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## SUSTAINABLE AIR TRANSPORT OPERATIONS ACROSS THE HIGHLANDS & ISLANDS OF SCOTLAND

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### SUMMARY

*This paper explores the origins of formal aviation services to the remote and rural communities in the Highlands and Islands of Scotland before examining the challenges facing one of the airports in the region, Dundee. Analysis of the constraints on the airport and the competition it faces is balanced against possible areas of opportunity in which it could exploit an offering serving both the local community and wider business, including tourism. The exploration of the social, business and political environments in which it has to operate has implications for the operation of air services to similar remote and rural communities around the globe.*

**Keywords:** Aviation, airports, business

### INTRODUCTION

The advent of formal aviation services to the remote and rural communities in Northern Scotland started in the early 1930's with the formation of two airlines, one based in Glasgow and serving the west coast and Western Isles and the other based in Inverness serving the Northern Isles.

Midland and Scottish Air Ferries (M&SAF) was formed in 1932 and established air routes on the mainland and out to the west coast and the islands of the Inner and Outer Hebrides. The airline was based at Renfrew, south-west of Glasgow, close to the site of the modern Glasgow International Airport [Cameron, 1990]. The first scheduled airline flight in Scotland was performed by M&SAF on Tuesday April 18<sup>th</sup> 1933 when newspapers were carried from Glasgow to Campbeltown, meaning that they arrived in time for the community to enjoy 'the unusual luxury of reading the day's news at the breakfast table' [Clegg, 1990]. This is a hint at the real benefit of aviation to the remote communities of the Highlands and Islands of Scotland; the provision of services hitherto unavailable or previously more time-consuming.

On the east coast of Scotland, Highland Airways was formed by Capt. E.E. 'Ted' Fresson and commenced operations by flying newspapers and passengers from Inverness to Kirkwall in the Orkney Islands on May 8<sup>th</sup> 1933 [Fresson, 2008]. Once again the routes expanded quickly to Fair Isle and to Shetland, carrying passengers, newspapers, mail and medical emergencies from and to the mainland.

A recent review of the historical and socio-cultural effects of aviation on the Northern Isles shows that 'interestingly, the effects of the air ambulance service in the Northern Isles were more far reaching in the inter-island connection than in the link with the mainland, including Aberdeen and Inverness. Taking Orkney as exemplar, statistics from the Medical Officer of Health's report for Orkney in 1938 show that there was a considerable leap in

lives saved, particularly of children under one year, with the advent of the inter-island ambulance service at the end of 1933' [Hedde, 2009].

From these early beginnings came the air transport network which now connects the remote and rural communities of northern Scotland. The early airlines went through mergers and takeovers until Loganair took over the mantle of the community air service provider in 1962. Loganair continues to operate services today under franchise to FlyBe [Hutchison, 1987].

The airports and landing sites pioneered by these airlines now fall under the custodianship of Highlands and Islands Airports Limited (HIAL), which came into existence in 1986 and now has responsibility for eleven Scottish airports located at Barra, Benbecula, Campbeltown, Dundee, Islay, Inverness, Kirkwall, Stornoway, Sumburgh, Tiree and Wick, as shown in Figure 1. HIAL's mission is to provide and operate safe, secure and efficient airports which support the communities they serve. They aim to develop sustainable air connectivity that supports socio-economic development in Scotland [www.hial.co.uk]. It is to one of HIAL's sites, Dundee Airport, that this study is addressed.

A global sustainable aviation industry relies on the effective and efficient integration of a broad range of air transport functions and the associated collaborative inter-relationships between aviation companies, organisations and academia. The question right now is "is it working?" Such integration and inter-relationships strive for cohesion and harmonisation within a commercial sphere that is highly competitive and an operating climate that can be volatile and is often high-risk, but the rewards can also be high. Consequently, in an air transport industry that is predicted to grow rapidly through to 2030, there is a massive incentive to build not only capacity but enhanced capability in areas that contribute to a positive improvement in aviation sustainability. In doing so, linked strategies should be bringing changes that influence local, national,

regional and global economic growth as well as environment sustainability.



