting the service quality levels of the airlines, though, an after-effect of cost reduction policies is the degradation of quality standards offered to passengers. » (Stamolampros & Korfiatis, 2019, p.7) « Air transport is key to global economic development. This wider economic benefit is underpinned by both the direct connections between cities - enabling the flow of goods, people, capital, technology and ideas - and falling air transport costs. » (IATA, 2021) « Infrastructure partners play an important role in the service that airlines provide to their customers, affecting the experience, the timeliness of the journey, as well as its cost. Overall, the cost of using airport and ANSP infrastructure has risen steeply over past decades, partly because competitive pressures are very weak in this part of the supply chain. This sits in contrast with the relatively limited rise in non-fuel airline costs. » (IATA, 2021)

Appendix 3.3 Revenue Growth	«When assessing consumer welfare impacts in aviation, both direct and indirect travel options and their associated generalised travel costs need to be taken into account. Affected relevant markets need to be identified carefully » (Burghouwt, 2019) « The global airline industry's revenue is projected to grow 7.6 per cent year on year to a record $964 billion in 2024, driven by high demand for travel, according to the International Air Transport Association(Iata). » (Sharma, 2023) « Revenue from in-flight services can prove vital for airlines' sustained profitability. While legacy carriers will charge for things like high-speed WiFi and meals onboard short-haul flights, budget airlines can charge for nearly everything. Some airlines, however, operate business models free from inflight service revenue, such as JetBlue which offers completely free high-speed WiFi on all flights. » (Mitchell, 2023) "The air transport industry directly provided an estimated 11.3 million jobs worldwide" (Aviation: Benefits Beyond Borders, ATAG, 2020, p.19)

Appendix 3.3 Revenue Growth	« the industry generated 11.3 million direct jobs and added $961.3 billion to global gross domestic product (GDP). To put that into context, that is equivalent to 1.1% of global GDP, or similar to the basic metals industry ($968 billion)" (Aviation: Benefits Beyond Borders, ATAG, 2020, p.19) « If aviation were a country, it would rank 17th in size by GDP (similar to Indonesia or the Netherlands) » (Aviation: Benefits Beyond Borders, ATAG, 2020, p.11)

Appendix 4. Quotes from relevant publications to highlight the evidence of Figure 11

The Negative Impact of Liberalisation Impact on the Economic Value of the Airline Industry	
Appendix 4.1 Intense competition	« customers consider a price as unfair when they recognize that the company is using a price strategy to get more profit instead of carrying relationships with customers. » (*The Impact of Yield Management in the Airline Industry on Customers' Feelings of Price Fairness*, YIELD MANAGEMENT RESEARCH, Kees Correia Nunes da Silva, p.6) « After-effects of shocks on such critical cost factors may also affect the level of service quality offered to passengers leading to a degradation of service quality levels » (Stamolampros & Korfiatis,

Appendix 4.2 Economic Volatility	« Variations in economic conditions measured by the cost of borrowing and the pricing of important industrial commodities such as oil, as well as, in the market structure reflected by the consolidation of major players, have a direct or indirect effect on the financial performance of individual airlines, but also on the whole sector. » (Stamolampros & Korfiatis, 2019) « To alleviate the strain on medical supplies during the Covid-19 pandemic, aerospace manufacturers redirected their technical expertise, infrastructure and resources to develop life-saving equipment for the healthcare community. » (Aviation: Benefits Beyond Borders, ATAG, 2020, p.8)

Appendix 4.3 Price Wars	« First in North America, then in the EU and, now, elsewhere in the world, the dramatic growth of LCCs has been the most important outcome of liberalization » (Brian Graham, Jon Shaw, 2007) « All LCCs share a commitment to the ‘‘cult of cost reduction” (Lawton, 2003, p. 175), a business model that offers low fares, strips out overall costs and leverages assets – both human and material – to the full. » (Brian Graham, Jon Shaw, 2007)

Appendix 5. Quotes from relevant publications to highlight the evidence of Figure 12

The Corrective Actions of the Airline Industry to cope the Liberalisation on the Economic Value

