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National Competitive Advantage Perspective of Global Aviation Hubs: The Middle East Big Three

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ABSTRACT

Airports are seen as a crucial component of infrastructure in the construction of modern cities in the Middle East, where aviation is recognized as a top priority in their development strategy. While the airline industry in the Middle has been investigated, there are no studies that explored the region's successful global aviation hubs from a national competitive advantage perspective. Therefore, this paper examines the macro environmental elements affecting a nation's competitiveness in the aviation industry using a mixed-methods approach, including Porter's notion of national competitive advantage and expert views. The analysis shows that while macro environmental factors such as geographical advantage, physical and intellectual infrastructure, and business attractiveness are important for a successful aviation development, they are not necessarily required to guarantee a hub status unless the governments are devoted to developing the sector.

Keywords: Aviation hubs; Airports; Air transport.

INTRODUCTION

Aviation's stature as a global economic engine is irrefutable. If the global aviation sector was a country, its total contribution of USD 2.7 trillion to gross domestic product, and the 65.5 million jobs it supports, would be comparable to the United Kingdom's economic size and population (IHLG 2019). Within this, one of the major global success stories of the aviation industry in the last quarter century has been the meteoric growth and prominence of the industry in the Arabian Gulf.

Whilst the Middle East has had a centuries-old role connecting the economies and populations of Asia, Europe, and Africa, the emergence of the major cities of Abu Dhabi, Dubai and Doha, with their home carrier airlines Etihad, Emirates and Qatar - conversationally known as the Middle East Big 3 (MEB3) - in the last two decades, as established global airport hubs has been phenomenal. By 2018, air transport supported 3.3 million jobs and $213 billion in Middle East economic activity, which translated to 4.5% of all employment and 7.6% of all Middle Eastern GDP (ATAG 2021). Comparing the relative infancy of the industry in these regions with the speed and scale at which they have grown in only two decades, shows the significance of this context and the need to evaluate the supporting factors that were key in establishing successful industry sectors in MEB3.

Despite small native populations, the MEB3 have grown large aviation sectors driven by, among others, their ability to connect almost any two global cities via their own Arabian Gulf hubs. This international connectivity is a result of exploiting the so-called 6th

freedom of Air which states " […] the right or privilege, in respect of scheduled international air services, of transporting, via the home State of the carrier, traffic moving between two other States […]" (ICAO 2016, p. 115). This means that 3rd country carriers, such as the MEB3, can fly connecting routes between other countries, linking in the centre via their own home countries. This connector model has supported the mass volumes of passengers carried by the MEB3 and underpinned their growth over the decade.

Against this background, two interdependent questions are central in this study: What are the drivers of the success of the MEB3 as global aviation hubs, and what lessons can be learned for other regions?

Although the airline industry in the Middle East has been investigated (e.g. Feiler and Goodovitch 1994; Joshan and Maertens 2020; Tretheway and Andriulaitis 2015; Warnock-Smith and O'Connell 2011; Wit 2014), none of them examined the success of the MEB3 from a national competitive advantage perspective. Existing studies have focused on aviation policy (Feiler and Goodovitch 1994; Warnock-Smith and O'Connell 2011), the impact of aviation growth in the Middle East on incumbent airlines and low-cost carrier development (Joshan and Maertens 2020; Morrison and Mason 2016; Vespermann *et al.* 2008), and competition between Gulf carriers and European carriers (Tretheway and Andriulaitis 2015; Wit 2014). This study uses Michael Porter diamond (Porter 1990) to investigate the determinants for the competitiveness of Gulf aviation industry. Moreover, this study induces the knowledge building process needed to develop an understanding for the success of major aviation hubs by focusing on identifying the Country-Specific advantages (CSAs), which underpinned the outstanding performance of the MEB3. Providing such perspective is necessary to assist policy makers and practitioners in the aviation industry in their efforts and attempts to replicate this success. Furthermore, providing deeper understanding on the nature of the important determinants of the MEB3 growth will help the understanding of other existing and planned airports keen to mimic the MEB3 strategies and approach.

This paper addresses the above gap over two stages. In the next section (the first stage) we use Porter's theory of national competitive advantage as a tool to structure our understanding of MEB3 CSAs in relation to the aviation industry in this region. We then explore the impact of these factors from the perspective of senior practitioners who are experts in the aviation sector in the region (the second stage). In doing so, we aim to set foundations for building an explanation of MEB3 success and we will also provide an agenda for further research about this topic.

MEB3 SUCCESS: THEORETICAL FOUNDATION

This research focuses on three closely connected locations and a common industry in the Arabian Gulf. It is proposed these aviation centres have been mutually established on a national basis in each state because the countries have specific advantages to enable this.

Therefore, Michael Porter's (1990) Theory of National Advantage or "Diamond" model (Fig. 1) is identified as an excellent framework to capture these national advantages. According to Porter (1990), national competitive advantage of leading industries in different nations is a result of dynamic interaction among four aspects:

- Resource endowment in terms of natural and human resources;
- Nature and scale of domestic demand;
- Strategy, structure, and rivalry of domestic competitors;
- Availability of related and supporting industries.
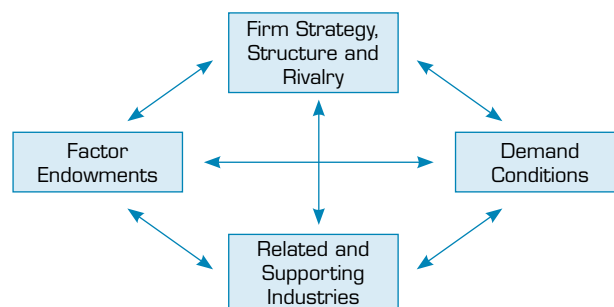
Source: Retrieved from Porter (1990, p.72).
Figure 1. The determinants of national competitive advantage (Porter's Diamond).

Using the model as a baseline, we aim to capture the national factors that contributed to the success of MEB3 in the aviation industry.

Demand conditions

The Middle East's role across centuries, from old silk roads to new, has seen it connect the populations and economies of Asia, Europe, and Africa. Abu Dhabi, Dubai and Doha therefore have natural good fortune in geographic positioning. Underpinning the geographic advantage of the Arabian Gulf, Boeing (2020) notes an eight-hour flight from the region's hubs can reach 80 percent of the world's population, and the same boundary will also contain 70 percent of global economic growth for the next two decades.

The significance of MEB3 geographic's advantage is two-fold. Firstly, the central locations enabled the MEB3 to develop more efficient long-haul hubs. In contrast, European counterpart airports, for example, have to operate 'hinterland' hubs which are much less efficient due to multiple legs of costly short haul feeder traffic into their home base locations from disparate populations elsewhere in the region (Wit 2014). Secondly, the style of hub operation at the MEB3 sees long haul traffic connect to long haul traffic, as opposed to short haul to long haul or short haul to short haul. This "hourglass" hub results in lower operational costs per kilometre as stage length increases (Doganis 2013; Wit 2014). This infers a further efficiency for the MEB3, and thus cost advantages due to their geography, enabling a more profitable model.

