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Note: Mayday, Mayday, Mayday! Responding to environmental shocks: Insights on global airlines’ responses to COVID-19

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ABSTRACT
The COVID-19 pandemic in 2019/2020 ushered in a new turbulent and chaotic global environment where governments not only placed temporary restrictions on people’s movements, but also mandated limits on business activities. However, lacking in the contemporary scholarly discourse is a deeper understanding of how businesses respond to such pandemics. In this research note (RN), a conceptual framework of firms’ responses is advanced. Using the global airline industry, the analysis delineates a host of internally generated and externally imposed firms’ strategic and tactical responses to the pandemic including in-flight service changes, flight cancellations, seeking emergency aids and financial supports, and firm closures. The analysis demonstrates that in responding to the crisis, many airlines sought to minimise erosion of long-developed knowledge, market capabilities, route networks, access to airports, customer base and relationships/trust with customers prior to COVID-19 to equip them for recovery. The wider implications for academics, managers and governments are outlined as the effects of COVID-19 continue to unfold.

1. Introduction
The epic transmission of COVID-19 across multiple countries with such a precipitous negative shock on national economies and accompanying social distancing measures to halt human-to-human transmissions makes it one of the most unparalleled events in modern times (see World Health Organization (WHO), 2020a, 2020b). Nowadays, the popular press is replete with COVID-19 pandemic stories which continue to unfold across the globe affecting over 170 nations and territories (Lipsitch et al., 2020; The Economist, 2020a, 2020c; WHO, 2020a, 2020b, 2020c; Worldometers, 2020; see also; Craighead et al., 2020; Govindan et al., 2020; Cai and Choi, 2020). In many service-oriented economies and industries such as air travel and tourism, the COVID-19 pandemic and accompanying social distancing measures have virtually hampered business activities. In the midst of this epical changing global business environment, we are also often confronted with a myriad of unknowns and difficult challenges which force regulators, governments and businesses to respond. A plethora of research efforts has been directed at investigating pandemics (see also Lipsitch et al., 2020; Choi, 2020; Loske, 2020; Yu et al., 2020) and much of the prior academic literature on pandemics has tended to focus on the mortality rates, government policies and transmission mechanisms (see Nigmatulina and Larson, 2009). Thus, a notable and significant shortcoming in the existing research is the very limited insights on businesses’ response to health crisis/pandemics. As demonstrated by past studies, “how companies respond to unforeseen disruptions such as pandemics or outbreaks remains limited” (Amankwah-Amoah, 2016a, p. 385). Recent research suggests that this necessitates a deeper understanding as to how businesses
respond to the pandemic (Wenzel et al., 2020).

Against this backdrop, the objective of this research note (RN) is to examine how airlines have responded to COVID-19 and factors that facilitate, shape or constrain their responses. The airline industry is one of the most global industries (Dogansis, 2006), heavily impacted by governments’ restrictions on people movement (detailed analysis will follow shortly) and as such represents a fertile ground for exploring how firms respond to crisis. This study is also motivated by the growing importance and somehow increasing frequency of global health pandemics and the need for a better understanding of how governments, companies and international organisations not only attempt to anticipate these challenges but also respond to their occurrences. More than 29 million COVID-19 cases and 900,000 fatalities have been reported globally, demonstrating the importance of this issue (WHO, 2020b; Worldometers, 2020).

The analysis makes pivotal contributions to the literature. First, in light of the evolving and unprecedented nature of COVID-19 and its impact on businesses and way of life (Lipsitch et al., 2020; WHO, 2020a, 2020b, 2020c), this study contributes to the ongoing discourse by providing preliminary analysis of a host of airlines’ responses to the crisis, shedding light on factors that facilitate, shape or constrain their responses to the crisis. In addition, although some studies have explored the issue of pandemics (see Ivanov, 2020), these have often been done in isolation from businesses’ action and responses to such events. In this direction, an integrated framework of analysis was developed and utilised to analyse firms’ responses to crisis, encapsulating the nature and timing of a host of strategic and tactical responses to the COVID-19 pandemic. Our analysis rectifies the oversight and offers insights into the short- and long-term responses adopted by airlines. Furthermore, although there are studies on firms’ responses to crisis (Mishra, 1996) and the timing of responses (see Wenzel et al., 2020), these two streams of scholarly works have emerged and developed insolation. The paper extends the literature by integrating these two largely divergent approaches to contribute to the ongoing conversation of the effects of the COVID-19 pandemic on global businesses by focusing the global airline industry.