Appendix 5.1 Diversification	« the degree of airport dependency in terms of market, spatial and temporal concentration is important to know from an economic geography and risk management perspective » (Koo et al., 2016) « By diversifying their revenue sources, airlines can reduce their reliance on traditional revenue streams and improve their financial performance, customer satisfaction, and overall competitiveness in the aviation industry. » (Aviation outlook, 2021) « The areas investigated were Cargo, Maintenance, Catering and Travel Services. » (Redpath et al., 2017) « The research found that whilst diversification may not always present the most attractive option financially, strategic factors can often outweigh such concerns. » (Redpath et al., 2017)

Appendix 5.2 Strategic Partnerships	« Within these collaborations, airlines can share resources, pick up or extend partner routes and even offer the ability to earn and redeem miles through each others' rewards programs. » (Koomsap P., 2023) « Often, airlines outside alliances partner up with one another. You can for example transfer American Express Membership Rewards points to Emirates' Skywards program, and use the resulting miles to book a flight on Jet-
Appendix 5.3 Cost Optimization	« In a market hugely affected by the COVID-19 pandemic on top of shrinking ticket prices and increased competition, airlines have to look for new ways to operate efficiently – without compromising on customer experience. » (Satair, n.d) « According to a report from international management consulting firm, McKinsey & Company, "an airline that fully adopts lean techniques can cut its costs significantly while enhancing the experience of employees and customers by sharpening on-time performance, reducing wait times for guests, increasing the working availability of aircraft and ground assets, and helping employees to make the most productive use of their

Appendix 6. Quotes from relevant publications to highlight the evidence of Figure 13

The Positive Impact of Liberalisation Impact on the Environmental Value of the Airline Industry	
Appendix 6.1 Technological Innovation	« Sustainable aviation fuels (SAF) could be the key to sustainable long-haul air travel, contributing hugely to the industry's » (ATAG, 2020) « Since the year 2000, industry fuel efficiency has cumulatively improved 38% and CO2 tonnes per thousand kilometres performed has decreased from 1.84 to 0.84. This improved fuel efficiency has been driven by airlines investing over $1 trillion in 15,000 more efficient new-technology aircraft since 2009 » (ATAG, 2020, p.34) « 40 million liters of neat sustainable aviation fuel used by commercial flights in 2019 (32,000 tonnes). This was blended with traditional fuel in over 65,455 flights from five international airports (Los Angeles, San Francisco, Bergen, Oslo, and Stockholm). Whilst this only represents less than 1% of the current fuel used in aviation globally, as this new source of fuel takes off, we will see this figure rise substantially. » (ATAG, 2020, p.12)

Appendix 6.2 Sustainable Practices	« Over 11 billion tonnes of CO2 avoided since 1990 through a combination of new technology, operational efficiencies and infrastructural improvements, including airlines spending over $1 trillion on 15,000 new aircraft since 2009 » (ATAG, 2020, p.13) « These aircraft use lightweight materials, such as carbon fiber composites, to reduce weight and are designed with more efficient engines and aerodynamics. » (How Airlines Are Making Air Travel More Sustainable | Clyde Travel, n.d.)
Appendix 6.3 Compliance with regulations	« British Airways made a world-first move to use SAF produced on a commercial scale in the UK after signing a multi-year agreement with Phillips. » (Airways) « There are wide-ranging benefits of operating a modern fleet, and with Emirates' policy of investing in the most modern, eco-efficient technology available it also means that they have one of the youngest fleets in the industry. The modern, wide-body fleet reduces both noise and engine emissions, with the Airbus A380s among the quietest large aircraft available. » (Department, 2023)

Appendix 7. Quotes from relevant publications to highlight the evidence of Figure 14

The Negative Impact of Liberalisation Impact on the Environmental Value of the Airline Industry	
Appendix 7.1 Increased Carbon Emissions	« CO2 emissions from air transportation are expected to increase significantly in nominal terms. While the relative contribution of the aviation sector to the global anthropogenic carbon emissions is currently estimated at about 3%, the higher potential for improvements and emission reductions from other sectors are likely to contribute to an increase in the aviation's relative contribution. The 1999 IPCC report suggests that this contribution may rise to 5% and could reach up to 15% by 2050 (IPCC, 1999). » (Sgouridis et al., 2011) « the incompatibility of environmental sustainability with a business model that promotes rapid growth in air travel without meeting its external costs » (Graham & Shaw, 2007)

Appendix 7.2 Resource Depletion	« Emissions from flights stay in the atmosphere and will warm it for several centuries. Because aircraft emissions are released high in the atmosphere, they have a potent climate impact, triggering chemical reactions and atmospheric effects that heat the planet. » (Aberšek, B., & Flogie, A., 2022) « Requirements around biofuels and electrification could help. Because of battery weight, electrification fits for flights under 1,500 kilometres. That's a problem since 80 per cent of flying is for flights longer than that. » (Suzuki, n.d.)

