

RESEARCH PROJECT IN AVIATION

A Study on Airports Route Development

(BBAV3012)

Research Project in Aviation

**Bachelor's of Business Administration
(2018-2021)**

By

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Under the guidance of

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GALGOTIAS
UNIVERSITY

JANUARY – APRIL 2021

Certificate of Approval

The following Research Project report titled “**A Study on Airports Route Development**” is hereby approved as a certified study in management carried out and presented in a manner satisfactory to warrant its acceptance as a prerequisite for the award of **Bachelor of Business Administration** for which it has been submitted. It is understood that by this approval the undersigned do not necessarily endorse or approve any statement made, opinion expressed or conclusion drawn therein but approve the Research Project Report only for the purpose it is submitted to the Research Project Report Examination Committee for evaluation of Research Project Report

Name

Signature

1. Faculty Mentor _____

Certificate from Faculty Guide

This is to certify that the project report (**A Study on Airports Route Development**) has been prepared by **Taiba Riaz** under my supervision and guidance. The project report is submitted towards the partial fulfillment of 3 year, full time Bachelor of Business Administration.

Name and Signature of Faculty

Prof. Neha bhatia

Date: JAN- APRIL 2021

DECLARATION

I Taiba Riaz having Admission Number 18SLAM102014 student of BBA of School of Business, Galgotias University, Greater Noida, hereby declare that the project report on “A Study on Airports Route Development” is an original and authenticated work done by us.

We

further declare that it has not been submitted elsewhere by any other person in any of the institutes for the award of any degree or diploma.

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Taiba Riaz

Date

Jan – April 2021

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SUMMARY

This paper provides a much-needed assessment of airport route development practice because whilst route development is a well-known concept within the airport industry, there has been scant academic or industry research on the topic. To develop air services and in many cases tourism flows, airports focus their marketing effort on airlines through a process known as route development. Whilst route development is a well-known concept within the airport industry it has received limited attention in academic or industry literature. As a result little knowledge is shared about why airports use route development, what are the most common methods and what is the general level of involvement. Route planning is the process of identifying and evaluating the feasibility of new routes for an airport by a given airline. Recently, some numbers have been shared on the success rates of new routes. This rate is defined as the percentage of newly developed routes that remain in service one or two years after inauguration. As this rate increases, it indicates that the airline has the capability to properly anticipate new route performance in the short term. One would expect that this rate is on the high side, given that most airlines deploy internal and external consulting resources to study route feasibility before their deployment. Unfortunately, this has not been the case. For several low-cost carriers in the U.S., for example, this rate was in the range of 50-70 per cent, meaning that in the best-case scenario, about 30 per cent of new routes fail. Given the costs and investments associated with developing and deploying new routes, it is uneasy for an airline to have too many failing routes. Understandably, airlines and airports want their businesses to grow. One common mistake among planners is that they rely more on wishful thinking rather than market reality, resulting in a tendency to be over-optimistic in developing route plans. To fill the gap, this paper investigates

airport route development practice using an online survey of 124 airports worldwide. Findings show that the vast majority of airports are actively involved in route development for a range of objectives and that the process and level of involvement is extensive, although this often depends on airport size, location or ownership. Results are particularly relevant to airports that are less advanced in route development activities and also those seeking to debate route and tourism development strategies with stakeholders.

Highlights

- Airports are particularly focused on attracting new routes with new airlines.
- Active and targeted forms of personnel selling are most widely used methods.
- 54 per cent of airports have a dedicated route development team.
- Airports employ an average 3.6 FTEs to work specifically on route development.
- Average expenditure on route development activities is US\$346,645.

This paper provides a much-needed assessment of airport route development practice because whilst route development is a well-known concept within the airport industry, there has been scant academic or industry research on the topic. Through the findings of an online survey of 124 airports worldwide, this paper sheds some light on the objectives of airport route development, the most common methods used, and the general level of involvement. t the vast majority of airports are now actively involved in route development for a range of objectives and that the process and level of involvement is generally quite extensive, although this often depends on airport characteristics such as its size, geographic location, and the way in which it is operated. It is also likely to depend on the strategic focus of the airport and the business

environment within which the airport operates. The findings contribute to the gap in literature on the subject but may also be used by airport management to further develop their own route development strategy and for learning from industry best practice. This will be particularly relevant to airports that are less advanced in their route development activities. It will also be important to airports seeking to debate route and tourism development strategies with their stakeholders. Indeed, a number of respondents provided feedback to a summary of the findings that was sent to them shortly after completing the survey, and one of them commented that: “Some of the results revealed in the survey are very useful and will certainly help airports in their internal discussions on the way they structure and steer their route development activities. It is also helpful to be presented to the airports' shareholders during strategic debates.” Whilst this paper provides an important contribution to knowledge, it has limitations. In particular, the survey is based on responses from just 124 airports with responses concentrated from airports in Europe and North America where route development practice may be more advanced than in other world regions. Nevertheless, the analysis provides a significant information base from which further studies could be developed. This could include both quantitative evaluations using more explicative models, and an additional qualitative approach to get a richer understanding of route development activities. Specific recommendations emerge when considering future research in this important area. The most obvious is to investigate key factors for successful route development including the role that airport strategy and the airport's business environment plays on the relationship between route development practice and performance. It would be worth drawing upon the airline perspective here by investigating which practices have the most influence on their route development decisions and comparing this with the airport view. The focus of this paper is on the airport operator's activities, however,

many airport stakeholders are likely to have an interest or even be actively involved with route development so the role of stakeholders in the route development process, particular those related to the tourism sector, is also worth investigating.

