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A network business risk and resilience study for Highlands & Islands Airports Ltd

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1 Executive Summary

1.1 Existing model

1.1.1 There has been an improvement historically in the supply of air services across the Highlands and Islands commercial air services network in terms of seating capacity, service frequency and timetabling.

1.1.2 Between 2012 and 2016, traffic grew by 9% and seat capacity by 6%. The network achieved an average load factor of between 60% to 65% during this period. Load factors were particularly strong on some routes (e.g Edinburgh-Kirkwall, Glasgow-Stornoway) and lower on others, especially on the Inverness routes. The load factors on the two existing Eastern Airways connections are very low calling into the question the future sustainability of these routes.

1.1.3 Our ADS air fares survey found the cost of return travel from the islands to mainland airports to be particularly high with regard to the Orkney and Shetland markets. Some travel itineraries were sold-out before the day of departure which suggests that there may be issues of capacity availability on these routes. We observe a marked escalation of fare levels within four weeks of departure and on some itineraries average gross non-ADS return fares over the two month period prior to departure in excess of £350. It is not possible to confirm the common perception that the problem of excessive air fares is endemic across the network as our sample of observations was quite small but we do appear to have found some evidence of problems in some markets.

1.1.4 We observe a marked deterioration in flight punctuality across the network between 2014 and 2015. There is a modest improvement to 2016 but overall punctuality still remains well below levels attained in 2012.

1.1.5 We note Flybe's planned expansion of air services commencing in September 2017 which was announced, to our surprise, during the course of this study. We expect there to be a period of intense competition which may stimulate some traffic growth but this is not expected to continue and we would anticipate that head-to-head competition will dissipate over time with the market reaching a state of general equilibrium where both carriers co-exist in the market but operate independently of each other.

1.1.6 We produce a SWOT analysis of the network and note in particular that there are risks to the future sustainability of the network which are likely to stem from challenges around replacement options for the ageing fleet of Loganair Saab 340s. We also note particular risks relating to Brexit and the longer-term challenges around island de-population. The entry of Flybe into the market, to

some extent ensures that the busier markets will remain commercially sustainable.

1.2 Use of Public Service Obligations (PSO)

1.2.1 If the UK retains access post—Brexit to the European Common Aviation Area, through membership of the EEA, they will be continue to be bound by EC Regulation 1008/2008 and its provisions relating to state aid and PSO. Any other arrangement with regard to UK-EU air services post-Brexit, most probably means that the UK will no longer be bound by the need to use the PSO instrument. Our working assumption at this stage is to assume that the UK will retain use of PSO into the foreseeable future.

1.2.2 Implementation of PSOs remains the most obvious and readily available instrument that can be deployed to ensure isolated communities retain air service connectivity. But there will always be risks and uncertainties as to whether tendering exercises will be successful in all cases. We highlight several barriers to entry which have had the effect of limiting the competitiveness of tendering exercises historically in practice.

1.2.3 We found that the PSO instrument has deficiencies and these largely revolve around short lead-times between tendering and the commencement of operations and limited incentives to improve patronage. The former acts as a barrier to entry and the latter inhibits the potential progression from PSO to commercial subsidy-free operations.

1.2.4 The success or otherwise of how a PSO is used also depends on how public authorities and member states interpret the regulations. Some jurisdictions will be rigid in their interpretation of the regulation and others more generous. Generally, public authorities have been quite rigid which has meant that it is not possible to find examples of novel and innovative departures from common practice.

1.2.5 Deviations from the norm in Scotland would require legal advice and prior consultation, discussion and approval from Transport Scotland, The Department for Transport (DfT) and the European Commission Directorate for Mobility and Energy (DG MOVE).

1.2.6 A PSO would be impractical in circumstances where a short-term solution is needed to address the loss of air service connectivity because public authorities have to provide at least 6 months' notice.

1.3 Airline Options

1.3.1 In response to the limitations and imperfections of the PSO instrument, we

evaluate the prospects for an airline owned by HIAL that could be set-up to supply air services in circumstances where commercial flights had been withdrawn. We consider two airline solutions; a *virtual airline* and an *owned airline*.

1.3.2 The *virtual airline* is where HIAL establishes a subsidiary company which essentially functions as a management entity that manages revenue, sells tickets and markets and promotes air services. This entity has an ATOL license and procures air services from an aircraft operator which holds an AOC. The *airline owned* model is where the subsidiary also holds an AOC and operates the aircraft.

1.3.3 Safety is important so we invited the UK CAA to comment on our proposals. They expressed a view that due to concerns around safety management, they are uncomfortable with the deployment of a *virtual airline* and preferred instead an *airline owned* model.

1.3.4 The practicalities of establishing and managing a virtual airline would are unlikely to be too complicated. This is because we believe that is would be possible to obtain an ATOL license and that various booking and yield management systems could be put in place at relatively short notice. Furthermore, many of the functions and processes can already be provided from within the HIAL management structure (finance, legal, procurement etc). The airline owned option, in contrast, carries much greater cost and complexity and would be difficult to sustain commercially.

1.3.5 There are a number of issues and complications around the airline options. Aside from the additional start-up costs, there would be significant economic and regulatory challenges. In the former case, the economics would be very challenging if the airline (owned or virtual) was only limited to operating on one route. Regulators and competition authorities will most certainly have concerns over the use of state aid that would be needed to support both types of operation.

1.4 Comparison of the options

1.4.1 We compare the merits of deploying two airline options with two variants of the PSO model. The two variants of the PSO model represent standard practice (*PSO normal*) and a modified instrument where the public authority takes responsibility for sales, ticketing, revenue management and marketing and an airline is contracted to supply aircraft seat capacity; we refer to this as *PSO plus*.

1.4.2 If we are looking to maintain the highest levels of safety and punctuality, then our suggestion would be that a HIAL virtual or owned airline would deliver

better performance. This does not mean that PSO operations are unsafe. What we are saying is that HIAL will be better able to leverage from within its organisation skills, experience and capability in these areas.

1.4.3 Commercially – in terms of maintaining cost efficiency, maximising revenues and lowering subsidy, we think that in the long-run the PSO models offer the best value for money. The PSO models also offer significant advantages in terms of enabling better inter-operability with world-wide schedules through code-share agreements, interline agreements and access to GDS. An owned rather than virtual airline will only be able to achieve lower levels of inter-operability. We also believe that the start-up costs for an *owned airline* will be very high.

1.4.4 We think there will be concerns regarding the use of state aid outside of the PSO framework. So our recommendation is that legal advice is obtained and discussions are undertaken with appropriate officials in the different levels of government.

1.4.5 In the event of a sudden loss of air services, the *owned airline* and PSO options are not practical solutions – due mainly to being associated with long-lead times to deployment. One of our key recommendations is that a *virtual airline* is established and ready for immediate deployment as a temporary solution to maintain connectivity until permanent air services are established whether that is through a commercial subsidy-free operation or a PSO.

1.5 Aircraft economics

1.5.1 The Saab 340 delivers the lowest variable operating costs and fixed costs compared to the other aircraft considered in our evaluation. They are old and because of that ownership costs are low.

1.5.2 The ATR42 has higher operating costs than the Saab 340. However, it is slightly more competitive in cost terms relative to the Saab 2000.

1.5.3 The larger ATR72 offers very competitive cost per seat relative to the other models but its total trip cost is quite high relative to the Saab 340. Newer versions of the ATR42 (e.g. 600 series) are very uncompetitive relative to the Saab 340 in both per seat and total trip cost terms.

1.5.4 Our modelling of Contribution (Profit) by level of demand shows that over some ranges, the ATR42 offers better economic performance than the Saab 340.

1.5.5 While the deployment of larger aircraft (e.g. ATR72) in these markets will invariably mean lower frequency compared to the smaller Saab 340. However, at the same time, the financial performance offered by larger aircraft is more superior. Whilst larger aircraft mean lower frequency, larger aircraft are able to

deliver cheaper fares. The ATR72, for example, could offer average fares of between 15 to 30% lower than the Saab 340.

1.5.6 Both the Twin-Otter (18 seat) and the Cessna Caravan (9 seat) achieve lower variable and fixed operating costs for a typical sector length of 100nm compared to the Saab 340 and ATR42.

1.5.7 However, because the two smaller aircraft have much lower seating capacities, their respective per seat costs are much higher than the Saab 340 and the ATR42. This means that higher average fare levels would be needed to sustain economically viable commercial operations.

1.6 Route Hierarchy

1.6.1 We estimate how non-PSO Scottish internal routes have performed financially in 2016 using our own model in order to identify the extent to which there is a risk to the continuity of air services on a given route.

1.6.2 We can cluster the routes into three groups:

- Very Low risk (Glasgow-Stornoway, Edinburgh-Kirkwall, Edinburgh-Sumburgh, Aberdeen-Sumburgh and Aberdeen-Kirkwall)
- Low risk (Glasgow-Sumburgh, Glasgow-Islay, Benbecula-Glasgow, Inverness-Kirkwall, Inverness-Stornoway, Glasgow-Kirkwall)
- Moderate risk (Edinburgh-Stornoway, Kirkwall-Sumburgh, Edinburgh-Wick and Inverness-Sumburgh)
- High risk (Aberdeen-Stornoway, Aberdeen-Wick)

1.6.3 Only two of the routes are loss-making (Aberdeen-Stornoway and Aberdeen-Wick). Profitability is marginal on the Moderate risk routes. Worryingly, there seem to be significant risks around the future sustainability of both routes that serve Wick airport.

2 Rationale and scope of the study

2.1 Rationale

2.1.1 Highlands & Islands Airports Ltd (HIAL) has raised concerns regarding possible risks to the future supply of air services in the region. These risks centre on uncertainty relating to the long-term commitment of Loganair to maintaining the shape of its existing network.

2.1.2 There are risks that commercial / non-PSO services on low density markets serving isolated communities could be vulnerable to withdrawal in the future. Withdrawal could materialise as a result of one or a combination of the following factors:

- A shift in airline corporate strategy as a result of a change in ownership.
- Pressures on the continued viability of the existing network as the Saab 340's retire and new larger and probably more expensive aircraft are deployed across the network.

2.1.3 While the imposition of a PSO may mitigate some of these risks, tendering exercises can be lengthy and may not always be successful. HIAL needs to consider a solution that can be deployed at very short notice to maintain air connections to those markets that are vulnerable to service withdrawal until a PSO can be deployed. Furthermore there needs to be a consideration of longer-term solutions should a PSO tender be unsuccessful in attracting airline interest.

2.2 Scope

2.2.1 HIAL has requested that the consultants consider the following dimensions in the scope of the study.

- An evaluation of the existing model of commercial (non-PSO) services in the Highlands and Islands network focussing on traffic, capacity, load factor, frequency, aircraft fleet, timetabling and air fares.
- An open and objective critique of the current PSO mechanism as a method for ensuring connectivity within and to remote regions.
- An investigation into the potential for a virtual airline to operate in circumstances where commercial life-line links have been withdrawn with little prospect that these services would be operated by other airlines.
- A comparison of whether a PSO or Virtual Airline solution will work. This section will consolidate the themes from the previous two sections whilst considering alternatives.

- A comparison of the economics of operating the current Saab 340 with both equivalently sized (e.g. ATR42) and smaller aircraft (e.g Twin otter).
- A route hierarchy analysis showing which routes are strong, which are marginal and which are at significant risk of market failure.

3 Existing model of air services

3.1 Introduction

3.1.1 In our evaluation of the existing model of air services in the Highlands and Islands, we track how capacity, traffic, load factor, frequency and flight schedule convenience (measured by maximum lapsed destination time) have evolved between 2012 and 2016.

3.1.2 The scope of our analysis incorporates the following routes:

- Aberdeen (ABZ) – Kirkwall (KOI)
- Aberdeen (ABZ) – Stornoway (SYY)
- Aberdeen (ABZ) – Sumburgh (LSI)
- Aberdeen (ABZ) – Wick (WIC)
- Benbecula (BEB) – Glasgow (GLA)
- Edinburgh (EDI) – Kirkwall (KOI)
- Edinburgh (EDI) – Stornoway (SYY) [1]
- Edinburgh (EDI) – Sumburgh (LSI)
- Edinburgh (EDI) – Wick (WIC)
- Glasgow (GLA) – Islay (ILY)
- Glasgow (GLA) – Kirkwall (KOI)
- Glasgow (GLA) – Stornoway (SYY)
- Glasgow (GLA) – Sumburgh (LSI)
- Inverness (INV) – Kirkwall (KOI)
- Inverness (INV) – Stornoway (SYY)
- Inverness (INV) – Sumburgh (LSI) [2]
- Kirkwall (KOI) – Sumburgh (LSI)

3.1.3 During this period, each route was served by one carrier. Eastern Airways operated Wick-Aberdeen and Stornoway-Aberdeen while all the others were served by Loganair. In June 2017, Flybe announced an expansion of air services in the region with a plan to compete head-to-head with Loganair on selected markets. We discuss this in greater detail in Section 3.4.

3.1.4 Most of routes, over the reporting period were operated on a non-stop basis; although some connections between Inverness and Sumburgh and Stornoway and Edinburgh were scheduled to include an intermediate stop in Kirkwall and Inverness respectively.

3.1.5 The Loganair non-PSO network over the period was served by three aircraft (turboprop) types; Saab 340 (34 seats), Dornier 328 (33 seats) and Saab 2000 (50 seats). Eastern operates 29-seat BAe Jetstream 41 turboprops on its two routes linking Aberdeen with Stornoway and Wick.

[1] Operated at times throughout the reporting period with a stop in Inverness.
[2] Some services operated with a stop in Kirkwall.

3.2 Historical evolution of Capacity, Traffic and Load Factor

3.2.1 Table 1 below provides total seating capacity supplied, passenger traffic and average load factor data aggregated across the network on an annualised basis from 2012 to 2016. We also report separate data for Loganair and Eastern Networks.

Table 1: H&I network and airline capacity, traffic and load factor data 2012-2016 (Source: OAG Analyzer & CAA)

	2012	2013	2014	2015	2016	% change 12-16	% change 15-16
Total H&I network							
Seats	747,872	742,411	794,689	792,973	793,985	6%	0%
Traffic	446,707	470,307	507,784	491,993	485,624	9%	-1%
Load Factor	60%	63%	64%	62%	61%		
Loganair							
Seats	690,278	684,875	737,153	735,437	744,557	8%	1%
Traffic	427,618	451,883	488,959	475,791	472,211	10%	-1%
Load Factor	62%	66%	66%	65%	63%		
Eastern							
Seats	57,594	57,536	57,536	57,536	49,428	-14%	-14%
Traffic	19,089	18,424	18,825	16,202	13,413	-30%	-17%
Load Factor	33%	32%	33%	28%	27%		

3.2.2 On a system-wide level, average load factor is around 60% to 65%. However, there is a marked difference in the levels achieved by Loganair and Eastern. Loganair achieved average load factors in the range 60%-64% during the period in contrast to Eastern, where there had been a steady decline from 33% in 2012 to 27% in 2016. This suggests that there is heightened risk that Eastern may exit those routes.

3.2.3 Reference to the more detailed route data in Table 2 shows that both Eastern routes have experienced a marked decline in load factors since 2012. There are possibly two explanations for why we think Eastern continues to operate on these routes:

- The yields achieved on both routes are sufficient to cover costs and earn a reasonable margin for the airline.
- Both routes provide important feeder traffic which support services to destinations beyond their Aberdeen hub.

3.2.4 Eastern's very low load factors and high fares compared to the routes operated

by Loganair do suggest that there is some growth potential in these markets, if more competitive pricing was available. On the other hand, it is fair to say that the Eastern routes are very much tied to the oil exploration and extraction sector which has seen a significant drop in demand over the last two years. We think this, in part, has contributed to the poor performance

3.2.5 We can observe some variation across Loganair routes in terms of load factor performance. Both Aberdeen and Edinburgh links to Kirkwall are both very strong, less so for services to Sumburgh. The strongest Glasgow route is to Stornoway where Load factors have been in excess of 70% during the period. The weakest route is Glasgow-Kirkwall, where load factor is much lower in 2016 than in 2014 Extra capacity supplied by Loganair on its Sumburgh routes to both Aberdeen and Glasgow, largely explain recent declines in load factor. All the Inverness routes perform quite poorly achieving load factors below 60%. Load factors are also very low on the two routes serving Wick.

Table 2: Annual average load factor per route 2012-16 (Source: OAG Analyzer & CAA)

	2012	2013	2014	2015	2016	% change 12-16	% change 15-16
Aberdeen-Kirkwall	72%	71%	72%	71%	70%	-3%	-1%
Aberdeen-Sumburgh	68%	70%	66%	64%	59%	-12%	-8%
Aberdeen-Stornoway	37%	36%	41%	36%	34%	-8%	-6%
Aberdeen-Wick	32%	31%	30%	25%	24%	-24%	-5%
Benbecula-Glasgow	51%	58%	64%	64%	64%	24%	0%
Edinburgh-Kirkwall	67%	76%	73%	73%	74%	9%	0%
Edinburgh-Sumburgh	66%	73%	69%	73%	68%	4%	-6%
Edinburgh-Inverness-Stornoway	53%	54%	57%	52%	52%	-2%	-1%
Edinburgh-Wick	46%	55%	55%	56%	55%	22%	0%
Glasgow-Islay	57%	61%	65%	64%	64%	13%	1%
Glasgow-Kirkwall	61%	72%	70%	69%	62%	2%	-10%
Glasgow-Sumburgh	72%	78%	73%	69%	68%	-6%	-1%
Glasgow-Stornoway	70%	72%	76%	69%	72%	2%	4%
Inverness-Kirkwall-Sumburgh	52%	55%	56%	56%	56%	8%	0%

3.2.6 The general direction of load factors from 2012 appears to be downward for Loganair H&I routes with the current average of 63% being lower than that achieved in 2014 (66%).

3.2.7 Load factor is a superficial physical measure of route financial performance. It is possible that on those routes where ratios are below 60% or even 50%, yields could be sufficient to recover costs and earn a positive return for the airline.

3.3 Frequency and Maximum Lapsed Destination Time

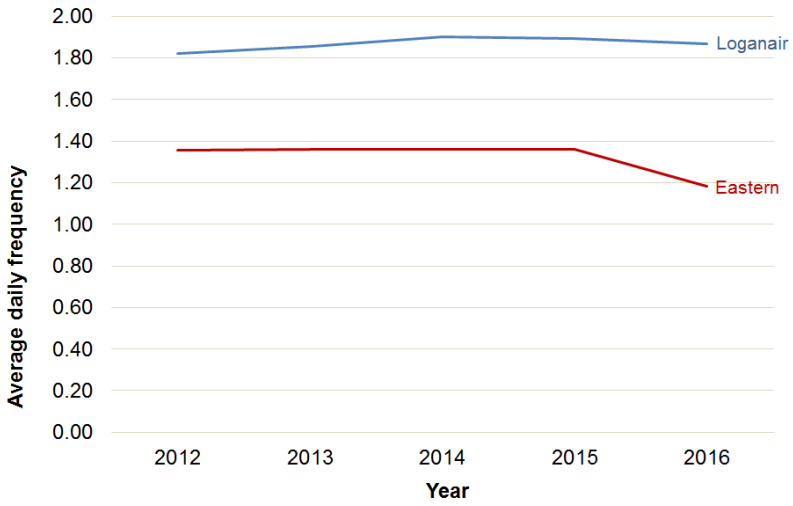
3.3.1 Average return frequency on Loganair routes is much higher than Eastern. Indeed, for Eastern there was a marked reduction between 2015 and 2016.

3.3.2 Loganair serves most of its routes with multiple rotations on weekdays, with the sole exception of Edinburgh-Wick and Glasgow-Kirkwall. There has been a substantial improvement in weekday frequency on routes linking Sumburgh with both Glasgow and Edinburgh.

3.3.3 The deployment of Saab 340s has provided Loganair with the ability to absorb increased demand through the deployment of additional frequencies. In some markets, there has been an upscaling of aircraft size through the use of the Saab 2000.

3.3.4 For many island and mainland residents, the ability to complete a day return journey is very important. This is especially relevant for health and business-related travel.

Figure 1: Average daily return frequency by airline 2012-2016



3.3.5 We can measure day-return travel by calculating how much time has lapsed between the first possible arrival at a destination and the last return flight back to the point of origin. We can refer to this as Maximum Lapsed Destination Time (MLDT) and this can be calculated for both directions on each route.

3.3.6 In our MLDT analysis, we exclude Edinburgh-Wick, Glasgow-Kirkwall and Aberdeen-Stornoway because these markets are served by single daily rotations.