Appendix 7.3 Lack of Environment al Standards	« All this feeds into a wider need for strong policy to tackle aviation emissions, which has largely been lacking so far. “International aviation sits outside the Paris climate agreement, because that agreement is about a country’s domestic emissions,” says Harvey. “So there was a real push to have a scheme for international aviation.” » (Timperley, 2021) « After years of inaction, in 2016 countries at the UN aviation agency, ICAO, agreed on the Carbon Offsetting and Reduction Scheme for International Aviation (Corsia), a global deal to “offset” the growth in aviation emissions above the average levels in 2019 and 2020 » (Timperley, 2021) « ICAO is also in discussions over a long-term climate goal for aviation for 2050, but it is not clear when this will be agreed or what the target will be. » (Timperley, 2021)

Appendix 8. Quotes from relevant publications to highlight the evidence of Figure 15

The Corrective Actions of the Airline Industry to cope the Liberalisation on the Environmental Value

Appendix 8.1 Green Technologies	« Demand for air travel continues to be strong; however, there are signs that the sentiment towards flying is changing. Ethical questions are being raised concerning air travel, including around equality, and an increasing number of organisations are setting carbon reduction targets for employee air travel » (Gössling et al., 2019) « In addition to the latest propulsion technology, additional technological features have been included to maximise fuel efficiency. Improved aerodynamics, new manufacturing techniques and composite materials play a prominent role in determining how much fuel is burned on any given flight » (ATAG, 2020p. 35) « The aviation industry is working together through groups such as the Sustainable Aviation Fuel Users Group (SAFUG) and sustainability certification schemes such as the Roundtable on Sustainable Biomaterials (RSB) to make sure that any fuels used by the industry are, in fact, sustainable. » (ATAG, 2020,

Appendix 8.2 Sustainable Resource Management	« There are currently 314 airports in 72 countries, covering nearly 45% of global air passenger traffic, accredited to the Airport Carbon Accreditation Programme. More than 320,000 tonnes of CO2 were reduced between 2018 and 2019, equivalent to the emissions from 767 million hours of video streaming in HD » (ATAG, 2020, p.36) « The operations pillar of the industry's climate strategy deals with how aircraft are run once they are in service to ensure that all flights maximise fuel efficiency. At every step of an aircraft's operation — at the gate, during taxiing, take-off, cruise and landing — there are opportunities to reduce fuel burn and consequently, emissions. » (ATAG, 2020, p.38) « By using an array of new satellite-based navigational technologies and procedures collectively referred to as 'performance-based navigation', aircraft are able to follow optimised, more direct routes with greater accuracy and efficiency. Cutting out unnecessary travel time can save fuel, reduce CO2 emissions « (ATAG, 2020, p. 39)

Appendix 8.3 Regulatory Compliance	« Nineteen airlines are actively considering alternative fuels to supplement or replace fossil fuels. » (Becken & Pant, 2022) « To meet these goals, the industry has put in place a collective strategy that takes account of all means of reducing aviation emissions, in the air and on the ground. The industry has been implementing many of these measures for years and has made significant progress in fuel and CO2 efficiency. In fact, per passenger a flight taken today will produce around half of the CO2 produced by the same flight in 1990. This has been achieved through technological advancement and improvements in operations and infrastructure. » (ATAG, 2020, p. 34)

Appendix 9. Quotes from relevant publications to highlight the evidence of Figure 16