In the early days of air transport, the industry operated solely on point-to-point principles. Networks were disorganised and companies lost money given the inefficiency of needing multiple legs to achieve connectivity (Delve 2014). As a solution, the industry developed the Hub model: an intricate bicycle wheel at the strategic centre of a network, the spokes radiating out to connect remote points (Button 2002). Hubs enable a more efficient operation, capital costs and fares, keep aircraft and assets in use longer, raise load factors and enable easier coordination of resources and schedules (Button 2002).

The hub model rose to prominence in the last 50 years, supported by advances in aircraft technology. Combined, this allowed the aviation industry to achieve commercial and connective efficiency, linking a range of destinations by fusing traffic flows through a single mid-point.

The advantages of consolidating travel through the hub are significant. Economic advantages increase with passenger density and network growth, positively affecting supply and demand. The ability to serve many cities of varying sizes confers a competitive advantage and passengers benefit from closely timed flights, check-in, more convenient locations and reduced risk of luggage loss (Cook and Goodwin 2008; Huston and Butler 1991).

However, not all hubs are equal. Huston and Butler (1991) argue that location is critical to performance given the powerful economies associated with such operations. Also, from an air traffic management perspective, it is the geographical and temporal concentration of traffic that is important (Button 2002). Therefore, Arabian Gulf hubs also see efficiencies and benefits from the region's geographic centricity along major long-haul air routes.

Despite small native populations, the ability of third country carriers to fly from other countries connecting via their own, afforded under the 6th freedom of Air, means the MEB3 can access vast tracks of non-domestic passenger demand and grow their sectors capitalising on geographic advantage.

Whilst hub operations are efficient, they also present notable risk of a single point failure. Although the most macabre of incidences such as disabled or malfunctioning aircraft are rare, more innocuous occurrences can more regularly create failure at the networks central point. One drawback of the hub and spoke system, its inclement weather at the hub airport can delay or cancel virtually all of an airline (Huston and Butler 1991).

Considering this, the MEB3 geography, specifically weather, can create susceptibility to single point failure. Simple weather instances are surprisingly regular events in the region. A study by Weston *et al.* (2021) of fog incidences at Abu Dhabi for example, found significant impact on the network through dense fog experienced during winter months, restricting operations up to 51 days per year.

Strategy and Structure

All MEB3 airlines, airports, service providers and duty-free entities were established by seed investment from their national governments. Today they operate as standalone businesses but, as shown in (Table 1), retain their major government shareholders.

Table 1. Aviation value-chain company ownership.

Value Components & Ownership	Dubai	Abu Dhabi	Doha
Full-Service Airline	Emirates Airline	Etihad Airways	Qatar Airways
Owner/Holding Co.	Investment Corporation of Dubai (ICD)	Abu Dhabi Development Holding Co. (ADQ)	The Qatar Investment Authority (QIA)
Low-Cost Airline	FlyDubai	Wizz Air Abu Dhabi	-
Owner/Holding Co.	Investment Corporation of Dubai (ICD)	Abu Dhabi Development Holding Co. (ADQ) & Wizz Air Holdings Plc (Wizz) joint-venture	-
Airport	Dubai International (DXB) & Dubai World Central (DWC)	Abu Dhabi International (AUH)	Hamad International (DOH)
Owner/Holding Co.	Government of Dubai	Abu Dhabi Development Holding Co. (ADQ)	Qatar Airways Group Q.C.S.C. (QA)
Services Provider	DNATA (Dubai National Travel Agency)	Etihad Airport Services	Qatar Aviation Services
Owner/Holding Co.	Investment Corporation of Dubai (ICD)	Abu Dhabi Development Holding Co. (ADQ)	Qatar Airways Group Q.C.S.C. (QA)
Duty Free	Dubai Duty Free	Abu Dhabi Duty Free	Qatar Duty Free
Owner/Holding Co.	Investment Corporation of Dubai (ICD)	Abu Dhabi Development Holding Co. (ADQ)	Qatar Airways Group Q.C.S.C. (QA)

Source: Elaborated by the authors.

This ownership model directly impacts each of the MEB3 firms structure and strategy. The Governments are owner, investor, authority and ultimate manager across the aviation sector. Through this ownership and management arrangement, each State has created an efficient structure. O'Connell and Bueno (2018) argue that this efficiency is magnified compared to the MEB3's European competitors. Highlighting the comparison with the United Kingdom's lack of vertical interface between airlines and airports, they argue that significant transaction costs are also incurred to comply with authority regulations, adding layers of complexity and bureaucracy when attempting to induce forward-thinking strategic visions and future development.

Competition amongst the MEB3 has seen substantial growth in their airline fleets since the start of the 21st century. With some of the largest passenger aircraft orders by value ever placed emanating from the MEB3 in the past two decades, including a significant U$120 Billion single order for more than 300 aircraft in 2013, a capacity arm has race ensued in Gulf aviation. This race was solidly matched by massively increasing passenger numbers year-on-year through the last decades with significant growth experienced by the home carriers.

To complement the flying asset investment, and in recognition that capacity constraints of such large fleets would be present in the core operations at the hub in the absence of any action, significant investment was also made into the expansion of the physical infrastructure. As a result, not only do the MEB3 all have a symbiotic ownership relationship with the infrastructure they use, but this infrastructure comes in generally good supply.

Related and Supporting Industries

The airline industry is a diverse sector requiring the support of a varied range of ancillary businesses to carry out its activities, many of these businesses demonstrate the potential to drive wider profit (Redpath *et al.* 2017). All organisations in the chain are important to the successful operation and profitability (Buzzell 1983). The individual states aviation ecosystem therefore acts in concert to service a mutual market.

The MEB3 in this respect are strategically structured to support wider national ambitions of developing an aviation sector and business synergies able to integrate broadly across the air-travel value chain. The vertically integrated ownership in each States

aviation sector is crucial. The aspirations of the governments require *associated commitment* to provide infrastructure of sufficient scale and quality, in addition to *necessary systems* to enable the MEB3 to become *super-connectors* (Aquilina-Spangnol *et al.* 2020).

An illustration of the Dubai ecosystem, for example, provides a relevant insight into a typical aviation business model among the MEB3 (Table 1). The illustration shows the respective organisations and businesses are part of an interdependent network which is effectively vertically integrated via the locus of control of a senior leader, with government affiliations. As a result, they can act with synchronicity.

Factor Endowment

In terms of airline cost structures, the MEB3 input costs, such as labour and administrative expenses, account for 20 percent of cost per seat kilometre with government taxes and surcharges accounting for 80 percent (Binggeli *et al.* 2013). Additionally, better utilisation of aviation assets was noted as a significant driver in reducing airline costs (Saxon and Weber 2017). Whilst the common airport-airline-handler-retailer ownership chain in the MEB3 confers strategic synergies, it also confers cost synergies. When compared to European competitors, the MEB3 have lower transaction costs than these rivals who do not benefit from similar strategic synergy across their value chains (Murel and O'Connell 2011; Wit 2014).