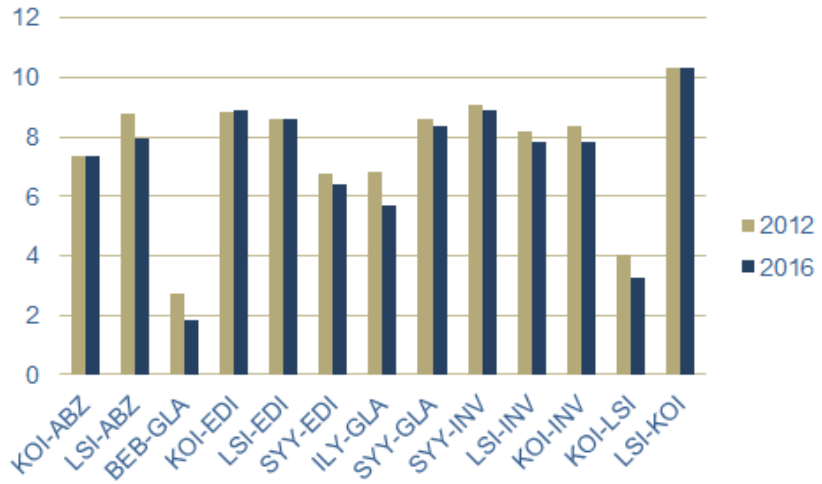
3.3.7 Directional variation within routes largely reflects the over-night positioning of aircraft. Loganair positions its aircraft at various over-night locations (Glasgow, Edinburgh, Inverness, Aberdeen, Kirkwall and Sumburgh). This means that

travellers originating in these locations generally enjoy higher MLDT compared to those markets served by airports that are not served by a based aircraft (Islay, Benbecula, Stornoway, Wick).

3.3.8 It should be noted that whilst better for customers, the dispersed nature of Loganair's fleet adds to operational costs in terms of requirements for flight crews and maintenance support. It also creates additional risk and complexity in terms of reliability and punctuality.

3.3.9 Figure 2 below shows one-directional MLDT between various points in the network. With the exception of Benbecula-Glasgow and Kirkwall-Sumburgh, all MLDT values are quite significant demonstrating that in most markets that schedules that are offered allow sufficient time for travellers to organise day return trip itineraries. Figure 2 does show that in most markets, a modest decline was recorded during the period of observation; but this is quite insignificant.

Figure 2: Maximum lapsed destination time (hours) by route 2012 and 2016



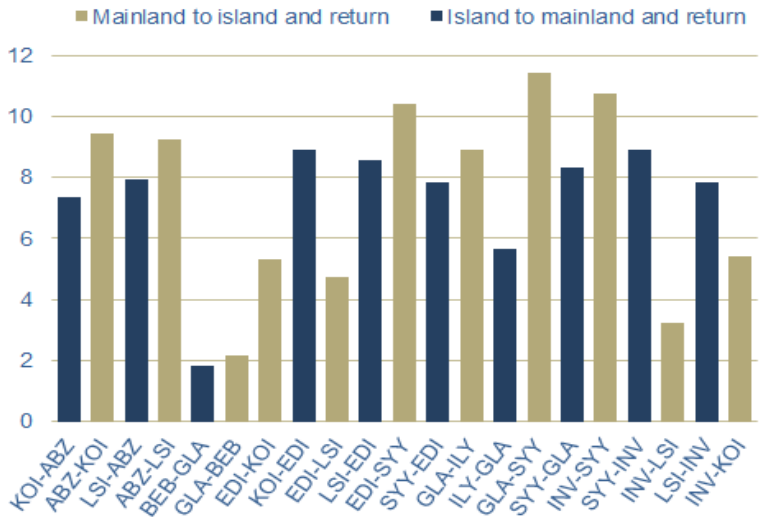
3.3.10 Figure 3 compares MLDT on different legs within each route. For island residents, we see that MLDT levels are generally higher in the Northern Isles where Loganair over-night some aircraft so that an early morning departure to the mainland is possible followed by a late afternoon / early evening return. For the Western isles route there is no over-night positioning of aircraft meaning MLDT will be lower on the island to mainland leg. Generally, however, schedules are very convenient with the exception of Benbecula where it is not possible for resident of South Uist to achieve a reasonable day return trip to Glasgow.

3.3.11 In some markets, due to the volume of frequency supplied (e.g. Glasgow-Stornoway, Aberdeen-Sumburgh) travellers will be able to achieve day return

itineraries below MLDT. This is particularly important to business passengers who are able to avoid the inconvenience of waiting for long periods before being able to catch a return flight home.

3.3.12 For business travellers based on the mainland the ability complete a day return is constrained in some markets. In addition to Glasgow-Benbecula, MLDT is constrained on day return travel from Inverness to Sumburgh. Sumburgh is particularly problematic because the airport is located at a significant distance from the main population centre at Lerwick.

Figure 3: Maximum Lapsed Destination by route sector 2016



3.4 Market structure and barriers to entry

3.4.1 Air services on each route are operated by one carrier. Our original assumption was that traffic volumes are generally insufficient to attract competitive new entry (we discuss Flybe's recent announcement below). Up to now incumbent airlines Loganair and Eastern have enjoyed a considerable degree of market power on the routes that they serve – especially with regard to the longer distance services where air travel is considerably faster and more reliable than other modes of transport.

3.4.2 There are few examples to cite historically of competition within the network. In all cases it has been occasional and without exception short-lived. Aberdeen-based Business Air with Shorts 360s and Saab 340s struggled briefly with British Airways on Aberdeen-Sumburgh in the mid-190s Bmi regional entered the Stornoway-Glasgow market in 2002 with a single daily service operated by a 49-seat Embraer 145 regional jet competing against multiple daily rotations offered by Loganair. The service was withdrawn four years later due to insufficient traffic volumes. The most recent example of competition was in late 2005 when a small regional airline Air Caledonian operated a service between

Prestwick and Stornoway in competition with Loganair's Glasgow operation; this venture only lasted 1 month.

3.4.3 All routes would struggle to support two carriers for a sustained period of time. Market entry, therefore, is likely to have the following features. If entry on a route is significant in scale (high volume frequency and capacity offered), then it is possible that the incumbent airline may eventually be displaced.

3.4.4 Previous experience has shown that if entry is more limited in scale, then it is more likely that the incumbent will successfully defend its market share and that the new entrant will eventually exit the market.

3.4.5 Survival will depend on pricing strategy, frequency, product offer, perception of service and to some extent brand loyalty.

3.4.6 The only barrier to entry that may exist in some markets is in relation to the provision of airport ground handling services (check-in, baggage loading / unloading etc.). Different arrangements exist across the HIAL airport network. At the smaller airports (e.g. Islay), HIAL provides these services for airlines. Loganair handles its own operations at Benbecula, Kirkwall, Stornoway and Sumburgh. It also offers these services to other airlines at these airports. Eastern has a ground handling operation at Sumburgh to support its oil-related charter services. At Inverness ground handling services are offered by Dalcross Handling and Signature, both independent handling companies.

3.4.7 At Kirkwall and Stornoway, Loganair is the sole provider of handling services and they are not legally obliged under their license to offer third-party services to other airlines. So commercially they may refuse to handle a competitor's flights which then means that a new entrant would then have to set up their own handling operation which is a much more costly solution compared to procuring from an existing third-party provider.

3.4.8 Aircraft hangarage is not an issue as it is most likely that a new entrant would base aircraft on the mainland where there are fewer restrictions on the availability of space.

Flybe - Eastern Airways capacity expansion into the Highlands and Islands in 2017

3.4.9 Flybe, to the surprise of many, announced in June 2017, two months into this project, plans for a significant expansion of services in the Highlands and Islands. It's plan is to compete head-to-head with Loganair on several key routes in the region. Their business model is based on a joint venture agreement with Eastern Airways. Under this agreement, Flybe purchases aircraft capacity from Eastern to operate these routes and then sells seats under own brand and flight

codes; in effect this is a Flybe operation. The two existing Eastern Airways routes from Aberdeen to Wick and Stornoway are outside the scope of this agreement.

3.4.10 The scale of competitive entry on each route is set out below.

Table 3: Planned Loganair and Flybe supply on selected routes winter 2017/18

Route	Flybe		Loganair	
	Weekday Daily Frequency	Aircraft-type	Weekday Daily Frequency	Aircraft-type
ABZ-LSI	3	E170 (80 seat)	5	S340 (34-seat)
ABZ-KOI	3	J41 (29-seat)	3	S340 (34-seat)
LSI-GLA	1	E170 jet (80 seat)	2[a]	S340 (34-seat) & S2000 (50 seat)
LSI-EDI	1	E170 jet (80 seat)	3	S340 (34-seat)
SYY-GLA	3	J41 (29-seat)	4	S340 (34-seat) & S2000 (50 seat)

[a] second frequency operates on a only a few days of the week

3.4.11 Flybe's decision to enter the market has challenged conventional wisdom and our assumptions on the stability and contestability air services markets in the Highlands and Islands. This is because we assumed prior to June 2017 that Loganair's monopoly would continue unimpeded into the medium to long–term. History has demonstrated that competition tends to be short-lived. New entrant airlines either exit markets in the short-term or end up coexisting with incumbents within the network, but operating independently on separate routes.

3.4.12 The scale of competitive entry is significant in terms of capacity, frequency and also aircraft–type with Flybe planning to deploy one Aberdeen-based 80-seat Embraer 170 regional jet on the Sumburgh routes. Two Jetstream 41 (29-seat) turboprops will operate the other routes involving Kirkwall (Aberdeen-based) and Stornoway (Glasgow-based).

3.4.13 We expect the Flybe product on the Sumburgh-Aberdeen route to be very competitive with Loganair offering a range of advantages in terms of speed, passenger comfort, and probably better poor-weather reliability. The jets will have lower per seat costs which does provide scope for competitive pricing.

3.4.14 Flybe has no real advantage over Loganair on Aberdeen-Kirkwall as they plan to offer the same number of weekday rotations. The aircraft used by both operators is very similar with Loganair's Saab 340 offering slightly greater seating capacity than the Jetstream 41s. Furthermore, we have no evidence which informs us that the Jetstream 41s will be any more reliable than Loganair's Saab 340s. It also unlikely that Loganair will offer handling services for Eastern at Kirkwall which means Eastern will face the additional costs of setting up their own ground handling operation.

3.4.15 Flybe also plan to operate a daily rotation between Sumburgh and Edinburgh using the E170's against Loganair's 340s. In this case the incumbent may have an advantage in that they are able to offer three daily rotations and critically viable day-return itineraries in both directions which is not possible with the single frequency offered by Flybe.

3.4.16 On Sumburgh-Glasgow, Loganair is less competitive although on some weekdays they offer two rotations. However, the timings of these flights offer sufficient limited day-trip itinerary potential unless travellers are inbound from Glasgow.

3.4.17 Flybe will use an Eastern operated Jetstream 41 based at Glasgow to complete three daily weekday rotations on the Stornoway route. Loganair offers four rotations using a combination of 340s and the larger Saab2000 turboprop. Loganair's defence maybe more robust here as there is no significant advantage in the service proposition offered by Flybe in terms of aircraft, frequency or timetabling. We expect a similar outcome with regard to Flybe's proposed Aberdeen-Kirkwall service, which will also utilise a Jetstream 41.

3.4.18 It is unlikely that competition can be sustained in the long –term as load factors on most of these routes are comparatively modest. The island populations are relatively small in scale, so we would not expect traffic stimulation effects that would typically occur in busier markets as a result of competitive new entry. There will be most likely be a short period of intense price competition and possibly a new iteration of schedules offered by both airlines. We would expect the rivalry to subside with the result that both airlines exit some markets.

3.4.19 There have been examples from other UK regional markets of competitive displacement of incumbent services. A relatively recent example saw Flybe displace Eastern Airways on services between Inverness and Manchester. Eastern withdrew its flights as it was unable to match the scale of capacity offered by Flybe.

3.4.20 An early indication of the impact of Flybe's entry is that Loganair has looked to re-establish its Scottish emotional credentials. Commercially, it has announced a new interline agreement and codeshare with British Airways which will be a positive move for the market as a whole as this will foster easier business travel and encourage additional visitors to the Highlands from numerous overseas markets. This is something which Flybe and its partnership with Eastern cannot hope to match. In addition, Loganair has announced plans to lease Embraer 145 capacity from partner company bmi Regional. Whilst initially planned to operate on routes from Inverness to Manchester and Dublin, this could be deployed to resist Flybe in those markets where it has deployed regional jets

(E170).

3.5 Air fares survey

3.5.1 There has been considerable public concern over recent years amongst island residents at the perceived level of air fares on commercial air services operated by Loganair between remote airports and the mainland.

3.5.2 Even though Low Cost Carriers (LCC's) are not present in the markets being studied (Easyjet is a significant operator in Inverness), their high profile means that they do have a significant role in shaping customer expectations on pricing. Average air fares on the three major LCC's, including non-seat (ancillary) revenues are shown below.

Table 4: Average one-way fare (£) and non-ticket revenue (excluding taxes) Ryanair, EasyJet and Wizz (Source: company accounts)

Airline	Average Fare
Easyjet	£63.87
Ryanair	£50.80
Wizz	£60.56

3.5.3 As these are average fares, there are occasions when actual fares are higher or lower but these figures provide a clear indication of the reality of low fares provided by the LCC's and which allow them to drive high load factors and traffic volumes. Most of the Highlands and Islands routes are not high volume markets but the challenge of delivering low fares and consumer perceptions is clear.

3.5.4 Data on the actual prices paid by passengers is proprietary to the airlines, so we have limited information or evidence as to whether there is a particular problem relating to the magnitude of air fares on commercial routes across the Highlands and Islands other than evidence that is purely anecdotal. For the sake of producing a report to within the timeframes demanded, we were also unable to survey fares during the winter periods. This would have made our analysis more complete.

3.5.5 In order to establish some indication as to the affordability of air fares in the region, we designed a sample of mainland return trip itineraries for island residents on selected routes over the 2017 summer period. The itineraries cover return travel to and from the mainland including weekday day return, mid-week over-night stay and weekend travel patterns. We consider itineraries in two periods during the summer; the first week of June and the first week of August. The routes and itineraries are set out in Table 5 below.

3.5.6 Fares were recorded on these itineraries up to two months in advance of the departing outward bound flight to the mainland. The lowest gross return fare is recorded from three observations taken from the Flybe website each week. These recordings where obtained on Mondays, Wednesdays and Fridays at 5pm. The last fare recording is taken on the eve of the departing outbound flight.

Table 5: Selected flight itineraries

From	To	June/August	Itinerary	Out	Back	Out Flight	Return Flight
ILY	GLA	June	Day-return	Tuesday June 6th	Tuesday June 6th	0945	1710
ILY	GLA	June	Over-night stay	Wednesday June 7th	Thursday June 8th	0945	Cheapest
ILY	GLA	June	Weekend	Friday 9th June	Sunday June 11th	1825	1555
ILY	GLA	August	Day-return	Tuesday August 1st	Tuesday August 1st	0945	1710
ILY	GLA	August	Over-night stay	Wednesday August 2nd	Thursday August 3rd	0945	Cheapest
ILY	GLA	August	Weekend	Friday August 4th	Sunday August 6th	1825	1555
BEB	GLA	August	Weekend	Friday August 4th	Sunday August 6th	Cheapest after 1140	1230
BEB	GLA	August	Over-night stay	Wednesday August 2nd	Thursday August 3rd	0840	Cheapest
BEB	GLA	June	Weekend	Friday 9th June	Sunday June 11th	Cheapest after 1140	1230
BEB	GLA	June	Over-night stay	Wednesday June 7th	Thursday June 8th	0840	Cheapest
SYY	INV	June	Over-night stay	Wednesday June 7th	Thursday June 8th	0845	Cheapest
SYY	INV	June	Weekend	Friday 9th June	Sunday June 11th	Cheapest after 0845	1400
SYY	INV	June	Day-return	Tuesday June 6th	Tuesday June 6th	0845	1820
SYY	INV	August	Day-return	Tuesday August 1st	Tuesday August 1st	0835	1810
SYY	INV	August	Over-night stay	Wednesday August 2nd	Thursday August 3rd	0835	Cheapest
SYY	INV	August	Weekend	Friday August 4th	Sunday August 6th	Cheapest after 0835	1400
SYY	EDI	August	Weekend	Friday August 4th	Sunday August 6th	1610	1800
SYY	EDI	August	Over-night stay	Wednesday August 2nd	Thursday August 3rd	0740	Cheapest
KOI	EDI	August	Weekend	Friday August 4th	Sunday August 6th	1610	1800
KOI	EDI	August	Over-night stay	Wednesday August 2nd	Thursday August 3rd	0740	Cheapest
KOI	EDI	August	Day-return	Tuesday August 1st	Tuesday August 1st	0740	1800
KOI	EDI	June	Day-return	Tuesday June 6th	Tuesday June 6th	0740	1800
KOI	EDI	June	Over-night stay	Wednesday June 7th	Thursday June 8th	0740	Cheapest
KOI	EDI	June	Weekend	Friday 9th June	Sunday June 11th	1610	1800
LSI	ABZ	June	Weekend	Friday 9th June	Sunday June 11th	1930	1810
LSI	ABZ	June	Over-night stay	Wednesday June 7th	Thursday June 8th	0740	Cheapest
LSI	ABZ	June	Day-return	Tuesday June 6th	Tuesday June 6th	0740	1830
LSI	ABZ	August	Day-return	Tuesday August 1st	Tuesday August 1st	0740	1830
LSI	ABZ	August	Over-night stay	Wednesday August 2nd	Thursday August 3rd	0740	Cheapest
LSI	ABZ	August	Weekend	Friday August 4th	Sunday August 6th	1930	1810

3.5.7 For each observation, we record the lowest priced gross return fare. Flybe offers three fare categories: “All-in”, “Get More” and “Just Fly”. “All-in” is a business class fare which is fully flexible and includes extra baggage allowance, executive lounge access and fast track security. “Get more” is a premium economy product with a built-in flexibility regarding changes to booking, the opportunity to reserve seating, and the availability of an extra baggage allowance over and above that offered by the economy product. “Just Fly” consists mainly of a cheaper but non-refundable ticket price. Different price levels are set within each fare category.

3.5.8 The “gross fares” include taxes and charges and no ADS discount has been applied.

3.5.9 As island residents are eligible for the Air Discount Scheme, we calculated an

"ADS fare", which is the gross fare (excluding taxes and charges) discounted by a factor of 50%.

3.5.10 We consider the dimension of affordability. So we use an affordability ratio which is the ADS return fare expressed as a % of the local gross monthly disposable income (GDI). For each island community, the GDI is as follows: Orkney (£1,560), Shetland (£1,550), Western Isles (£1,268) and Argyll (£1,344).

3.5.11 We show for each itinerary in June, the lowest, average and highest ADS fare that was recorded over the period. We are also able to show the average ADS fare on a per Km basis and as a proportion of gross monthly disposable income[3]. The average gross fare is also listed for reference purposes. Indeed, it is worth noting that business travel is not covered by the ADS scheme.

June 2017 itineraries

3.5.12 Table 6 below provides data on ADS air fares collected for the June 2017 itineraries for each route.

Table 6: Air fares for June 2017 itineraries (Source Flybe website)

From	To	Itinerary	Minimum Return ADS Fare	Average Return ADS Fare	Highest Return ADS Fare	Average Gross Return Fare	Average Return ADS Fare per route km	Average Return ADS Fare as % GDI
ILY	GLA	Day-return	£94.15	£101.57	£126.91	£159.59	£0.44	8%
ILY	GLA	Over-night stay	£79.91	£101.85	£134.66	£159.59	£0.44	8%
ILY	GLA	Weekend	£79.65	£86.09	£108.91	£130.51	£0.37	6%
BEB	GLA	Weekend	£105.11	£124.46	£105.11	£207.25	£0.25	10%
BEB	GLA	Over-night stay	£110.23	£128.04	£110.23	£214.40	£0.25	10%
SYY	INV	Over-night stay	£83.05	£97.67	£83.05	£159.90	£0.32	8%
SYY	INV	Weekend	£72.71	£81.16	£77.40	£126.88	£0.26	6%
SYY	INV	Day-return	£109.94	£119.66	£110.20	£203.89	£0.39	9%
KOI	EDI	Day-return	£179.98	£189.48	£198.98	£288.81	£0.28	12%
KOI	EDI	Over-night stay	£180.40	£185.45	£190.49	£368.20	£0.28	12%
KOI	EDI	Weekend	£206.98	£206.98	£206.98	£363.76	£0.31	13%
LSI	ABZ	Weekend	£120.89	£120.89	£120.89	£218.02	£0.20	8%
LSI	ABZ	Over-night stay	£120.64	£120.64	£120.64	£209.38	£0.20	8%
LSI	ABZ	Day-return	£169.39	£169.39	£169.39	£337.35	£0.28	11%

3.5.13 Day return itineraries are generally more expensive than the others. The fares become more expensive the closer to the day of departure.

