Stepping Up and Stepping Out of COVID-19: New Challenges for Environmental Sustainability Policies in the Global Airline Industry

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ABSTRACT

The allure for businesses to jettison short-term costly processes, regulatory demands and green business practices (GBPs) in the turbulent times of COVID-19 remains sky high. Although GBPs and eco-friendly policies deliver results in the long term in terms of market competitiveness (MC), in many industries firms have sought to jettison well-rooted practices in the face of the existential threats stemming from COVID-19. In this paper, we examine the new contemporary challenges of adopting and implementing environmental sustainability policies in the global airline industry in the wake of COVID-19. The analysis sheds light on firms' level sustainability initiatives such as upgrading to environmentally friendly aircraft and offsetting emission footprint, and institutional initiatives such as the European Union Emissions Trading System and the Carbon Offsetting and Reduction Scheme for Aviation. Our analysis demonstrates that some airlines and industrial bodies sought to sidestep environmentally friendly commitments and practices to overcome new challenges such as cost pressures, survival threat and deprioritising environmental sustainability initiatives. We establish and examine the implications of the analysis.

Keywords: Sustainability practices; COVID-19; airline industry; environmental sustainability policies; eco-friendly policies; business development.

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INTRODUCTION

With more than 8.6 million cases and over 450,000 fatalities affecting over 200 countries or territories (Worldometers, 2020) and the majority of businesses, the COVID-19 pandemic remains one of the unparalleled global crises of our modern times (World Health Organization, 2020). Indeed, there are over 1.4 million cases in Europe, over 1.3 million in the US, over 60,000 in south-east Asia, over 190,000 in the eastern Mediterranean and over 20,000 cases in Africa, making this a truly global pandemic (World Health Organization, 2020). Researchers, governments and policy makers have become increasingly concerned about the negative effects of COVID-19 on business activities, industry policies and the global economy. Despite the plethora of new lines of research on COVID-19 and businesses becoming beleaguered by the accompanying uncertainties (Gostin & Wiley, 2020), there remains a dearth of research examining the effects on environmental sustainability policy implementations and new challenges.

Although green business practices (GBPs) and environmental sustainability continue to attract the attention of organisational leaders, governments, society and industrial organisations (Agyabeng-Mensah et al., 2020; Durugbo & Amankwah-Amoah, 2019; Jabbour et al., 2019; Muduli, Luthra, Kumar Mangla, Jabbour, Aich, & de Guimarães, 2020; Singh, Del Giudice, Chierici & Graziano, 2020; Jabbour & Renwick, 2020), there remains a major challenge in maintaining momentum for environmentally sustainable practices especially in times of crisis. In the middle of this unprecedented event, multiple questions have been posed about the effects on environmental sustainability policies adopted prior to the crisis. Although firms increasingly adopt such environmental initiatives (see also Singh, Pradhan, Panigrahy, & Jena, 2019), these are often jettisoned as soon as they are confronted by new and difficult to predict challenges. The question arises as to how organisations can maintain momentum when the financial resources are under severe strain.

Motivated by the scholarly gap in tandem with the devastating influences of COVID-19 on how businesses function, this paper reviews GBPs in the global airline industry and outlines the contemporary challenges of implementing environmental sustainability policies in the wake of COVID-19. In order to accomplish this objective, our analysis is limited to the challenges inherent in the adoption and implementation of environmentally friendly initiatives in the global airline industry. The pivotal role of the global airline industry in the global economy is exemplified by the fact that air transport supports 65.5 million jobs around the globe, provides $2.7 trillion in economic activities and air travel accounts for around 35% of world trade by value (Air Transport Action Group, 2018; IATA, 2018). Indeed, in 2019 around 4.5 billion people were carried by airlines around the globe, linking cities and businesses (Air Transport Action Group, 2020).

The article makes concrete contributions to the environmental sustainability practice literature. First, in view of the growing global calls for better understanding of the effects of COVID-19 on businesses, the study contributes to the current literature by reviewing GBPs in the global airline industry and examining the looming challenges facing airlines' commitment to greening policies in the wake of COVID. More so, we contribute to existing environmental sustainability literature (Danso et al., 2019a, 2019b; Fornes, Lopez, de Haan & Blanch, 2019) by shedding light on the range of environmental sustainability practices adopted by global airlines using illustrative cases. In addition, although green practices have been examined, this has been undertaken without consideration of the global pandemic and its aftermath. This study rectifies this gap by examining the challenges of delivering a green agenda in this new world.

The article is organised as follows. In the next section, a brief review of GBPs is offered. The background of the global airline industry and insight into COVID is then presented. We then examine the challenge of achieving environmental sustainability in the wake of COVID-19. Accompanying the analysis is research and practical implications of the analysis, and some suggestions for further research.

GREEN BUSINESS PRACTICES AND SUSTAINABILITY: A REVIEW

Following pressures from important stakeholders such as governments, regulators and customers, firms around the globe have increasingly modified their business models to embrace in both short-term and long-term environmentally sustainable practices (Hendiani, Liao & Jabbour, 2020; Jabbour & Renwick, 2020; Singh, Pradhan, Panigrahy, & Jena, 2019; Singh, Chen, Del Giudice, & El-Kassar, 2019). Generally, firms adopting GBPs place the emphasis on reducing pollution, curtailing and eliminating waste, lowering energy use, utilising renewable materials and incorporating and installing resource conservation measures to ensure that the product/service can be delivered in an environmentally sustainable manner (Agyabeng-Mensah et al., 2020; Eltayeb & Zailani, 2009; Hendiani et al., 2020). Fundamentally, GBPs can be internally initiated via adopting environmentally friendly business processes, routines and operating guiding principles, or externally imposed by regulators, governments and other stakeholders with the aim of reducing greenhouse gas emissions stemming from firms' activities (Agyabeng-Mensah et al., 2020; Durugbo & Amankwah-Amoah, 2019; Jabbour & Renwick, 2020). Stakeholders' inclusion or engagement across a range of functional areas including product design and manufacturing has often been a key pillar in environmental sustainability practices of businesses (Durugbo & Amankwah-Amoah, 2019). The inclusive efforts also help to make organisations more attentive in determining and responding to environmental demands of consumers and other stakeholders (Danso et al., 2019a).