A research by Kuljanin and Kalic (2016) comparing Emirates to large European competitors shows that the Middle Eastern carrier benefits from significantly lower unit labour costs than competitors. This is grounded in Emirate's ability to hire lower cost blue collar staff from Central and South-Asian markets. Additionally, Emirates's advantageous fuel costs stem from the greater efficiency of its young (wide body) aircraft fleet, with efficient engines also contributing to lower maintenance costs. Finally, the "landing, parking and overflying" charges are observed to be much lower in Dubai than other competitors's home airports.

Lower cost advantage because of the common ownership efficiencies amongst the MEB3 hubs appear significant. According to Wit (2014), exemption from passenger transfer and facility charges are significant and unique features of all MEB3 hubs compared to competitors. In addition, charges at Dubai (DXB) are remarkably low. This is because of the ultimate single-till view of common ownership factors. The ability to take positions, for example, that airport charges can be cross-subsidised from sizable duty-free sales, is acceptable in the MEB3 model (Wit 2014; Zuidberg 2015). Murel and O'Connell (2011) also note the significance of a two-tier salary system in the MEB3 cost structures. Blue-collar labour is sourced from low-cost markets in Central and South-Asian neighbours for manual activities like ground-handling, catering and logistics with higher wages paid to attract white-collar expatriate professionals. This sees professions such as pilots and senior managers benefit from generous perks including zero tax, magnifying the salary packages and therefore the ability to attract talent for the businesses (Wit 2014).

This is a further example of the MEB3 aviation eco-systems benefitting from favourably planned regulatory environments by their government shareholders. This ability to underpin the commercial endeavours of the aviation businesses to both source the requisite labour from appropriate jurisdictions and ensure favourable regulatory environments, further exemplifies the benefits of the government ownership structure on the MEB3 aviation eco systems.

The Role of the Government

The government in the MEB3 has played a key part in creating and enhancing the CSAs, which contributed to the success of the MEB3. In the last 70 years, the discovery of petrochemicals has created colossal national wealth for the MEB3 states. Once these oppressively hot Arabian desert outposts, long time protectorates of the colonial empires, housed little more than fishing and pearling ports with small local populations (Hooper *et al.* 2011). By 2019 GDP measures, the International Monetary fund ranked the United Arab Emirates and Qatar as the two richest countries in the Arab world (IMF 2021).

A central CSA of the region is therefore obvious. Petrochemical reserves have generated massive wealth and powered the Gulf countries through one of the biggest economic booms in human history. However, this growth has materialised because these countries also had – and still have – the willingness to advance and improve themselves (Oliveira 2019).

The MEB3 approach juxtaposes many African nations geographically adjacent to the Gulf. These nations also have significant petrochemical and mineral reserves but many lack the MEB3's developed economies. This is because it is not enough to be resource rich without a commitment and plan to re-invest the gains. Discovery of significant natural resources, without pursuing diversification strategies, sees economic instability and volatility. Failing to recognize the fleeting nature of resource wealth and inaction on productive re-investments, negatively impacts weak-state economies. Without good policy, many resource-rich states can actually become poorer.

The MEB3 rulers, in addition to petrochemicals, have actively targeted policies of diversification. Hvidt (2013) describes how the Arabian Gulf governments quickly realised that income from their hydrocarbons would be finite, would fluctuate and effectively be the only natural source of the wealth. Therefore, economic diversification was high on the political agenda since oil was first discovered.

The MEB3 adoption of this diversification policy was rooted in a realisation that, historically, the economic expansion of cities was built upon the development of transport infrastructures connecting them (Derudder and Witlox 2014). Therefore, the aviation ecosystem in the Gulf expanded dramatically, driven by the unique combination of economic expansion, well-coordinated growth plans, modern air transport infrastructure and a favourable geographic location (Alamdari 2011). The UAE and Qatar also reinvented themselves as "…tourist destination and as location for developing enterprising commercial businesses…" (Murel and O'Connell 2011, p. 36) as a further catalyst to generate traffic for their aviation sectors.

The policies of economic diversification using petrochemical wealth to build strong aviation sectors always involves government strategies of vigorous investments in airport infrastructure as well as the development of a significant *'flag carrier'* (Derudder *et al.* 2013). This means that the MEB3 synchronously ordered large numbers of widebody aircraft and undertook massive infrastructure expansions to match future traffic forecasts. The result of which saw a combined capacity of 340 million passengers in 2020. Also, the MEB3 States diversify wealth wisely in aviation, investing heavily in aircraft and airport infrastructure, synchronising it with long-haul airline network development (O'Connell and Bueno 2018).

Many airports in established global cities have major curfews on operating hours. From 11pm to 6am, dozens of the world's airports close for business. The impact is significant. Closing just one major airport at night greatly affects others. Such an evening curfew in New York, for example, unintentionally imposes a knock-on curfew on take-offs from LA heading to New York. This ripple effect of curfews impacts scheduling across the world (UAE embassy in the USA). In this regard, the legislative and regulatory benefit of a curfew free operation is a significant enabler to support a large investment in the flying assets and hard infrastructure. All MEB3 airports operate 24 hours a day, 7 days a week, enabling flights to come and go at all hours to support connectivity of the hub. This curfew free operation is significant, creating efficient and predictable flight banks or waves at hubs and an ability to easily manage curfews at outstations, creating smooth connections, better asset utilisation and connectivity.

The review of the literature identifies numerous CSAs, as they relate to the diamond framework (Porter 1990). Two interrelated propositions emerge from the review is that:

Proposition 1: *CSAs are fundamental in the establishment of major aviation hubs.*

Proposition 2: *Local governments play a key role in the establishment of major aviation hubs.*

The above is now examined using primary qualitative data collected by interviewing senior practitioners from the region.

METHODOLOGY

This research explores the proposition of CSAs existing in all MEB3 locations to support their establishing successful International Aviation Hubs and the key strategic role that local governments played in this regard. This proposition is now examined using qualitative data collected through semi-structured interviews with senior industry practitioners from the region.

As this research centres on a specific industry and region, a natural limitation of Participants, informed and familiar with the subjects, who are motivated to participate, emerges. However, the involvement of one of the authors in the Arabian Gulf aviation industry across almost a decade provided access to this professional network. Therefore, Non-Random, and Purposeful sampling was followed.

Targeting the researcher's professional network, initial approaches were made in July 2021 and followed up in early August 2021. Five professionals ultimately committed to participate. Given all Participants are currently employed at senior levels in the industry, a commitment to confidentiality and the ethical undertakings for this research was given. Accordingly, Participants are referenced as P1 through P5 throughout to ensure confidentiality.

We sought participants with both sector and region experience, who had sufficient tenure and involvement in key organisations. Where possible, experience in more than one location and organisation was preferred to help contextualise similarities and variations.

The participant cohort is a mix of senior industry professional practitioners whose work has, and continues to, relate to the creation, management, growth and scaling of aviation businesses in the Arabian Gulf and who's length of service enables both current and legacy view of the research topic. We see from Table 2 that Participants in this research represent a strong sample, well positioned to provide insight and evidence on the topic.

Table 2. Research participant credentials overview.