The Positive Impact of Liberalisation Impact on the Social Value of the Airline Industry	
Appendix 9.1 Job creation	« Additionally, air transportation generates nearly 9% of domestic jobs, over one million direct and another ten million indirect and induced. » (Air Transport Action Group, 2005) « Indirect impacts include employment and activities of suppliers to the air transport industry — for example, aviation fuel suppliers; construction companies that build airport facilities; suppliers of sub-components used in aircraft » (ATAG, 2020, p.20) « Just over 18.1 million indirect jobs globally were supported through the purchase of goods and services by companies in the air transport industry. » (ATAG, 2020, p.20)

Appendix 9.2 Cultural Exchange	« To access higher-quality education for many means travelling to another country, sometimes in another region of the globe. Without air transport, these opportunities simply would not be feasible » (ATAG, 2020, p. 30) « Aviation helps foster educational connectivity for students and it has also been shown to increase scientific collaboration, particularly when more affordable airfares enter a market. Analysis of data from 1991–2012 shows that the entry of a low- cost carrier into a route increased scientific collaboration by 30% » (ATAG, 2020, p.31)
Appendix 9.3 Enhanced Connectivity	« There are other ways that air transport can bring about rapid change in development for remote communities and emerging markets. Airfields can provide access to areas where road construction proves too challenging or expensive » (ATAG, 2020, p.29) « A prime example of how aviation plays a role in public health is the ability to transport vaccinations. Not only are these vital medical supplies time sensitive, making other modes of transport unviable over long distances, but their temperatures must also be carefully regulated, something in which cargo airlines are very experienced. » (ATAG,

Appendix 10. Quotes from relevant publications to highlight the evidence of Figure 17

The Negative Impact of Liberalisation Impact on the Social Value of the Airline Industry	
Appendix 10.1 Job insecurity	« One of the most immediate challenges facing the global aviation industry today is a labor shortage. The shortfall is being felt in every category — from pilot, to baggage handler, to ticket agent, to flight attendant, to aircraft mechanic. Because these workers are responsible for the lives of millions of travelers every day, all must go through extensive background checks, drug testing, and training » (T. Stalnaker, K. Usman, A. Buchanan, 2021-2022) « Aviation (particularly the airline, airport operator, ANSP and civil aerospace categories) tends to have a relatively high proportion of highly skilled jobs that require constant certification to keep current ratings. » (ATAG, 2020, p.4) « 4.8 million Direct aviation jobs may be lost due to Covid-19 impact (a 43% reduction from pre-Covid levels) » (ATAG, 2020, p.5)

Appendix 10.2 Social Inequality	« evidence suggests that aviation still tends to be a male-dominated industry. Statistics for Europe show that women make up 43% of employees, although technical positions will likely skew towards men. » (ATAG, 2020, p.31)
Appendix 10.3 Cultural Homogenization	« This cultural homogenisation impacts both identity and culture and in turn creates a mixture of different cultures as people become aware of each other's cultures and adopt elements of these (Ritzer, 2004). » (C. Evans, 2015)

Appendix 11. Quotes from relevant publications to highlight the evidence of Figure 18

The Corrective Actions of the Airline Industry to cope the Liberalisation on the Social Value	
Appendix 11.1 Employee Training	« The importance of training and development of the employees assist the business to increase the quality of service and productivity. » (Beena, 2019) « Some 80% of workers believe they would be more productive if they learned new skills. » (IATA, 2022) « Bridge knowledge gaps quickly, increase regulatory knowledge, retain top talent » (IATA, 2022)

Appendix 11.2 Social Responsibility Programs	« It is possible that relevant CSR initiatives, e.g. community services, voluntary humanitarian airlifts akin to JetBlue's (Hawkins, 2017; JetBlue, 2017), can help customers identify a positive image in the airline and stay loyal to it. » (D.So, 2020) « It is visible from these examples that social and environmental CSR could better an airline's reputation among its stakeholders and help it differentiate itself from competitors. » (D.So, 2020)
Appendix 11.3 Community Engagement	« To illustrate, Alaska Airlines' Charity Miles Program provides air transport for charities and communities in need in the US and is well received by the public and employees (Knigge, 2017). » (D.So, 2020) « Studies have shown that access to air services not only helps remote communities with vital lifeline needs but also economic development, including the ability to attract and retain businesses and professionals, particularly those with travel needs to maintain proficiency in their field. » (ATAG, 2020, p.28)