The increasing adoption of green practices in the business processes and routines is often motivated by pressures from stakeholders such as investors, workers and governments. This has helped to usher in a new environment where sustainability initiatives now move in tandem with market competitiveness (MC) issues (Amankwah-Amoah & Syllias, 2020; Durugbo & Amankwah-Amoah, 2019; Fornes, Lopez, de Haan & Blanch, 2019). Indeed, adopting GBPs can help firms penetrate new market segments whilst enhancing their reputations (Konadu et al., 2020) and attracting top talent (Agyabeng-Mensah et

al., 2020). By simultaneously pursuing internal and external organisational changes to improve product design and pursue green agendas, organisations are better able to accrue the full benefits of GBPs (see Agyabeng-Mensah et al., 2020).

By developing and nurturing "a green culture" (Agyabeng-Mensah et al., 2020), firms over time are able to minimise environmental waste and conserve resources – key for MC. Thus, reducing different types of pollution and waste enables organisations to reduce operating costs whilst concurrently fulfilling stakeholders' requirements of a green and clean organisation. GBPs may entail the adoption of end-of-pipe technologies with the aim of curbing or controlling environmental pollution and preventing pollution (see Sarkis and Cordeiro 2001; Vachon, 2007). In contrast to end-of-pipe technologies, cleaner production focuses on minimising resource utilisation and different types of pollution at the source via the adoption of cleaner processes (see Frondel, Horbach & Rennings, 2007). Increasingly, sustainability via new technology adoption is a central pillar in delivering economic development for cities and communities (You et al., 2019, 2020) as well as a source of businesses' MC (Durugbo & Amankwah-Amoah, 2019). However, sudden business shocks may force firms to abandon some economic, social and environmental commitments and obligations to ensure long-term survival.

THE GLOBAL AIRLINE INDUSTRY, ECO-FRIENDLY POLICIES AND COVID-19: AN OVERVIEW

The advent of the "open skies" agreements following the Convention on International Civil Aviation, i.e. the Chicago Convention of 1944 signed by 52 nations, helped to herald in a new era around the global aviation industry (see Amankwah-Amoah& Debrah, 2010, 2011a, 2011b, 2014; Doganis, 2006; Belobaba, Odoni & Barnhart, 2015). Although the US championed the free market notion with the Airline Deregulation Act 1978, this has since gained a foothold around the globe. "Open skies" agreements have merged in recent decades not only between US and Europe but among emerging

economies of the global south, shepherding in a new phase of global air travel liberalisation with great freedom and increased access to markets (Amankwah-Amoah, Ottosson & Sjögren, 2017; Doganis, 2006). Deregulation of the industry eliminated many national and regional barriers to entry, paving the way for the emergence of low-cost airlines on every continent of the world (Amankwah-Amoah, 2015, 2018; Belobaba et al., 2015; Doganis, 2006). The intense market competition accompanying the arrival of low-cost airlines and their price-sensitive offerings extended the reach of air travel to the mass population, connecting numerous secondary airports and cities to the global aviation network. A lasting legacy of the post-1980 reforms of the industry is the privatisation of previously government-owned airlines which also paved the way for new market competition (see Doganis, 2006). To an extent, the decline of these firms paved the way for airlines to expand as emissions also increased.

Aviation has experienced growth in recent years with traffic projected to double in the next 15 years. According to the International Air Transport Association (IATA), due to COVID-19, the industry would lose around US$252 billion in 2020 (IATA, 2020a) with many airlines seeking government subsidies and supports to help them stay afloat (IATA, 2020d, 2020e). Prior to the crisis, one of the pressing issues in the industry was the need for robust action to achieve emission-reduction targets and a commitment to embrace environmental sustainability practices across the board (Kearns, 2020).

Globally, the aviation industry accounts for around 2% of all human-induced carbon dioxide (CO_2) emissions –12% of CO_2 emissions from all transportation sources compared with 74% from road transport (Air Transport Action Group, 2020). According to the European Commission (2020a), aviation accounts for 3% of the EU's greenhouse gas emissions – over 2% of global emissions. Thus, it is one of the fastest-growing sources of greenhouse gas emissions. Indeed, by 2020, global aviation emissions were around 70% higher than they were back in 2005 (European Commission, 2020a), and forecast by International Civil Aviation Organization's (2020b) ICAO Global Environmental Trends to grow by an

additional 300–700% by 2050 if no effective measures are taken by the international community to minimise carbon footprints.

In times of economic crisis and economic recession, firms are often confronted with survival threats which is more evident in times of a global health pandemic. In the aviation industry, much of the discussion on environmental sustainability tends to focus on combating climate change and reducing greenhouse gas emissions with the emphasis being largely on air, noise and environmental pollution Flightglobal, 2012). For the industry, implementation of green airlines' practices (GAPs) entails stakeholders' involvement in managing and reducing the environmental footprint of the industry via de-coupling industry growth from emissions growth, minimising aircraft noise and adopting technological innovation to improve travellers' safety and experiences (see also Sustainable Aviation, 2020). Inspired by notable global steps toward reduction in emissions via the adoption of the Paris Agreement which brought nations around the globe together on a common cause to take meaningful steps to tackle climate change (UNFCCC, 2020), many global airlines have been forced to re-evaluate their environmental footprint. The next subsections present some of the key industrial policies towards reducing emissions, followed by an overview of firms' level policies through the illustrative cases.

External level of analysis

At the industry and institutional levels, measures advanced towards environmental sustainability include offsetting emission footprint, sustainable aviation fuels and improving local air quality. The moves include transitioning to renewable sources of energy advanced by governments, and international organisations such as the IATA and European Union.

Carbon offsetting and reduction scheme for aviation

The Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA), developed by the International Civil Aviation Organization (ICAO) and eventually adopted in 2016, seeks to curtail

emissions stemming from activities of the global airline industry. Under the CORSIA 2020, carbon emissions for international flights would be capped and offsetting allowed. Under CORSIA, carriers have committed to the agreement that growth in international flights post-2020 is carbon neutral, i.e. the "carbon neutral growth from 2020" scheme (Early, 2020). Airlines have promised to do so by offsetting emissions when it comes into effect on January 2021. Offsetting simply refers to "an action by a company or individual to compensate for their emissions by financing a reduction in emissions elsewhere" (IATA, 2020b, p. nd). Although CORSIA is a voluntary scheme confined to flights between signature nations that have decided to participate (Early, 2020), it provides a pathway towards tackling aviation emissions on inter-continental and other international routes.