Participants	Service Years: Aviation	Service Years: Arabian Gulf	Organis ation Experience	Current Roles	Previous Roles & Experience
P1	30 Years	14 Years	Global Advisor Firm Airline Airport	Aviation Leader Global Advisory Co Middle East	Vice President (Airport, Arabian Gulf) Head of Service (Airline, Arabian Gulf)
P2	33 Years	7 Years	Airport Global Advisor Firm Airline	Executive Director Airport Company Middle East	Chief Officer (Airport, Arabian Gulf) Senior V.P. (Airport, Arabian Gulf)
P3	45 Years	40 Years	Airport Airline Aviation Services	Chief Officer Aviation Service Co Arabian Gulf	Managing Director (Air Traffic Control Co, Arabian Gulf) Head of Station (Airline, Arabian Gulf)
P4	23 Years	43 Years	Airline	Executive Director Airline Company Arabian Gulf)	Head of Station (Airline, Arabian Gulf)
P5	25 Years	20 Years	Global Advisor Firm Airline Airport	Director Aviation Global Advisory Co Middle East	Head of Operations (Airport, Arabian Gulf) Development Lead (Airline, Arabian Gulf)

Source: Elaborated by the authors.

A set of interview questions and prompts were prepared aligned to the aims of the research and the adopted theoretical model. Interviews were undertaken through face-to-face or 'zoom' video-calls to comply with current local regulations around Covid-19 precautions.

Participant interviews were recorded in-situ to allow focus on the *Narrative Enquiry* and to record stories as they occur naturally. The interviews were then transcribed into word-processed documents which can be better analysed and compared to explore and identify commonalities and divergences using Thematic Analysis method (see e.g. Gibson and Brown 2009; King 2004; Maxwell and Miller 2008). Given the questioning schematic was replicated in each interview, flow and structure of the responses were more easily mapped and analysed to identify themes, patterns and divergences. By recording and transcribing the interviews, a better opportunity for thematic analysis of the data emerged. Therefore, to capitalise on the data analysis, clean transcripts were prepared, meaning a direct record but with conversational fillers ['uhm's', 'ahh's' etc.] removed. The resulting transcripts were entered into the NVivo software to help thematically code and analyse the data.

FINDINGS AND DISCUSSION

In this section, we discuss the data collected in light of the reviewed literature, identifying and analysing themes, agreements and divergences from the responses. We start by showing what is considered as an aviation hub by our participants and we then discuss their views for why the MEB3 experience was successful in this regard.

International Aviation Hubs

Participants were asked to define their concept of an International Aviation Hub, the genesis of this question was twofold. Firstly, considering the literature review and Button's (2002) concept of the hub as an "Intricate Bicycle wheel" was balanced by Huston and Butler's (1991) argument that "Not all hubs are created equal", it was important to gauge Participants view on what they, experienced practitioners, consider a hub. Secondly, to begin to gauge thought views on why there is a concentration of aviation hubs in the regional context.

P3's succinct view of a hub was "*a means of getting from A to B via a third point C*" supported by P5 as "*a connection for passengers and cargo which can effectively reach any continent from a single central point within the globe or of an airline network*". P2 agreed that the hub facilitates network operations to multiple destinations. Similarly, P1 argued that international hub operations are "*all about the long-haul products…connecting continents with continents and, almost, different worlds to different worlds*". Whilst the responses have stylistic variance, there was clear concurrence: The hub is a central connective point linking aviation demand across long-haul focused airline networks spanning distinct points on the globe.

We see almost all Participants consider this long-haul hourglass model hub whereas, from the literature, Wit (2014) and Doganis (2013) outlined hub concepts as being both hourglass and hinterland types. This was not broadly considered by our participants. P1 observed some developments to the model predicated on expanding "*elements of short-haul to long-haul and regional networks, with some new low-cost carriers now complementing the full-service carriers*". There was a clear predisposition to the hourglass long-haul definition that seems predicated on the operating experiences of our participants at the MEB3 hubs, which all operate the long-haul model. P3 commented that "*Looking at flight radar you see, at roughly the same time, in all three cities, a fleet of airplanes arriving from West, then a few hours later, taking off and heading West. Likewise, a little later, you'll see them coming from the East, just like a wave…. that pattern is principally the same in all three airports.*"

The following sections then capture the participants view regarding the role that various CSAs in the MEB3 played in establishing a successful International Aviation Hub in these regions.

Demand Conditions

From the adopted theoretical model and the literature review, we observed several aspects of demand conditions including Geography and Climate. Our participants were prompted for their views on these conditions.

Geography

The overwhelming primary response to this line of questioning was 'Geography'. Participants universally agreed that the fortunate geography of the MEB3 locations was significant as it allowed the MEB3 "*to connect any point to another point geographically*" P5 noted, and supported by P2, "*being in the right place…geography is important*". However, there were further nuanced themes in response, beyond the simplistic 'just being in the middle of things' with geographic proximity to major markets emerging as developed themes from respondents.

Our respondents highlighted the MEB3 close proximity of massive populations in emerging Indian and Asian markets, which were experiencing significant economic growth in parallel across the previous two decades. P2 argued this was not just significant geography but also a matter of good fortune, prompting consideration of the role of chance as referenced in Porter's (1990) Diamond Model.

P2 expanded that, as the aviation eco-systems in the densely populated neighbours "*had not performed the way it should*", an opportunity arose for the MEB3. Their established and substantial hub networks could consume much of the traffic from these markets, connecting it globally through their hubs "*huge amounts of native populations needed to move, and the Middle Eastern hubs were available*". With little specific recognition of this 'ripeness' in adjacent markets from the literature review, a significant point emerges. This country's specific disadvantage of poorly organised national aviation sectors in large market neighbours, at a time when the MEB3 had invested significantly in their sectors, was also to the MEB3's good fortune enabling them to capitalise by exploiting their own advantages timeously.

Climate

Beyond the geographic theme established from the data, a further natural advantage, which was referenced frequently, was the weather and climate. Considering the findings of the literature review around weather and the work of Weston *et al.*'s (2021) study

on fog instances at Abu Dhabi, there was an overwhelming view of respondents that the climate, temperature and predictability were in fact a significant natural benefit for the MEB3. P1 argued that the climate, despite what they termed *"run-of-the-mill fog"* was very predictable. This made the operations more reliable and further enhanced the efficiency of the airport, airline and service providers whilst simultaneously minimising traffic flow issues. This predictability was also referenced by P5, who argued that there are less disruptions experienced because of the predictability and consistency of climate. The benefit of this predictability is magnified when comparing operations to many northern European hubs who have notable issues with climate in the winter times, impacting operations and seeing additional operational expenditures to ensure continuing operations.

Natural Resources

As highlighted in the literature, especially Oliveira's (2019) argument that the MEB3 strategy was reinvestment of petrochemical wealth, the availability of capital was a consistent theme.

Our Participants universally agreed on the importance of capital access as a factor in the sector's growth. That this came from petrochemical wealth converted into a CSA was broadly recognised across Participants. P1 outlined *"we've got a natural advantage of oil, which has meant ability to fund and progress ambitions"*. P4 agreed *"the rapid growth we've seen from nothing into world-leading has come from the ability of the states concerned to be able to provide finance"*. P2 concluded that access to *"capital at the right time to develop infrastructure to cope with rapid growth [meant] lots of countries around the world couldn't do that and couldn't keep up"*. There was clear recognition of the hydrocarbon's presence as a natural endowment.