INTRODUCTION

Airports were traditionally considered to be public utilities, and focused largely on facilitating the safe and efficient movement of aircraft and passengers rather than commercial considerations. Airport operators adopted a fairly passive approach to marketing, doing relatively little to encourage customers to use their services. However, in many parts of the world, airports have become more commercially orientated. This, combined with airline liberalisation in many markets, has led to a much more competitive airport industry. An airport has many customers but two of the most important are airlines and passengers, and the marketing techniques used for the two types of customer vary. Airports tend to use traditional approaches when marketing to passengers such as providing electronic and printed information, advertising through a range of media, developing loyalty programmes, offering sponsorship, and holding fundraising events and air shows. However, the extent to which an airport operator by itself can influence a passenger's choice is limited as their decision is primarily determined by the airline services on offer and the location of the airport. Instead, many airports direct much of their attention towards marketing to airlines, and this can arguably have a more significant impact on the success of an airport. Route development is now a well-known concept within the airport industry, and has been accompanied by a growing number of specialist route development consultants. Surprisingly, it has received limited attention in academic or industry literature. This means that little knowledge is shared about why airports use route development, what are the most common methods used, and what resources airports dedicate to it. To fill the gap, this research investigates airport route development practice based on the findings of an online survey of 124 airports worldwide. The findings can be used by airport management to further develop their own route development strategy and to

learn from best practice. Whilst many airport stakeholders can be involved with route development such as regional economic development agencies, destination management organisations or tourism authorities, and Chambers of Commerce or other business associations, the focus of this research is on the airport operator's use of route development. The use of common approaches such as providing publicity information or launching advertising campaigns that create awareness and communicate general messages about the airport. However, in recent years, airports have increasingly used personal selling as a means of targeting specific airlines with the aim of developing a deeper relationship with them. Route development (also known as air service development in some countries) underpins the targeted approach to personal selling. It is a process that seeks to "demonstrate to air carriers that there is sufficient demand, and suitable airport facilities, to profitably operate a route from the airport. Route development has been explained in a number of ways. Define it as the "marketing activities undertaken by airports with the aim of attracting new routes, for example through participation in route development conferences, offering incentive schemes, meetings with airlines, producing bespoke reports for airlines".It "includes the attraction, initiation, expansion, retention, or any improvement of air service and can include changes in pricing, frequency, capacity, hub connectivity, or the number of nonstop destinations served". These two descriptions demonstrate the wide ranging nature of route development, both in terms of its objectives and the methods used. This is not fully apparent with the name itself which arguably suggests a somewhat narrower and simpler approach.

OBJECTIVES OF ROUTE DEVELOPMENT

The most obvious objective of route development is to encourage new airlines to an airport to operate new routes. Identify the air service development cycle where new services grow the traffic, which in turn makes the market more attractive and attracts more services. However, in reality, route development can have a number of different purposes including attracting new routes with new airlines, but also growing existing routes, attracting new routes with existing airlines, retaining existing routes and influencing change to existing routes (e.g. lowering fares, changing schedules, reducing seasonality, upgrading aircraft).

- i) To ensure that the implementation of the navigation infrastructure to support efficient CNS/ATM (Communications, Navigation, Surveillance/Air Traffic Management) system is based on Regional and Global operational requirements.
- ii) To avoid unnecessarily imposing the mandate for carriage of multiple airborne equipment on board or multiple ground systems.
- iii) To avoid the need for multiple airworthiness and operational approvals for intra and inter-regional operations.
- iv) To prevent commercial interests driving the Aircraft and ATM (Air Traffic Management) operational requirements, resulting in unnecessary expenditure for Airlines, ANSPs (Air Navigation Service Providers), States and International Organizations.

- v) To highlight in detail, the Global plan initiatives of ICAO and relevant navigation applications to synchronise and harmonise with global Air Navigation plan objectives.

Airports are competing aggressively for new routes from a variety of airlines with significantly different business models. It is tough to convince an airline on the merits of a new route from your airport. Air services to/from India have historically focused on addressing the Visiting, Friends and Relatives (VFR) and labour markets. And with Indian carriers having placed less emphasis on international operations until recently, sixth freedom airlines have captured a large proportion of the traffic which moves via their hubs.

Route development

A targeted and effective route development strategy is vital to securing long term growth for airports. Working on behalf of airports or governments, we engage with airlines to secure new air routes. Our unrivalled airline industry contacts allow us to access key decision makers, facilitating the efficient presentation of a compelling business case supported by detailed market analysis.

Airport Network Development

Our route development process is multi-staged. Multi phased analysis of the market, economy, catchment and competition identifies gaps in the airports network and determines target markets and ideal airlines to deliver these growth opportunities. We then use our in-house QSI (Quality Service Index) model to produce indicative route

passenger and revenue forecasts, including the potential for transfer traffic. We develop a business case for presentation to a target airline, supported by detailed market analysis.

Route Specific Airline Engagement

- Successful engagement with airlines needs to be focused on:
- identifying and introducing the opportunity
- providing robust traffic and yield forecasts
- setting out key economic and/or leisure indicators that will underpin the proposed services
- providing insights into airline route economics
- Ensuring the route can become financially sustainable within a reasonable timeframe.

And with the growth of the economy and rising income levels, not only is there potential for traffic to accelerate, but the profile of passengers and destinations is also changing fast:

- India is establishing business and trading relationships with a wider range of partners, driving corporate traffic in both directions;
- Outbound leisure travel is growing rapidly and Indians are become more adventurous in seeking to visit new destinations;
- As India's global profile increases and visa processes are simplified, inbound tourism is also rising;

- The Indian overseas student body and diaspora continues to expand, and in new locations;
- Meanwhile Indian carriers are now increasingly focused on finding international destinations to serve.