The EU Emissions Trading Scheme

According to the European Commission (2020b), the EU emissions trading system is regarded as a central pillar of the EU's approach to combating climate change. It basically restricts greenhouse gas emissions and imposes a charge on them. The European Union Emissions Trading System (EUETS) which outlines emission reduction targets for a host industry across the European continent has also been pivotal. Among the areas/sectors covered is airlines operating between EU nations which covered about 45% of the Union's greenhouse gas emissions, and by 2030 emissions from sectors covered will be reduced by 43% from 2005 levels (European Commission, 2015, 2020b). Generally considered a vital element of EU policy, it seeks to curtail greenhouse gas emissions in a cost-effective manner and remains the globe's first and major carbon market. Essentially, the EUETS is an effective mechanism for achieving a reduction of greenhouse gas emissions in an industry with legal backing (Efthymiou & Papatheodorou, 2019).

Organisational level of analysis

At the organisational level, across the globe various airlines have adopted policies/strategies including upgrading to environmentally friendly aircraft and the adoption of fuel-efficiency technologies to minimise fuel consumption and the cost of running aircraft, as demonstrated by the illustrative case examples in Table 1. The table summarises some of the various approaches and strategies adopted by airlines including upgrading to environmentally friendly aircraft using illustrative case examples including BA, Air France–KLM, Turkish Airlines and Ethiopian airlines. The aviation industry largely seeks to achieve fleet fuel efficiency via utilisation of new aircraft. Since 2009, the world's airlines have spent around $1 trillion to acquire over 12,000 new aircraft which has helped to reduce emissions (Air Transport Action Group, 2020). Inspired by the global move towards environmental sustainability to reduce air and noise emissions, many global airlines have adopted policies in terms of reducing aircraft noise and noise pollution.

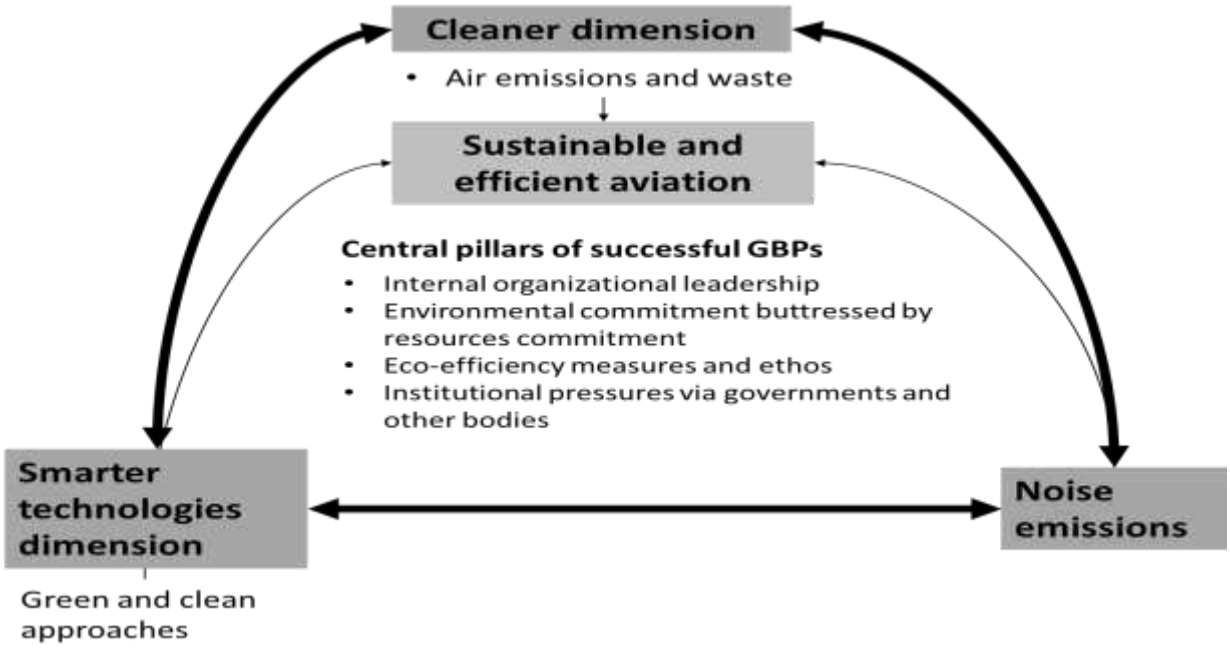

Figure 1: Triad of sustainability in aviation

Table 1: Summary of Some Illustrative Case Airlines' Greening Policies and Practices

Selected leading airlines	Key features	Nature of greening principle	Nature of greening policies and activities	Synthesised from sources:
BA, UK	It was a British state-owned national airline and then privatised. Today, it is a major international airline with over 40 million customers and services to over 70 nations around the globe.	BA's plan demonstrated commitment to reduce the environmental impact of its business activities.	• In January 2020, BA decided to offset carbon emissions for all domestic flights via investments in carbon-reduction projects encompassing reforestation and rainforest protection schemes. • Investment in sustainable fuels to help usher in a new era of "green" aviation. • Adoption of and investment in fuel-efficient aircraft such as the use of the Airbus A350 which is 50% quieter and 25% more fuel efficient than the similar-sized fleets. • Through collaborative partnership, the airline is working to design centres that transform commercial and domestic waste into renewable jet fuel for its aircraft. • Ongoing fuel-saving initiatives such as optimising flight routes and minimising the weight of aircraft have led to a reduction of carbon emissions of over 360,000 tonnes since 2014.	BA, 2020a; BA, 2020b; Airfranceklm, 2020.