The sections that follow present a review of literature on firms’ responses to environmental jolts. After using the review to develop an organising framework, we then present the main findings using the integrated framework, followed by discussion of the implications.

2. Firms’ responses to environmental jolts: An organising framework

Environmental jolts can be defined as “transient perturbations whose occurrences are difficult to foresee and whose impacts on organisations are disruptive and potentially inimical” (Meyer, 1982, p. 515). During crisis, some firms may seek to preserve their key employees, market knowledge and resources, whilst concurrently striving to minimise the adverse effects of sudden changes in the business conditions (Amankwah-Amoah, 2016; Wenzel et al., 2020). A good example in the global airline industry is that following the COVID-19-induced crisis, British Airway’s (BA) decided to bring forward its decision to discontinue Boeing 747 fleets as part of its recovery strategy. The airliner once dubbed the “Queen of the Skies”, the “most recognisable” among the public as well as the preferred choice of global airlines for long-haul routes (Flight International, 2020; Specia, 2020). By joining other global airlines such as Qantas that have phased out or in the process of phasing out their 747 s fleets (Specia, 2020), BA was able to usher in a new recovery approach to counteract the COVID-19 effects. According to the Flight International (2020, p. nd), the withdrawal of the 747’s from service crucially eliminated a fleet that “represents higher operating costs from both fuel-burn and maintenance perspectives”. This shift also epitomizes a new era where airlines are increasingly embracing new generation fuel efficient aircrafts (Flight International, 2020; Specia, 2020).

To explore the issue of firms’ responses to jolts, we situate our analysis within the literature on timing and locus of causality of organisational actions/inactions/failure. Time is a pivotal dimension in firms’ responses to jolts/events and its effects may be difficult to determine. Past studies have demonstrated that timing is a key resource which can grant an organisation a first- or late-mover advantage in the face of crisis (Lieberman and Montgomery, 1988, 1998; Makadok, 1998) and can also be harnessed in devising suitable responses by firms to environment-altering events (Grzymala-Busse, 2011). Linked to timing is availability of information, resources and cost, which could determine whether the organisation, actors or decision-makers act in a proactive or reactive manner (Grzymala-Busse, 2011). Thus, there is a shorter-term and longer-term dimension to firms’ responses shaped by the duration or nature of the event (Aguinis and Bakker, 2020).

The duration of events can determine the nature of its effect on firms’ activities as well as the availability or diversity of resources and expertise that firms can mobilise and deploy to contain/respond to crisis. Grzymala-Busse (2011, p. 1289) observed that, “where negative externalities exist, early movers are advantaged” due to pioneering costs of responding to the event. Late arrivals in responding to negative external events have the opportunity to observe and learn from other firms and therefore are more likely to be effective in devising their responses (see Lieberman and Montgomery, 1988; Makadok, 1998). Over time, some firms may opt to scale back their operations (retrenchment) to reduce costs, and develop networks and markets in response to an unfolding crisis (Bruton et al., 2003). This approach, in tandem with curtailing the business scope (De Figueiredo et al., 2019), is likely to span over both a short-term and long-term strategy (see Bluedorn and Ferris, 2004; Bluedorn and Martin 2008). Broadly speaking, short-term responses may focus on meeting immediate environmental demands and ensuring immediate survival of the business, whereas, long-term responses are designed to focus on future periods and entailed enduring set of actions, which can be a number of years (see Bluedorn and Ferris, 2004; Bluedorn and Martin, 2008). At the effects of crisis unfold, some firms that display ineffectiveness or failure to respond may be forced to exit the industry (Amankwah-Amoah, 2016b). For new firms, survival is often paramount which often precipitate short-term oriented strategy.

Underpinning literature pertaining to the locus of causality is useful in understanding the issue. Here, there are two main schools of thought: voluntaristic and deterministic views (Amankwah-Amoah, 2016b; Amankwah-Amoah et al., 2020; Mellahi and Wilkinson,
The deterministic perspective views organisational actions as being driven by external factors such as government directions, economic recession, declining demand and luck, over which managers have limited or no control (Amankwah-Amoah, 2016b). Often government-mandated actions can drive small and financially weak firms into bankruptcy. Given that legitimacy is conferred by organisational stakeholders, they can also force a firm to act or adopt a set of measures to maintain its existence (Perrow, 1970). Thus, government pressures can force firms to adopt a course of action irrespective of the impact on the firms’ operations.