3.5.14 Fares on Kirkwall-Edinburgh stand out as being particularly expensive relative to the other routes. We found that the first outbound departure from Kirkwall at 0740 on June 6th was no longer accepting bookings from May 8th. So we

[3] We obtain data from Gross monthly disposable income from Financial Scrutiny Unit Briefing Earnings in Scotland 2015 accessed online http://www.parliament.scot/ResearchBriefingsAndFactsheets/S4/SB_15-82_Earnings_in_Scotland_2015.pd f

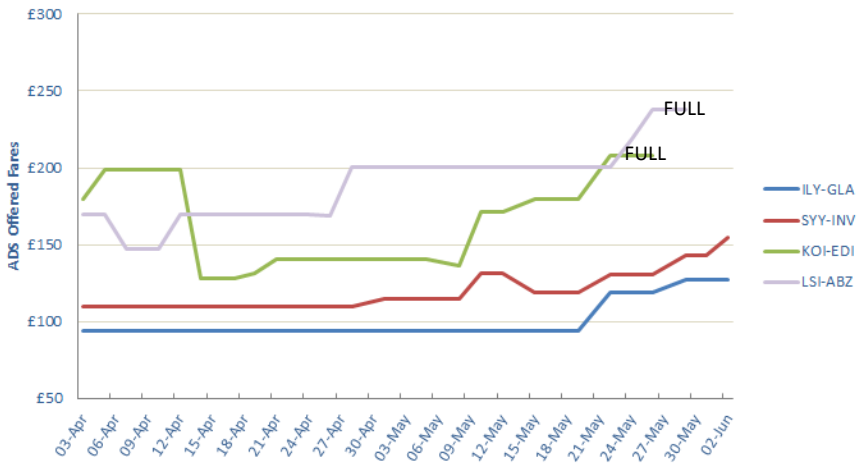
assumed passengers would book the next available departure at 1105 for the remaining weeks. This flight was full by May 29th. The highest fares were for the over-night stay itinerary in Edinburgh (June 7th to 8th). The highest Gross Fare (before ADS) was £471 which was recorded on June 5th for this particular itinerary.

3.5.15 We also compare average ADS fare per km in Table 6. The highest per km fares are to be found in the shorter sector (Islay-Glasgow). However some (Stornoway-Inverness) per km fares were also especially high.

3.5.16 We can also measure affordability of the air fares by representing the fares as a % of average gross monthly disposable income for each island community. Two Kirkwall-Edinburgh fares have high ratios. Followed by the day return Sumburgh-Aberdeen.

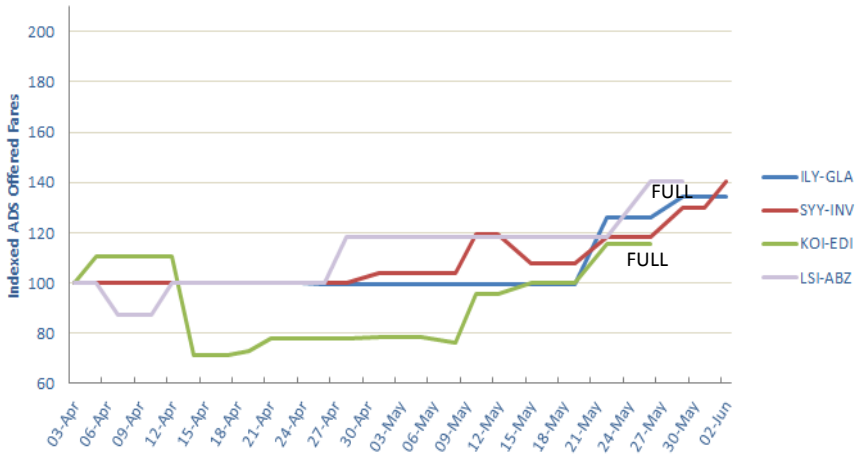
3.5.17 Figure 4 shows fare recordings taken through the period of analysis for June 6 day return itineraries on reach route. We notice a significant disparity between the western and northern routes in both the magnitude of air fares and in the degree of pricing escalation and volatility. This may be a reflection of different booking patterns and more active yield management on the northern routes.

Figure 4: June 6 itinerary day return cheapest ADS return fare trends up to 2 months from departure



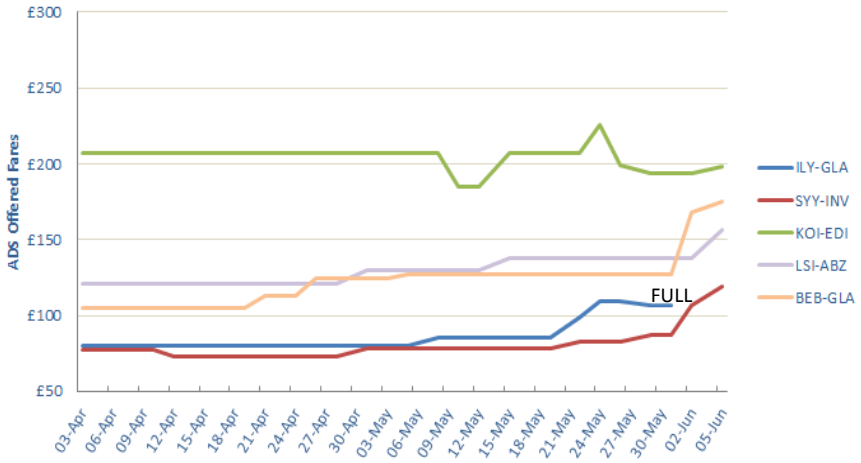
3.5.18 We also express these fares as indices relative to the first fare observation two months from day of departure. This is shown in Figure 5 below.

Figure 5: June 6 itinerary day return cheapest ADS return fare trends up to 2 months from departure (indices)



3.5.19 Figure 6 illustrates fare trajectories for weekend itineraries for across each route up to two months from the date of departure.

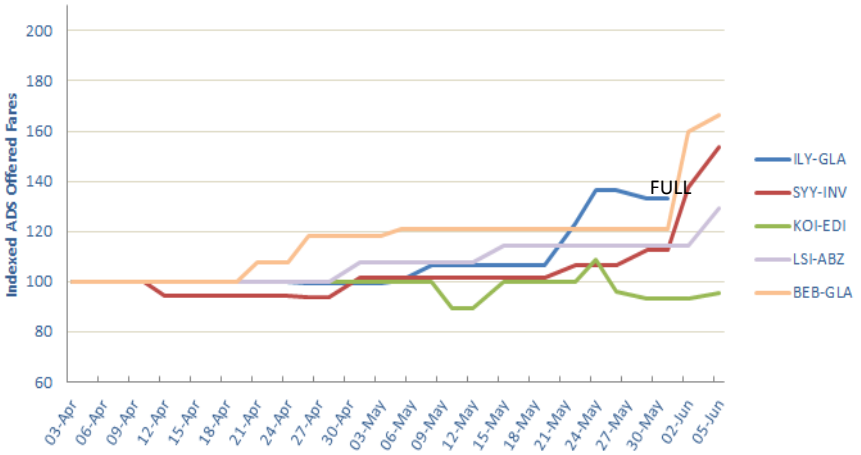
Figure 6: June 9 to June 11 itinerary weekend return cheapest ADS return fare trends up to 2 months from departure



3.5.20 The Kirkwall route is again priced at a significant premium above the others. Yield management is only really exercised one month from departure. Indeed the final ADS fare on the eve of departure was actually cheaper than that quoted in April. Pricing trajectories are very similar on the other routes although the Islay and Stornoway routes appear much cheaper than Sumburgh and Benbecula routes.

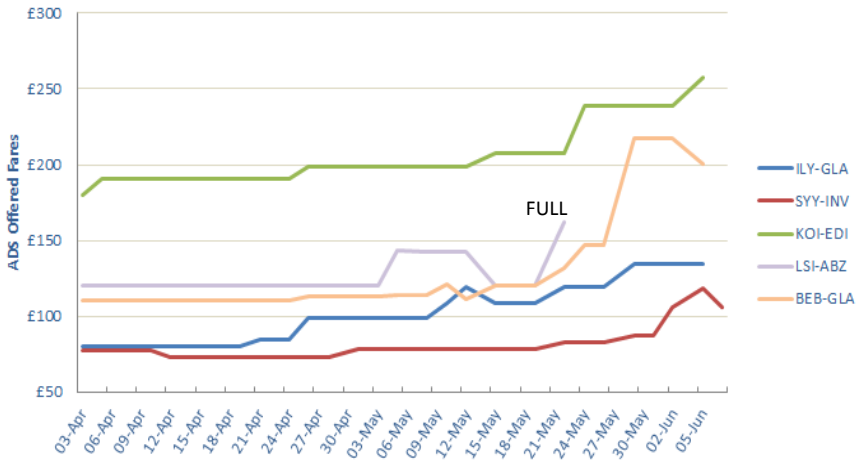
3.5.21 We also express these June weekend fares as indices relative to the first fare observation two months from day of departure. This is shown in Figure 7.

Figure 7: June 9 to June 11 itinerary weekend return cheapest ADS return fare trends up to 2 months from departure (indices)



3.5.22 Figure 8 illustrates fare trajectories for week-day over-night return itineraries across each route up to two months from the date of departure. The Sumburgh-Aberdeen week-day over-night return is fully booked by May 21st and there is a considerable escalation on Benbecula-Glasgow. We also observe last minute discounting which does happen in revenue management designed mainly to stimulate passenger loads.

Figure 8: June 7 to June 8 itinerary over-night return cheapest ADS return fare trends up to 2 months from departure

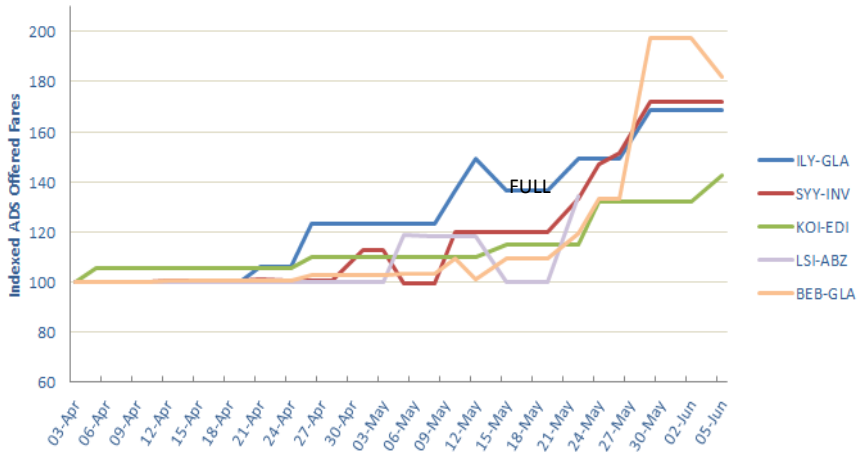


We also express these June week-day over-night-fares as indices relative to the first fare observation two months from day of departure. This is shown in

3.5.1 Figure 9. Note the final fare is nearly twice as expensive as the base fare on Benbecula-Glasgow.

Figure 9:

June 7 to June 8 itinerary over-night return cheapest ADS return fare trends up to 2 months from departure (indices)



August itineraries

3.5.2 Table 7 below provides data on ADS air fares collected for August 2017 itineraries for each route.

3.5.3 In contrast to June, we do not find the day return to be generally more expensive than weekend and over-night stay itineraries. However, as one would naturally expect, fares do become more expensive the closer to the day of departure.

3.5.4 We do not find that August itineraries are necessarily are more expensive than June. Like June, the Northern Isles routes are longer distance and more expensive. For example both weekend travel is more expensive for residents compared to the other itineraries.

Table 7: Air fares for August 2017 itineraries (Source Flybe website)

From	To	Itinerary	Minimum Return ADS Fare	Average Return ADS Fare	Highest Return ADS Fare	Average Gross Return Fare	Average Return ADS Fare per route km	Average Return ADS Fare as % GDI
ILY	GLA	Day-return	£75.02	£95.61	£126.93	£149.55	£0.41	7%
ILY	GLA	Over-night stay	£89.68	£105.73	£126.93	£169.78	£0.46	8%
ILY	GLA	Weekend	£85.18	£95.80	£112.68	£149.91	£0.41	7%
BEB	GLA	Weekend	£98.27	£124.72	£159.18	£207.75	£0.25	9%
BEB	GLA	Over-night stay	£121.28	£150.57	£208.18	£259.46	£0.30	11%
SYY	INV	Over-night stay	£83.57	£104.13	£154.43	£172.83	£0.34	8%
SYY	INV	Weekend	£110.43	£126.47	£154.43	£217.51	£0.41	10%
SYY	INV	Day-return	£83.57	£90.92	£118.93	£146.41	£0.29	7%
KOI	EDI	Day-return	£148.72	£163.95	£193.72	£284.18	£0.24	13%
KOI	EDI	Over-night stay	£139.72	£167.60	£225.72	£291.48	£0.25	13%
KOI	EDI	Weekend	£140.72	£185.10	£257.72	£326.47	£0.28	15%
LSI	ABZ	Weekend	£169.13	£200.00	£238.13	£356.28	£0.33	13%
LSI	ABZ	Over-night stay	£117.74	£156.05	£187.13	£268.38	£0.26	10%
LSI	ABZ	Day-return	£111.74	£128.89	£165.13	£214.06	£0.21	8%

3.5.5 We would expect fare per km to decline the longer the sector distance. So the Islay and Stornoway routes are shorter so generally associated with higher per Km fares. However, we note that some of the Shetland fares are particularly expensive in km terms.

3.5.6 Residents are also paying high fares relative to disposable income in the Northern Isles routes. The affordability ratios for virtually all Northern Isles itineraries are in excess of 10%.

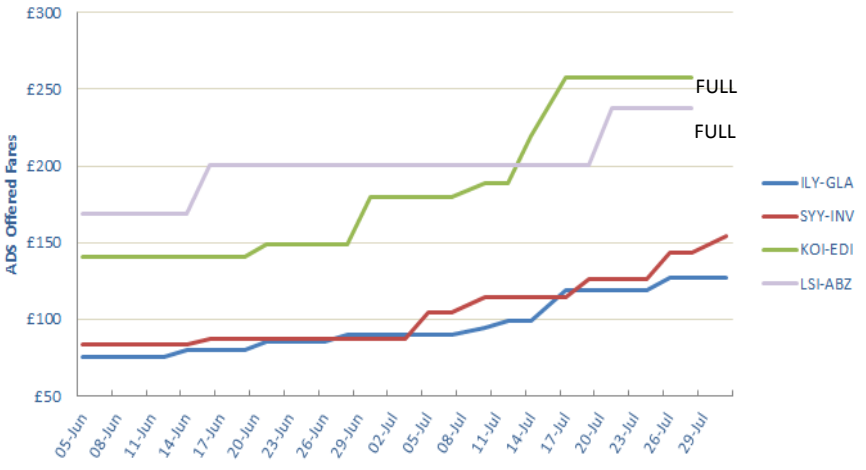
3.5.7 According to Figure 10, there appear to be different revenue management approaches between the routes when we observe the August 1st day trip itineraries (first flight out and last flight back). More active yield management is apparent in the Northern Isles with sharper escalation of fare levels at a considerable distance from the day of departure. This possibly reflects more active booking activity compared to the Western routes where fare escalation is much more gradual.

3.5.8 We also express these August day-trip fares as indices relative to the first fare observation two months from day of departure. This is shown in Weekend itineraries involve a departure to the mainland on the last flight on Friday August 4th with the return on the last flight back from the mainland on Sunday August 6th. On the Inverness route there is only one flight on Sunday to Stornoway.

3.5.9 Fare trajectories in Figure 12 are fairly uniform with a general escalation approximately three weeks before departure. The escalation is more pronounced on both northern routes and Benbecula-Glasgow with particular implications with regard to last minute bookings.

3.5.10 Figure 11

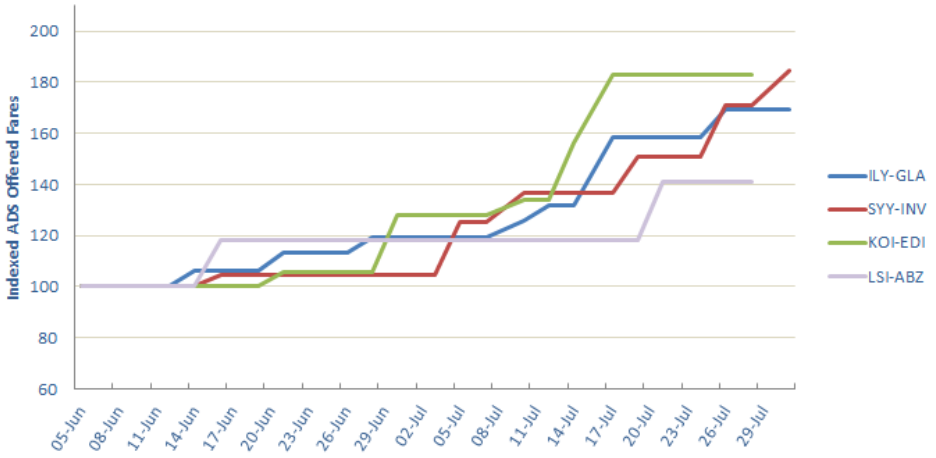
Figure 10: August 1 itinerary day return cheapest ADS return fare trends up to 2 months from departure



3.5.11 Weekend itineraries involve a departure to the mainland on the last flight on Friday August 4th with the return on the last flight back from the mainland on Sunday August 6th. On the Inverness route there is only one flight on Sunday to Stornoway.

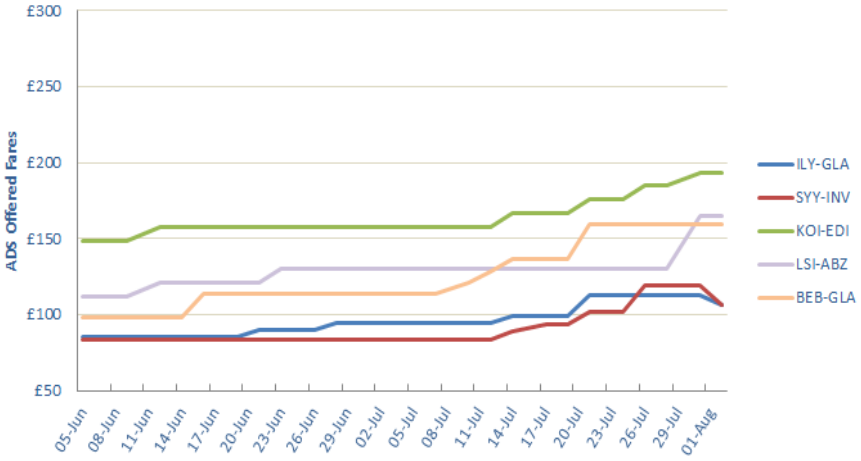
3.5.12 Fare trajectories in Figure 12 are fairly uniform with a general escalation approximately three weeks before departure. The escalation is more pronounced on both northern routes and Benbecula-Glasgow with particular implications with regard to last minute bookings.

Figure 11: August 2 itinerary day-trip return cheapest ADS return fare trends up to 2 months from departure (indices)



3.5.13 We also express these August weekend fares as indices relative to the first fare observation two months from day of departure. This is shown in Figure 13. Again we observe a more pronounced escalation with regard to Benbecula-Glasgow. Across the routes we also observe less fare escalation than on previous itineraries.

Figure 12: August 4 to August 6 itinerary weekend return cheapest ADS return fare trends up to 2 months from departure



3.5.14 We record over-night trip itineraries with an early departure (first flight) on August 2nd and the return on August 3rd on the cheapest flight. In Figure 14 below we note particularly active yield management on Kirkwall-Edinburgh and Benbecula-Glasgow.

3.5.15 We note with interest the fact that both Islay and Stornoway itineraries are full before the day of departure and that there has been a limited degree of escalation compared to the other routes. This does suggest a different yield management approach where the strategy appears to demonstrate that the airline is prioritising the need to maximise load factor and that these markets appear not to be able to sustain premium fares in contrast to the others.

3.5.16 We also express these August week-day over-night fares as indices relative to the first fare observation two months from day of departure.