			• Participatory member of the EUETS from the outset in 2012.	
Air France–KLM	The Air France–KLM Group is an outcome of the 2004 merger between Air France and KLM. One of the safest global airlines.	Air France and KLM's sustainability strategy for 2030 was underpinned by the United Nations Sustainable Development Goals (SDGs)	• Air France–KLM decreased its noise footprint by 35% from 2000–2018 and enhanced energy efficiency for each passenger/km by 21.6% from 2011 to 2018. • KLM seeks to reduce CO_2 emissions by over 10% by 2030 relative to 2018 levels. • It also seeks to obtain a CO_2-neutral ground operation and reduce waste by 50% relative to 2011 levels. • KLM is part of the EU's emissions trading system. • Champion fleet renewal to help reduce CO_2 emissions. Indeed, some new aircraft are producing 35%–40% less CO_2 emissions as well as producing less noise. On the noise, for instance, the Boeing 787-9 Dreamliner is around 40% quieter relative to comparable aircraft.	KLM, 2019a, 2019b; Air France–KLM, 2019.
Turkish Airlines	Turkish Airlines headquartered in Istanbul is the national airline of Turkey. Founded in the 1930s, it operates to over 300 destinations across the	Among its visions, it seeks to become the airline with zero major accidents or crashes.	• Broadly, the company emphasis is on "stakeholder inclusiveness". • In 2008, the airline forged collaboration with IATA Green Team toward implementation of the Fuel Efficiency Program to help improve fuel efficiency and decrease carbon emissions. • Involved in over 70 projects to optimise operations	Turkish Airlines, 2019, 2020.

	globe including Africa, Asia, Europe and North America. In 2018, it was regarded as the carrier "that Connects Africa to the World" (Turkish Airlines, 2019, p. 13).		and thereby helping to decrease the carbon footprint. • Fostering investment in new technologies with least harmful effects on the natural environment. • Since 2013, the airline has been certificated by ISO 14001. • Integrated approach to reduce electricity, natural gas, fuel and paper consumption. • Seeks to reach 120 million passengers by 2023 and currently regarded as one of the biggest and most state-of-the-art airlines of the world with over 500 efficient and environmentally friendly aircraft.	
Ethiopian Airlines	Started operations in the 1940s and remains one of the most successful state-owned airlines in the world.	Focused on cutting emissions and utilising fuel-efficient aircraft.	• In 2018, in tandem with the United Nations Environment Programme, the global authority on the environmental agenda launched the "Plant one tree for every passenger flown" project which is expected to lead to around nine million trees being planted (United Nations Environment Programme (2018). • It also launched "Greening Ethiopian Airline business" which emphasised operational improvements and reducing waste. • Committed to tackling adverse environmental impacts via waste minimisation, pollution prevention	Ethiopian Airlines, 2020; United Nations Environment Programme, 2018.

			measures, resource conservation and a green procurement strategy.	
Ryanair	Low-cost airline established in 1984 and headquartered (HQ) in Dublin.	Ryanair is regarded as the "greenest, cleanest airline" in Europe (Ryanair, 2020).	• Greater emphasis on technology use to minimise fuel use. • The airline operates high seat density in aircraft, decreasing fuel burn and emissions per passenger by around 14%. • Received delivery of new Boeing 737-800NG aircraft which allowed a 2% improvement in fuel consumption. • The airline operates "paperless cockpits" with pilots using tablets and electronic flight bags. • A "green HQ" in Dublin promoting paperless business practices, reducing waste and recycling. Firm commitment to become "plastic free" by 2023. • The use of mainly secondary and regional airports helps to minimise congestion and noise at major cities.	Ryanair, 2020a, 2020b.

According to IATA (2020c), due to technological advancements in the sector and stringent international certification standards, "the noise footprint of new aircraft is at least 15% smaller" than the ones they replace. Technological advancements have paved the way for new aircraft manufactured today to be around 75% quieter than those produced 50 years ago (IATA, 2020c). However, some airports have noise-related charges on aircraft to curtail their use, but the success of such measures remains limited.

One area for airlines achieving sustainability is via setting and improving fuel efficiency standards. This took hold in the industry in the 1990s when British Airways (BA) became the first global airline to recognise the pivotal effects of environmental performance by adopting fuel-efficiency standards, i.e. to achieve 30% progress in fuel efficiency by 2010 relative to the 1990 level (Reals, 2007). In recent years the airline has set a new improvement initiative in fuel efficiency of 25% by 2025 relative to 2005 levels (Reals, 2007). This places the emphasis on using single-engine taxing. Taken together, sustainable environmentally efficient aviation is anchored in three key pillars: air emissions, noise emissions and waste elimination/resource conservation, as demonstrated in Figure 1.

GREEN BUSINESS PRACTICE CHALLENGES IN THE ERA OF COVID-19

Recently, around 33% of airlines published their data on noise, 70% of carriers report on their carbon emissions and 40% report on nitrogen oxide emissions, demonstrating a need for transparency in firms' activities (Flightglobal, 2012). According to the International Civil Aviation Organisation, the growth of air travel has also been accompanied by an increase in noise in areas closer to airports. Thus, there is a need to strike the right balance in terms of delivering on environmental sustainability whilst fostering the growth and development of air transport

(International Civil Aviation Organization, 2012). In the following sections, we outline a number of other challenges in the wake of COVID-19.

Cost pressures and existential threat

According to Early (2020), "aviation is one of the earliest and most visible economic losers of restrictions introduced to stop the spread of COVID-19, with 95% of passenger flights grounded" (p. nd). These include the closure of borders, social distancing measures, and government bans on people movement and travel. This culminates in around US$250 billion in losses in revenue in 2020 for the industry. The pandemic has made environmental sustainability orientation "harder" for some firms in the short-term by unleashing financial pressures and threats to firm survival that limit the latitudes of managers and firms to respond to the environmental sustainability imperative (Davis-Peccoud & van den Branden, 2020). Despite the current and future effects on the industry, some environmentalist and campaigners have suggested that the industry has been using the crisis to abandon or further postpone organisational actions on the climate change agenda (Early, 2020; Topham & Harvey, 2020). Indeed, some key organisations such as the Environmental Defence Fund, Transport & Environment, and Greenpeace have suggested a need for financial and non-financial supports given to airlines by government to overcome the negative effects of COVID-19 that is buttressed by concrete support for the sustainability agenda (Early, 2020).