Businesses are viewed as victims of crisis or unpredictable circumstances in their business environment e.g. natural disasters such as flash flooding, tornadoes, landslides, earthquakes, sinkholes, volcanic eruptions, heat waves and droughts. These events can suddenly alter the business environment, culminating in closure, redesign of the business model or firms actually closing down. Many firms are often unable to fully capitalise on their existing resources and expertise to identify and neutralise environmental threats, which often forces closure of the business (Delmas and Toffel, 2008). In contrast to the other perspective, the voluntaristic perspective traces actions, inaction and firm failure to managers, workers and characteristics of the organisation such as resource and expertise (Amankwah-Amoah et al., 2018; Mellahi and Wilkinson, 2004). Extending previous research, we contend that firms’ ability to respond to a global outbreak is predicated on its firm-specific assets which denotes resources and expertise of the firms including relationships nurtured over time. From this literature, we contend two types of firm responses: internally designed/generated and externally imposed.

In keeping with insights from the timing literature, we contend two dimensions of timing: short-term and long-term. Thus, businesses respond to crisis either in the short term or long term via utilisation of their own expertise and resources or requirements/sets of actions imposed on an industry by external entities/parties, as shown in Fig. 1. Externally imposed responses are driven by external/institutional factors such as governments, industry bodies and societies to ensure standardisation of responses and securing wider participation of all firms in the industry for the proposed course of action. It stems from actions of external actors of the organisation or simply an outcome of regulatory, political, social and economic changes. However, externally imposed courses of action tend to be detached from organisation-specific problems and shortcomings which can amplify organisational problems. With internally generated responses to crisis, the organisation has direct ownership and influence in devising and carrying out the course of action with the aim of ensuring its long-term survival. They are carefully designed organisational approaches and sets of actions informed by the organisation’s knowledge, experiences and market knowledge. Anchored in the internally generated course of action is deployment of firm-specific key resources and expertise to respond to or neutralise the external threats (McCutchen, 1993).

When crises/jolts emerge, they often release the constraints on organisational-decision makers and their latitude to act, thereby opening up a wider range of strategic options, ammunitions and actions for firms (Bryson, 1981; Wenzel et al., 2020) including different engagements with governments, customers, clients and suppliers. Firms are likely to face imposed responses as well as sets of actions during crisis. It is, therefore, expected that firms may be motivated to embrace internally initiated as well as externally imposed

![Timing of Responses](image)

**Fig. 1.** A unified organising framework of firm responses.
responses to develop new relationships with political actors to secure access to financial and political resources in both the short term and long term to ensure survival of their businesses. The above dialogue suggests that during crisis, different firms in an industry would likely exhibit some of these different responses.

Crossing the pillars produces the $2 \times 2$ matrix of firm responses to external environmental shock. As demonstrated in Fig. 1, internally generated short-term responses (Quadrant I) describes the short-term operational and tactical responses to the unfolding organisational crisis. This is where early-warning signals or cues necessitate modifications in the processes, routines, strategy and structures of the organisation. Externally imposed short-term responses (Quadrant II) is where early-warning signals or cues of crisis lead to an external actor-imposed course of action to curtail the negative effects. The internally generated long-term responses (Quadrant III) is where the crisis demands long-term strategic and operational responses within the firms to prepare for the post-crisis environment. The externally imposed long-term responses (Quadrant IV) focuses on long-term political network development and leveraged overtime to enhance the competitiveness of the firms.

3. Airlines’ responses to COVID-19

Online Supplementary Appendix 1 (Amankwah-Amoah, 2015, 2020; Amankwah-Amoah and Debrah, 2010, 2011; BBC, 2020c; Chua, 2020a, 2020b, 2020c; Cirium, 2020a, 2020b, 2020c; Dunn, 2020a, 2020b; European Commission, 2020; FT, 2020; Harper, 2020; Hsu and Flitter, 2020; IATA, 2019, 2020a; Janzen, 2020; Johnson, 2020; Kaminski-Morrow, 2020a, 2020b; NATS, 2020; Puhak, 2020; Salaudeen, 2020; The Canadian Transportation Agency, 2020; The Economist, 2020b, 2020d; Waldron, 2020; Walsh, 2020; Wolfsteller, 2020a, 2020b) provides a more general overview of the global airline industry and COVID-19 as the research setting. Following and applying Fig. 1, we delineate the responses adopted by airlines around the globe, and the internal and external factors that facilitated or impinged on responses. Online Supplementary Appendix 2 provides additional details on the dimensions of the quadrants with illustrative examples.