Fig. 1: The HIAL Airports in Northern Scotland [www.google.com, www.hial.co.uk]

This paper explores strategies for the development of sustainable air transport to provide improved connectivity between remote communities and their regional centres. The core of this research is centred on a particular case in the Highlands and Islands of Scotland with a view to producing a generic model that would have application to other remote communities across the globe.

**STRATEGIC ANALYSIS OF DUNDEE AIRPORT**

Dundee Airport [2014] started in the 1950s as ‘Riverside Park’ with a grass field runway. An asphalt runway of 900m was built in the 1970s. This was extended to 1100m in 1984, and to 1400m in 1995, anticipating the handling of more than 150,000 passengers per. This runway length allows Dundee Airport to handle a wider variety of aircraft, however, it is still a small airport compared to major airport hubs like London Heathrow, which can handle 191,200 passengers per day and with the runway length of 3600m. In 2000, the air traffic control system was updated with all-weather capability to navigate aircraft that significantly increased traffic. However, Dundee Airport, then operated by Dundee City Council, experienced a loss of more than £2 million per year from 2004 to 2007 [Transport Scotland, 2013]. In December 2007, Highlands and Islands Airports Limited (HIAL) took over Dundee Airport from Dundee City Council [HIAL, 2014]. In an effort to reverse these losses, HIAL has been investigating new and alternative business strategies.

The sustainability of Dundee Airport has been evaluated by analysing its external and internal environment position through strategic tools such as PESTEL, Porters Five Forces and SWOT analysis.

**RESULTS AND DISCUSSION**

**PESTEL ANALYSIS**

**Political:** The Scottish Government is a key stakeholder and supports Dundee Airport financially. This emphasises their importance in the availability

of funds for implementing any new strategy or for any infrastructure modification at Dundee Airport.

**Economical:** According to the BBC News [2014], the UK is the fastest growing economy with a 3.2% increase in GDP, compared to US at 2.2%. This suggests that people are spending more on products and services, which in turn increases the production of products. Dundee also has a significant economic growth. The Dundee Strategy and Action Plan for the period 2013-2017 [Dundee Partnership, 2013] emphasizes significant growth in business and tourism in 2012, as compared to 2010 (as shown in Table 1), suggesting more business and leisure customers are coming to Dundee. The sustainability of Dundee Airport also depends upon the economic growth of adjacent regions such as Perth and Kinross and Fife. Perth and Kinross Council (2015) and Fife Council (2015) highlight that there is economic growth in those regions. Thus, the change in the economy suggests a favourable position for the sustainability of Dundee Airport.

Table 1: Dundee’s Economic Strategy Growth Sectors. [Dundee Partnership Work & Enterprise Group, 2013]

	Companies		
	2010	2011	2012
Food and Drink	25	25	25
Financial and Business Services	350	365	370
Life Sciences	25	20	25
Energy (including Renewables)	30	30	30
Sustainable Tourism (Tourism related Industries)	350	335	360
Creative Industries (including Digital)	215	210	215
<b>Total</b>	<b>990</b>	<b>985</b>	<b>1,030</b>

**Socio-cultural:** Socio-cultural change is explored to analyse how many potential customers are there for the product or service offered by an organization and also to analyse whether those products or services will satisfy the need of the customers [Barney and Hesterly 2012:49]. A profound socio cultural change is the desire for a comfortable and luxurious lifestyle. Additionally, they believe time is money and want to save time in each of their activities especially journey time. The International Air Transport Association (IATA) announced there is a strong increase in the global passenger traffic. Total revenue passenger kilometres (RPKs) rose 8.0% in 2014 as compared to January 2013 [IATA, 2014]. However, the passenger demand at Dundee Airport has been so as to result in the cessation of City Jet flights operated between Dundee and London City.