As previously noted, CORSIA is a key aspect of the ICAO's measures to help curb aviation emissions. This rapidly emerging reality for airlines prompted the IATA's call on the International Civil Aviation Organisation (ICAO) to modify the carbon offsetting and reduction programme, which requires carriers to pay to counterbalance any growth in carbon emissions) to pave the way for airlines to overcome some of the post-COVID effects, or risk nations/airlines

abandoning or withdrawing from the schemes (Topham & Harvey, 2020). The IATA (2020b) suggested that:

> *"the unprecedented impact of the COVID-19 pandemic on airlines has led IATA to propose that ICAO adapt the method used to determine the baseline of the CORSIA scheme … many airlines may not be able to afford to pay for the substantially higher carbon offsets that would be required."* (p. nd)

Accordingly, it has been noted that the grounding of aircraft following COVID-19 means that "the baseline will be far lower than envisaged, and the carbon targets much more challenging, if CORSIA goes ahead without changes" (Topham & Harvey, 2020, p. nd; Environmental Defense Fund, 2020a). Prior to the pandemic, it was estimated that carriers had to spend "between £4bn and £18bn a year globally on carbon credits by 2035" to fulfil the requirements of CORSIA rules (Topham & Harvey, 2020, p. nd). Indeed, there is an intense pressure to ease the financial difficulties faced by airlines (Environmental Defense Fund, 2020b). Many airlines have also lobbied governments to rewrite rules governing aviation emission levels or ease the burdens as a matter of necessity to ensure their long-term survival (Topham & Harvey, 2020). As many airlines focus on survival in the short-term, commitment to CORSIA rules are likely to take a back seat.

Firms' deprioritising environmental sustainability initiatives

One main challenge facing the industry and firms is that social issues may become more prominent on the public policy agenda ahead of environmental ones, thereby absorbing the intense stakeholders' pressure behind environmental agenda and firms' commitment. The major risk here is that some firms may also deprioritise environmental sustainability initiatives (Davis-Peccoud & van den Branden, 2020), deploy resources away from environmental course and focus attention towards short-term survival. As observed by Davis-Peccoud and van den Branden (2020, p. nd), across the globe and societies, "the pandemic could trigger a reversal of sustainability trends" as

some governments have taken steps to loosen environmental pollution enforcement. For instance, the Environmental Protection Agency in the US has momentarily eased some regulatory enforcement with regard to pollution to improve survival chances of some firms (Davis-Peccoud & van den Branden, 2020). Thus, regulations around eliminating waste and reducing pollution, and restrictions on the industry could be eased to help airlines improve their survival chances. As more airlines seek government support in the form of subsidies and other financial support to maintain their existence, environmental sustainability appears to be regarded as something for the future.

One of the obstacles in pushing ahead with climate policy initiatives is that selling prevention and mitigation measures is generally very hard (Vetter, 2020). Generally, policy makers dislike preparing for events and for society to accept changes can be a protracted process. COVID-19 has reminded us of the importance of providing a proactive response to a looming crisis and the need to take action to avoid firefighting (Vetter, 2020). To differentiate themselves from rivals in the post-pandemic environment, airlines would need to demonstrate more than just commitment to environmental causes, but also processes and concrete changes.

Greenwashing

In the wake of improvements in aircraft technologies and the introduction of fuel-efficient aircraft, many airlines have strived to combine quality and affordable tickets with sustainable business practices, and have done so successfully. However, many environmentally sustainable initiatives often lack external verification. For instance, in the global retail sector, “organic” product labels demand third-party verification; nonetheless, words connected to sustainability in multiple industries including “green”, “green business” and “natural” are often guided by less stringent regulatory guidelines, if any (Bowman, 2019). Accordingly, it becomes difficult to distinguish

firms that are genuinely "green" in their orientation from those with minimal green-related activities. The post-COVID-19 crisis environment demands a clear demarcation between firms pursuing a green agenda from those purporting to be "green", as noted by Davis-Peccoud and van den Branden (2020, p. nd):

> *"the COVID-19 crisis has become a dry run for the sustainability agenda and an opportunity for companies to see how they can tackle an expanding range of environmental, social and governance challenges … After this, boards and executives will not be forgiven for underpreparing for various climate change scenarios."*

Despite the headwind curtailing the environmental sustainability drive, it is still noteworthy that many consumers generally still hold a favourable view of companies and brands that embrace sustainability (Davis-Peccoud & van den Branden, 2020).

DISCUSSION AND IMPLICATIONS

This paper sought to review GBPs in the global airline industry and outline the contemporary challenges of adopting and implementing environmental sustainability policies in the wake of COVID-19. This study shed light on firms' level environmentally sustainable practices such as upgrading to environmentally friendly aircraft and offsetting emission footprints. At institutional level, such initiatives include the European Union Emissions Trading System and the Carbon Offsetting and Reduction Scheme for Aviation. Our analysis indicates that the move to an environmentally sustainable path encompasses three key pillars: air emissions, noise emissions and waste elimination/resource conservation, as depicted in Figure 1. In addition, the adoption of new technologies and new investment to replace old and obsolete aircraft with newer and more fuel- and energy-efficient fleets has been the cornerstone of policies adopted, as demonstrated by the approaches by illustrative case airlines in Table 1. Indeed, modern aircraft are around 15% to 20%

more fuel efficient (Aviationbenefits, 2020). Our observation of the industry suggests that the allure of jettisoning cutting carbon emissions during economic and healthcare crises remains high among some firms. In parallel, the COVID-19 pandemic presents opportunities for some firms to accelerate the adoption of new aircraft and technologies to innovate as a means of overcoming the challenges.

The financial losses stemming from cancellation of flights and airport closures are likely to force many airlines to seek to innovate to survival and thrive. Indeed, the COVID related policies of implementing social distancing measures is likely to impact on pricing strategies. Many prominent airlines have already introduced some forms of inflight social distancing. For instance, major airlines such as American Airlines and United Airlines have already attempted some elements of social distancing by not seating passengers in middle seats and allowing them to switch seat to help address their health concerns (Johnson, 2020). In addition, other airlines such as Delta Air Lines, have reduced in-flight refreshments in an attempt to decrease contact between inflight crew and customers (Johnson, 2020). Taken together, these are likely to make low-prices difficult to achieve especially for low-cost airlines that compete on prices buttressed by high-density seating (Doganis, 2006). It is also worth noting that the traditional airlines (legacy airlines) such as BA and KLM have traditionally competed on quality inflight services, and network connectivity (Amankwah-Amoah et al., 2017; Doganis, 2006). Thus, inflight social distancing might enhance the customer experiences but also makes affordable prices difficult to achieve.