Figure 13: Figure 12: August 4 to August 6 itinerary weekend return cheapest ADS return fare trends up to 2 months from departure (indices)

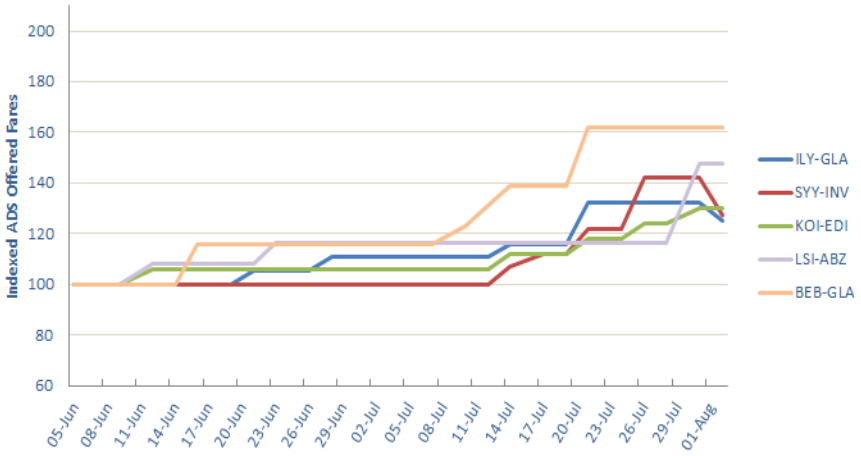


Figure 14: August 2 to August 3 itinerary weekday return cheapest ADS return fare trends up to 2 months from departure

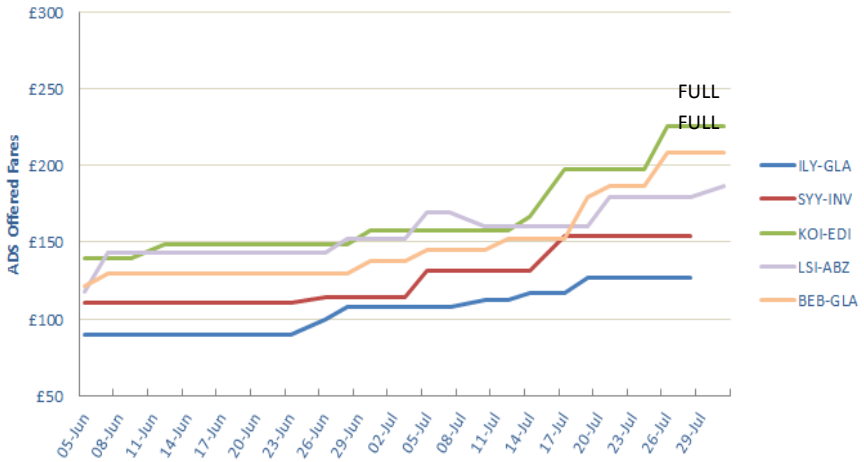
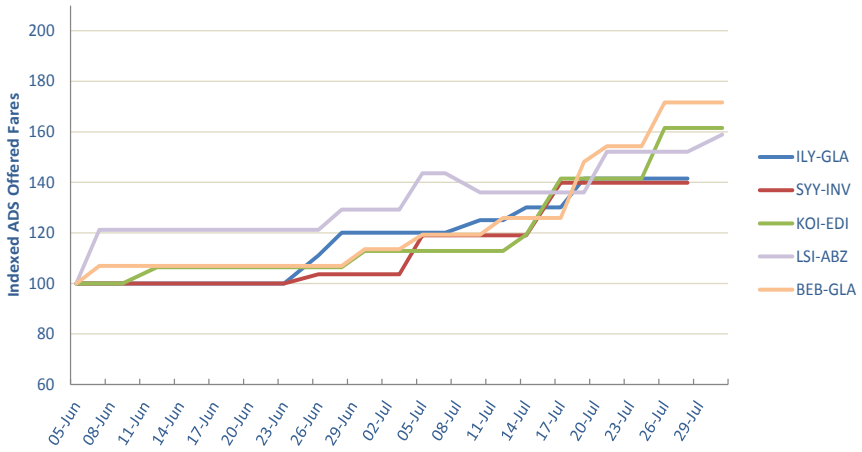


Figure 15: August 2 to August 3 itinerary weekday return cheapest ADS return fare trends up to 2 months from departure (indices)



3.6 Historical evolution of flight punctuality

3.6.1 We obtain published data from HIAL on both departures and arrivals punctuality for each route averaged over each year. We report annual averages for the period 2012-2016. Punctuality is measured by "on-time performance which is defined as the percentage of arrivals or departures that were declared "on-time". With the term "on-time" defined as a flight arriving or departing within a range which is between earlier than the scheduled arrival or departure time and no longer than 15 minutes later than the scheduled arrival or departure time.

3.6.2 There is no further more detailed information on the causes of delay that are available to us. The causes can range from adverse weather (beyond the control of the airline) to technical disruptions (within the control of the airline). It is for these reasons that one must exercise a degree of caution in interpreting trends across each route.

3.6.3 According to Table 8, we find that on average, across the network, departures punctuality is generally lower than arrivals punctuality.

3.6.4 Arrivals punctuality experiences a modest decline from a network-wide average of 87% in 2012 to 76% in 2015 before recovering to 80% in 2016. For departures, the contraction between 2012 and 2015 is much more significant, 80% to 65%, before a modest recovery to 69% in 2016.

3.6.5 These trends appear consistent with the widely reported reliability problems being experienced by Loganair up to 2015. Interestingly, Eastern Airways improves on-time performance on its two routes over the period 2012 to 2015, before reporting sharp falls to 68% and 74% for departures and arrivals respectively.

Table 8: Weighted average % of Departures and Arrivals at mainland airports on time 2012-2016 (source: HIAL)

		2012	2013	2014	2015	2016	% change 12-16	% change 15-16
Departures								
	Weighted average whole network	80%	76%	73%	65%	69%	-13%	6%
	Average Loganair routes	78%	73%	71%	62%	69%	-12%	10%
	Average Eastern routes	75%	77%	80%	82%	68%	-9%	-16%
	Between HIAL airports							
	Between HIAl and non-HIAL airports							
Arrivals								
	Weighted average whole network	87%	84%	83%	76%	80%	-8%	5%
	Average Loganair routes	86%	82%	82%	75%	81%	-6%	8%
	Average Eastern routes	79%	76%	75%	86%	74%	-6%	-13%

3.6.6 Table 9 shows arrival punctuality across each route. Some routes perform better than others. We can observe significant reductions across most routes between 2012 and 2015, especially arrivals at Sumburgh from Glasgow and Inverness from Sumburgh and Stornoway from Glasgow. There is a marked deterioration in on-time performance on arrivals at Stornoway from Aberdeen between 2015 and 2016.

3.6.7 Departures punctuality data by route shown in Table 10According to Table 10, the collapse in on-time performance between 2012 and 2015 is clearly apparent across most routes

Table 9: % arrivals on time at 2012-2016 across selected routes (Source: HIAL)

HIAL Airport	Arrivals from	2012	2013	2014	2015	2016	**Average**	% change 12-15	% change 15-16
Kirkwall	Aberdeen	86%	83%	85%	80%	84%	**84%**	-8%	5%
Kirkwall	Edinburgh	90%	88%	80%	76%	84%	**83%**	-16%	11%
Kirkwall	Glasgow	85%	81%	79%	73%	77%	**79%**	-14%	6%
Kirkwall	Inverness	85%	80%	83%	71%	83%	**80%**	-17%	18%
Kirkwall	Sumburgh	79%	76%	77%	69%	79%	**76%**	-12%	14%
Sumburgh	Aberdeen	88%	81%	82%	81%	86%	**83%**	-8%	7%
Sumburgh	Inverness	88%	83%	72%	77%	85%	**81%**	-12%	11%
Sumburgh	Kirkwall	81%	80%	81%	73%	82%	**79%**	-9%	12%
Sumburgh	Edinburgh	93%	83%	83%	78%	77%	**83%**	-16%	-1%
Sumburgh	Glasgow	83%	81%	83%	61%	69%	**75%**	-26%	13%
Inverness	Stornoway	94%	91%	89%	83%	86%	**89%**	-11%	3%
Inverness	Kirkwall	80%	83%	81%	70%	80%	**79%**	-12%	14%
Inverness	Sumburgh	92%	95%	86%	74%	93%	**88%**	-20%	27%
Stornoway	Inverness	94%	91%	89%	85%	87%	**89%**	-9%	3%
Stornoway	Edinburgh	90%	92%	87%	81%	82%	**86%**	-10%	2%
Stornoway	Glasgow	89%	86%	87%	71%	76%	**82%**	-20%	7%
Stornoway	Aberdeen	89%	86%	88%	89%	67%	**84%**	-1%	-24%
Benbecula	Glasgow	85%	82%	83%	69%	73%	**78%**	-19%	5%
Islay	Glasgow	83%	83%	84%	68%	72%	**78%**	-17%	5%
Wick	Edinburgh	85%	88%	81%	76%	76%	**81%**	-10%	0%
Wick	Aberdeen	76%	72%	71%	85%	78%	**76%**	12%	-8%

Table 10: % departures on time 2012-2016 across selected routes (Source: HIAL)

HIAL Airport	Departures to	2012	2013	2014	2015	2016	Average	% change 12-15	% change 15-16
Kirkwall	Aberdeen	81%	74%	71%	64%	71%	**72%**	-21%	11%
Kirkwall	Edinburgh	86%	78%	72%	65%	77%	**76%**	-24%	19%
Kirkwall	Glasgow	65%	62%	66%	56%	55%	**61%**	-14%	-1%
Kirkwall	Inverness	65%	70%	70%	58%	66%	**66%**	-10%	14%
Kirkwall	Sumburgh	68%	72%	74%	61%	73%	**70%**	-11%	19%
Sumburgh	Aberdeen	81%	72%	66%	66%	73%	**72%**	-19%	11%
Sumburgh	Inverness	84%	77%	65%	60%	86%	**74%**	-28%	42%
Sumburgh	Kirkwall	74%	70%	69%	53%	66%	**66%**	-29%	24%
Sumburgh	Edinburgh	86%	74%	68%	68%	69%	**73%**	-21%	2%
Sumburgh	Glasgow	63%	68%	65%	60%	65%	**64%**	-5%	8%
Inverness	Stornoway	86%	84%	84%	73%	75%	**81%**	-15%	2%
Inverness	Kirkwall	76%	72%	72%	60%	70%	**70%**	-21%	17%
Inverness	Sumburgh	71%	72%	59%	56%	69%	**65%**	-22%	24%
Stornoway	Inverness	86%	85%	82%	73%	79%	**81%**	-15%	8%
Stornoway	Edinburgh	83%	87%	75%	72%	66%	**76%**	-14%	-7%
Stornoway	Glasgow	80%	77%	73%	57%	61%	**70%**	-29%	8%
Stornoway	Aberdeen	84%	84%	82%	82%	58%	**78%**	-2%	-29%
Benbecula	Glasgow	78%	76%	73%	55%	56%	**68%**	-29%	0%
Islay	Glasgow	76%	77%	78%	63%	61%	**71%**	-18%	-3%
Wick	Edinburgh	80%	84%	75%	70%	65%	**75%**	-12%	-7%
Wick	Aberdeen	72%	75%	79%	82%	73%	**76%**	14%	-10%

3.6.8 The general recovery post-2015 reflects initiatives by Loganair to improve aircraft maintenance and engineering processes in 2016.

3.6.9 Table 11 combines on-time punctuality for all flights and we list in ascending order the most punctual routes in terms of the average achieved over the reporting period.

3.6.10 The Inverness-Stornoway route achieved the highest on-time performance, on average. Much lower levels of punctuality were attained on the Sumburgh and Kirkwall connections to Glasgow and the services between Sumburgh and Kirkwall.

Table 11: % all flights on time 2012-2016 across selected routes (Source: HIAL)

Airport	Airport	2012	2013	2014	2015	2016	**Average**	% change 12-15	% change 15-16
Inverness	Stornoway	90%	88%	87%	79%	81%	**85%**	-13%	3%
Stornoway	Inverness	90%	88%	85%	79%	83%	**85%**	-12%	5%
Stornoway	Edinburgh	87%	90%	81%	77%	75%	**82%**	-12%	-2%
Stornoway	Aberdeen	87%	85%	85%	85%	62%	**81%**	-2%	-27%
Kirkwall	Edinburgh	88%	83%	76%	70%	81%	**80%**	-20%	15%
Kirkwall	Aberdeen	84%	79%	78%	72%	77%	**78%**	-14%	8%
Sumburgh	Edinburgh	89%	79%	75%	73%	73%	**78%**	-19%	0%
Wick	Edinburgh	82%	86%	78%	73%	70%	**78%**	-11%	-3%
Sumburgh	Inverness	86%	80%	68%	69%	86%	**78%**	-20%	25%
Sumburgh	Aberdeen	84%	77%	74%	73%	80%	**78%**	-13%	9%
Inverness	Sumburgh	82%	83%	73%	65%	81%	**77%**	-21%	25%
Wick	Aberdeen	74%	73%	75%	83%	75%	**76%**	13%	-9%
Stornoway	Glasgow	85%	82%	80%	64%	69%	**76%**	-24%	7%
Islay	Glasgow	79%	80%	81%	65%	66%	**74%**	-18%	1%
Inverness	Kirkwall	78%	78%	76%	65%	75%	**74%**	-17%	15%
Kirkwall	Inverness	75%	75%	76%	64%	75%	**73%**	-14%	16%
Sumburgh	Kirkwall	77%	75%	75%	63%	74%	**73%**	-19%	17%
Benbecula	Glasgow	82%	79%	78%	62%	64%	**73%**	-24%	3%
Kirkwall	Sumburgh	74%	74%	75%	65%	76%	**73%**	-12%	16%
Sumburgh	Glasgow	73%	75%	74%	61%	67%	**70%**	-17%	11%
Kirkwall	Glasgow	75%	72%	73%	64%	66%	**70%**	-14%	3%

3.7 Loganair Fleet

3.7.1 Loganair has operated a mix of aircraft types over the years – including piston and turboprop aircraft and even, for a while in the late 1980s, regional jets. Today its fleet comprises 26 aircraft as shown in the table below.

3.7.2 The fleet is dominated by the Saab 340. The largest sized aircraft is the Saab 2000 and the smallest is the BN Islander, which operates on PSO services in the Orkney Islands.

Table 12: Loganair fleet composition

Aircraft Type	Number in Service*	Seats installed	Cargo config.	Cruising speed
Saab 340	13	34	3,000 kg	451kph at 6,096m
Saab 2000	5	50	5,500 kg	685kph at 9,450m
Dornier 328	3	31/32	--	620kph at 6,096m
DHC/Viking Twin Otter	3	18	1,600 kg	306kph at 2,430m
BN Islander	2	8	700 kg	241kph at 2,430m

Source Loganair website 2017

3.7.3 Table 13 below lists more detail on the Loganair fleet including age, flying hours and cycles completed. The age of the Loganair fleet becomes quite apparent.

Also over 50% of these assets are owned by Loganair, the rest leased.

Table 13: Detail of Loganair Fleet (source: flight global)

Model	Registration	Age (years)	Ownership	Hours	Cycles
Saab 2000	G-LGNR	24	Rockton Aviation AB	35322	33331
Saab 2000	G-LGNT	21	Loganair	35689	33851
Saab 2000	G-LGNO	22	Rockton Aviation AB	29604	28766
Saab 2000	G-LGNP	22	Rockton Aviation AB	32178	31170
Saab 2000	G-LGNS	21	Undisclosed	35528	33755
Dornier 328	G-CCGS	19	Loganair	16911	16782
Dornier 328	G-BYHG	19	Loganair	15452	13888
Dornier 328	G-BYMK	22	Loganair	18513	17975
Saab340 A*	G-GNTB	30	Loganair	42175	53842
Saab340 A*	G-GNTF	29	Loganair	35793	44695
Saab340 B	G-LGNH	24	Loganair	37152	39683
Saab340 B	G-LGNF	27	Lagavulin Leasing Ltd	41569	49690
Saab340 B	G-LGND	28	Lagavulin Leasing Ltd	43274	52361
Saab340 B	G-LGNB	27	Loganair	39056	50281
Saab340 B	G-LGNE	28	Lagavulin Leasing Ltd	43605	52719
Saab340 B	G-LGNC	25	Loganair	33184	43310
Saab340 B	G-LGNG	25	Loganair	42167	56376
Saab340 B	G-LGNK	27	Loganair	45248	51569
Saab340 B	G-LGNA	27	Lagavulin Leasing Ltd	38946	49690
Saab340 B	G-LGNZ	28	TAM AB	31458	47745
Saab340 B	G-LGNI	28	Loganair	47534	53441
Saab340 B	G-LGNJ	28	Loganair	45536	52352
Saab340 B	G-LGNU	27	Undisclosed	32839	35438
Saab340 B	G-LGNN	27	Loganair	49885	55887
Saab340 B	G-LGNM	27	Loganair	49167	54854
BN-2 B	G-BLDV	32	Loganair	17028	n/a
BN-2 B	G-BPCA	30	Loganair	20230	n/a
De H Twin-O	G-BVVK	37	Undisclosed	n/a	n/a
Viking Twin-O	G-HIAL	2	HIAL	n/a	n/a
Viking Twin-O	G-SGTS	2	HIAL	n/a	n/a

3.7.4 Loganair does make use of other aircraft occasionally on wet lease arrangements as short-term temporary replacements during periods of heavy maintenance. For example, they recently made use of an older ATR42 operated by Danish Air Transport and an Embraer ERJ-145 regional jet operated by its sister carrier, bmi regional.

Saab 340

3.7.5 Designed in late 1970s the Saab 340 first entered service in 1984 and proved popular, especially in the US, with commuter airlines and regional operators around the world. Variants built included the upgraded 340B and Cargo versions.

Figure 16: Saab 340 image (source: Loganair)

3.7.6 Saab ceased production in 1998 by which time 430 had been built. Saab still maintains a support capability as there are still over 250 of the type in service worldwide.

3.7.7 The largest operator is Rex Airways in Australia who have a fleet of around 55 Saab 340s with an average age of 22 years.

3.7.8 Currently Loganair is the third largest operator with 13 in service with an average age of 27 years. They are operated on both domestic and regional international routes with an average distance being around 160 nm (nautical miles).

3.7.9 Saab are claiming the aircraft is capable of operating, at typical regional utilisation, for a total of 75 years or 200,000 cycles based on structure fatigue testing. Upgraded avionics options are available to assist operators. For example, NextJet in Sweden has recently completed installation and trials of an Enhanced Global Navigation System (EGNOS)-based navigation system which improves airfield performance at remote airfields. (Source: GSA Europe press release 2017).

3.7.10 The Saab 340 is an ideal size of aircraft for the markets that are mostly served in the Highlands and Islands. It has the ability to be deployed across markets of different levels of traffic density. On the busier routes, such as Sumburgh-Aberdeen, the Saab 340 can offer multiple daily frequencies whilst on the low demand routes such as Wick-Edinburgh, the Saab 340 is economically-sized enough to be able to provide a daily service.

Saab 2000

3.7.11 More than a stretch of the 340, the Saab 2000 was designed as a higher speed turboprop specifically around the requirements of Crossair, a Swiss regional operator who had used the Saab 340 for a number of years. Unfortunately due to a combination of early teething problems and competition from the new 50 seat regional jets and less expensive lower speed turboprops, like the ATR42, the 2000 did not sell in large numbers and ultimately was one of the reasons for Saab's withdrawal from the commercial aircraft market; only 63 had been built.

Figure 17: Saab 2000 image (source: Loganair)

3.7.12 Loganair operates five Saab 2000 with an average age of 22 years and they are used on routes which require a larger aircraft than the 340s and a slightly longer range. Loganair, commonly deploys the Saab 2000 on the Glasgow-Manchester, Glasgow-Stornoway and Glasgow-Sumburgh routes. Since there is a relatively small number of aircraft in service around the world there are concerns about its continuing support from a maintenance perspective.

Dornier 328

3.7.13 Similar in size to the Saab 340, the Dornier 328 was designed in the 1980s with first of type entering service in 1991. Due to a number of production issues and competition from other turboprops and regional jets, it proved less popular than the Saab. A turbofan version was also built but finally Dornier stopped production in 2002 despite plans for a US company to continue production. There has been some discussion in Turkey of production being restarted there (see below).

3.7.14 217 units were manufactured (mix of turboprop and turbofan) of which around 166 are still in service. Loganair with five of the type is one of the largest operators today. Its aircraft are on average of 20 years old.

3.7.15 The 328 has a similar maximum range to the Saab340 but it has much higher cruising speed.

3.7.16 The 328s are used mainly on the Norwich routes to Edinburgh, Glasgow and Manchester.

Figure 18: Dornier 328 image (source: Loganair)

BN-2 Islander

3.7.17 Designed in the 1960s, over 1,200 units have been built over 50 years – it is an unpressurised piston-engined aircraft designed to operate in remote areas on short distance flights. Usually equipped with 9 seats it can also be used for coast guard and other surveillance activities. Over 700 are still in service worldwide and new types are available from BN's Isle of Wight facility. Loganair's two

Islanders are about 30 years old and these are specifically retained to operate the Orkney services network.