Research Methodology

Survey design

The survey was administered online using the Quest back Ask and Act survey tool. It consisted of twenty-six, largely closed questions, relating to the three broad areas. The objectives of route development; (2) The route development process; (3) The importance of route development. For instance, that airport route development has broad objectives that include attracting new routes with new or existing airlines, retaining or growing existing routes, or influencing change to existing routes (for instance, to fares, schedules or aircraft). Literature also suggests that airports may have more specific objectives for route development that target particular types of airlines (e.g. mainline, low cost, regional, leisure/tourism charter or private/business charter) or destinations (e.g. domestic, international within the same world region or intercontinental). The survey questions were therefore designed to measure the relative importance of such objectives. The survey was written in English. A participating pre-test of the survey was carried out with 16 experts from industry and academia that have specialist knowledge of airport route development. Respondents were told that it was a draft version of the survey and were asked to provide feedback on the relevance, order and wording of questions, the length of the survey, ease of completion, and any technical issues associated with accessing and completing the survey. Respondents were also asked to provide feedback on the wording of an invitation email that would be sent to airports when inviting them to participate in the survey. Feedback from the

participating pre-test resulted in only minor changes, for instance, to the wording of a few questions and the invitation email. An undeclared pre-test of the revised and final version of the survey was then carried out by sending the survey to managers at five airports that were known to the authors and therefore likely to respond. The survey was delivered in exactly the same way as the actual survey and respondents were not told that it was a pre-test. Responses were received from four airports.

Sampling and analysis

Flight global Pro was used as a sampling frame for the population of world airports. It is a leading information source for the aviation industry, and at the time of conducting this study, provided profiles for 1791 airports worldwide. As selection criteria, only airports on Flight global Pro with a complete profile including an email address and traffic data for the most recent year; 2019, were included. This resulted in a gross sample of 934 airports. Most of the airport email addresses on Flight global Pro are for the general administration of the airport operator, so where possible, airport websites were searched in order to find an email address for named route development personnel or other named personnel (largely airport managers or media contacts. Responses were received from 124 airports resulting in a gross sample response rate of 13 per cent. A greater proportion of responses were received from named route development personnel compared to other named personnel or the general administration. Twenty-one per cent of email addresses for airports in the gross sample were for named route development personnel, 33 per cent for other named personnel, and 46 per cent for the general administration. The net sample has a greater proportion of mid-sized airports, and airports from Europe and North America – possibly because they are more active in route development, and therefore more interested in taking part in the survey. The

findings of the survey are therefore biased towards those airports. Only net sample data has been provided for ownership of the airport operator in Table 1 due to difficulties in finding accurate data for the population and gross sample.

Airport characteristic	Sampling frame	Gross sample	Net Sample	Difference (net – frame)
Size(total passenger, 2019)				
<1 million	66.4	50.1	47.6	18.8
1 million to <5 million	18.6	26.8	29.0	10.4
5 million to <25 million	11.7	17.3	18.6	6.9
25 million or more	3.3	5.8	4.8	1.5
Region				
Africa	7.6	6.0	1.6	6.0
Asia	1.4	12.3	7.3	14.1
Europe	32.4	48.7	58.1	25.7
Latin America	12.8	7.6	3.2	9.6
Middle East	2.1	2.7	1.6	0.5
North America	23.7	22.7	28.2	4.5
				-
Ownership of airports operator				
Public, Administration	-	-	40.3	-
Public, Corporation	-	-	38.7	-
Mixed Public, Private	-	-	9.6	-
Full Private	-	-	11.3	-

Some responses are analysed using inferential statistics to investigate differences, for instance, in responses to questions according to size or geographic location of the airport, or ownership of the airport operator. Tests that have been used are dependent on the variables under consideration and include the Independent Samples t-test, One-Way Analysis of Variance (ANOVA), and Pearson's Chi-Square. Only results that meet

the specific criteria of each test and produce significant differences ($p < 0.05$) are reported in this report. In order to optimise the number of cases in each sub-group, dichotomous categories were created for certain variables. Airport size is dichotomised between smaller airports (with less than one million passengers per annum) and larger airports (with one million or more). Ownership of the airport operator is dichotomised between public airports (with a full publicly owned operator) and private airports (with an operator that is owned by at least part private interests). One question in the survey asks respondents about the extent to which they have used different ways to communicate route development opportunities to airlines during the last 12 months. The question lists ten items (ways of communication) that can be combined to provide an indication of the overall extent to which respondents communicate route development opportunities to airlines.

Planning new routes between airports

Route planning is the process of identifying and evaluating the feasibility of new routes for an airport by a given airline. Recently, some numbers have been shared on the success rates of new routes. This rate is defined as the percentage of newly developed routes that remain in service one or two years after inauguration. As this rate increases, it indicates that the airline has the capability to properly anticipate new route performance in the short term. One would expect that this rate is on the high side, given that most airlines deploy internal and external consulting resources to study route feasibility before their deployment. For several low-cost carriers in the U.S., for example, this rate was in the range of 50-70 per cent, meaning that in the best-case scenario, about 30 per cent of new routes fail. Given the costs and investments associated with developing and deploying new routes, it is uneasy for an airline to have

too many failing routes. Understandably, airlines and airports want their businesses to grow. One common mistake among planners is that they rely more on wishful thinking rather than market reality, resulting in a tendency to be over-optimistic in developing route plans.

Determining route feasibility

Studying route feasibility is mostly performed using a systematic ad hoc calculation process. This process is mostly data driven, relying on estimation and forecasting methods to guide decision makers on the expected performance of routes.

Identifying the route

The first step of the process is pertinent to naming the route to be investigated. As the airline size and the diversification of its fleet increases, one would expect that there are an enormous number of routes that can be investigated as new additions to its network. Airlines that adopt hub-and-spoke network structures typically start and end routes at their hub. On the other hand, point-to-point airlines extend services from any of their current destinations. Airlines need tools that continuously scan all routes and identify a subset that is worth going through a detailed feasibility study. This scanning mechanism should be able to identify the routes that the airline is authorised to fly and have, or could have, the appropriate slots at the origin and destination airports. This identified route could have one or more of the following characteristics: Capacity-underserved during one or more of the seasons, have potential demand growth, fits in the airline's network structure and business model, fleet compatibility, have potential to stimulate new demand, may attract demand from nearby major airports if any, have cargo revenue, is cost effective, and have premium yield. The lack or inaccuracy of this tool

to shortlist potential routes may easily result in an opportunity loss for the airline, especially if a competing airline acts faster.