Government Role

Building on the Natural Resources themes, participants were then asked their views on what Governmental factors impacted the establishment of these major international hubs.

Vision & Politics

The vision and political structure of all the MEB3 locations were highlighted by the participants. This reflected deeper research and particularly to the work of Vespermann *et al.* (2008), who observed the MEB3 government's commitment to a vision of building large aviation sectors and providing right support and investment to make sure these visions were realised. P4 argued this vision was *"incredibly big and bold"* but also observed a *"willingness to go for that vision and support that vision to allow it to grow in the way it has done."* This view was strongly echoed by P1 *"there are personalities within government, or at the heads of organisations … passionate about aviation, who have a vision to see aviation supporting the expansion growth, fortunes of businesses and residents in their countries"*.

The political structure which drives this vision seems a critical factor driving the aviation sector. All three locations exist under absolute monarchies. According to Harris (2009), this means the monarch holds supreme autocratic authority, principally un-restricted by written laws, legislature, or unwritten customs. Thus, decisions to create large aviation sectors are fully supported and driven by Rulers at the head of government. The structure being less encumbered by the many layers of government more common in democratic structures sees the whole national structure actively supporting the vision and direction. P3 highlighted this catalyst for vision compliance *"All roads lead to the same family, everyone's working towards the same aim. It pulls it all together. It tends to be cooperative in effect… dissent though is not encouraged"*. P1 argued similarly *"I hesitate to use the word control, but the wish to influence the outcomes is there"*.

Decision Making & Economic Alignment

A further theme developed from the government and political factors was the speed of decision making and implementation. P3 argued this speed was a key factor *"Decisions are made very quickly, and enacted… things get done quickly and decisively"*. The criticality of this decision-speed advantage was further illustrated by P2 *"There is an ability to decide what's going to be done… and get on and do it, in this region, which you don't necessarily come across in other places. Prime example would be the third runway for Heathrow, which has taken so many years to reach the point it is now. It is fine from the perspective of representing all voices and ensuring due process but, it's a very slow process. Airports in this region, where there is less of that [those voices to be consulted] can therefore progress and expand far more quickly"*. This supports O'Connell and Bueno (2018, p. 264) argument that the MEB3 are advantaged compared to the slow speed of decision and lethargic government restrictions of their western competitors facing *"layers of complexity and bureaucracy when attempting to induce forward strategic visions and future development"*.

The coherence of these visions around an entire economic eco system driven by aviation, closely aligned to tourism and commercial development, in each location was a further theme which emerged from the data. Whilst on one hand we observed from the arguments of Derudder and Witlox (2014) that the government policies build upon the vision of diversification and expansion through better aviation eco systems. The arguments of Murel and O'Connell (2011) outline the three cities transforming themselves, in parallel with their aviation sectors by simultaneous investment in tourist and commercial sectors to reinvent themselves as destinations, was further endorsed by our participants. Taking the Dubai example, P5 agreed *"One of the visions … was let's make Dubai a destination. Part of that vision was to invest in not just infrastructure but high-profile projects. Burj-al-Arab. Burj Khalifa. Iconic projects, all part of that same vision, to make Dubai a destination and get people here…. the business model then relies on tourist dollar, not necessarily natural resources"*. This point on symbiosis of aviation as part of a wider diversified economy was supported by P1 *"we shouldn't forget the extended benefit of aviation to the economy, all the dependent businesses and jobs which exist, and therefore the economy that exists … because of aviation. That all feeds into the vision of supporting the economy. Not only bringing visitors in and out or residents in and out, but also supporting businesses"*.

Regulation & Policy

A final significant theme to emerge from the Government factors was aviation-friendly policies enacted in the region, to support aviation growth and create an economical operating environment. The existing literature did reference the significant legislative and regulatory benefits of curfew-free operating environments, which our Participants agreed was a significant enabler but was also part of a wider suite of supportive policies. P1 outlined that *"Aviation is as well-regulated in this region as it is anywhere else… it's seen as a top-tier aviation region [with effective] legislation"*. P4 argued that *"by design and without restriction, these three airports have to operate at night…That does not happen in most parts of the world because of night-time curfew, here they have to operate at night to meet the curfews at other end of east and west…there is no operating constraint. If that constraint was there, these hubs would not work"* demonstrating local regulations allowing curfew-free 24/7 operations was significant. P3 similarly argued the positive aspects of such legislation *"Because you're not encumbered by [unhelpful] legislation… curfews and so forth… It's a 24-hour operation… [anti aviation] pressure groups, I don't know if they exist or not, but everyone does what they're told, basically. It enables the legislation to help the carriers be regulatory or otherwise…it also means that they can enforce regulation as well, which is necessary for credibility"*. Aligned to the arguments of Douglas (2019) in the literature, who highlighted this legislative benefit that facilities, free of curfews with space to expand, was largely positive for the MEB3 hubs, especially contrasted against European hubs with curfews and caps imposed limiting their operations and growth.

A major significant theme on regulatory and legislation aspects, highlighted by several participants, was legislation on bilateral access agreements. P2 argued strongly that the MEB3 *"Had aviation policy adjustments at a key point in time where open skies were welcomed as good things."* Noting the further legislative benefit of open skies allowing access to Neighbouring Asian countries with underperforming aviation industries who *"lost out with Emirates, closely followed by Etihad, coming in and swallowing their traffic up… the MEB3 became too established too quickly with networks connecting over 250 destinations from their hubs… fortuitous policies that supported the MEB3 in their development"*. This open skies legislation was also argued as significant by P5 *"introducing open skies, where any airline could fly, certainly into the UAE without having slots coordinated, provided a good opportunity for carriers"*. The benefits and importance of these policies is significant and recognised in wider literature. When considering recent challenges to the MEB3 open skies access arrangements from several American carriers, we observe these carriers consider open skies policy to create an unlevel playing field between the MEB3 and the American aviation sectors (Mouawad 2015).

MEB3 Aviation Business Structure

Aviation Business refers to the ecosystem of companies and organisations which make-up the sector. The data here revealed information related to various elements in the adopted theoretical frameworks (i.e., Porter's Diamond).

Ownership Structure

Invariably common ownership, that was directly tied to the Government of each State and their unified visions for their aviation sectors to be world leading, was a key theme. The significance of this common ownership of key aviation businesses in all three locations was particularly interesting considering the literature review findings. When considering Buzzell (1983),

Redpath *et al.* (2017) and Aquilina-Spagnol *et al.* (2020), who argued that the benefits of vertically integrating the wide range of businesses carrying out the activities of an aviation sector were many. P1 argued *"ownership of the businesses is very centralised… There's a lot of vertical integration, an element of monopoly as well, and the coordination between those companies is enhanced."*. P2 agreed *"It tends to be cooperative. There's a common goal, common decision-making."*. P3 concurred also, detailing the Qatar model as a broadly replicated example across the MEB3: *"Under one model, you've got an airline, an airport, a ground handling company, lounges, all being operated through a single group… it's fairly easy to see the commonality"*. However, P3 did argue that there is *"definitely competition between the airline, airport and handling company, but there is a [common] vision in terms of quality of service and product…which is second to none"*. This competitive tension, with a common vision, was further highlighted as a significant factor by P4, who outlined *"they tend to operate as separate businesses but come together at some point where the overall benefit of the country is considered"*.