Theoretical, practical and policy implications

Regarding the implications for scholars, the study contributes to the ongoing discourse on the effects of COVID-19 on industrial and governments policies (see Fornaro & Wolf, 2020) and business activities (de Sousa Jabbour et al., 2020). Specifically, the paper examines the challenges

and opportunities of implementing environmental sustainability agenda in a hostile business environment precipitated by COVID-19, rather than the benign environment in which the policies were initiated and adopted. In addition, this GBP-grounded research (see Boiral, Ebrahimi, Kuyken & Talbot, 2019; Danso et al., 2019a; Jabbour & Renwick, 2020) presents some of the potential challenges to achieving emission reductions in the post-COVID-19 environment. This evolving issue remains largely overlooked in the theoretical and empirical literatures on sustainability and this study contributes to rectifying this gap by focusing on the global airline industry.

From a practical viewpoint, the impact of COVID-19 highlights the importance of collaborative partnering in ensuring that climate change and environmentally friendly policies maintain momentum prior to the crisis. Given that COVID-19 effects would ultimately subside, airlines are likely to see growth return, and noise and gas emissions return. Thus, there is a need to help airlines survive in the short term without discarding commitment toward decarbonisation and a sustainable global economy. Thus, there is also a need for flexibility to allow firms to improve their survival chances. In this COVID-19 environment, global airlines can no longer rely solely on their environmental commitments to compete, but also require to build-in additional safety in protecting the health of their passengers by preventing potential virial infections in their premises (inflight services). Thus, "healthiness" of setting has emerged a key source of competitive edge for airline businesses. To cushion the COVID-19 effects and usher in enduring success, practicing airline managers and executives are required to innovate in ways that provide healthy assurance of service to customers.

Limitations and future research

In view of the developing effects of the pandemic, researchers could explore the effects of COVID-19 on the tendency of airlines to adopt new environmental sustainability demands. Along these lines, future studies could also explore how expertise loss via layoffs during the crisis affect environmental commitments. It is also, nevertheless, important to note that study only offers a wider industry overview and limited insight into individual airlines. There is a need for future study to take a more comprehensive look at individual firms to provide a more generalisable insight. The crisis has impacted industries such as tourism, hospitability and manufacturing. Therefore, future research needs to examine the effects on policies in other industrial sectors. To conclude, firms that demonstrate commitment to environmental sustainability in the wake of crisis are likely to emerge with deeper and closer relationships with key stakeholders with an enhanced reputation.

REFERENCES

Agyabeng-Mensah, Y., Ahenkorah, E., Afum, E., Agyemang, A. N., Agnikpe, C., & Rogers, F. (2020). Examining the influence of internal green supply chain practices, green human resource management and supply chain environmental cooperation on firm performance. Supply Chain Management: An International Journal. https://doi.org/10.1108/SCM-11-2019-0405.

Air France-KLM (2019). Air France-KLM takes care: Sustainability Report 2018. Paris: Air France-KLM'.

Air Transport Action Group. (2018). Aviation/Benefits beyond Borders. Geneva: Air Transport Action Group.

Air Transport Action Group. (2020). Facts-figures. Retrieved 4.05.2020, from: https://www.atag.org/facts-figures.html.

Airfranceklm (2020). Editorial. Retrieved 02.04.2020, from: https://csrreport2018.airfranceklm.com/en/

Amankwah-Amoah, J. (2015). Governments, airlines and employees: an evolving relationship from 1940 to 2010. *Management & Organizational History*, *10*, 1-20.

Amankwah-Amoah, J. (2015b). Solar energy in sub-Saharan Africa: The challenges and opportunities of technological leapfrogging. Thunderbird International Business Review, 57(1), 15-31.

Amankwah-Amoah, J. (2016). An integrative process model of organisational failure. *Journal of Business Research*, *69*(9), 3388-3397.

Amankwah-Amoah, J. (2018). Why are so many African companies uncompetitive on the global stage? Insights from the global airline industry. In *Africa's competitiveness in the global economy* (pp. 195-216). Palgrave, Cham.

Amankwah-Amoah, J., & Debrah, Y.A. (2010). The protracted collapse of Ghana Airways: Lessons in organizational failure. *Group & Organization Management*, 35, 636-665.

Amankwah-Amoah, J., & Debrah, Y.A. (2011a). The evolution of alliances in the global airline industry: A review of the African experience. *Thunderbird International Business Review*, *53*, 37-50.

Amankwah-Amoah, J., & Debrah, Y.A. (2011b). Competing for scarce talent in a liberalised environment: evidence from the aviation industry in Africa. *International Journal of Human Resource Management*, *22*, 3565-3581.

Amankwah-Amoah, J., & Debrah, Y.A. (2014). Air Afrique: The demise of a continental icon. *Business History*, *56*(4), 517-546.

Amankwah-Amoah, J., & Syllias, J. (2020). Can adopting ambitious environmental sustainability initiatives lead to business failures? An analytical framework. *Business Strategy and the Environment*, *29*, 240-249.

Amankwah-Amoah, J., Ottosson, J., & Sjögren, H. (2017). United we stand, divided we fall: historical trajectory of strategic renewal activities at the Scandinavian Airlines System, 1946–2012. *Business History*, *59*(4), 572-606.

Aviationbenefits (2020). Aviation industry reducing its environmental footprint. Retrieved 4.05.2020, from: https://aviationbenefits.org/environmental-efficiency/climate-action.

BA (2020a). Corporate Responsibility. Retrieved 02.05.2020, from: https://www.britishairways.com/en-gb/information/about-ba/csr/corporate-responsibility.

BA (2020b). British Airways Environmental Policy. Retrieved 02.05.2020, from: https://www.britishairways.com/assets/pdfs/information/about-ba/british-airways-environmental-policy.pdf.

Belobaba, P., Odoni, A., & Barnhart, C. (Eds.). (2015). *The global airline industry*. John Wiley & Sons.

Boiral, O., Ebrahimi, M., Kuyken, K., & Talbot, D. (2019). Greening remote SMEs: The case of small regional airports. *Journal of Business Ethics*, *154*(3), 813-827.

Bowman, S. (2019). The Importance of Real Sustainability in Business. Retrieved 24.04.2020, from: https://emagazine.com/sustainability-in-business/.