Identifying the demand

The second step is pertinent to identifying the demand generation for the new proposed routes. In other words, it identifies sources or markets from which demand could be generated. For routes serving as point-to-point, the demand is only generated between the city-pair of the route. For hub-and-spoke airlines, the demand on the route includes the demand to/from the hub (local demand) and the demand to/from the different destinations that the airline is serving beyond the hub (connecting demand). Connecting travellers will be using the proposed route as part of their connecting itineraries. Attention should be given to demand that the new proposed route could attract from adjacent destinations. In addition, demand that could be generated from possible interline agreements (for example, code-sharing) should also be taken into consideration. All characteristics of demand such as purpose of travel (leisure, business, religious, visiting family and friends), income, and age should be identified. The demand of the route in a point-to-point airline network is estimated simply by multiplying the size of the total demand in the local city-pair by the market share of the itinerary representing the route. For a route in hub-and-spoke airline, demand is calculated in a similar way for the local demand. In addition, the connecting demand from each city-pair is estimated by multiplying the itinerary's market share in the city-pair by the size of demand in this city-pair. Then, total demand of the route is calculated by adding the estimated local and connecting demand. An approximated revenue is estimated by aggregating the revenue from the local and connecting traffic.

Identifying the volume

The next related task is predicting the size of each source of demand generation. This task is about predicting how many travellers (or how much cargo) could be travelling in each city-pair that could be generating demand to use the proposed route. In other words, this prediction is for the city-pair that generates the local demand and city-pairs that generate the connecting demand (if any). This demand is estimated regardless of the mode of transport. It includes knowing the historical demand travelling in the city-pair with its growth, seasonally. It also includes estimating the additional demand that could be stimulated or attracted from nearby destinations, when the new route is served. This step is tricky because it is well known that demand is supply-dependent. In other words, the amount of demand that could be stimulated or attracted will depend on the new service (i.e. its price and quality). It is obvious that the ability to accurately determine the demand-generating markets together with their size is crucial for the process' accuracy. One major drawback is when planners rely on a single source for data and a single methodology for predictions. Data sources and prediction methodology could vary significantly, especially in less-developed markets. Thus, it is highly recommended that planners rely on several resources for data collection and demand prediction to minimise any potential bias.

Identifying the competition

The next step in the process is to know the competition. In each city-pair that generates demand (either local or connecting), all competing itineraries are identified. These itineraries could be non-stop or connecting itineraries. Each itinerary is identified by its measurable characteristics including price, number of stops, departure/arrival time, travel time, travel distance, connection duration and location (if any). Other competing

modes of transport such as trains and buses are also identified with their characteristics. When the set of competing itineraries in each city-pair is identified, a methodology is used to estimate the market share of each itinerary. Relying on large sets of historical data, there have been several models developed to estimate the market share of each competing itinerary in a city-pair. These models, which are known as the Quality Share Index (QSI) models, estimate the market share of the itinerary as a function of its measurable characteristics. These models typically vary in the comprehensiveness of their methodology and the accuracy of their results. Again, where possible, planners should adopt more than one model to estimate market shares to minimise any bias.

Implementing a new route

Based on the demand and revenue estimation, and on fleet type availability, the flight frequency and seat capacity can be determined. Accordingly, cost estimation can be performed – crucial for route implementation. This cost typically includes terminal fee, gate-use fees, rental fees, landing fees, cost per enplaned passenger (CPE), fixed-base operator (FBO) charges, and charges for other services. Given the estimated revenue and cost of the route, the calculation of profit margin is straightforward. It should be noted that while the route could be profitable, an airline might decide not to consider it at the current time, if they believe there are other routes that could yield higher profit margins. Implementing a new route, in most cases, requires additional attention and support to make sure that the new route is meeting the planning expectations. In the early phases of the route implementation, it becomes important to observe the route performance including fares, trend of bookings by time and point of sale, customer feedback on service, media coverage, response of competing airlines, and feedback from sales agents. As needed, adjustment in service pricing might be required to attract

and stimulate demand as needed. Airlines should be ready to respond to any competitive actions from competing airlines such as sales campaigns or capacity increases.

Findings

The objectives of route development:

Airports pursue a range of route development objectives. The greatest focus is on the more challenging and high-risk objective of attracting new routes with new airlines. Airports also have a strong focus on growing existing routes, attracting new routes with existing airlines, and retaining existing routes. Larger airports are significantly more focused on attracting new routes with new and existing airlines compared to smaller airports. This may of course be due to there being greater opportunities to attract new routes at larger airports because of their higher level of potential demand. The least focus is on influencing change to existing routes, which is likely to be more of an airline function. Of those that have concentrated on influencing change to existing routes, the greatest focus of change is to frequency (87 per cent of respondents), followed by timing (62 per cent), aircraft type (56 per cent), fare (35 per cent), and reliability/punctuality (29 per cent).

Table 2

Extent to which airports have pursued the following objectives for route development during the last 12 months

Objective	% Respondents					Mean	SD
	N	Great Extent	Some Extent	Very Little	Not at all		
Attract new routes with new airlines	116	62	33	3	2	1.5	.651
Attract new routes with existing airlines	115	57	32	6	5	1.6	.825
Grow existing routes	115	58	29	9	4	1.6	.826
Retain existing routes	115	50	31	16	3	1.7	.827
Influence change to existing routes	113	27	39	23	11	2.2	.953

Mean = 1 'great extent', 2 'some extent', 3 'very little', 4 'not at all'. Significant difference in means according to the Independent Samples t-test: a Smaller (mean 1.6, N 52, SD .771), larger (mean 1.3, N 64, SD .500), $t(114)2.552$, $p.012$. b Smaller (mean 1.9, N 51, SD 1.005), larger (mean 1.4, N 64, SD .545), $t(113)3.693$, $p.000$.