Whilst this ownership structure seems well aligned to the findings of the governmental factors and the common sector-wide compelling vision for aviation, with the commonality and single vision, a very significant point was made by P3 that *"Everybody's marching to the same drum… Let's hope we've got the flight plan right because if everyone just moves in one direction... It's got to be the right direction and there could be a disbenefit in that dissent that is not encouraged hugely"*. Highlighting this potential for myopathy is significant because missteps in strategy can be expensive. In wider reading, we observe consequences of this dogmatic vision approach, especially considering the strategy of Abu Dhabi to grow its home carrier Etihad through buying equity partnerships in AlItalia, Air Berlin and Indian carrier Jet Airways, all of whom have been declared bankrupt in the last six years. Goldstein (2019) argued that such a misplaced singular vision was negatively impactful, with the singular vision of Abu Dhabi to invest in these airlines being *"almost uniformly, financially disastrous"*.

Management & Labour Resources

The other major theme emerging around Aviation Business factors was the human resources and management aspects that impacted the MEB3 success. In the literature, we observed with the arguments of both Murel and O'Connell (2011) and Wit (2014), that the creation of a two-tier salary system thus enabled the attraction of high calibre white-collar expatriate professionals, such as pilots and senior managers who benefit from generous perks magnifying the attractiveness of the MEB3 aviation sector to top global talent. P2 argued that the MEB3 *"were very skilled in terms of attracting the right resources to come and do the work for them…they brought in experts and external help to run it and grow the intellectual horsepower required to develop the industry"*. P3 also concurred with this but argued for slight differences dependent on location *"They have the ability to bring in some excellent expatriates and they kept them. They have long longevity. You have people who've been there in situ for donkey's years because they're doing a damn good job. It's a meritocracy [at least] in Dubai. Less so, I think, in Abu Dhabi, but they are moving towards that now too."*

This white-collar intellectual engine was combined with the ability to access plentiful cost-effective blue-collar labour from adjacent South Asian markets. Aligned to the work of Kuljanin and Kalic (2016), which argues the MEB3 benefit from reduced operating costs, especially around labour, when compared to Western counterparts. P3 reinforced this specifically *"another reason it's been so successful here…it's the availability of manpower, particularly the blue-collar level at very reasonable cost…without trade unions, there's very little [labour] disruption"*.

Country Specific Advantages, Homogenisation & Replication

In the final stage of the interviews, Participants were asked to gauge their overall views on replicability of CSA's and whether the MEB3 are homogenised in their approaches or differentiated. Finally, they were asked on what factors they see as critical to be replicated, or are in fact irreplicable, for others wishing to emulate the MEB3.

Country Specific Advantages & Homogenisation

From an external standpoint, the strategies amongst the MEB3, Ellis (2019) argued, are seen as generally a homogenous cluster connecting the world by developing their major international hubs and capitalising on favourable geography. This view of the MEB3 as some sort of clones, at least in terms of strategic development plans and goals, ignores significant differences between them. The Participants interviewed in this research acknowledged differences between the MEB3, but importantly, no participant argued in support of significant differences. P1 specifically argued *"the newer ones are building on the success of the ones that are*

established". P3 concurred *"There will be differences but…. it's generally the same model".* P2 however did argue some strategic choices *"that each of the carriers have made in terms of partnerships and alliances…. are fundamentally different".* P5 argued the models were the same but with a slightly different approach to attract and develop traffic growth*"Dubai has developed something that's attractive for people to visit. Doha has invested in more cultural things such as the World Cup, sporting events. Abu Dhabi has done a little bit of both. It has the Grand Prix. On the world scene, I think they've invested huge amounts in this sponsorship. They've attracted that, and obviously, with that comes a lot of visitors".* P5 summed up the consensus view well *"they follow a similar theme, just slightly different flavours".*

There was a further consensus again? Countenanced geography being the significant CSA. However, P1 developed that *"Those three airports or hubs are not the only ones in the region. The question is why are some considered to be mega hubs and others in the region are not on that level".* This was a key point and P1 argued that the reasoning is the combined aviation business factors working together elevate the MEB3 beyond other regional airports. P1 argued *"the element of having strong businesses, being airline, airport and infrastructure to support them, and the will of the government to make it a priority".* This was firmly supported by P4 who outlined *"the vision, the coordination, and relationship of all the different functions that happen in each of the states … there is a similarity, the way that manifests itself and how they're actively managed is probably slightly different, but the principles are the same".* Thus, we observe strong arguments from our practitioners, that there is a homogenous thread tying the MEB3 together as three strong business units, focused around a driving vision sector wide in each location. However, it is clear from our data that nuanced structures and approaches exist albeit within this fundamental similarity.

Replication

Participants were asked in conclusion about their views on what factors discussed they see as critical to be replicated, or are in fact irreplicable, for other jurisdictions wishing to emulate the MEB3.

"Location, Location, Location" was the initial critical factor view of P5, echoed by P4 *"the geographical location counts for a lot if you want to be a long-haul hub".* However, both similarly argued that focus on delivering differentiated high-quality products to attract business was also critical for replication *"The amount of firsts that, particularly, these airlines have had… they've provided an enviable product which would be very difficult to replicate".* P4 echoed that focusing on *"customer attractiveness"* was an important factor. P2 supported this similarly arguing people travel via MEB3 *"Not because it's cheap but because they've created great products from start to finish".* P2 further argued that accounting for the pace of the MEB3 and the creation of this by their attraction of the global talent, that are their management teams, creating such powerhouse products, would be very difficult to replicate.

In the governance section of this data analysis, Participants outlined the skill of government decision making as a key factor, particularly aligned to a strong national vision, and this theme emerged prominently when our Participants were questioned on replication. Replication of the success of the MEB3 by others *"it would have to be something that starts at the very top of government and is identified as an economic enabler… it would have to be identified as a national priority"* was highlighted by P1, P3 and P5 also concurred on this point.

CONCLUSION

This study has applied a Porter's Diamond model combined with expert's view to show why aviation in MEB3 States is successful. Aviation is an important industry for the MEB3 States. These Governments understood from an early stage that their petrochemical wealth was finite and diversified this to ensure ongoing national benefits. We see from research the breadth of CSA's either present, created or enhanced that supported this diversified vision and helped the MEB3 to become significant in global aviation terms.