DHC / Viking Twin Otter

3.7.18 The Twin Otter is the ubiquitous remote regions aircraft with over 890 built and around 280 still operating throughout the world on wheels, skis and floats.

3.7.19 Viking Air took over the type support and started production of a new variant in 2013 – the 400 offers better performance and efficiency than previous versions.

3.7.20 Loganair operate a 37 year old 300 series and two 2 year old 400s, which are owned by HIAL and leased to Loganair as part of their PSO contract. Loganair has retained the 300 to support the PSO contract.

Figure 19: DHC Viking Twin Otter image (source: Loganair)

Replacement types

3.7.21 At some point Loganair's fleet will need to be replaced. Although the aircraft in service still have structural life left, the impact of maintenance and fuel costs and reliability issues will begin to impact the financial and operational performance of the airline. We consider the options for the replacement of the Saab 340s, Saab 200s and Dornier 328s.

3.7.22 For the Saab 340 / Dornier 328 it may require moving to a larger aircraft because manufacturers have stopped producing in the 30-seat market. There are other replacement turboprops such as BAe Jetstream 41 (29 seats) and Bombardier Q100/200 series. But all of these face the same challenges as the Saab 340 in that the units that are still flying are quite old.

3.7.23 The only replacement prospects seem to be with the Dornier 328 where there is a project by Turkish manufacturer TRjet to resume production, driven largely by opportunities they see in the Turkish domestic market. There have been delays to commencement of the manufacturing programme but sources at *Aircraft Commerce* have received assurances from TRjet that the programme is still proceeding as planned.

3.7.24 Loganair will need at some point to retire its Saab 340s. The closest replacement option which is still in production is the slightly larger ATR42 (48

seats). There are different variants of this aircraft with earlier 200/300 series being replaced by the 500 and 600 series. It is the 600 series which is still in production. We discuss in greater detail the economics of the ATR42 versus the Saab 340 in later sections of this report. The ATR42-600 has a much higher cruise speed compared to the Saab 340 of 556km/h. Loganair recently wet-leased in a Danish Air Transport ATR to temporarily replace one of its Saab 340s which was being re-painted.

3.7.25 Regarding the Saab 2000 (designed to carry 50 passengers) again, the ideal replacement would be the ATR42 which carries a similar number of passengers. There are regional jets available in the 50-seat category but again these are no longer in production. Bombardier and Embraer have ceased production of 50-seat aircraft, having moved into the more commercially attractive 70 – 100 seat market. Flybe will be using Eastern Airways Embraer 170 jets (80 seats) on some routes as part of its expansion into the Highlands and Islands market in September 2017.

3.7.26 Loganair's sister carrier Bmi regional operates 18 50-seat regional jets, so potentially these could be used on some sectors, even under a wet lease arrangement. But again they are out of production. Recently a ERJ-145 was wet-leased in by Loganair from bmi regional to operate on the Inverness-Manchester rotations.

Avionics systems and compatibility with new technology

3.7.27 One important dimension of the discussion around aircraft-types is how on-board avionics systems can be adapted and modified in order to achieve compatibility with new technologies in navigation.

3.7.28 One such development relates to satellite-based navigation systems. Commonly known as GNSS, these systems which rely on satellite navigation can replace ground based navigation like ILS which are more expensive. The European GNSS Agency (GSA) uses a satellite-based augmentation system known as EGNOS which is designed to improve the performance of GNSS. EGNOS improves the accuracy and reliability of GNSS positioning information.

3.7.29 Earlier this year Nextjet, which also operates Saab 340s, received funding from GSA to install systems which enable them to use EGNOS-based landing procedures. Tests were carried out in Scandinavia in April 2017. Nextjet obtained a Supplemental Type Certificate (STC) from EASA which allowed them

to install the system on their Saab 340s [4].

3.7.30 Newly manufactured aircraft do not need STC's as they will have been designed with compatible systems already installed. The ATR42-600 series are already fitted with EGNOS-enabled systems. Eastern Airways received funding in 2015 from GSA to install GNSS systems with the STC application managed by Cranfield Aerospace Ltd.

3.8 SWOT Analysis

3.8.1 We set out below, with respect to the Highlands and Islands air network our views on the Strengths, Weaknesses, Opportunities and Threats.

Strengths

3.8.2 The dominance of Loganair provides for network integration and consistency in terms of service delivery.

3.8.3 The entry of Eastern may precipitate a competitive rivalry which could stimulate intense price competition and improvements in the quality of service to passengers in those markets affected by new entry.

3.8.4 Loganair is well established and it is respected locally as a Scottish / Highlands and Islands community airline.

3.8.5 The network will be expanded considerably in terms of seats offered across all markets as a result of Flybe's entry into the market. Loganair had already planned to expand frequency across its network this summer.

3.8.6 Both airlines benefit from HIAL's low and subsidised airport charges.

3.8.7 Timetables on many routes provide for multiple rotations and achievable day-trip itineraries both for mainland and island-bound travel. This to, some extent, is a function of the deployment of the Saab 340 which allows for multiple rotations on low volume markets. On the busier routes Eastern will also be offering multiple daily rotations.

3.8.8 Loganair operates connectivity beyond its Aberdeen, Glasgow and Edinburgh hubs both on its network and that of its code share partner (British Airways). Eastern airways will also be able to offer connectivity beyond Aberdeen and Glasgow to destinations on its own network and that of its franchise partner Flybe.

3.8.9 There has been a significant improvement in Loganair's maintenance and

[4] A Supplemental Type Certificate is a national aviation authority approved modification or repair to an existing aircraft. As this adds to the existing Type Certificate it is deemed as being supplemental.

engineering management in 2016 which has improved punctuality across its network.

3.8.10 Loganair is a profitable airline which means that there is limited risk of capacity retraction in the short to medium term across its Highlands and Islands the network. This critically depends on how it is able to defend itself against Flybe's entry into the market.

3.8.11 The network is no longer dependent on one airline. i.e. no longer a single point of failure. So in the event that one of the airlines experiences significant operational and financial disruption, this will only affect segments of the network.

3.8.12 The Air Discount Scheme provides opportunities for island residents to access affordable air fares through up to 50% discounts on net air fares for non-business air travel to the mainland.

Weaknesses

3.8.13 Some routes appear to be performing poorly such as routes out of Wick, the Inverness services and Eastern's Aberdeen to Stornoway route, increasing the risk of exit in the short to medium term.

3.8.14 Loganair appears to be focused on expanding its hub network at Glasgow in preference to Edinburgh. Yet Edinburgh offers better onward connectivity opportunities to European and long-haul markets.

3.8.15 Most of the Loganair fleet consists of ageing Saab340 aircraft which are associated with higher maintenance costs. Eventually the aircraft will need to be retired. Fleet replacement options in the 30-40 seat range are limited.

3.8.16 There are no longer connections between Inverness and both Central Belt gateways. This is particularly inconvenient for those seeking day-return business travel. Air services would offer significant time savings as there are long rail, coach and road transit times between Inverness and the Central Belt. The lack of a connection also means that it is impossible to facilitate convenient connectivity between Inverness and the communities of Barra, Islay, Tiree and Campbeltown.

Opportunities

3.8.17 Cost savings and greater reliability can be achieved through the introduction of new solutions and technologies across the network. These range from the introduction of remote tower technology, risk-based passenger security screening protocols and GNSS global satellite navigation technology (provided appropriate modifications can be fitted onto the Saab 340s)

3.8.18 The certification of single-engine aircraft can open new opportunities to sustain smaller markets into the long-term and even introduce the possibility of competitive new entry on some routes.

3.8.19 It is likely that Sterling may continue to remain weak during the Brexit negotiating phase which could boost inbound tourism to the islands from foreign markets.

3.8.20 It is possible that new UK international trade agreements may benefit exporters in the Highlands and islands by opening by new commercial opportunities in emerging markets.

3.8.21 If we assume that the UK will exit the single aviation market but with access to EU markets governed by a UK-EU liberalised air services agreement then it is possible that the UK will no longer be restricted to the use of a limited range of subvention instruments (PSO, ADS). This opens an opportunity to design more bespoke solutions to solve connectivity and affordability challenges in remote air transport markets provided this can be facilitated by an enabling and supportive environment at UK government level.

3.8.22 Aviation has the opportunity to function as an enabler for the future economic development of the region through facilitation of convenient and affordable air services which in themselves can reduce isolation and potentially reversing future risks of de-population.

Threats

3.8.23 Loganair decide through change of strategy to exit some low-density markets. This could come as a result of a change in ownership where the airline would re-set its network strategy by expanding domestic services to other UK regions. This could also come as a consequence of losing its battle with Flybe. If the airline suffers financially then it could reduce capacity on some of its weaker sectors (e.g. Edinburgh-Wick, Inverness-Kirkwall-Sumburgh).

3.8.24 Higher fuel prices accentuated by a weakness of Sterling against the US Dollar could adversely affect route economics leading to capacity retraction at multiple points across the network.

3.8.25 Uncertainties around Brexit could reduce air travel demand to and from the islands.

3.8.26 Future population projections do indicate that some island communities on the west coast will de-populate. This will reduce the demand for air travel in these markets.

3.8.27 As capacity becomes increasingly constrained at Edinburgh, the airport operator

may be tempted to raise charges, possibly discriminating against small aircraft operations. This will affect the continued commercial viability of some Loganair services.

3.8.28 The ageing of Loganair's fleet and the lack of ready replacement options means that there is a risk that services could be withdrawn.

3.8.29 There are future risks around the availability of pilots, engineers and air traffic controllers to support air services. This could be especially pronounced if restrictions are imposed on the future employability of EU nationals following the UK's exit from the European Union.

3.8.30 There will always be a risk of possible Scottish Government funding cuts which may reduce revenue and capital subsidies to HIAL. Without these cuts being compensated by non-aeronautical revenue development, HIAL may need to raise airport user charges which may affect the future continuity of some routes in the network. This is quite a significant point because it may be that many of the solutions we consider in this report to maintain connectivity may require enhanced public spending commitments from the Scottish Government.

4 Use of Public Service Obligations (PSO)

4.1 Definition and overview

4.1.1 The Public Service Obligation (PSO) is the main instrument that is used by EU member states to protect and support air services to remoter regions. Legal provisions relating to how PSOs are applied and administered are set out in Articles 16 to 18 of EC Regulation 1008/2008. Member states are responsible to the European Commission for ensuring that PSOs operating within their jurisdictions are compliant with the Regulation.

4.1.2 Member states determine whether a PSO should be imposed on a specific market. The Regulation allows for PSOs to be imposed on routes that: connect to peripheral or development regions, are thinly trafficked and, are vital for economic and social development. Member states also need to consider whether other modes of transport can sufficiently satisfy the mobility needs of the affected population before considering the implementation of a PSO.

4.1.3 Some Member states have made more extensive use of PSOs; France is a good example. Most UK PSOs are in Scotland on intra-island services in Shetland, Orkney and the Western Isles, and on services linking the mainland airports of Glasgow and Oban with remoter islands. The focus in Scotland is very much on using PSOs sparingly on ultra-peripheral markets where population densities are low and communities isolated.

4.1.4 The approach is different in other countries. For example, PSOs can be found on more heavily trafficked domestic routes in France and Italy that connect hub airports with island communities.

4.1.5 The PSO is a contract between a public authority (national, regional, local government) and an air carrier, awarded through a process of competitive tendering. The Invitation to tender and the subsequent contract specify the service requirements (frequency, capacity) and pricing regulations that need to be fulfilled by the airline. Invitations to tender must be communicated via the *Official Journal of the European Union*.

4.1.6 The tendering process has two phases. The first phase involves eligible carriers being invited to meet the conditions of the PSO without subsidy. There is no restriction on the number of airlines allowed to operate on the route. If there is an airline willing and able to fulfil the conditions without subsidy, then it will be permitted to operate the route with no limit on the ability of other airlines to enter the market. This arrangement is referred to as an “Open Access” PSO and these account for approximately 22% of all PSOs currently operating across the EEA.

4.1.7 If there are no air carriers willing to operate without a subsidy, then the public authority re-tenders the PSO. Provided it is successful in attracting interest, access is the restricted to the successful airline who, in return for meeting the conditions of the contract, will receive a subsidy to cover the losses incurred. Restricted access PSOs are by far the most common in Europe because most of the routes are fundamentally uneconomic without subsidy. Public authorities generally select the carrier that demands the lowest level of subsidy, thereby reducing pressure on national budgets.

4.2 The strengths and weaknesses of the PSO mechanism

Strengths

4.2.1 The PSO instrument ensures that regions and communities have access to a mechanism which allows for essential air services to be protected from risk of discontinuity. Since the deregulation of airline markets and the prohibitions against state aid, the risks that airports and communities can lose air services is much greater now than it was before.

4.2.2 The PSO instrument has proved to be popular as the number of routes which have had PSOs implemented on them has grown since the first tenders were issued in the early 1990s.

4.2.3 The PSO instrument provides for a degree of consistency and uniformity and its provisions and clauses are well understood by both public authorities and air carriers.

4.2.4 PSOs can provide a guarantee for communities and can also be used to address a multiplicity of market failures from inadequate frequency to excessive fares and can be tailored to address particularly local mobility challenges.

4.2.5 Unlike the US Essential Air Services Scheme, which is quite prescriptive in its community qualification criteria, the PSO allows for a considerable degree of subsidiarity. Member states interpret the qualification criteria in their own way and can reference it to their own social, economic and fiscal priorities.

Weaknesses

4.2.6 PSOs are, in essence, a Principal-Agent contract involving on the one side a public authority (Principal) which has a given set of social, economic and financial objectives and on the other side, an airline (agent) which will have its own commercial interests.

4.2.7 Airlines will only participate in a PSO tender if they feel that the returns (which is a combination of operating revenue and subsidy) exceed the costs of operating the contract and that the anticipated commercial risks facing them

are minimised.

4.2.8 One particular risk is that they incur losses on the contract because their predicted subsidy was lower than the actual deficit incurred in operating services. The cost facing an airline include: the operating expenses associated with delivering air services and the transaction costs associated with the PSO contract. The latter element is quite important because airlines incur costs associated with bidding for PSO contracts and in preparing for the commencement of operations if they win a competitive tender.

4.2.9 One of the most critical issues with regard to the success of a PSO tender is in being able to attract the interest of as many bidders as possible. Highly competitive tenders have the potential to offer public authorities and their communities a wide choice of air carriers and service propositions and of course the prospect of lower levels of subsidy.

4.2.10 One of the problems with PSOs generally across the EEA is that they do not attract significant interest from airlines; tenders are often contested by one carrier. In the majority of these cases it is the current incumbent airline which is the only carrier willing to contest the tender. In these instances and if incumbents anticipate limited competition for a tender, they have an incentive to demand a higher subsidy which could generate excess returns based on very generous assumptions relating to their operating cost projections. These generous assumptions may not be challenged by public authorities due to the presence of information asymmetries that may exist between themselves and the airline; a widely recognised problem common to many in principle –agent contracts [5].

4.2.11 Tenders are open to any registered EEA airline. But seldom are we able to reference examples of where airlines from one state are able to secure PSO contracts in other jurisdictions. In contrast to the experience of the UK rail industry where foreign train companies have bid and secured contracts to operate franchises, the experience of air services PSOs have been very different. A cursory glance across the EEA will reveal that the vast majority of PSOs are operated by local airlines.

4.2.12 In many cases operator entrenchment in these markets stretches back decades even before the advent of PSOs (SATA in the Azores, Binter Canarias in the Canary Islands, Wideroe in Norway and Loganair in the Scottish Highlands). Roots are deep and pubic authorities perhaps reticent at taking significant risks

[5] This is where public authorities have very limited knowledge of airline economics so they will not be in a position to challenge revenue and cost assumptions and projections.

by awarding contracts to other untested, inexperienced airlines. This situation is compounded by an expectation by potential new entrant bidders that there is little hope for a successful outcome because historically the public authority had repeatedly favoured the incumbent.

4.2.13 Another barrier to entry in external PSO markets, is the presence of cultural and language barriers which may also act as a disincentive to operate PSOs in other regions. The need to recruit pilots and cabin crew being one of the most significant risks.

4.2.14 Tenders are generally unsuccessful because there are features and attributes associated with the PSO mechanism that are actually quite restrictive, dissuading potential airlines from bidding.

4.2.15 Timescales set out in the regulation are quite restrictive. Airlines may not even hear about potential tenders because public authorities are only obliged to publish notices in the official journal of the European Union. Some also publish notices on their websites. Operators are only given 4 weeks to respond to a tender which may be insufficient for airlines to prepare and submit robust financial and technical proposals to public authorities.

4.2.16 Contracts run for a maximum of four years, with ultra-peripheral routes able to extend to five. The four-year contract duration can be quite short leaving little opportunity for new entrant airlines to settle and to develop a longer-term more developmental and innovate approach to operating the contract. Franchises in other sectors of transportation run for seven years. Surprisingly, we note that the most recent Argyll and Bute Council tender for its PSO services linking Oban with the isles is for three years.

4.2.17 The regulation does permit a degree of local flexibility in terms of not only whether to implement PSOs on a particular market but also how some technical aspects of the PSO tender processes are managed. So invariably one will find variation between states as to how restricted or flexible they are in how the rules are interpreted. One interesting example, cited by research undertaken by Merket and O'Fee (2016)[6], focusses on the lead-time between the award of the contract and the commencement of operations. The regulation states that the invitation to tender must be published at least six months prior to the commencement of operations. Many public authorities issue their invitation tender at the six month stage which for many operators is too restrictive. The regulation actually allows for much longer lead-time and that the six-month

[6] Merket R, O'Fee B (2016) Managerial perceptions of incentives for and barriers to competing for regional PSO air service contracts, Transport Policy 47, pp 22-23

juncture is the minimum rather than the norm. Their research also identified another interesting finding from their survey of EEA public authorities. Many public authorities reported that they permitted contracted operators to use aircraft, dedicated for PSO operations, on commercial sectors. Some public authorities, though, are very strict regarding the use of subsidised assets on commercial sectors, being sensitive of issues around the use of state aid with consequences for unfair advantage in competitive markets.

4.2.18 The timeframes appear to have been crafted with little appreciation of the complexities associated with establishing air services in challenging operating and commercial environments. In many instances bidding operators would need to consider the costs of establishing a new base with all the additional associated complexities and business challenges.

4.2.19 EU policy-makers and public authorities recognise and accept that market forces should ultimately determine the supply and pricing of air services in all markets making the use of PSO the exception rather than the rule.

4.2.20 Ideally public authorities and contracted airlines should be working towards using PSOs as a temporary instrument so that in due course, there is a gradual and sustained progression from regulated and subsidised provision to a fully commercial market-orientated operation.

4.2.21 However, experience informs us that there appears to be a sense of permanency in terms of how the pattern of PSOs have evolved across the EEA. There have been very few examples of instances where PSOs have been removed and air services have continued under deregulated and subsidy-free conditions (the only recent example being the withdrawal of PSO on services between the Portuguese mainland and the Azores). This suggests that there are mechanisms within the PSO instrument or how public authorities manage contracts that do not provide sufficient incentives on operators to improve passenger volumes.

4.2.22 Merket and O'Fee (2016), in particular bring this feature of PSO practice to attention in their research. Tendering processes essentially incentivise bidders to curb proposed marketing expenditure. Perhaps the prospect of subsidy reduces the incentive to consider marketing seriously. This means that winners commit themselves to limited marketing budgets. Furthermore, there are also disincentives stemming from the way subsidy is typically paid where risk is allocated disproportionately to air carriers. Most public authorities pay subsidy at a level that is equivalent to the maximum that has been demanded at the tender. If the outturn losses incurred by the airline are less than predicted then the tendering authority will pay an equivalent lower amount of subsidy. These

disincentivise the air carrier from achieving greater levels of efficiency and revenue generation in excess of that forecasted at the tender.

4.2.23 There are two solutions to this problem; one is to build mechanisms into the contract to reward operators who exceed targets and lower subsidy; the other is for the public authority to take greater control and ownership of marketing budgets for their respective PSOs; as recommended by Merket and O'Fee (2016).

French PSO case study

4.2.24 Much comment has been made with regard to the use of PSOs by France. Williams and Pagliari (2004) [7], for example, cite possible misuse or over-use of PSOs on markets that are seemingly, at least at a superficial level in volume terms, commercially sustainable.