3.1. Quadrant I: Internally generated short-term responses

Quadrant I displays a situation where firms deduced internal responses to crisis with a largely short-term focus. In the preliminary stage, most airlines sought to make modest changes, focusing on environmental scanning associated with the virus and governments’ directives on travel to the affected area and WHO directives. In January 2020, Turkish Airlines was amongst others who conveyed their decision to assess the situation (Dunn, 2020c). Some of the early efforts by airlines focused on providing additional safety measures and suspending some services to minimise the risk of transmission. Given that the coronavirus transmits via human-to-human contact and

![Fig. 2. A network model of effects of social distancing on airline business model.](image-url)
microscopic droplets through coughing and sneezing, it makes it difficult to deliver people-to-people services (Hester, 2020). Several tactical responses were adopted during this phase including deep cleaning planes before take-off. For many airlines, cleaning staff were required to put on protective suits in helping to disinfect aircraft against the coronavirus (Cornwell, 2020). Such initiatives were further backed by airlines such as Cathay Pacific who reassured their customers of measures being taken by highlighting the “intensifying disinfection of aircraft after landing, making cabin crews don gloves and masks, removing blankets, magazines and pillows, and adding safeguards to the in-flight food and drink service” (Lee, 2020, p. nd).

As the crisis unfolded, many airlines started moving towards introducing some elements of in-flight social distancing, compulsory temperature checks and demanding that passengers put on masks (Lee, 2020). Generally, the social distancing measures adopted by airlines sought to curtail social interaction between employees, employees and customers as well as between customers, with the aim of halting the elevation of potential risk to people. Without effective social distancing measures to stem or curtail coughing and sneezing in close proximity of others (Chaudhary and Maidment, 2020), airlines can potentially expose employees (in-flight crew) to the health risks stemming from the coronavirus outbreak. This was particularly relevant to the industry as the threat of virus transmission to the airlines’ in-flight crew might force them to opt for self-preservation over customer/passenger care, thereby compromising their duty of care. Some airports also adopted similar measures to reduce interaction between people and restrict large gatherings at their premises to curtail the spread of the virus.

Nevertheless, the social distancing approach recommended by many governments was “nearly impossible to accomplish on an airplane” (Hester, 2020, p. nd). In-flight attendants work in tight spaces (often within 6 feet of their and customers, i.e. the distancing recommended by US Centers for Disease Control and Prevention), and make regular contact with passengers, pushing beverage carts up narrow aisles, reaching over customers to serve food and beverages and standing at arm’s length from customers to perform mandatory safety demonstrations (Hester, 2020, p. nd). In addition, flight attendants generally do not possess the expertise of medical doctors and healthcare professionals, and are therefore incapable of dealing with in-flight medical emergencies associated with someone with coronavirus (Hester, 2020). The effects of social distancing on the global airline business model are reflected in Fig. 2. Online Supplementary Appendix 3 provides examples of multiple airlines that adopted this approach during the crisis period.

3.2. Quadrant II: Externally imposed short-term responses

Quadrant II demonstrates a situation where a set of actions are imposed on the industry. Owing to the outbreak, a new directive was issued from WHO for the aviation industry and aviation personnel focused on the operational considerations to help halt the transmission of COVID-19. The proposed measures for in-flight and all personnel re-emphasised hand hygiene, social distancing, respiratory etiquette and seeking medical advice on suspected cases (WHO, 2020c). In line with WHO’s Guide to Hygiene and Sanitation in Aviation, some of the operational responses emphasised enhanced cleaning and disinfection which covers airports and service providers (WHO, 2020c). In addition, it re-emphasised post-event cleaning procedures and disinfesting contaminated surfaces following notification of suspected cases (WHO, 2020c). In relation to prior analysis, the observation about in-flight social distancing was further buttressed when India’s Directorate General of Civil Aviation (DGCA) suggested that airlines adopt in-flight social distancing by keeping at least one metre between passengers at airport check-ins and security counters as well as keeping the middle seats empty on flights empty to minimise contact between passengers (Indiatoday, 2020). For instance, in an attempt to avert second outbreaks in China, the government limited inter-China flights for both Chinese and foreign airlines by allowing just one flight a week and each flight was not to exceed 75% capacity (BBC, 2020d). The effects of the crisis are further demonstrated when in Europe, for instance, largely due to government-imposed measures, all but a few essential routes on domestic and neighbouring markets remain functional, largely to allow critical travel, cargo, medical supplies and repatriation of nationals (Dunn, 2020d). In March 2020, following the Australian government’s guidelines and suggestions, Qantas and Jetstar suspended some scheduled international flights (Cirium, 2020d). For the Qantas Group, the grounding of around 150 aircraft reduced its international capacity by around 90% and domestic by 60% (Cirium, 2020d).