Smaller airports are more focused on regional and leisure/holiday charter services (although the result was not significant) while larger airports are significantly more focused on mainline, low cost and cargo services, and to foreign destinations. This is to be expected given the more limited market and potential for demand at smaller airports, which means that their focus is more likely to be on regional airlines that operate smaller aircraft or leisure/holiday charter services that tend to operate on a seasonal and less frequent basis. The latter allows tour operators to fill larger aircraft at peak periods on inbound or outbound services to tourism destinations. The focus of larger airports on scheduled mainline or low cost services to foreign destinations is reflective of the larger markets that they serve and the greater potential for demand. Focusing on operators of larger aircraft and longer routes provides the opportunity to serve more passengers per aircraft movement – something that is particularly important for airports that have capacity constraints (e.g. on slots or runway use). It also generates increased passenger throughput and longer dwell time in the terminal, which subsequently offers opportunities for increased commercial revenues from passenger expenditure (e.g. in shops, cafes and restaurants).

The route development process

Marketing research plays an important role in the route development process. Ninety-five per cent of airports stated that they had provided and presented airlines with market research to prove potential for route development during the last 12 months; 60 per cent 'to a great extent', although that figure varies according to airport size with 52 per cent

for smaller airports compared to 77 per cent for larger airports. The more limited internal resources and expertise at smaller airports. National statistics offices are the most widely used individual source of data for airport route development purposes, and are a useful and often free source of data on catchment area characteristics. Collectively, the most widely used sources are of true origin and destination demand and schedules data such as Sabre, OAG, IATA, Innovata, ICAO and DIIO (see Fig. 1). Published forecasts and reports and national aviation authority data such as from a civil aviation authority or government department are also widely used. A large proportion of airports have used 'other' sources including government/immigration records, BEONTRA, data from consultants, internal airport records, MIDT, ARC, CAPA, Data Miner, Flight global, travel surveys, tourism/Chamber of Commerce data, IATA PaxIS and PTM data. Most airports use a range of data sources for route development purposes. Almost 85 per cent have used two or more of the sources listed in Fig. 1, whilst almost 20 per cent have used five or more.

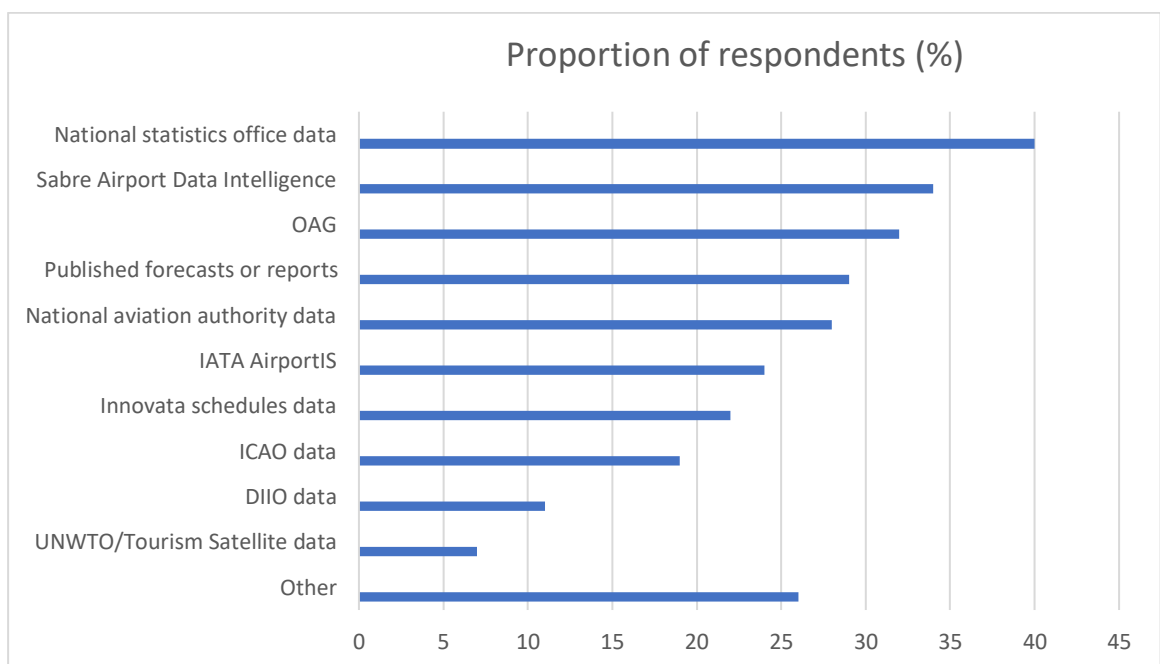


Fig. 1. Data sources used by airports for route development purposes during the last 12 months.

Airports then use a range of tools to analyse the data. Almost 90 per cent of respondents have used at least one tool during the last 12 months. The most common tool used by 71 per cent of respondents is a market stimulation forecast – a forecast that is typically based on knowledge of similar routes, 51 per cent used traffic allocation models (e.g. for route opportunities that compete with existing routes at local competing airports), and 38 per cent used QSI or connection builders (e.g. for assessing connecting traffic potential versus competing hubs). Sixty-four per cent of respondents also used surveys during the last 12 months to identify opportunities for route development. The most common groups surveyed by airports are passengers (88 per cent of respondents), businesses (60 per cent), airlines (28 per cent), travel trade (26 per cent), and residents (25 per cent).