4.2.25 The French DGAC (CAA) has been in discussion with UAF, the Union of French Airports, about the proposed future shape of PSO's in France as there is growing concern around the costs of PSO. There appears to be a shift in policy with the objective now being to have less state (national) -level participation in PSO's with a new commitment by the state to significantly reduce its financial contributions to the French PSO programme. Only regional funding will be provided in future and there is a plan to modify PSO structures in order to make it clearer and less constraining. The DGAC has agreed in principal to these changes.

4.2.26 The future focus at regional level will be on routes that are of "vital" character and are essential to the economic development of the region. The framework will be relaxed in order to allow for lower frequency, less expensive options, (e.g. one per day frequency) and there will be a clear requirement on local communities to demonstrate the economic benefit of the PSO. If these changes are agreed there will then be a consultation with the European Commission.

4.2.27 Under the current French approach to using PSO regulations, contracted airlines can add frequency and capacity beyond that covered by a minimum requirement but it must not be subsidised. If this additional capacity is profitable then the subsidy can be reduced on the other services.

4.2.28 There is a strict requirement for separate accounting to prove that the additional capacity is not benefiting from the subsidy provided on the other frequencies.

[7] Williams G, Pagliari R (2004) A comparative analysis of the application and use of public service obligations in air transport within the EU, Transport Policy, 11 (1), pp 55-66.

4.3 UK policy on and use of PSO

4.3.1 A meeting with Mr Ian Elston at the Department for Transport (DfT) was held to discuss their views on PSO policy in the UK.

Institutional arrangements

4.3.2 In the UK, ultimate responsibility for ensuring compliance with the EU PSO Regulations rests with the DfT.

4.3.3 Different arrangements exist within the UK regarding who has over-sight and administration of PSO contracts. The Scottish Government through Transport Scotland (TS) has responsibility for PSOs on internal air services within Scotland and a similar arrangement exists in Wales. The DfT is responsible for over-sight of internal PSOs within England and any across border PSOs between the UK regions. The DfT also has the view that PSOs should be administered by either local, regional or national levels of government and not airport operators.

4.3.4 Unlike other states, the scope and use of PSOs in the UK is quite limited. In Scotland, Transport Scotland currently administers PSOs linking Glasgow with Barra, Campbeltown and Tiree. Argyll and Bute Council manages the PSO contract liking Oban with Coll, Colonsay and Tiree. Orkney and Shetland Island Councils administer the PSOs that govern the provision of inter-island air services. It is highly probable that any new inter-regional PSOs in Scotland that cross local authority boundaries would come under the administrative authority of Transport Scotland.

4.3.5 As far as administration of PSOs is concerned, Transport Scotland enjoys a considerable degree of autonomy. Indeed there appears to be a very good working relationship with officials in the DfT. The DfT, as the entity answerable to the European Commission under the Regulation, would expect to be kept informed by Transport Scotland of any changes to the scope and nature of PSOs in Scotland.

DfT criteria for implementing new PSOs

4.3.6 It is the policy of the DfT not to implement PSOs on new unserved air connections within its jurisdiction (England regions and intra-UK).

4.3.7 The only circumstances in which the DfT would consider a PSO is if there is a threat to the continuity of an existing commercial air service. So a complete loss of connectivity would be their definition of market failure. They would not intervene in circumstances where there appeared to be perceived deficiencies in air services or evidence of monopoly pricing restricting travel mobility. Interestingly their definition of market failure is also the same as the CAA's.

4.3.8 The DfT has issued formal guidance on the criteria they would apply in approving applications for PSO designation (to English regions and intra-UK only). Only current air services from the UK regions to any of the London airports would quality for PSO designation. Their guidance document provides more detail on clearer definitions of the EU Regulation criteria relating to thin route, development region and peripheral region.

4.3.9 The DfT would expect the administration and tendering of PSOs within their territorial jurisdiction to be undertaken by prospective tendering authorities who could either be a local authority or any one of the devolved administrations. Prospective tendering authorities need to submit a formal application to the DfT setting out the commercial and economic case. The DfT would then evaluate each application within a cost-benefit appraisal framework. Communities stand a greater chance of successful applications the more dependent they are on air services relative to other modes of transport with regard to accessibility to and from London.

4.3.10 If the DfT accepts an application, the public authority would then manage the tender process. On receipt of proposals from airlines responding to the tender, the DfT would have some input with regard to final selection. Subvention would be jointly funded by both the DfT and the public authority.

4.3.11 It is not clear whether Transport Scotland operates a similar application and appraisal framework within its jurisdiction.

DfT approach to deviations from standard PSO practice and alternative solutions to market failure

4.3.12 The DfT very much views PSO as a last resort believing that were there is a risk of air service discontinuity, local stakeholders should have exhausted all efforts to attract replacement air services. Local authorities would have been expected to have shown evidence of initiatives undertaken to persuade existing operators to either change their plans and / or to attract replacement airlines.

4.3.13 One interesting element of the guidance framework is that there exists an early warning system designed to encourage airlines to notify the relevant local authority, regional stakeholders and the DfT of an intention to withdraw air services. Although this scheme is voluntary, it does provide relevant stakeholders with sufficient time to communicate and engage in conversations around providing replacement air services with other carriers. This should also provide a sufficient time-frame in which to prepare a PSO application. However, it is important to note that the arrangement is voluntary and that there is no firm guarantee that sufficient notice will always be provided.

4.3.14 It is not clear whether such an informal arrangement exists within Scotland with regard to air services operated by Loganair and Eastern Airways. One would expect that both airlines would provide sufficient notification and that a similar arrangement to that mentioned in 4.3.13 would not be required. Indeed, general experience indicates that airlines, unless there are experiencing significant financial challenges, would complete the delivery of flights on a route up to the end of the season before withdrawing flights.

4.3.15 The DfT remains firmly of the view that the UK should comply fully with EU regulations on PSO and that there is limited scope for deviation. If there was a proposal to deviate, the DfT would be expected to be notified and consulted. The DfT was asked to consider the following hypothetical cases.

- **Case 1: Joint commercial / PSO**. There is a commercial air service operated by one airline between two airports; one a major hub and the other a remote island. There are two flights per day. A public authority believes that there is sufficient demand to travel for a third rotation at a lower price but the existing airline is acting monopolistically by restraining supply and increasing price, making air travel unaffordable. The public authority are seeking to implement a PSO on the route which is in parallel to the existing commercial operation. So inviting airlines to bid to operate a subsidised third cheaper daily rotation.
- **Case 2: Temporary bespoke instrument in response to short notice exit on commercial regional air service linking hub to remote island**. An operator decided to cease commercial air services at very short notice on a route linking a mainland hub with a remote island. The public authority then approaches an airline and agrees a contract where the airline operates to fixed conditions in return for a subsidy that is negotiated.
- **Case 3: A state-owned airport authority setting up its own airline.** An airport authority decides to set up its own airline to ensure continuity of air services. This follows from the termination of an air service on a commercial rote and the subsequent failure of a PSO tendering exercise.

4.3.16 The DfT view of Case 1 would be as follows:

- They would need to understand what the social and economic benefits would accrue as a result of implementing the PSO.
- They would be quite uncomfortable with such an arrangement as it seems to run counter to procedures and guidance in the EU Regulation.
- If the tender was secured by another airline and a subsidy was awarded, the incumbent airline would have a very strong case for taking legal action

against the public authority on grounds of unfair competition where state aid is being used to provide a second airline with subsidised commercial advantage.

- In considering solutions that could be classed as novel and contentious, public authorities would be advised to seek legal advice in the first instance.

4.3.17 The only circumstances where it would be possible to have two parallel and divergent regulatory arrangements on a route would be where a public authority is able to impose a PSO that is limited to particular months of the year so the minimum conditions and subsidy would only apply for the term of the PSO which may only be for three of four months. Such PSOs already exist in highly seasonal markets.

4.3.18 The DfT view of Case 2 would be that provided that there was a sufficient and convincing social and economic case in terms of degree of Peripherality / lack of mobility alternatives and that there was no prospect of an imminent commercial unsubsidised replacement solution, then this proposition would be more favourably received provided appropriate consultations had taken place with the European Commission.

4.3.19 Case 2 does raise various risks in terms of the possible subvention level that is negotiated. In the absence of a competitive tender, the contracting air carrier would have significant negotiating leverage in being able to extract what could be a considerably inflated subsidy.

4.3.20 In Case 3, the DfT opinion was that legal advice would need to be secured by the state-owned airport authority in terms of ensuring compliance with competition law and state aid rules.

4.4 Brexit and PSO

4.4.1 PSOs are not simply restricted to EU member states. The Regulation applies to all members of the European Economic Area which includes EU states plus Norway, Iceland and Liechtenstein. Those countries by virtue of belonging to the EEA have signed up to the single aviation market and are therefore required to comply with its regulations. Both Norway and Iceland operate PSOs, the former quite extensively.

4.4.2 There are two likely Brexit scenarios that need to be considered:

- Continued access to the European Common Aviation Area through UK membership of the European Economic Area; similar arrangements as applies to Norway and Iceland.
- A comprehensive fully liberalised bilateral air service agreement between

the UK and the EU; similar to the one between Switzerland and the EU. This would give UK airlines access to the single aviation market. But, it would not grant UK airlines the right to operate within and between EU states and likewise EU registered airlines would not have the right to fly domestically in the UK.

4.4.3 Should the UK and EU fail to reach an agreement on arrangements for exiting the EU and on access to the single market, it is likely that a transitional agreement would be secured that would allow current arrangements with regard to market access to continue until a full and comprehensive arrangement has been finalised.

4.4.4 If the UK chooses to remain within the EEA, then access to the single aviation market will continue which means that the EU regulation and the Articles on PSO would still apply.

4.4.5 If the "Swiss Model" is adopted then the UK would no longer be obliged to adopt EU Regulation and provisions relating to PSO. The current bilateral agreement between the EU and Switzerland, signed in 1999, contains no provision for the use of PSO in Switzerland. Therefore, an opportunity would present itself to develop new regulatory instruments that are an improvement on PSO or even better, can be designed to suit local conditions across different regions of the UK.

4.4.6 Under the current PSO framework, tenders are open to any EU/EEA-registered air carrier. If the "Swiss Model" is adopted and the UK developed its own version of PSO, then a decision would need to be taken as to whether non-UK registered air carriers would be permitted to participate in a UK PSO tender. This is extremely important the relatively small number of regional airlines in the UK would limit the pool of eligible participants which would have implications for the future success of any UK PSO tender and for the continuity of air services in those markets.

4.5 EU DG MOVE view on novel and contentious propositions

4.5.1 A meeting was held with Mr Pekki Heitanen who is the senior official with responsibility for coordination and monitoring of the use of PSOs by member states.

4.5.2 The aim of the meeting was to solicit his views on five aspects related to how flexible the PSO mechanism is in being able to address particular air service connectivity issues in the Highlands and Islands and to what extent it is possible to deviate from normal conventional practice in how the instrument is used. The areas of novelty and contention are set out as follows.

- Can an emergency PSO be implemented in response to a short notice withdrawal of commercial air services to a remote community that is highly dependent on air travel?
- Is it possible for a PSO operator to deploy aircraft assets that are predominantly utilised for PSO services, on commercial / non-subsidised sectors?
- Can the principal-agent boundary that is typical in a PSO be redefined to allocate more commercial risk to the public authority?
- Can a PSO operate in parallel with a commercial operation on the same route?

Emergency PSO

4.5.3 Assume that an air carrier on a commercial route withdraws operations at very short notice to a remote community that is highly dependent on air travel. The long lead-time associated with implementing a PSO which extends from the initial application, which to some extent could be dependent on available finance from government right the way through to tendering and commencement of operations makes the PSO instrument an impractical short-term solution to air service discontinuity.

4.5.4 Assume a public authority decides to circumvent this process and instead enters into a negotiated PSO-style contract with an air carrier to provide air services in return for subvention. This arrangement is transitional and limited term in duration and is intended to support air service connectivity in the interim until a PSO can be established.

4.5.5 It is the opinion of Mr Hietanen that there is no legal provision within Regulation 1008/2008 that allows for such an instrument. The only reference to Emergency provision within the Regulation is for circumstances where an existing PSO is terminated at short notice.

Utilisation of PSO aircraft on commercial sectors

4.5.6 The issue here is whether a PSO carrier can use its PSO-dedicated aircraft on commercial sectors.

4.5.7 It is the opinion of Mr Hietanen that there is no limitation on the deployment of PSO-contracted aircraft on commercial non-subsidised sectors

4.5.8 Our view is that there is a contentious issue here relating to how costs are allocated between PSO and non-PSO operations and how this might affect competition with other airlines on commercial sectors. A PSO operator may have an incentive, particularly, if they do not anticipate competition from other

carriers for the tender, to allocate all or a significant proportion of the aircraft fixed costs to PSO operations, which is then recovered by subsidy. This can provide the airline with an unfair cost advantage should they decide to operate commercial sectors using the same aircraft in markets where they are competing directly or indirectly with another carrier. The Dundee-London Stansted PSO is a relevant example. If Loganair choose to operate the Saab 340 on services to Manchester and Birmingham, Flybe, which operates to these airports from nearby Edinburgh, may have grounds for complaint as Loganair is using its PSO as a platform to compete unfairly against its existing commercial services

4.5.9 According to published research, the deployment of PSO aircraft on commercial sectors is fairly common across the EEA. Indeed, the current PSO between Stornoway and Benbecula operated by Loganair uses a Saab 340 which is based in Inverness and operates commercially to and from Stornoway to support the PSO rotations.

4.5.10 A commercial airline would need supporting evidence on the allocation of costs between PSO and commercial sectors to sustain any legal complaint. Competition authorities would need to examine the financial statements of PSO contracted air carriers to identify whether there had been an appropriate and reasonable allocation of costs to PSO operations.

Deviating from standard use of PSOs / Public authority bearing more commercial risk

4.5.11 Given the inherent deficiencies and shortcomings defined earlier with regard to how airlines market their services on PSOs, one solution could involve the public authority bearing greater commercial risk by extending responsibility to assuming control of marketing, pricing and ticketing. It collects the sales revenue directly from the sale of tickets and ancillary services. There is a PSO with a contracted airline where in return for meeting service standards, timetabling and capacity requirements is reimbursed on the cost of its operations. This arrangement is closer to a traditional airline industry wet-lease agreement.

4.5.12 Mr Hietanen is not aware of any such use of the PSO mechanism and does not offer any definitive opinion on whether such an arrangement is legal / possible or not.

4.5.13 We consider a revised PSO of this nature in Chapter 6 (Comparison of Virtual airline and PSO)

5 Airline Options

5.1 Introduction

5.1.1 Rather than rely solely upon commercial market activities, we have looked at two airline business models that HIAL could establish in response to a route withdrawal or market failure by an existing operator.

5.1.2 The two options are either a virtual airline or an owned airline. Each is discussed separately below.

5.2 Virtual Airline

5.2.1 A virtual airline is a business that markets and sells air services but uses chartered-in aircraft from an operator holding an AOC (Aircraft Operators Certificate). This concept separates the commercial activities from the operational aspects.

5.2.2 In the UK, virtual airlines have been relatively uncommon and have typically appeared as an introductory phase whilst a company sets up its own AOC (for example the launch of Easyjet) or have been longer term activities using aircraft of 19 seats or lower capacity. This pattern developed as a result of the UK's regulations concerning airline and air transport organiser licencing - a virtual airline falls into the category of an Air Travel Organiser and is therefore required by law to hold an Air Travel Organiser's Licence [8](ATOL) under the CAA's ATOL scheme unless flights are operated by aircraft of 19 seats or less which are currently covered by an exemption.

5.2.3 Outside the UK, virtual airlines have been particularly common in Sweden where the Sverigeflyg group of companies sprang up several years ago comprising several virtual airlines offering regional services across the country. These businesses operated successfully for around 10 years. However, over time, the range of airlines providing capacity to the companies shrank until just one business was offering all the flying. This airline then acquired the Sverigeflyg companies to return to a conventional regional airline structure. These operations used aircraft from 34 to 72 seats in capacity as Sweden does not have an equivalent to the UK ATOL scheme. The virtual airline model continues in Sweden with smaller companies such as Direktflyg using 19 seat turboprops from a Dutch operator and Sparrow Aviation flying a summer-only programme with 50 seat turboprops.

5.2.4 A virtual airline structure does provide HIAL with a potential approach to have

[8] Any UK-owned entity that plans to sell air tickets must have an ATOL license from the UK CAA

an airline like solution on standby to cover for a market failure or route withdrawal.

5.2.5 The virtual airline company would need to be a separate entity from the airport business but could share staff and facilities. So the entity could in effect be a wholly-owned subsidiary limited company.

5.2.6 A suitable website and internet booking engine would need to be available to provide a platform to advertise and sell of tickets. Discussions with potential providers of such services suggest that such a capability could be provided and held on standby for a cost in the order of £10,000 per annum. The providers also have workable solutions for payment gateways to allow credit card transactions to be supported.

5.2.7 Providers indicated that they could offer very short implementation times, of the order of two weeks, for a complete solution which offers the option not to hold the booking site on standby as the providers also pointed out that there would likely need to be a period set aside for staff training if the system had been inactive on stand-by status for a long period.

5.2.8 The potential providers of internet booking engines indicated that they could provide a solution that would accommodate the Air Discount Scheme but they would need to address this as part of the initial development based upon a more detailed understanding of how the ADS log-on identities are controlled. Since this issue has been solved for several other reservation system platforms in the past this is not considered to be a significant hurdle.

5.2.9 A virtual airline would operate using the flight code of the AOC operator and so this would not allow distribution of flights directly into Global Distribution Systems[9] (GDS). However, solutions exist that would allow flights to be distributed in the GDS systems via partnership with for example Hahn Air or Flexflight for example depending upon the chosen internet booking engine provider.

5.2.10 It would be sensible to consider at least one HIAL staff member to monitor and support the virtual airline activity whilst in a standby state. This would not need to be a full-time activity but could be combined with another related role in the commercial team such as health monitoring of existing routes and operators. This would allow a good understanding of prevailing fare and traffic levels and flight schedules across the domestic route network to inform any need to

[9] These are international reservations systems used by travel agents when they are booking travel and accommodation for their clients. Airline seats are then visible on these systems to the international market.

activate the virtual airline.

5.2.11 The share of a staff member and the standby website/internet booking engine cost would suggest an annual cost for this standby provision of the order of £30,000.

5.2.12 Detailed advanced discussions would be needed with the CAA to establish pre-agreed conditions for the virtual airline since it would not be possible to provide a detailed business plan until such time as the operation needs to be triggered as route details and scale of activity would not be clear until this point. These discussions would facilitate a rapid start-up of live activities as and when this became necessary. CAA have not faced this scenario previously and have expressed some concerns (see 5.3.5 below). It is felt however that with further discussions suitable solutions could be found.

5.2.13 It is currently not clear how the CAA would view the ATOL bond[10] requirements for an entity that is a subsidiary of a company owned by Scottish Ministers but it would be prudent to assume that a bond of some sort would be required.

5.2.14 Once triggered, the virtual airline would require a larger number of staff to provide customer support and operator liaison teams. The former could be based around the existing Air Discount Scheme team whilst the latter may need to be established alongside the initial activity of the virtual operation. The scale of these teams will depend upon the number of routes being supported.

5.2.15 By use of a virtual airline approach with ATOL participation, HIAL would have a platform that could address any scale of route failure since the ATOL allows any size of aircraft to be deployed.

5.2.16 There are, however, several disadvantages of the virtual airline approach.

- The ATOL scheme requires an annual renewal of the business case and supporting details which is an administrative burden. It also carries the mandatory additional expense of the ATOL fund fees although this is at least linked to the passenger volume carried.
- The virtual airline approach would likely be restricted to Scottish domestic flying and possibly to intra UK operations only, due to the relatively unconventional structure of the business.

[10] Bonds are irrevocable undertakings from third party banks or insurance companies (bond obligors) provided to the Air Travel Trust (ATT) trustees. In the event that an ATOL holder is unable to meet its obligations to its consumers, the CAA on behalf of the ATT trustees will make a demand for the bond money from the bond. The bond money will be used by the CAA to appoint an alternative ATOL holder to provide consumers with their flight or trip or, where this is not possible, the CAA will use the money to bring home consumers that would otherwise be stranded abroad and/or reimburse consumers that have paid for flights or trips but not yet travelled.