3.3. Quadrant III: Internally generated long-term responses

Quadrant III focuses on strategic and operational activities developed and employed by firms to respond to and prepare for the post-crisis period and recovery of services. In the past, most firms were assumed to be passive recipients of events in their external environment. However, it was observed that in the face of a partial or full lockdown in most nations, airlines engaged in corporate political activities where they engage with policymakers to enact the “rule of the game”. Our analysis indicates that at the same time, many sought to lobby governments for aid packages to help them overcome the sharp decline in demand. Following the cessation of flights and governments’ restrictions on flights, many airlines starting burning through cash reserves, further diminishing their financial positions and making failure more likely (Cirium, 2020). Accordingly, some airlines such as Virgin Australia and Air New Zealand sought government financial support to help them overcome their predicament (Cirium, 2020). As the industry group, the IATA made calls for support and cautioned of dire consequences facing the industry with global revenues from ticket sales falling as much as £215bn (BBC, 2020a, 2020b). To offset the negative effects of these dramatic changes culminating in loss of revenue, some airlines pursued cost-reductions via offloading workers, terminating affected routes and encouraging some employees to work from home. The state-owned, and one of the world’s biggest long-haul airlines, Emirates, adopted measures such as a temporary 25–50% basic salary reduction for employees to help them keep highly skilled employees as well as minimise or avoid job losses (Cornwell, 2020; Klar, 2020). This was also designed to enable it to mobilise employees and resources swiftly to resume services for customers when conditions improve and the outbreak is controlled (Cornwell, 2020; Klar, 2020).
3.4. Quadrant IV: Externally imposed long-term responses

Quadrant IV demonstrates the wider and long-term effects of the imposition of action on firms and living through this post-COVID environment. Here, measures such as in-flight social distancing policies, government-mandated air travel restrictions and other externally imposed measures are key. Long-term consequences are predicated on the effects of short-term imposed directives and measures on the industry. In this direction, the International Air Transport Association in collaboration with the World Health Organization have developed guidelines to guide cabin crew and airport workers, e.g. captains are required to inform air traffic control of suspected communicable disease (IATA, 2020b). Indeed, the IATA represents around 290 airlines, accounting for 82% of overall air traffic, and develops industry-wide policies on pivotal issues. Fig. 3 presents graphically the changes and shift from pre-COVID to post-COVID environment and firms’ recovery strategy.

4. Conclusion

In this research note, we set out to examine how airlines’ have responded to COVID-19 and factors that facilitate, shape or constrain their responses. A unified conceptual framework was developed to capture the internally generated and externally imposed strategic and tactical responses over both the short and long terms. The study highlighted the host of factors that impinged on and shaped airlines’ decisions and responses to respond to the threat such as government-mandated actions in terms of travel restrictions, quarantines and social-distancing schemes. The government-mandated and other external constraints curtailed firms’ strategic investment and route network decisions, thereby altering the competitive positions of many airlines and further weakening already weak airlines and financially healthy ones. One notable innovation was the introduction in-flight social distancing into the airline business model with long-term implications in terms of in-flight arrangements, high-density seating and in-flight services. Taken together, in responding to the crisis, airlines sought to minimise the erosion of long-developed market capabilities, route networks, and prior relationship of trust with customers. From a practical standpoint, the analysis underlines the need for the aviation industry and governments to ensure that the new in-flight social distancing policies do not translate into expensive procedures that make quality in-flight arrangements and high-density seating difficult to achieve.

4.1. Limitations and directions for future research discussions

In interpreting the present study, one must bear in mind some notable limitations. First, it is worth pointing out that the crisis is ongoing and therefore the analysis only represents a snapshot of the current state of affairs and firms’ actions. Thus, future studies could systematically examine the post-crisis and recovery strategies adopted by airlines. Second, the $2 \times 2$ matrix offers opportunity for future research to examine the effects of different approaches among different types of airlines such as traditional legacy airlines and low-cost carriers. Future studies could also examine the effects of in-flight social distancing on the traditional hub-and-spoke and point-to-point networks, in-flight catering services, fleet utilisation and seat allocation. This is important given that in-flight social distancing has potential of curtailing high-density seating that typify short-haul services and some long-haul services. To stimulate a much deeper understanding of the effects of COVID-19 on businesses, future studies could pursue these fruitful avenues.
CRediT authorship contribution statement

Joseph Amankwah-Amoah: Conceptualization, Methodology, Data curation, Writing - original draft.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Appendix A. Supplementary material

Supplementary data to this article can be found online at https://doi.org/10.1016/j.tre.2020.102098.

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Appendix A. Supplementary material

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