The greatest focus of airports is on providing airlines with information about the airport's catchment area such as population, travel propensity, demographics, business/tourist activity, and surface transport. This is followed by information about marketing support that may be available such as fee deductions or incentives, joint advertising campaigns, and sharing of market research, route forecasts such as on the nature of traffic, traffic forecasts, simulated traffic, schedule and load factor, and airport facilities and profile such as infrastructure, services and other airlines at the airport. Airports have less focus on providing a financial evaluation, for instance, on operating costs per block hour, yields, forecast revenues, costs and profits. This finding is consistent with the findings supports his argument that airlines are generally not influenced by the financial evaluation of routes by airports – something that they are

likely and more able to do themselves – and that instead, airlines are more influenced by information about the airport's catchment area characteristics, marketing support that may be available, and the airport's profile and facilities. Such information is often made publicly available by airports, and presented on a business-to-business section of their website.

The importance of route development

Route development appears to have been given a much higher profile within airports during the last few decades. It would have been difficult to find an airport with a specific team employed to conduct route development activities 20 to 30 years ago, that over half of airports responding to the survey have a route development team, of which 44 per cent have a route development team based at the airport itself, and 10 per cent have a route development team based within the head office of the airport authority. This is especially the case for airports operated by private interests where 86 per cent of airports have their own route development team compared to just 47 per cent of airports operated by public interests. The airport manager and/or a deputy manager is responsible for route development activities at a large proportion of airports (32 per cent), and this is especially the case for smaller airports where the figure increases to 54 per cent. Fourteen per cent of all airports come under 'other', where the main responsibility for route development is either with another department at the airport, another department based within the head office of the airport authority, consultants, or as a partnership with a promotion board or regional development agency. The use of consultants was only reported for smaller airports operated by public interests. The human resources devoted to route development activities have increased in recent years. 116 airports responding to the survey provided data on the number of employees

(nearest average number of full-time equivalents/FTEs) that worked specifically with route development in 2013 compared to 2008. Airports have experienced an overall increase in route development FTEs of 15 per cent during the last five years. The number of FTEs has increased at 42 per cent of airports, remained the same at 47 per cent, and declined at 11 per cent. Sixty-nine airports responding to the survey provided data about expenditure on route development. The average expenditure on route development (excluding personnel costs) is US\$346,645.

Approach

- Analysis of route-wise traffic flows, supported by our database on the impact of new services on traffic stimulation
- A strategic filtering process
- Detailed catchment area analysis to understand the economic drivers of traffic
- Consultative primary research amongst travel agents, OTAs, tour operators, travel management companies, tourism boards and hotel companies to understand traveller behaviour, preferences and trends
- In-depth engagement with the leading distribution channels to understand price sensitivity, seasonality and booking patterns
- Benchmarking of destination attributes in both directions e.g. variety of attractions and activities, cost and quality of accommodation, challenges with food or language, visa policy, safety and security etc.
- Assessment of transfer opportunities and the impact of alliances and codeshares
- Knowledge of the network and fleet plans of prospective airline operators and their strategic priorities

- Understanding of the government’s bilateral policy settings and their likely direction
- Prioritisation of potential routes and airline operators
- Financial modelling of airline route feasibility
- Identification of critical risks and associated mitigation strategies

The Post-COVID-19 Flight Plan for Airlines

The airline industry has been hit extremely hard by the COVID-19 crisis—even harder, perhaps, than by the events of 9/11 and the 2008 global financial crisis put together. With unprecedented consequences, many airlines have grounded all, or almost all, of the planes in their fleet. Several are now flying passenger aircraft as freighters. Most of the commercial, network, and operations teams are still scrambling to repatriate passengers and decide which flights to keep. Meanwhile, executives are in touch with governments, employee representatives, and suppliers to formulate responses under very dynamic circumstances. When flying through such turbulence, it’s critical to focus on the horizon. Therefore, we propose a data-driven, action-oriented, and digitally supported “flight plan” to help airlines emerge stronger from the COVID-19 crisis. Our flight plan for the new normal takes into account various air travel demand scenarios (which are in part a function of the duration of the COVID-19 Crisis) and airline market structure scenarios (shaped by, for example, airline failures, government intervention, and consolidation).

DURATION OF THE COVID-19 CRISIS

The most critical question today concerns the duration of the crisis in light of government responses and the progression of the virus. While we would all like to believe that the crisis will resolve within a matter of weeks, the reality is that we don't yet know how long it will last. What's more, the duration is likely to differ by region and by country. So, for now, we are considering various scenarios and observing key indicators to learn which of those scenarios are most likely to occur. For example, we are tracking the spread of the virus by country and gauging the responses by governments, including the type and duration of travel restrictions and the specific conditions under which they might be relaxed. We are also monitoring indicators that measure consumer sentiment, such as internet searches. Also, we expect that governments might begin imposing specific limitations for inbound and outbound passengers, including requirements before boarding (similar to the security measures put in place after terrorism events), such as mandatory health screenings or certificates.

DEMAND RECOVERY SCENARIOS

Closely related to the duration of the crisis is the question of how quickly—and to what extent—air travel demand will recover. Data from previous crises, such as the SARS epidemic and the events following 9/11, shows how long it has taken the industry historically to return to precrisis levels. However, forecasts for the current crisis indicate that the duration and impact will be much more severe than any we've seen before. In mid-March, the International Air Transport Association (IATA) forecast a loss of \$252 billion in revenue—44% of 2019 revenue. As a result, the industry may have to manage structural demand changes (such as the state of the economy—depression, recession, and rebound) and megatrends (such as the dramatic rise in remote

working, more locally oriented supply chains, and a focus on sustainability). In addition, health concerns might initially curb passengers' inclination to fly. We expect to see differences, in terms of duration and impact, between business and leisure travel for both short-haul and long-haul trips. For business demand, we expect a relatively quick rebound (in both short-haul and long-haul) as business travelers try to reestablish their businesses. However, the level of rebound will depend on the state of the economy and any long-term structural impact of remote working practices, which has yet to be determined and which will have to be assessed with consumer research. For leisure demand, we may see a distinction between short-haul and long-haul. For short-haul, we expect that many passengers will want to get away on trips after being housebound for weeks or months, once they are reassured that flying and traveling are safe again. Long-haul leisure usually takes more time to plan, so it is likely to rebound more slowly. Our flight plan for the new normal must take these differences into account, especially when making network and fleet decisions, as well as planning for the initial rebound after markets reopen. For now, we are tracking five potential scenarios: one, at this point, seems highly unlikely to occur; the other four are all possible, with the prolonged U-shape being the most likely, in our view. We are also tracking the indicators necessary for any given scenario to become reality. This model allows us to forecast the demand outlook as accurately and dynamically as possible.