- The virtual airline does not have an AOC of its own so it is not able to hold slots at airports where these apply. This could present difficulties at congested major airports as it would be challenging to preserve the required access and timetable.
- It would be very difficult if not impossible for a virtual airline to participate in codeshare or interline agreements with more major carriers. Interline traffic from both UK and non-UK markets is an important part of the market on Highlands routes so this is an important handicap to use of the concept.
- The unconventional structure may be more likely to face regulatory challenge from operators holding AOCs on the grounds of illegal use of state aid and unfair competition.
- The ability to provide appropriate aircraft for a given activity is dependent upon market availability at the time of the requirement which could be extremely variable. This may result in selection of a non-optimum solution economically.
- If the virtual airline simply responds to a route withdrawal or single market failure it may have to tolerate a low level of aircraft utilisation and consequently higher costs as there may be limited opportunities to fully occupy the aircraft. This may also be the case for any alternative substitute carrier of course.
- Whilst it may be possible to establish a website and booking system quite quickly, this cannot be said for the commercially critical revenue management function (the means by which seat capacity is allocated to different fare/price levels to optimise revenues and load factors). In the short term it may be possible to implement a very basic fare structure (though even this would require decisions on how much capacity to allocate to different prices). Beyond this it would be essential to use a revenue management system with a level of automation and detailed data on individual flight booking and demand patterns. This would need to be supervised by one or more staff members with the necessary technical expertise and experience. Without such as system there would be an inevitable risk of offering too many high priced seats which are not sold and leaving wasted capacity, or conversely, selling too many low fare seats and consequently suffering higher operational losses.
- Such a system and the requisite human expertise cannot realistically be held on standby as the nature of the function is that it is based on real time activity and to work as effectively as possible requires a full year of current data. In addition any lack of continuity of capacity on any route as a result of

different operators and/or aircraft type being used in a virtual airline context would provide complication for the delivery of effective revenue management and pricing consistency in the market.

- An illustration of how revenue management was implemented in a live virtual airline context is provided by the Citywing case study in the appendix below.
- Use of a revenue management system is also essential for the handling of interline traffic. Airlines establish commercial agreements on how shared traffic is booked and on how ticket revenue is shared out between two carriers (known as revenue proration). Without effective revenue management and a clear interface between partner airlines in selling systems, especially GDS, this traffic would be placed at risk of reduction or loss.

5.2.17 Despite the associated disadvantages, the virtual airline concept does provide a viable means of having a standby solution to allow continuity of air services in the case of a route withdrawal or market failure at a very modest ongoing cost.

5.2.18 Depending upon the market involved, the virtual airline could provide either a short-term stand in option whilst a more permanent solution is found or could potentially operate as a long-term solution in its own right.

5.3 UK CAA views on virtual airlines

5.3.1 New airline start-ups in the UK need the approval of the CAA (Civil Aviation Authority) through the granting of various licenses that are necessary to sell air tickets and operate an airline in the European Single Aviation Area.

5.3.2 We met with David Kendrick of the CAA to discuss his views on the concept of a Virtual Airline.

Regulatory Oversight

5.3.3 The view expressed was that the legislation doesn't lend itself well to the concept. To sell tickets, it is necessary to have an airline license or an ATOL or to be an agent of an airline.

5.3.4 An exemption exists for operations involving aircraft with 20 seats or less. The CAA would like to see this eliminated.

5.3.5 Concern was expressed that the exemption simply leads to a virtual airline procuring the cheapest possible provider of capacity. The CAA would want an ATOL or a license in *all* cases, regardless of capacity and is mindful of the Manx 2 accident where there was no Spanish oversight in their own territory or elsewhere for the Spanish registered aircraft. We feel that this concern can be

appropriately addressed by ensuring that operator selection criteria do not solely focus upon price but also consider the operating capabilities of the AOC holder.

State Aid

5.3.6 If a virtual airline is sponsored or supported by the State and it exercises fully commercial freedom by competing with an incumbent, then state aid would become "interesting" and could be a "likely Achilles heel". Other operators would "not be that happy" and opposition could be expected. There would be weakness in regulation, contracts and approval.

Challenges

5.3.7 The CAA view is that the commitment would be very broad relative to the capacity offered. This means that it would result in a business model that carries a considerable administrative overhead for a small network. Their concern is that profitability will be at best very marginal and it will be perceived as being state aid outside of the framework of PSO. Mechanisms such as PSO and the Air discount Scheme (ADS), on the other hand, are already established.

ATOL

5.3.8 If an application is made for an ATOL, there would be no reason why it wouldn't be granted. The cost is £3.50 per passenger and there would be no volume discount. The ATOL holder could not be HIAL and would need to be separate (though it could be a subsidiary). The CAA would treat this entity as an ATOL airline. Whilst in the EU the Scottish Government couldn't (be the operator), do due to state aid considerations.

Requirements for an ATOL

5.3.9 The CAA outlines that the following would be required for an ATOL:

- A business plan
- Certainty of financial viability must be demonstrated
- The business would be expected to be run on commercial lines
- Requirement to show cash flow, profit and loss for 2 years
- A 12 month validity applies for an ATOL

5.3.10 Should a business wish to run a virtual airline with ATOL coverage then they would also look closely at both the overall business arrangements to ensure that the operating AOC holder(s) retain full operational control and how the virtual airline selects its AOC operators to ensure that a suitable level of safety is

maintained.

Overall CAA views

5.3.11 Questions were asked by the CAA and comments provided concerning an ATOL. For example:

- Would the Scottish Government simply run the website?
- The virtual airline cannot decide when the operator flies or tell it what to do, the operator has to be master of own destiny as the AOC holder.
- Consideration of consumer rights legislation is necessary (EU261) concerning price transparency and the handling of passengers with reduced mobility (PRM).

5.3.12 There are number of commercial risks associated with a virtual airline so they need very robust business plans. Whilst, they are able to qualify for an ATOL, the financial prospects would be challenging in the CAA's view. Existing airlines are able to draw on a broad spectrum of routes in their network to contribute to overhead costs. A virtual airline, which would perhaps be limited to operating one or two routes, would carry a considerable level of commercial risk.

5.3.13 The CAA was not positive on the proposal that the virtual airline could be established immediately and be held in reserve until circumstances were such that it needed to be deployed to deal with a case of market failure. We feel that this can be overcome with further discussions should the concept progress.

5.3.14 Whilst accepting that an ATOL could be possible, the CAA suggested that a better option would be to establish a normal airline through an application for an AOC (Aircraft Operators Certificate).

- An AOC provides complete flexibility and oversight of how the airline is run and addresses issues of safety, finance and quality.
- It gets away from the question of how to finance?
- Hypothetically it would be possible to choose an airline and invest (Guernsey "Aurigny" approach)
- Can test routes, reinvest in community (public enterprise)
- No reason that the CAA would not license
- Would have to be created as a proper airline
- Only contentious issue would be around subsidy.

5.4 Owned Airline

5.4.1 An alternative to the virtual airline solution would be for HIAL to have its own AOC operation as a subsidiary company.

5.4.2 This solution has the benefit of using a more conventional airline management structure which more neatly fits the CAA oversight regime and may encounter less complaint from exiting operators. This means that commercial and operational aspects are fully integrated within one organisational entity.

5.4.3 On the other hand, it brings with it much higher fixed costs than the virtual airline (in its standby phase). The cost of the minimum number of required post-holders for an AOC would be of the order of £350,000 per annum.

5.4.4 With this fixed cost level, it would not be practical to hold an AOC management structure on standby so the AOC company would have to be operational throughout. This would allow the business to generate revenue to contribute to its costs.

5.4.5 It is outside the scope of this study to firmly identify the details of such an operation but certain key choices would have to be made from likely options. It could be expected that any activity would be positioned to avoid direct competition with the main carriers already flying domestically in Scotland.

5.4.6 This would also imply that the operation would look to address currently unserved routes or perhaps could carry out some of the activities currently covered by PSOs (subject to appropriate legal advice regarding the shift from the use of a PSO). And furthermore, the airline would have to be fully operationally and commercially independent from any influence by the Scottish Government who are shareholders of the parent company (HIAL)

5.4.7 With the above constraints in mind, possible fleet choices could be:

- Single engine turboprops
- Twin Otters

5.4.8 Possible route options could be current PSO operations (if acceptable to transition from PSO) or unserved thin routes, for example:

- Inverness – Glasgow and/ or Edinburgh
- Edinburgh to regional centres (such as Benbecula, Tiree, Campbeltown) to provide all Scottish regions with direct access to the Capital
- An Inverness hub for island links

5.4.9 The airline would have its own airline code and so be able to participate in its own right on GDS systems. Having an AOC, it would be able to hold slots at

major airports to preserve access to these key locations. It could also participate in codeshare and interline arrangements if needed.

5.4.10 If the airline did not have available or suitable capacity it could address any route withdrawals or market failures by wet-leasing an appropriate aircraft from another operator. Provided the airline held a Type A operating licence from the CAA there would be no restriction on aircraft size in this regard.

5.4.11 The overall capability could allow HIAL to address any route failures or withdrawals in any market including operations to points outside Scotland (provided suitable airport slots are available if necessary).

5.5 General comment on airline based solutions

5.5.1 In both the owned airline and virtual airline cases, it should be noted that this places a business effectively owned by Scottish Ministers in closer proximity to the passenger than use of a PSO or the ADS which could result in more direct criticism of service standards and fare levels.

5.5.2 The UK CAA have indicated that they intend to modify the ATOL exemption to ensure that any virtual airline in future will have to participate in the scheme. They also expressed the view that their preference is for an airline to function as a true airline with an Operating Licence and Air Operators Certificate (AOC) rather than via a virtual airline structure as this better matches their regulatory frameworks. One of their key concerns was that a virtual airline would tend to select the lowest cost source of aircraft rather than make a more complete assessment of the various AOC operators.

5.5.3 Former Managing Director of virtual airline Citywing, David Buck was willing to provide some background on his experience of managing the virtual airline, Citywing. Details of this experience are included in Appendix A.

6 Comparison of Virtual airline and PSO

6.1 Introduction

6.1.1 We have discussed in the previous chapters and sections the available business and regulatory models that could be deployed to maintain air services, particularly in the most vulnerable and isolated markets, where there are heightened risks of air service discontinuity.

6.1.2 There is a general expectation that air carriers would provide sufficient advance notice to stakeholders of an intention to discontinue air services. This should then provide sufficient time for HIAL and its stakeholders to approach other airlines with a view to persuading them to supply replacement air services on a commercial subsidy-free basis.

6.1.3 Stakeholders may need to be prepared for a scenario where in the event of short-notice termination, there will be a period where air services will not be available. This is because, even if commercial negotiations are successful in attracting a replacement airline there will be a lead-time between the point at which a replacement air carrier is approached, the ensuing commercial negotiations and, if successful, when it is ready to commence air services. Airlines need time to establish new air services and there may be added complexities and business challenges if the carrier is new to operating in the Scottish market.

6.1.4 We explored both the DfT and DGMOVE the possibility of a limited-term emergency PSO involving a contract that is negotiated with an air carrier rather than fully tendered with being applied to a commercial route where air services had been withdrawn at short notice. Our feeling is that further discussions would be needed, including legal advice. There are potential implications relating to the illegal use of state aid.

6.1.5 In any case, medium and long-term solutions need to focus on considering the regulatory / business model options that could be deployed.

6.1.6 We believe that the following three regulatory / business model options could be considered:

- A standard PSO- we can refer to this as *PSO normal*
- A re-defined PSO where the public authority (Transport Scotland) assumes control of marketing, ticketing and revenue management - we can define this as *PSO plus*.
- A *virtual airline* which is owned by HIAL and operated as a subsidiary company. It is responsible for marketing, ticketing and revenue management

and an aircraft operator with an AOC is contracted to operate air services on its behalf.

- An airline that is wholly-owned by HIAL with its own AOC. We refer to this as *owned airline*.

6.1.7 One of the most important considerations to evaluate would be the speed with which each solution could be deployed to address the loss of air connectivity. What is particularly pertinent from HIAL's perspective is the immediacy within which it is able to deploy a solution.

6.1.8 PSOs are restrictive in the sense that pubic authorities need to honour pre-defined minimum notification periods specified in the legislation.

6.1.9 With the virtual airline proposition it may be possible to have an off-the-shelf virtual airline structure that is essentially dormant but can be activated and deployed when needed. In fact it could be HIAL's first port-of-call in circumstances where there has been a sudden and unexpected loss of commercial connectivity. Indeed, in responding to the unexpected loss of connectivity, the ticketing, pricing and revenue management systems that would be required do not have to be particularly sophisticated since the essential purpose of the intervention would be to ensure that a basic form of connectivity existed to ensure that residents and visitors are able to access air services. This means that actually the virtual airline could be the emergency stop-gap solution that could be deployed while HIAL, the Scottish Government and other stakeholders simultaneously considered and developed more permanent solutions such as commercial negotiations to find a replacement airline or to prepare the process for implementing a PSO.

6.1.10 However, there will still be a period of delay as HIAL would need to allow sufficient time for aircraft operators to respond to a tendering exercise.

6.1.11 With an owned airline we do not have the same degree of operational readiness as the virtual airline because as has been stated already the AOC must be active and operational.

6.2 PSO models

6.2.1 It is more than likely that the DfT and Transport Scotland would look very sympathetically to considering a PSO in the event that an air service is lost provided stakeholders are able to demonstrate that this route passes either one, a combination or all three intervention criteria as set out in the EU Regulation.

6.2.2 Public authorities face the risk that tendering exercises are unsuccessful. Tendering failure can manifest itself in two ways: firstly, a lack of competition

for the invitation to tender which raises the cost of subsidy; secondly, no response to the invitation to tender.

6.2.3 Airlines may be reluctant to participate in a tender because they are unable to secure aircraft within the timeframes stipulated by the tender or that they believe it is not worth the time and cost to bid because they have very low expectations of being successful.

6.2.4 Well established incumbents may even decide after a certain period to discontinue operating PSO services, leaving isolated communities vulnerable to air connection discontinuity. The other risk is that if an airline wins a contract and then finds that it incurs losses greater than that projected at the tender, then it may cease air services and terminate the contract. The commercial risk is with the airlines as subsidy is determined *ex ante.* It is understood that most PSO contracts cap the *ex ante* level of subsidy irrespective of whether out-turn losses are higher.

6.2.5 Public authorities, as "owners" of the route and potentially the closest to the communities that they serve, may have the opportunity to take greater control of air service provision. One of the most significant risks facing an airline is demand risk, particularly if it is a new entrant in a PSO tender. Demand risk revolves around revenue management, ticketing, sales and promotion. If the public authority were to take responsibility for these functions on the presumption that they better understand the needs and expectations of the local market, then this would limit the service obligation in the contract to the scheduling of aircraft and supply of air services. The invitation to tender for such a re-defined PSO contract can potentially be more competitive and successful as it may attract interest from dedicated "wet lease" operators in addition to scheduled airlines [11].

6.2.6 So we can now consider two types of PSO. We refer to a traditional PSO as "*PSO normal*" and a redefined PSO as "*PSO plus*". We refer to it as *PSO plus* because the public authority is taking added responsibility in the provision of some services within the PSO contract. We can illustrate both PSO models in the following figure:

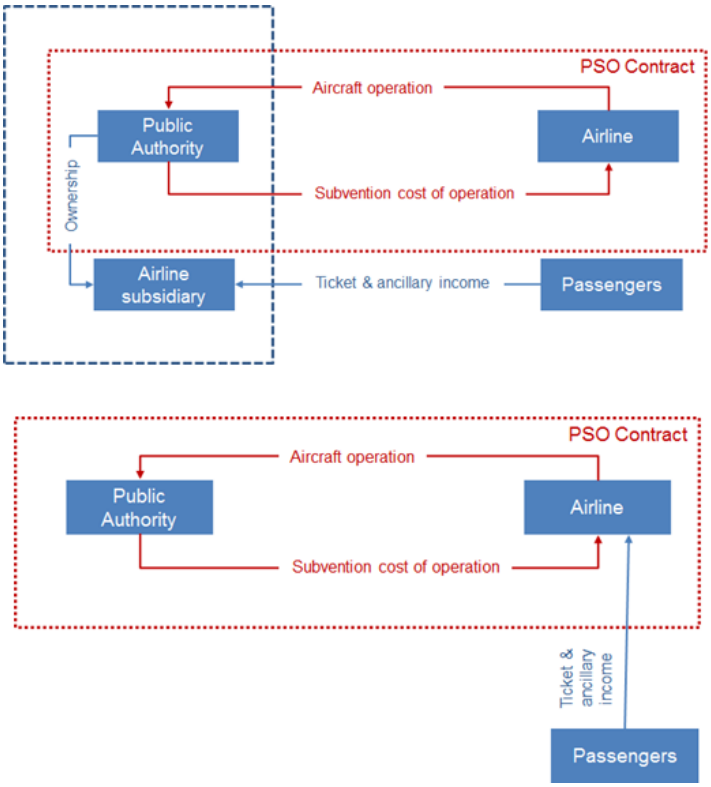
6.2.7 *PSO plus* is where The Public Authority establishes a subsidiary company (airline subsidiary) which obtains an ATOL licence. The subsidiary company has an

[11] A wet lease agreement is where a licensed aircraft operator provides aircraft, crew, maintenance and insurance to another airline. It operates the air services on behalf of another airline. This arrangement is used quite extensively in the aviation industry. In its early days, Easyjet operated its air services using a wet lease arrangement with a company called Air Foyle. Stansted-based Titan Airways, is an example of a UK-based aircraft operator that specialises in offering "wet lease / air charter" services for tour operators and other airlines.

airline brand and associated ticketing, sales and promotion infrastructure. This consists of, for example, the procurement and use of a revenue management system, the nature of which would depend on how sophisticated the public authority wanted to be in terms of pricing and on the recruitment of suitably qualified revenue management specialists. The subsidiary airline would collect all ticket and ancillary income.

6.2.8 The public authority arranges a PSO tender with specifications only relating to the provision of aircraft services which meet capacity and timetabling requirements set by the Authority. The bidder would propose to the public authority the annual costs of operating the service over the duration of the contract.

Figure 20: *PSO normal* and *PSO plus*



6.2.9 Once a successful bidder has been selected there would be a contract between the Authority and the airline and the airline would be paid subvention to cover the cost of operating the aircraft with associated provisions relating to on-time performance etc.

6.2.10 The airline subsidiary would incur costs relating to ticketing, sales, revenue management and promotion.

6.2.11 Because of this there are risks facing tendering authorities in the sense that

tenders are unsuccessful or they are very costly in terms of the level of subvention demanded.

6.2.12 There are insufficient incentives on operators to innovate in terms of marketing sales promotion, pricing and capacity promotion. Whilst the PSO mechanism per se does not preclude the development of marketing and sales incentives, it may be more appropriate for the tendering authority which has greater knowledge of local conditions and the market to assume responsibility for ticketing and marketing.

6.2.13 By taking a greater share of commercial risk, this may facilitate increased competition during the tendering phase.

6.3 Comparison

6.3.1 We need to establish a framework within which to compare our four solutions. This framework centres around the following critical elements that key decision-makers will need to consider.

- **Safety**. The absolute priority is that air services and aircraft operations are safe and that the risk of accidents and incidents is minimised.
- **Reliability and punctuality**. The aircraft operations maintain the highest possible standards in terms of on-time performance.
- **Cost efficiency.** We will need to determine in qualitative terms the cost effectiveness of each solution conscious of the fact that this will have implications for the level of subsidy required from Scottish Ministers.
- **Revenue generation.** How likely is it that the solution will deliver patronage growth? If successful, this too can reduce the amount of subsidy demanded from Scottish Ministers.
- **Lead-time to deployment.** How quickly can each solution be deployed to operate air services in the event of market failure (loss of connectivity) on a given route?
- **Inter-operability.** What we mean here is would the business models be able to connect with international global distribution systems (GDS) and enter into code sharing agreements with other airlines. This is to facilitate travel between the islands and international markets, through facilitating connections on the networks of different airlines.
- **Regulatory risks / state aid.** How legal is the solution and are there implications with regard to rules on state aid?

6.3.2 We have produced a table below which sets out our view as to how each solution ranks in terms of the criteria we have established in 6.3.1. A score of 1

is a high score which means we would assign a score of 1 under reliability to the solution we think would provide the highest level of reliability and a score of 3 to the least reliable solution.

Table 14: Ranking of models

Criteria	Virtual Airline	Owned airline	PSO normal	PSO plus
Safety	2	1	3	3
Reliability	2	1	3	3
Cost efficiency	3	4	1	2
Revenue Generation	2	2	1	2
Lead-time to deployment	1	4	2	3
Inter-operability	3	2	1	3
Regulation / state aid	3	4	1	2

Safety

6.3.3 We have ranked the *owned airline* followed by *virtual airline* as the option that is likely to deliver the least risk of accident or incident. Both PSO solutions have the same ranking.

6.3.4 We need to be absolutely clear at this stage in stating that we are in no way claiming that PSO services are unsafe. All PSO contracted airlines will have an AOC which means that their safety management systems and processes have already been approved by regulatory authorities. So when it comes to evaluation of PSO tenders, public authorities quite rightly assume that operators possess the required level of safety management system accreditation. So their evaluation will tend to focus much more on submitted financial propositions (subsidy demanded).