**Technological:** The proliferation of internet presence enables a broader reach for the marketing of services. Websites are needed to keep pace with competitors. Dundee Airport has its own website that provides information about its aircraft refuelling facility, local attractions and other booking information to provide a presence in this competitive market. To appeal to a broader customer base further infrastructure developments are needed, both airside (to handle larger aircraft) and in the terminal (to provide a level of service for luxury travel).

**Environmental:** Extending the runway length of Dundee Airport could increase both General and

Commercial Aviation. However, this is not feasible (at a reasonable cost) due to the geographical location of Dundee Airport (located on the shore of the Firth of Tay). Additionally, General Aviation operators prefer nearby airports, such as Edinburgh Airport or Royal Air Force (RAF) Leuchars during bad weather conditions.

**Legal:** The current strategy of HIAL has a specific consideration of meeting the requirements of regulatory authorities including: Scottish Government; the Civil Aviation Authority (CAA); the European Air Safety Association (EASA); IATA; and International Civil Aviation Organisation (ICAO). All operations at Dundee Airport are, and must be, in accordance with the standards set by the regulatory authorities. Legal changes could have an impact on the operation or income of Dundee Airport. For example, the pricing rule set by the regulatory authorities limits the maximum amount that an airport can charge the General Aviation aircrafts using its facilities [Civil Aviation Authority 2014] and Dundee Airport must follow these rules (which limit profit) as a breach may lead to cancellation of its airport license.

**PORTERS FIVE FORCES**

This analysis examines the power of buyers and suppliers, the threat of new entrants or substitutes and competitive rivalry of Dundee Airport. Figure 2 highlights the severity of impact of Porter Five Forces on Dundee Airport. The Power of customers, Power of suppliers and Competitive rivalry have high impact on Dundee Airport, and these will be discussed further.

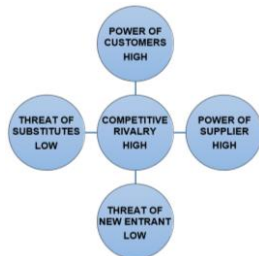


Fig. 2: Impact of five forces on Dundee Airport.

**Power of Customers:** The power of the customer buying the services of Dundee Airport is high because of the availability of alternatives such as Edinburgh Airport and RAF Leuchars. Additionally, the web presence of all three allows customers to choose the airport that is nearer to the destination or provides better or more appropriate facilities. Dundee Airport has tried to provide various facilities, such as a VIP lounge, aircraft refuelling and cleaning facilities, to mitigate the power of customers.

**Power of Suppliers:** The power of suppliers is high because passenger demand dictates whether routes are viable, as with the cessation of the City Jet route between Dundee and London. However, the London route will be reinstated with Loganair, operating twice daily during weekdays and once on

Sunday [Flybe, 2014]. Attracting the suppliers (airlines) remains a major issue for the sustainability of Dundee Airport.

**Competitive Rivalry:** The main competitors of Dundee Airport are RAF Leuchars and Edinburgh Airport.

**(a) RAF Leuchars:** RAF Leuchars is now a civil airport that allows General Aviation aircraft on an ad-hoc basis and has a runway length of 2585metres. It can thus handle larger-sized aircraft and it is nearer to some tourist attractions, such as the golf courses at St. Andrews. Airport charges (aircraft parking fee, passenger charges, and other facility charges) are more expensive at RAF Leuchars, where there are also none of the wider facilities currently provided by Dundee, as shown in Table 2.

Table 2: Comparison of the facilities offered by the airports to the General Aviation Customers.