Danso, A., Adomako, S., Amankwah-Amoah, J., Owusu-Agyei, S., & Konadu, R. (2019a). Environmental sustainability orientation, competitive strategy and financial performance. *Business Strategy and the Environment*, *28*, 885-895.

Danso, A., Adomako, S., Lartey, T., Amankwah-Amoah, J., & Owusu-Yirenkyi, D. (2019b). Stakeholder integration, environmental sustainability orientation and financial performance. *Journal of business research*. https://doi.org/10.1016/j.jbusres.2019.02.038

Davis-Peccoud, J. and van den Branden, J-C. (2020). Covid-19 Gives Sustainability a Dress Rehearsal. Retrieved 02.04.2020, from: https://www.bain.com/insights/covid-19-gives-sustainability-a-dress-rehearsal/.

de Sousa Jabbour, A. B. L., Jabbour, C. J. C., Hingley, M., Vilalta-Perdomo, E. L., Ramsden, G., & Twigg, D. (2020). Sustainability of supply chains in the wake of the coronavirus (COVID-19/SARS-CoV-2) pandemic: lessons and trends. *Modern Supply Chain Research and Applications*. https://doi.org/10.1108/MSCRA-05-2020-0011.

Doganis, R. (2006). *The Airline Business*. 2nd edition. London: Routledge.

Durugbo, C., & Amankwah-Amoah, J. (2019). Global sustainability under uncertainty: How do multinationals craft regulatory policies?. *Corporate Social Responsibility and Environmental Management*, *26*, 1500-1516.

Early, C. (2020). Faced with a crisis, airlines seek delay on climate measures. Retrieved 03.05.2020, from: https://www.eco-business.com/news/faced-with-a-crisis-airlines-seek-delay-on-climate-measures/.

Efthymiou, M., & Papatheodorou, A. (2019). EU Emissions Trading scheme in aviation: Policy analysis and suggestions. *Journal of Cleaner Production*, 237, 117734.

Eltayeb, T. K., & Zailani, S. (2009). Going green through green supply chain initiatives towards environmental sustainability. *Operations and Supply Chain Management*, *2*(2), 93-110.

Environmental Defense Fund (2020a). Coronavirus and CORSIA. March 2020. Retrieved 01.05.2020, from https://www.edf.org/sites/default/files/documents/Coronavirus_and_CORSIA_analysis.pdf.

Environmental Defense Fund (2020b). EDF Analysis: ICAO Council Must Resist Temptation to Water Down CORSIA. https://www.edf.org/media/edf-analysis-icao-council-must-resist-temptation-water-down-corsia.

Ethiopian Airlines (2020). ETHIOPIAN ENVIRONMENTAL POLICY. Retrieved 03.05.2020, from: https://corporate.ethiopianairlines.com/company/responsibility/ethiopian-airlines-environmental-policy.

European Commission (2015). EU ETS Handbook. Brussels, Belgium. Retrieved 03.05.2020, from: https://ec.europa.eu/clima/sites/clima/files/docs/ets_handbook_en.pdf.

European Commission (2020a). Reducing emissions from aviation. Retrieved 02.04.2020, from: https://ec.europa.eu/clima/policies/transport/aviation_en.

European Commission (2020b). EU Emissions Trading System (EU ETS). Retrieved 03.05.2020, from: https://ec.europa.eu/clima/policies/ets_en.

Flightglobal (2012). IN FOCUS: Green spotlight shines on noise and air quality. Retrieved 24.04.2019, from:https://www.flightglobal.com/in-focus-green-spotlight-shines-on-noise-and-air-quality/107230.article.

Fornaro, L. and Wolf, M. (2020). Covid-19 Coronavirus and Macroeconomic Policy. Retrieved 9.06.2020, from: http://www.crei.cat/wp-content/uploads/2020/03/C19-1.pdf

Fornes, G., Lopez, B., de Haan, M. B., & Blanch, J. (2019). Best practice example of CSR and S&E engagement in emerging economies: analysis of a case study based in China. *Journal of Asia Business Studies*. 13, 133-154

Frondel, M., Horbach, J., & Rennings, K. (2007). End-of-pipe or cleaner production? An empirical comparison of environmental innovation decisions across OECD countries. Business strategy and the environment, 16(8), 571-584.

Gostin, L. O., & Wiley, L. F. (2020). Governmental public health powers during the COVID-19 pandemic: stay-at-home orders, business closures, and travel restrictions. JAMA.

Hendiani, S., Liao, H., & Jabbour, C. J. C. (2020). A new sustainability indicator for supply chains: theoretical and practical contribution towards sustainable operations. *International Journal of Logistics Research and Applications*, 1-26.

IATA (2018). Air transport supports 65.5 million jobs and $2.7 trillion in economic activity. Retrieved 4.05.2020, from: https://www.iata.org/en/pressroom/pr/2018-10-02-01/.

IATA (2020a). IATA Economics' Chart of the Week. Retrieved 02.04.2020, from: https://www.iata.org/en/iata-repository/publications/economic-reports/covid-19-delivers-unprecedented-shock/.

IATA (2020b). Carbon Offsetting Scheme for International Aviation (CORSIA). Retrieved 02.04.2020, from: https://www.iata.org/en/policy/environment/corsia/.

IATA (2020c). Aircraft Noise. Retrieved 4.05.2020, from: https://www.iata.org/en/policy/environment/corsia/.

IATA (2020d). Continued Government Relief Measures Needed to get Airlines through the Winter. Retrieved 18.06.2020, from: https://www.iata.org/en/pressroom/pr/2020-06-16-01/.

IATA (2020e). "The worst may be yet to come" – Impacts of COVID-19 on European Aviation and Economy Increasing. Retrieved 18.06.2020, from https://www.iata.org/en/pressroom/pr/2020-06-18-01/

International Civil Aviation Organization (2012). Global Aviation and Our Sustainable Future. Retrieved 02.04.2020, from: https://www.icao.int.

International Civil Aviation Organization (2020a). Environmental Protection. Retrieved 02.04.2020, from: https://www.icao.int/environmental-protection/Pages/default.aspx.