MARKET STRUCTURE

An important component of our flight plan involves assessing the market structure in the airline industry after the COVID-19 crisis. Which airlines will survive, and what will they look like? What will be the role of governments? Do we expect to see any consolidation? Again, we must consider different duration scenarios. But we believe

that, under any scenario, the industry will be forever changed, much as it was after 9/11 and the 2008 crisis. To predict the market structures that could arise given the different duration scenarios, we first take into account airlines' starting positions in terms of liquidity and balance sheet strength. Then, to predict viability, we factor in potential government support as well as any given company's ability to adjust the cash-out. Predicting which airlines that governments will choose to continue to support for more than a few weeks or months is complex. For example, it might be challenging to encourage governments to invest in airlines that are based in other countries—such as carriers that are part of airline groups. Governments may well want to support investment in their own country's airline while ensuring that they do not support (whether directly or indirectly) airlines elsewhere. They may also need to consider the question of fairness when multiple airlines in a particular country require support. And beyond government support and market concentration (as a result of some airlines failing because they could not gain support from governments or other investors), there might be some consolidation opportunities, particularly as the industry rebounds. We expect the changes in regions, and the countries within them, to differ significantly, largely because of the variation in governments' responses to the crisis and the types and levels of support they offer. For example, in Europe, several countries have announced support for airline employees, which is helping companies to drastically reduce their employee costs. Similar support has been, or likely will be, offered (whether to employees directly or to companies) in the Middle East and some Asian countries. The US is offering a rescue package for all carriers that comprises a mix of payroll grants and loans. We also expect airlines to differ within each region in terms of financial health, probability of benefiting from government support, and both willingness and ability to participate in consolidation or fragmentation. In Europe, for

example, several airlines that are part of an airline group were in relatively strong health as the crisis started. These companies are likely to receive government support because of their importance to the economy, and they could be the ones driving consolidation efforts. We also expect that smaller flag carriers, which have an important economic role beyond employability, will continue to receive either direct or indirect government support during the crisis, but we think that those airlines are unlikely to drive consolidation as buyers. Larger low-cost carriers (LCCs) were in strong health going into the crisis and may not require support (or, if they do, may need the support of multiple governments). For small airlines and tour operators, the level of support will depend to a greater extent on whether respective countries provide support to employees more broadly and whether those countries want or need to avoid favoring one airline over another.

We think that, in North America, there will likely be different outcomes for a wide variety of airlines—large network carriers (such as Delta Air Lines, United Airlines, and American Airlines), nationwide LCCs, smaller airlines, and independent feeders. (Compass Airlines is the first independent feeder to announce that it will cease operations; it will do so by April 7). Taking all these factors and hypotheses into account, we have defined three potential market structure scenarios. One is an extreme version that could play out in Europe and Asia if the crisis continues for longer than expected. In that scenario, the industry regresses with a drastic reduction in the number of airlines, leaving a number of national carriers (with government ownership) and only the strongest LCCs.

A SUCCESSFUL FLIGHT PLAN FOR THE NEW NORMAL

Armed with scenarios and data, and able to adjust for the nonstop flow of updates, our flight plan will help airlines succeed in the new normal. Though it is sufficiently dynamic to adapt to new circumstances, it offers stable guidance when it comes to fundamental, structural changes in the size and shape of an airline.

According to the flight plan, airlines should take the following actions:

- They should start by determining the optimal size and dimensions of their networks and fleet, and they should do so within the next few weeks. They should make big decisions—including which fleet types to recommission first and which routes are most likely to recover—on the basis of several demand and market structure scenarios and while optimizing for free cash flow. Digital support tools can provide network and fleet teams with the data-driven, granular simulations that help companies make the right big decisions on short notice.
- At the same time, airlines should consider M&A and consolidation opportunities. We expect that leading airline groups will be reviewing options, including potential divestitures and the sale or purchase of minority equity stakes.
- The next step is to resize and restructure the operating model and organization using a zero-based approach, which can be done in a matter of weeks. For example, BCG helped one global network carrier to redesign the entire organization—including process redesign, organization size, and structure—in four weeks. The same approach can also be applied to procurement (in order to

manage external providers) and technology. This work adds value that will remain well after the crisis is over.

- Airlines should also prepare for ramping up, once airports and countries reopen. Our work with several leading carriers reveals that the period of ramping up will be even more challenging and dynamic than the one for ramping down. Network redesign (which typically occurs from 4 to 13 times a year, with time to subsequently validate and hand over the schedule to resource providers) will now likely have to be done weekly. What's more, the time between developing and implementing the plan may be only a week or two—and will have to be accomplished despite the displacement of aircraft and staff. Designing this process, and again leveraging digital tools to make the right tradeoffs, will be a major challenge that airlines will need to address as soon as possible.
- Finally, of course, finance teams will need to be closely involved to protect cash levels, capture revenues as soon as possible, and delay cash-outs as much as possible. Airlines should establish a project management office to manage cash until the environment stabilizes and regular financial processes and routines can be implemented once again.

These are turbulent times for airlines, yet the industry's response so far has been nothing short of impressive. Companies that take a data-driven, action-oriented, and digitally supported approach will have the best chance to emerge stronger from the COVID-19 crisis.

How Indian Aviation Has Been Changed by Covid-19?