This clarity of vision, backed by strong political will, large capital flows and focused decisiveness, has proved a powerful combination for the MEB3 (Fig. 2). Their aviation success is a coalescence of CSAs at a national level. It is this coalescence that capitalised on CSAs, and it is this coalescence that others who are looking to emulate success would need to follow.
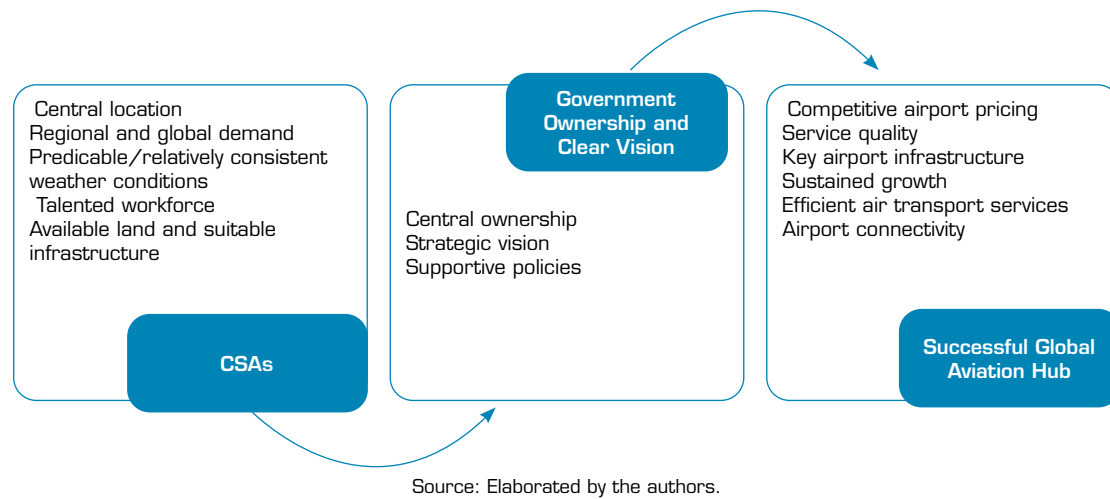
Source: Elaborated by the authors.

Figure 2. MEB3 National Competitive Advantage.

The common MEB3 hub is a long-haul-to-long-haul operation able to link any two global points through a geographically central base. This model has allowed the MEB3 broad access, with the benefit of 6th freedom rights and open skies agreements, to market demand beyond their small domestic population. Geographic centricity was a MEB3 CSA core and, along with economic similarities, naturally contributed with advantages for aviation to become a major regional industry. Consolidating this with further knowledge of demand factors, given small local populations, we can now better understand and define 'hub', and how demand was accessed in an MEB3 context. The findings confirmed a developed emergent theme around geography relative to massive, adjacent, emerging markets. These markets' aviation sectors had not reached the MEB3's investment or maturity levels, and the MEB3 capitalised on this. Additionally, favourable climatic conditions supported predictable and efficient operations for the MEB3 home hubs, giving advantage over western counterparts.

A clear supportive driving hand of Government throughout the aviation sectors manifests not just in policy, but in regulation, business conditions and in the role of ultimate shareholders across the aviation value-chains. Favourable regulations, including no curfews, were key advantages underpinning unrestricted 24/7 operations for the MEB3. The central, compelling, shared, national vision for aviation, in addition to the uncluttered bureaucracy and decisiveness by the MEB3 Governments, was highlighted as a significant CSA theme affecting their success. The comparison drawn by several Participants was given the structure of the MEB3 Government hierarchies, leaders decrees resulted in immediate affirmative action along the decision chain. This was contrasted with European competitors, where many layers of government, regulation and component business were largely unaligned, or had competing priorities, which resulted in inefficiency and slow growth.

The government ownership of businesses across the aviation value-chain in each state was also highlighted as a key success factor. These ownership structures did not stifle creativity or quality, competitive tensions resulted in efficiencies, decisiveness and commitment to a singular high-quality vision and product. These factors were significant to support the scaling of the industries across the entire aviation value-chain to keep pace with growth and demand in the region.

Finally, the MEB3's success in attracting the right calibre resources for their organisations was noteworthy. At the labour level, access to cost-effective, plentiful, blue-collar staff was shown to have significant cost benefits. At a management level, a combination of dynamic business environments and an ability to offer attractive packages drew the best global talent and created *"intellectual horsepower"* that continues to drive these aviation sectors.

Can the MEB3 experience be replicated in other regions?

Few locations can easily replicate the geographic CSAs for global air travel centricity of the Middle East. A key theme emerged though, that MEB3 do not have exclusive hold over the entire region , instead, the addition of their big vision to capitalise on geography and grow their aviation sectors in an ambitious, unified manner, was key.

The support and alignment of Government, regulators and the aviation value-chain, are important for replication. The MEB3 supported this with both plentiful capital investment and a commitment to rapid decision making. This decisiveness must be acted on continually to benefit from regulatory and legislative alignment. Finally, the MEB3 strategies have all been supported by

symbiotic national initiatives to drive tourism and commercial sectors simultaneously, attracting foreign travellers and businesses. These factors enhanced the desirability of the central hub as a midway destination in air travel.

This study responds to a literature gap and helps addressing the scarcity of qualitative research on the drivers of the competitive advantage of the aviation industry in the Middle East. Two areas of future research specifically emerge to widen and extend this study:

• Firstly, undertaking individual detailed case study analysis on CSAs for each MEB3 location. Acknowledging the broad strategic homogeneity highlighted by our Participants, a deepened insight on individual strategic approaches could further enhance knowledge by developing the research via a case study approach.

• Secondly, a study of the parallel development and growth of the major Indian and Asian markets, which occurred alongside the MEB3, would be useful. The intimated underperformance of these aviation sectors referred by our Participants are benefitting the MEB3. Moreover, a study of the recent rapid growth of the Turkish aviation sector and its impact on the sustainability of the MEB3 would provide further insight into the strengths of aviation businesses. This proposes the possible role of chance, aligned to the Diamond model, future research to develop deeper understanding of this proposition may be warranted.

CONFLICT OF INTEREST

Nothing to declare.

AUTHORS' CONTRIBUTION

DATA AVAILABILITY STATEMENT

All data sets were generated or analysed in the current study.

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REFERENCES

Alamdari F (2011) Can Gulf Carriers Sustain Their Current Growth Rate? In: O'Connell JF, Williams G, editors. Air Transport in the 21st Century Key Strategic Developments, England: Ashgate. p. 15-18

Aquilina-Spagnol C, Ellis D, Pagliari R (2020) Viewing the Middle East big three (MEB3) carriers as heterogeneous. Transp Res Rec 51:323-332. https://doi.org/10.1016/j.trpro.2020.11.035

[ATAG] Aviation Benefits Beyond Borders (2021) Middle East. [Internet]: ATAG. [accessed Nov 01 2021] https://aviationbenefits.org/media/167184/abbb20_middleeast.pdf/

Binggeli U, Dichter A, Weber M (2013) The economics underlying airline competition. McKinsey & Company.