International Civil Aviation Organization (2020b). Trends in Emissions that affect Climate Change. Retrieved 02.04.2020, from: https://www.icao.int/environmental-protection/Pages/ClimateChange_Trends.aspx.

Jabbour, C. J. C., & Renwick, D. W. S. (2020). Organizations as catalysts of sustainable development: greening the workforce for responsible management in the 21st century. *International Journal of Manpower*. DOI: 10.1108/IJM-02-2020-0059

Jabbour, C. J. C., Sarkis, J., de Sousa Jabbour, A. B. L.,... & Godinho Filho, M. (2019). Who is in charge? A review and a research agenda on the 'human side' of the circular economy. *Journal of cleaner production*. 222, 793-801

Johnson, L. M. (2020). If you must fly, here are some tips to do it safely. Retrieved 08.04.2020, from: https://edition.cnn.com/travel/article/airlines-social-distancing-policies-during-coronavirus-trnd/index.html.

Kaur, S., Gupta, S., Singh, S. K., & Perano, M. (2019). Organizational ambidexterity through global strategic partnerships: A cognitive computing perspective. *Technological Forecasting and Social Change*, *145*, 43-54.

Kearns, S. (2020). COVED 19 and aviation: Survival, recovery, and innovation. Retrieved 4.05.2020, from: https://www.skiesmag.com/news/covid-19-and-aviation-survival-recovery-and-innovation/

KLM (2019a). AFKL Sustainability Report 2018. Retrieved 02.04.2020, from: https://news.klm.com/afkl-sustainability-report-2018/.

KLM (2019b). KLM Sustainability: 2018 at a glance. Retrieved 02.04.2020, from: https://news.klm.com/afkl-sustainability-report-2018/.

Konadu, R., Owusu-Agyei, S., Lartey, T.A., Danso,... (2020). CEOs' reputation, quality management and environmental innovation: The roles of stakeholder pressure and resource commitment. Business Strategy and the Environment. https://doi.org/10.1002/bse.2504.

Muduli, K. K., Luthra, S., Kumar Mangla, S., Jabbour, C. J. C., Aich, S., & de Guimarães, J. C. F. (2020). Environmental management and the "soft side" of organisations: Discovering the most relevant behavioural factors in green supply chains. *Business Strategy and the Environment*, *29*, 1647-1665.

Reals, K. (2007). Seen to be green: how airlines are building the environment into their core strategies. Retrieved 02.04.2020, from: https://www.flightglobal.com/seen-to-be-green-how-airlines-are-building-the-environment-into-their-core-strategies/77862.article.

Ryanair (2020a). Environmental & Social. Retrieved 05.05.2020, from: https://investor.ryanair.com/esg/#1470928745132-e25f42e1-ded2.

Ryanair (2020b). Introducing Our Environmental Policy Europe's Greenest Airline. Retrieved 3.05.2020, https://corporate.ryanair.com/wp-content/uploads/2018/03/Enviromental-Policy-Doc.pdf

Sarkis, J., & Cordeiro, J. J. (2001). An empirical evaluation of environmental efficiencies and firm performance: pollution prevention versus end-of-pipe practice. *European Journal of Operational Research*, *135*, 102-113.

Singh, S. K., Chen, J., Del Giudice, M., & El-Kassar, A. N. (2019). Environmental ethics, environmental performance, and competitive advantage: Role of environmental training. *Technological Forecasting and Social Change*, 146, 203-211.

Singh, S. K., Del Giudice, M., Chierici, R., & Graziano, D. (2020). Green innovation and environmental performance: The role of green transformational leadership and green human resource management. *Technological Forecasting and Social Change*, *150*, 119762.

Singh, S. K., Del Giudice, M., Tarba, S. Y., & De Bernardi, P. (2019). Top management team shared leadership, market-oriented culture, innovation capability, and firm performance. *IEEE Transactions on Engineering Management*. 10.1109/TEM.2019.2946608.

Singh, S.K., Pradhan, R.K., Panigrahy, N.P. and Jena, L.K. (2019). Self-efficacy and workplace well-being: moderating role of sustainability practices. *Benchmarking: An International Journal*, 26, 1692-1708.

Sustainable Aviation (2020). Our mission. Retrieved 05.05.2020, from: https://www.sustainableaviation.co.uk/.

Topham, G., and Harvey, F. (2020). Airlines lobby to rewrite carbon deal in light of coronavirus. Retrieved 01.05.2020, from https://www.theguardian.com/business/2020/apr/08/airlines-lobby-to-rewrite-carbon-deal-due-to-coronavirus.

Turkish Airlines (2019). 2018 Sustainability Report. Retrieved 02.01.2020, from: https://investor.turkishairlines.com/documents/surdurulebilirlik/thy-sustainability-report_compressed.pdf.

Turkish Airlines (2020). Environmental and social responsibility report. Turkish airlines investor relations.

UNFCCC (2020). The Paris Agreement. Retrieved 01.05.2020, from: https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement.

United Nations Environment Programme (2018). Ethiopian airlines pledges to plant 9 million trees: “one for every passenger” Retrieved 01.05.2020, from https://www.unenvironment.org/news-and-stories/press-release/ethiopian-airlines-pledges-plant-9-million-trees-one-every-passenger.

Vachon, S. (2007). Green supply chain practices and the selection of environmental technologies. *International Journal of Production Research*, *45*, 4357-4379.

Vetter, D. (2020). How coronavirus could help us fight climate change: lessons from the pandemic. Retrieved 01.05.2020, from: https://www.forbes.com/sites/davidrvetter/2020/03/30/how-coronavirus-could-help-us-fight-climate-change-lessons-from-the-pandemic/#17169665abc7.

World Health Organization (2020). *Coronavirus disease 2019 (COVID-19): Situation report - 103*. Geneva: WHO.

Worldometers (2020). Coronavirus Cases. Retrieved 18.06.2020, from: https://www.worldometers.info/coronavirus/.

You, K., Dal Bianco, S., & Amankwah-Amoah, J. (2020). Closing Technological Gaps to Alleviate Poverty: Evidence from 17 Sub-Saharan African Countries. Technological Forecasting and Social Change, 157, 120055.

You, K., Dal Bianco, S., Lin, Z., & Amankwah-Amoah, J. (2019). Bridging technology divide to improve business environment: Insights from African nations. *Journal of Business Research*, *97*, 268-280.