On 23rd March, 2020, the Indian government announced that all passenger flights would be suspended with effect from midnight the next day. After a flurry of last-minute travel, flights were grounded from March 25, the same day a country-wide lockdown was imposed. This ban lasted two whole months and even today some restrictions apply to domestic operations, with international flights still curtailed. India is known to be a highly competitive market consisting of price-sensitive consumers, which has seen low-cost carriers flourish and full-service ones struggle. 2019 wasn't the greatest year for Indian carriers either, with most reporting losses in a year that was largely-successful globally. Losses began quickly mounting after the lockdown. Airlines quickly began placing large parts of their staff on leave-without-pay and switching to cargo operations. The second quarter of 2020 (during which flights were grounded for two months) has been one of the worst of airlines on record, with IndiGo reporting a 92% revenue drop. Despite the crisis, no major Indian airlines have collapsed or even suspended operations fully. In fact, airlines have quickly ramped up capacity once domestic flights restarted and participated in the Vande Bharat Mission. While the long-term effects are yet to be seen, it's commendable that no airline has shut down despite all of them reporting losses in the last year. However, a crisis of this magnitude will have a larger market impact. Industry growth will likely be a lot much slower in the next few years, having a ripple effect on plane orders and general expansion. It will be, optimistically, a few years before the industry returns to its double-digit growth, and that is assuming a vaccine is available in the next year.

The government estimates that domestic capacity will be down by 50% and international slightly more. CAPA's estimates are bleaker, with domestic traffic down 60%, international 70-80%, and 30% of the aviation workforce being laid off. If these figures are accurate, India will be left with a surplus of aircraft, a once-unthinkable idea. In the middle of all of this, Indian carriers have been drawing up plans to expand their operations. The Vande Bharat Mission (VBM) may have opened up new route options for carriers in the long run, an invaluable piece of market insight. VBM has been a significant boost to airlines, allowing for some international flights and much-needed revenue. In the short term, low-cost carriers IndiGo and SpiceJet have considered starting long-haul flights to Europe, taking advantage of the repatriation traffic. SpiceJet has already teamed up with wet lease provider Hi Fly to start one-off long-haul flights. Meanwhile, Vistara has also begun its long-awaited international flights, flying to London for now, and next to Frankfurt and Paris. The current crisis has revealed underserved parts of the market, especially international routes. This will be invaluable to future expansion for Indian carriers, who seem to be willing to jump at the chance after the crisis. Foreign airlines have picked up on this trend too, with United Airlines adding two new routes from Delhi and Bangalore this week to Chicago and San Francisco, respectively.

Examples of new route development experience

Air Mauritius

To develop a 10-year business transformation plan for the national carrier of Mauritius. This included an in-depth review of the airline's current global network, and a clean sheet approach to recommending the routes that Air Mauritius should operate over the next 10 years based on analysis of the outlook for tourism flows, sixth freedom transfer

opportunities, ability to capture feed from interline and codeshare partners, and the performance of new aircraft types.

Vancouver Airport

We were engaged to evaluate the potential of the Canada-India market as whole and the route economics, supported by financial modelling, for direct services from Vancouver. The study was successfully used to support Air Canada's decision to launch Vancouver-Delhi non-stop services, initially 3x weekly and now operating daily.

Perth Airport

CAPA was appointed to develop customised business cases to present to Indian carriers to launch services to Perth in Western Australia. The business cases comprised extensive qualitative research and quantitative analysis, traffic projections, a route financial model, and an innovative tourism product development and marketing strategy.

Recommendation and Conclusions

This research paper provides a much-needed assessment of airport route development practice because whilst route development is a wellknown concept within the airport industry, there has been scant academic or industry research on the topic. Through the findings of an online survey of 124 airports worldwide, this paper sheds some light on the objectives of airport route development, the most common methods used, and the general level of involvement. However, readers should note that the findings are biased towards mid-sized airports and airports . The results demonstrate that the vast majority of airports are now actively involved in route development for a range of objectives and

that the process and level of involvement is generally quite extensive, although this often depends on airport characteristics such as its size, geographic location, and the way in which it is operated. It is also likely to depend on the strategic focus of the airport and the business environment within which the airport operates. The findings contribute to the gap in literature on the subject but may also be used by airport management to further develop their own route development strategy and for learning from industry best practice. This will be particularly relevant to airports that are less advanced in their route development activities. It will also be important to airports seeking to debate route and tourism development strategies with their stakeholders. Indeed, a number of respondents provided feedback to a summary of the findings that was sent to them shortly after completing the survey, and one of them commented that: “Some of the results revealed in the survey are very useful and will certainly help airports in their internal discussions on the way they structure and steer their route development activities. It is also helpful to be presented to the airports' shareholders during strategic debates.” Whilst this paper provides an important contribution to knowledge, it has limitations. In particular, the survey is based on responses from just 124 airports with responses concentrated from airports in Europe and North America where route development practice may be more advanced than in other world regions. Nevertheless, the analysis provides a significant information base from which further studies could be developed. This could include both quantitative evaluations using more explicative models, and an additional qualitative approach to get a richer understanding of route development activities. Specific recommendations emerge when considering future research in this important area. The most obvious is to investigate key factors for successful route development including the role that airport strategy and the airport's business environment plays on the relationship between route development practice and

performance. It would be worth drawing upon the airline perspective here by investigating which practices have the most influence on their route development decisions and comparing this with the airport view. The focus of this paper is on the airport operator's activities, however, many airport stakeholders are likely to have an interest or even be actively involved with route development so the role of stakeholders in the route development process, particular those related to the tourism sector, is also worth investigating. Up until comparatively recently, route development was primarily considered to be an airline function, and airports largely responded to requests from airlines rather than proactively seeking their business. Few airports practised the art of route development. This paper shows that airports have clearly entered a new era in route development practice that is underpinned by intelligence based and highly targeted and proactive approaches, especially to personal selling, and from a growing and dedicated team of airport route development personnel. This relatively new area of airport management is likely to spread and continue to evolve as more airports worldwide seek to develop their provision of air services and expertise in route development.

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