Boeing (2020) Commercial Market Outlook 2020–2039. [Internet]: ATAG. [accessed Nov 01 2022] https://asianaviation.com/wp-content/uploads/Boeing-forecast.pdf

Button K (2002) Debunking some common myths about airport hubs. J Air Transp Manag 8(3):177-188. https://doi.org/10.1016/S0969-6997(02)00002-9

Buzzell RD (1983) Is vertical integration profitable. Boston: Harvard Business Review. [accessed Nov 01 2022] https://hbr.org/1983/01/is-vertical-integration-profitable

Cook GN, Goodwin J (2008) Airline Networks: A Comparison of Hub-and-Spoke and Point-to-Point Systems Airline Networks: A Comparison of Hub-and-Spoke and Point-to-Point Systems. JAAER 17(2):1-10. https://doi.org/10.15394/jaaer.2008.1443

Delve S (2014) How the Hub-and-Spoke Model Transformed the Transportation Industry - Inbound Logistics [Online]. Thomas. [accessed Jun 15 2021]. https://www.inboundlogistics.com/articles/how-the-hub-and-spoke-mode-transformed-the-transportation-industry/#:~:text=Using%20this%20model%2C%20transports%20collect,the%20heart%20of%20the-%20network

Derudder B, Bassens D, Witlox F (2013) Political-geographic interpretations of massive air transport developments in Gulf cities. Political Geogr 36:A4-A7. https://doi.org/10.1016/j.polgeo.2012.12.008

Derudder B, Witlox F (2014) Global Cities and Air Transport. In: Goetz AR, Budd L, editors. The Geographies of Air Transport. London: Routledge. p. 118-140.

Doganis R (2013) Flying off course: The economics of international airlines. London: Routledge. https://doi.org/10.4324/9780203976197

Douglas I (2019) Do the Gulf airlines distort the level playing field? J Air Transp Manag 74:72-79. https://doi.org/10.1016/j.jairtraman.2018.09.008

Ellis D (2019) The strategic context of the three major Gulf carriers. Transp Res Proc 43:188-198. https://doi.org/10.1016/j.trpro.2019.12.033

Feiler G, Goodovitch T (1994) Decline and growth, privatization and protectionism in the Middle East airline industry. J Transp Geogr 2(1):55-64. https://doi.org/10.1016/0966-6923(94)90034-5

Gibson WJ, Brown A (2009) Working With Qualitative Data. London: SAGE Publications Ltd. https://doi.org/10.4135/9780857029041

Goldstein M (2019) Etihad's Airline Investments: A Sea Of Red Ink. [Internet]: Forbes. [accessed Nov 01 2022] https://www.forbes.com/sites/michaelgoldstein/2019/05/02/etihads-airline-investments-a-sea-of-red-ink/

Harris N (2009) Systems of Government Monarchy. London: Evans Brothers.

Hooper P, Walker S, Moore C, Al Zubaidi Z (2011) The development of the Gulf region's air transport networks – The first century. J Air Transp Manag 17(6):325-332. https://doi.org/10.1016/j.jairtraman.2011.02.001

Huston JH, Butler RV (1991) The Location of Airline Hubs. South Econ J 57(4):975-981. https://doi.org/10.2307/1060327

Hvidt M (2013) Economic diversification in GCC countries: Past record and future trends (Monograph Report). London: London School of Economics and Political Science. In English.

[ICAO] International Civil Aviation Organization (2016) Manual on the Regulation of International Air Transport (Doc 9626). [Internet]: ICAO. [accessed Nov 15 2022] https://www.icao.int/Meetings/a39/Documents/Provisional_Doc_9626.pdf

[IHLG] Industry High Level Group (2019) Aviation Benefits Report. [Internet]: IHLG. [accessed Nov 01 2022] https://www.icao.int/sustainability/Documents/AVIATION-BENEFITS-2019-web.pdf

[IMF] International Monetary Fund (2021) World Economic Outlook (April 2021) – GDP per capita, current prices. [Internet]: IMF. [accessed Nov 01 2022] https://www.imf.org/external/datamapper/PPPPC@WEO

Joshan S, Maertens S (2020) Low cost carriers in the Middle East and North Africa (MENA) region: Emergence and barriers to development. J Transp Geogr 87:102799. https://doi.org/10.1016/j.jtrangeo.2020.102799

King N (2004) Using Templates in the Thematic Analysis of Texts. In: Cassell C, Symon G, editors. Essential Guide to Qualitative Methods in Organizational Research. London: Sage. p. 256-270. https://doi.org/10.4135/9781446280119.n21

Kuljanin J, Kalić M (2016) The uprise of the Middle East carriers–Emirate's path towards success. Paper presented at: XV International symposium Symorg, Sustainable Business Development. University of Belgrade; Zlatibor, Serbia. p. 1405-1412. [accessed Nov 01 2022]. https://symorg.fon.bg.ac.rs/proceedings/2016/index.html

Maxwell JA, Miller B (2008) Categorizing and Connecting Strategies in Qualitative Data Analysis. In: Hesse-Biber SN, Leavy P, editors. Handbook of emergent methods. New York: The Guil ford Press. p. 461-477.

Morrison WG, Mason K (2016) Low cost carriers in the Middle East and North Africa: Prospects and strategies. Res Transp Bus Manag 21:54-67. https://doi.org/10.1016/j.rtbm.2016.09.005

Mouawad J (2015) Open-Skies Agreements Challenged. [Internet]: The New York Times. [accessed Nov 01 2022]. https://www.nytimes.com/2015/02/07/business/us-airlines-challenge-open-skies-agreements.html

Murel M, O'Connell JF (2011) Potential for Abu Dhabi, Doha and Dubai Airports to reach their traffic objectives. Res Transp Bus Manag 1(1):36-46. https://doi.org/10.1016/j.rtbm.2011.06.004

O'Connell JF, Bueno OE (2018) A study into the hub performance Emirates, Etihad Airways and Qatar Airways and their competitive position against the major European hubbing airlines. J Air Transp Manag 69:257-268. https://doi.org/10.1016/j.jairtraman.2016.11.006

Oliveira P (2019) The Arabian Gulf Economies Asset. New York: Oliver Wyman.

Porter ME (1990) The Competitive Advantage of Nations. Boston: Harvard Business Review.

Redpath N, O'Connell JF, Warnock-Smith D (2017) The strategic impact of airline group diversification: The cases of Emirates and Lufthansa. J Air Transp Manag 64 (Part B): 121-138.

Saxon S, Weber M (2017) A better approach to airline costs. McKinsey & Company.

Tretheway M, Andriulaitis R (2015) What do we mean by a level playing field in international aviation? Transp Policy 43:96-103. https://doi.org/10.1016/j.tranpol.2015.05.007

Vespermann J, Wald A, Gleich R (2008) Aviation growth in the Middle East–impacts on incumbent players and potential strategic reactions. J Transp Geogr. 16(6):388-394. https://doi.org/10.1016/j.jtrangeo.2008.04.009

Warnock-Smith D, O'connell JF (2011) The impact of air policy on incoming tourist traffic: the contrasting cases of the Caribbean Community and the Middle-East. J Transp Geogr 19(2):265-274. https://doi.org/10.1016/j.jtrangeo.2010.04.004

Weston M, Temimi M, Burger R, Piketh S (2021) A Fog Climatology at Abu Dhabi International Airport. J Appl Meteorol Climatol 60:223-236. https://doi.org/10.1175/JAMC-D-20-0168.1

Wit JG (2014) Unlevel playing field? Ah yes, you mean protectionism. J Air Transp Manag 41:22-29. https://doi.org/10.1016/j.jairtraman.2013.11.012

Zuidberg J (2015) Benchmark Study on Airport Charges and Government Levies. Amsterdam: SEO Economic Research. [accessed Nov 01 2022]. https://www.seo.nl/en/publications/benchmark-study-on-airport-charges-and-government-levies-2/