Facilities offered to General Aviation	Airport		
	Dundee	RAF Leuchars	Edinburgh
Aircraft refuelling	YES	YES	YES
Aircraft de-icing	YES	NO	YES
Cleaning	YES	NO	YES
Free Wi-Fi	YES	NO	YES
Conference room	YES	NO	NO
VIP lounge	YES	NO	YES
Hotel	NO	NO	YES
Restaurants	YES	NO	YES
Website	YES	YES	YES
Onward transport	YES	NO	YES
Event arrangement	YES	NO	NO
Helicopter use	YES	NO	YES
Baggage handling	YES	NO	YES

**(b) Edinburgh Airport:** Edinburgh Airport is one of the busiest airports in Scotland and with strong infrastructure is a competitor of Dundee Airport for both Commercial and General Aviation businesses. Most of the General Aviation traffic with a final destination in Tayside still transit via Edinburgh Airport. This is due to the capacity to handle a higher number of, and larger, aircraft, better products and services and the global identity of Scotland's capital. Additionally, business customers have more timetable options, retail options (including duty free shops) at the terminal and easy access to the airport, as shown again in Table 2. Edinburgh Airport is thus a serious competitor for Dundee Airport, even though it is 45 minutes away by road.

RAF Leuchars is only open 5 days/week (Mon-Fri), Dundee Airport is open 7 days/week (06:45-20:45 Mon-Fri, 09:00-16:45 Sat, 09:15-20:45 Sun), while Edinburgh Airport is open 24 hours/day, 7 days/week.

Table 3: Comparison of infrastructure of Dundee Airport, RAF Leuchars and Edinburgh Airport.

Infrastructure	Airport		
	Dundee	RAF Leuchars	Edinburgh
Number of Runways	2	4	4
Runway Length	09/27 1,400m	04/22 747m	06/24 2,556m
Type of Traffic Permitted	Both VFR and IFR	Both VFR and IFR	Both VFR and IFR
Type of Approaching Aid used Aircraft Navigation	ILS, DME and Localiser	ILS, DME and Localiser	ILS, DME and Localiser

A comparison of the airside infrastructure shows that Dundee Airport has a smaller runway compared

to its competitors (as shown in Table 3), thus limiting the operation of heavier or larger General Aviation aircraft.

Even a competitive pricing strategy is unlikely to lure users away from Edinburgh Airport and so it must offer niche, or set of niche, operations tailored to its locality, providing a higher level of service or catering for alternative markets.

### SWOT ANALYSIS

The strategic assessment of Dundee Airport is performed using SWOT analysis.

#### Strengths:

1. Dundee Airport is well located for leisure attractions such as golf, hunting and adventure tourism in Tayside, Perth and Fife
2. Quicker transit time compared Edinburgh Airport.
3. A portfolio of similar facilities to Edinburgh Airport, except for a hotel and duty free shops.
4. Growth in the economy of Dundee can attract more business customers.
5. Dundee Airport is supported financially by the Scottish Government.

#### Weaknesses:

1. Low customer demand.
2. Poor (no) public transport access.
3. Limited route and timetable options.
4. Short runway.
5. Restricted opening hours.
6. No diversification or innovation in the service to attract more customers.
7. Inadequate marketing of services.
8. No retail outlets in the terminal.

#### Opportunity:

1. Increasing the runway length.
2. Optimisation of the apron (increased size of the tarmac apron to increase capacity).
3. Growing leisure market.

#### Threats:

1. Recent development of Edinburgh Airport.
2. Sustainability of routes to the major hubs.

### CONCLUSIONS

This research leads firmly to the conclusion that the sustainability of Dundee Airport is possible only if it takes necessary action that will increase their passenger numbers. This can be done by marketing, improving the access to the airport, route development, introducing diversified services such as air taxi services and developing the airport infrastructure.

The strategic tools used here to interrogate the Dundee airport case for sustainability are deemed to be equally valid to similar situations where remote communities rely heavily on air transport to maintain cost-effective links to regional centres for business and social engagement.

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### NOMENCALTURE

PESTEL Political, Economical, Socio-cultural, Technological, Environmental, Legal  
 SWOT Strengths, Weaknesses, Opportunities, Threats

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