6.3.5 Our opinion of *virtual airline* solution may seem surprising given opinions already expressed by the CAA. However, we think there is an important difference between a privately-owned and state (airport) owned *virtual airline*. A privately-owned entity would have strong incentives to focus on costs. They may procure aircraft operators that are low cost but may have opportunistic attitudes to risk.

6.3.6 As the *virtual airline* is owned by HIAL, we think that they will have a much more deeper appreciation of the safety risks and more knowledge of safety and risk management practice than a privately-owned *virtual airline*. In procuring an AOC-holder, HIAL may want to introduce a mechanism which takes a closer look at rival bidders safety management systems and safety records during the procurement / tendering phase. HIAL would have the in-house expertise in safety management to undertake an evaluation of rival aircraft operators.

6.3.7 Our preference, if we were considering safety, would be the airline owned. This

is because we feel that lines of communication and chains of management accountability in a conventional airline model would be superior to the *virtual airline*. There is a slightly raised risk of system failure where there is a separation between commercial management and operations.

Reliability

6.3.8 We take the same view of reliability as we did with safety. At present it is not known whether PSO public authorities manage or integrate on-time performance in their tendering processes and contracts with air carriers. There is no information on whether rival bids are evaluated in terms of their overall level of punctuality. There is some evidence that appears to indicate that contracts do include on-time performance clauses. However, it is unclear whether officials responsible for evaluating PSO tenders, with limited experience or knowledge of airline operations, would be able to confidently evaluate the reliability risks of a given schedule of flights.

6.3.9 The *virtual airline* model offers improved prospects with regard to maintaining good levels of reliability given HIAL's high level of direct operational experience. For example, they would have expert knowledge of airport operational procedures and would be able to take a view of a proposed bidder's ability to maintain a high level of reliability of the operations that they are proposing to offer.

6.3.10 As in the safety case, the *virtual airline* model separates commercial management and operations, raising the risk of under-performance. So in this case to we would prefer the *owned airline* solution.

Cost efficiency

6.3.11 Both PSO options would most likely offer the most cost-effective solutions. There would, in effect, be little difference between *PSO normal* and *PSO plus*. *PSO plus* may attract a greater level of interest in a tender, potentially lowering the level of subsidy demanded from Scottish Ministers. Here aircraft operators would bid to supply air services only and would be paid a fixed fee in the same way that a wet-lease is commonly arranged.

6.3.12 However, there will be costs to Transport Scotland associated with setting up and managing a dedicated airline subsidiary. This new entity which would be responsible for revenue management, ticketing, marketing, sales and promotion would be required to recruit a small number of staff and procure revenue management system and on-line booking systems to process ticket sales. However, as stated earlier, it may be possible to use existing ADS-related resources available in Transport Scotland to mitigate the extra costs incurred.

6.3.13 While *PSO normal* may struggle to attract interest, it would offer a more cost-effective solution because the contracted airlines will have an established sales, marketing, revenue management and ticketing infrastructure. This means that the proportion of these costs allocated to the PSO would be very minimal and would be substantially lower than that incurred by *PSO plus*. It is for this reason that we favour *PSO normal* for cost-effectiveness.

6.3.14 *Virtual airline* is a more costly solution because additional expenditure will need to be incurred to support a marketing and sales business unit in addition to supporting procurement and safety management over-sight functions. In the latter case, the *virtual airline* might be able to make use of resources within the existing HIAL management structure (e.g. safety, procurement).

6.3.15 The least attractive solution would be the *owned airline* model. Here there would be higher overheads and more substantial fixed costs. The only way in which the *owned airline* could be sustainable would be if these fixed costs were spread over other routes that could be operated in parallel. However, there is a substantial degree of legal uncertainty over whether the *owned airline* model would be able to operate on other sectors.

Revenue Generation

6.3.16 Here we consider revenue generating capabilities of each solution. This aspect too will have an impact on the level of subsidy demanded from Scottish Ministers.

6.3.17 This is quite a challenging dimension to evaluate. *PSO normal* may have an advantage but this depends on the capabilities of the airline. An existing operator that already serves other routes in the same region, could probably make a better success of maximising revenues, provided the right contractual incentives have been established. This is because it would be generally assumed that air carriers are more capable of airline revenue management than airports or public authorities. They have the systems, skills, experience and capabilities already in place.

6.3.18 However, there is nothing preventing *PSO plus* from offering superior revenue management capabilities if it is able to recruit and retain suitably qualified personnel. Indeed *PSO plus* may offer superior capabilities compared to an existing airline that has limited experience of operating air services in the market and is working under a poorly crafted PSO contract where there are insufficient performance-related incentives.

6.3.19 Our rating of airline owned and *virtual airline* would be similar to *PSO plus*, as there would be little difference in their relative capabilities in revenue

management. Airline owned and *virtual airline* solutions would also need to recruit specialists

Lead-time to deployment

6.3.20 We have discussed this aspect of our work already. Operational readiness means the ability to establish operations in the shortest time-frame possible. The *virtual airline* solution has an advantage over the other options in that the structure can be established and effectively pulled "off the shelf" and deployed to re-establish connectivity.

6.3.21 The least attractive solution would be the *owned airline*. This because, HIAL, as investor / shareholder would be required to apply for an AOC. Having the appropriate paperwork prepared in advance would assist. They would also need to procure an aircraft to operate the air services. They could deploy an ATOL and commence selling their tickets without necessarily securing aircraft operations. However, timescales would also to a large extent be driven by being able to secure the necessary financial approvals. It may be that the HIAL-owned airline dry-leases (just aircraft) its aircraft rather than procures outright as this is generally considered to be the most cost-effective option for new start-up airlines. The risk remains that bookings are received and HIAL struggles to source appropriate aircraft. So there may be a delay in lead-time to deployment for an airline owned solution which would be largely shaped by the need to obtain the necessary financial approvals.

6.3.22 If there is sufficient notification provided by an air carrier exiting a market, the PSO options would appear to be more practical and realistic. So *PSO normal* would be the most speedier to implement as Transport Scotland already possesses the contracting and procurement resources and has existing PSO template documentation. Funding would be the only serious hurdle but given the urgency of the situation and the political pressure that would stem from that, we would expect that funding for a subsidy would be forthcoming from Scottish Ministers. *PSO plus* would involve a slightly longer lead-time to deployment due to the need to establish a dedicated booking, sales and marketing platform within Transport Scotland. But like *virtual airline*, this could be established in advance and deployed when needed.

6.3.23 *Virtual airline* would be our favoured solution if considering lead-time to deployment. The ATOL would already have been established. The HIAL-virtual airline could immediately be deployed to accept bookings. There would then need to be a procurement exercise to secure an aircraft operator. There would be some risk here as they would need to ensure compatibility between the booking system and the aircraft type that is eventually deployed to operate the

route.

Inter-operability

6.3.24 Booking and ticketing systems can be fairly basic for point to point travel. However, if considering travel to and from markets beyond the mainland hub, then additional considerations will need to be taken into account. Tourism from overseas visitors is important to island economies and likewise being able to facilitate travel from the islands to other markets for both leisure and business purposes is also quite critical.

6.3.25 The ideal environment for travellers would be if they could book travel itineraries on the website of the airline that is operating the island-mainland route or they could book via any of the online e-booking websites or via travel agents who have connections to GDS systems. Also travellers are able to book itineraries that are supported by inter-line or code share agreements between carriers that facilitate connections at hubs.

6.3.26 It is for the reasons stated in the previous section that we think *PSO normal* would offer the best inter-operability solution, especially if the carrier either belongs to one of the major global alliances (Oneworld, Skyteam, Star Alliance) or has a code share agreement with a major global airline brands (e.g British Airways, Air France / KLM or Lufthansa).

6.3.27 The *airline owned* model which comes with an AOC and flight code could easily sell its flights via GDS systems and enter into code share and interline agreements with other carriers. The only barriers would be whether other carriers would have the same interest in establishing a partnership agreement with the *owned airline*, particularly if the major airline had a very different branding and service level proposition.

6.3.28 The *PSO plus* and *virtual airline* solutions involve the creation of a new and distinct marketing and booking entity which is separate from the aircraft operation. So there are added complications. It would be possible as set out in 5.2.9 for both entities to use the flight codes of the AOC operator for flights to be accessed directly into GDS systems via a partnership with internet booking engine provider. However, interline and code share agreements would be virtually impossible.

Regulation / State-aid

6.3.29 *PSO normal* is rated the highest in terms of its compliance with state aid and competition rules.

6.3.30 *PSO plus* comes second. This is because we are slightly unclear about whether

there would be any breach of state aid rules. At the meeting with the EU they were asked to offer their views on *PSO plus*, they did not appear indicate any significant degree of concern regarding its legality. However, we are not clear as to how the DfT or Transport Scotland would react to the *PSO plus* proposition in terms of their perception of its legality.

6.3.31 There would be significant issues relating to both *virtual airline* and airline owned solutions with regard to both competition law and state aid. Both solutions would involve some form of subsidisation. HIAL is already subsidised in terms of its operating and capital costs. An additional subsidy would need to be paid to support its airline whether it is virtual or fully-owned.

6.3.32 The level would depend on the route in question and whether assets could be used to operate on other unserved markets. If the virtual and airline-owned entities were able to operate on other sectors then this would bring down the cost of the operation to the distressed market and hence the cost of subsidy. However, it is highly unlikely that competition authorities in both the UK and the EU would permit such a subsidised operation to function outside of the PSO framework. It would most probably provoke complaints from existing airlines thought the intensity of those complaints would very much depend on whether the new entities would compete head-to-head on existing routes. If they avoided competition and limited themselves to serving unserved routes such as Glasgow or Edinburgh to Inverness, then complaints may not be forthcoming. However, even if we would not expect complaints in these circumstances, competition authorities would still be concerned at the use of state aid outside of the PSO framework.

Recommendations

6.3.33 We are advising HIAL to undertake the following actions as soon as possible:

- Establish a legal opinion on whether our alternative solutions (*PSO plus*, *Virtual airline*, *Airline Owned*) would be compliant with rules of state aid and competition.
- Following the advice received on the legality of these solutions, HIAL would be advised to establish conversations with Transport Scotland, the DfT and EC DG MOV of these proposals. The scope of this conversation would depend on whether each solution received a supportive legal opinion.
- If either the virtual and / or owned airline business models received a positive legal opinion, and they were supported by the three governmental entities listed above, then we would recommend that HIAL establishes a limited company which would have an ATOL with all the necessary booking

and ticketing infrastructure. This platform would remain in reserve and ready to deploy.

6.3.34 If an existing airline (Loganair or Eastern) announces an intention to cease air services on a route, the government entities would probably expect that HIAL would seek to approach and engage with an air carrier to operate replacement air services on a commercial subsidy-free basis as soon as possible. At the same time, Transport Scotland should be advised that a PSO may be necessary on the route, provided the route meets the criteria for PSO as mentioned in 4.1.2.

6.3.35 If it is looking unlikely that a replacement carrier will not be forthcoming, then there would need to be a decision taken, depending on the urgency of the situation and on the lead-time available as to whether the *virtual airline* booking system is deployed to receive bookings or an invitation to tender is issued for either a *PSO normal* or a *PSO plus*

6.3.36 It is possible that the *virtual airline* could be used on a temporary basis until a PSO (normal or plus) has been implemented. This would ensure that there is continuity of air services to the affected community. It is really important to recognise that a temporary air service arrangement under the *virtual airline* model need not be too sophisticated as the aim would be primarily to ensure air connectivity and that the booking and yield management system requirements could be simplified to reduce the overall costs to HIAL and Scottish Ministers. However, it needs to be stressed that the ability to deploy a *virtual airline* depends and hinges on the nature of the legal advice and on positive reactions from government at the Scottish, UK and EU level. It should also be remembered that as well as the legal dimension, the Scottish government will also need to consider the financial implications.

7 Aircraft economics

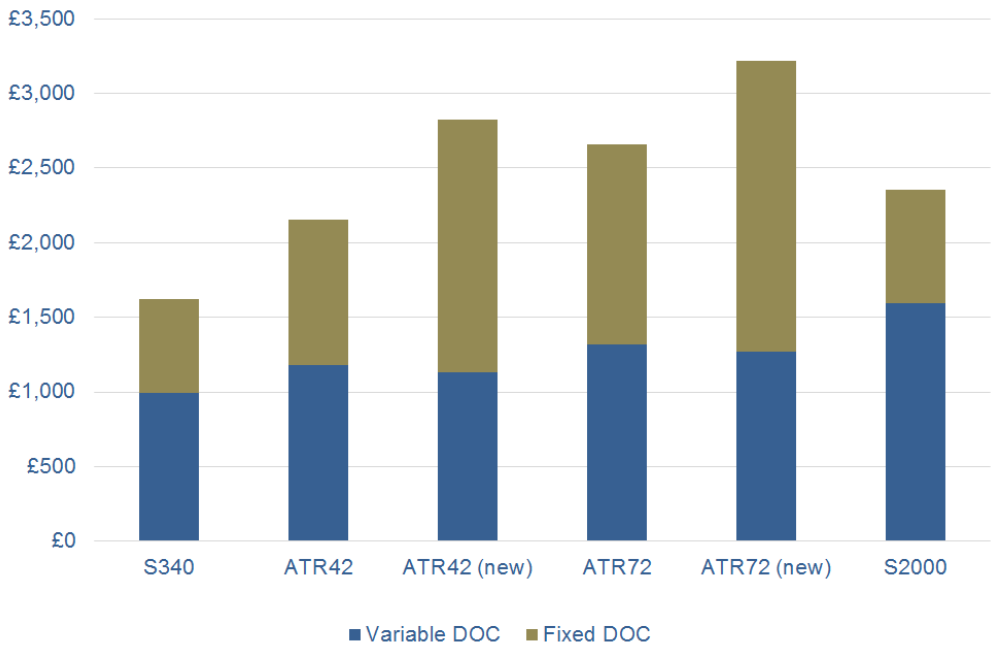
7.1 Saab 340 and ATR 42

7.1.1 In this section of the report we examine how the operating costs of the main aircraft types operating Scottish domestic routes currently (the Saab 340 and Saab 2000) compare with those of possible alternative newer aircraft types – the ATR42 and ATR72. Both used and new versions of the ATR are considered.

7.1.2 Cost levels are based upon typical operating cost assumptions for UK regional operations of this category of aircraft (see Appendix B for details).

7.1.3 Figure 21 shows the variable and fixed operating costs for an average sector length of 150nm[12] which is typical of Scottish regional route distances.

Figure 21: Variable and fixed direct operating costs by aircraft type



7.1.4 This basic analysis shows that the Saab 340 delivers the lowest variable operating costs and also the lowest fixed operating costs resulting in the lowest overall operating costs. This is perhaps not surprising as the aircraft is the smallest in the analysis and also being an older type has relatively low acquisition costs.

7.1.5 The 48 seat ATR42 delivers variable operating costs higher than Saab 340 but noticeably lower than the similar capacity Saab 2000. It does however carry a

[12] Nm defined as nautical miles

penalty in its fixed operating costs due to its higher acquisition costs but this does not offset its better maintenance costs resulting in a small total operating cost benefit compared to the Saab 2000.

7.1.6 A new ATR42 has lower variable operating costs than its used equivalent due to lower maintenance costs but this is more than offset by much higher fixed costs due to its acquisition costs being over double that of the used model. This penalty results in higher total operating costs than the Saab 2000.

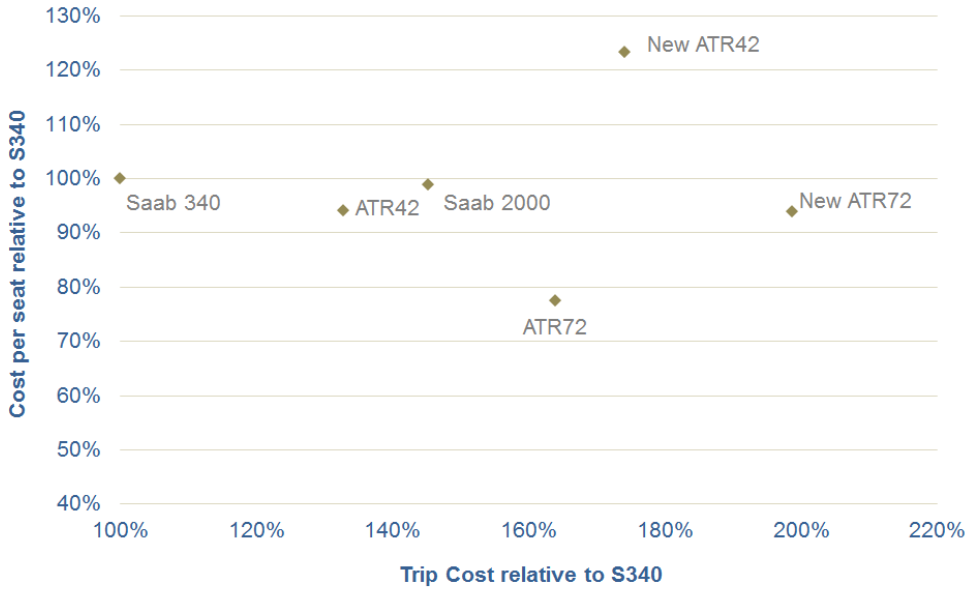
7.1.7 The 72 seat ATR72 offers over double the seat capacity of the Saab 340 and nearly 50% more capacity than the Saab 2000 or the ATR42. Its variable operating costs are nevertheless lower than those of the Saab2000 but its higher acquisition costs and slightly higher crew costs result in greater fixed operating costs and higher overall operating costs than the Saab 2000 or ATR42.

7.1.8 The new ATR72 shows a similar trend to the new ATR42 with a modest reduction in maintenance costs being more than offset by far higher fixed costs than its used equivalent.

7.1.9 Total operating costs or trip costs show how much financial risk is being taken by deploying a particular aircraft type but they do not reflect the production efficiency of each aircraft type, especially where seat capacities vary significantly. It is also necessary to look at how the cost per seat of each type compares.

7.1.10 Figure 22 shows a comparison of relative trip costs and costs per seat for each of the aircraft types taking the Saab 340 as the reference aircraft.

Figure 22: Cost per seat relative to Saab 340 versus trip cost relative to Saab 340 by aircarft type



7.1.11 This shows that the used ATR42 delivers cost per seat around 6% lower than the smaller Saab 340 with the Saab 2000 offering comparable costs per seat.

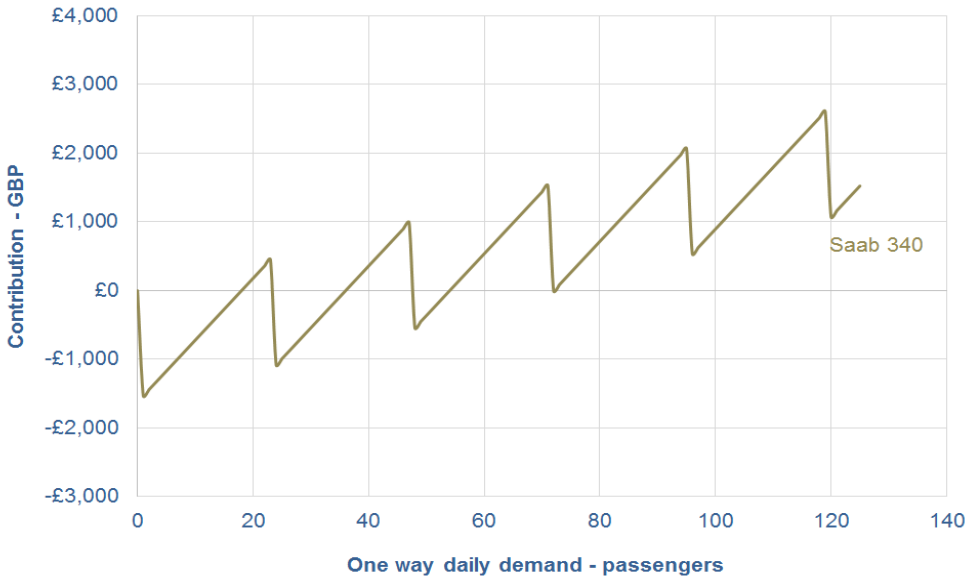
7.1.12 The used ATR72 whilst having significantly higher trip costs produces costs per seat 23% lower than the Saab 340 and noticeably lower than the used ATR42 and Saab 2000. Lower seat costs are only of value if the additional seats can be sold.

7.1.13 The new versions of both ATR models do not appear to offer overall operating economics that compare well with the existing aircraft types so we feel that in the absence of another overriding factor (such as the availability of substantially greater poor weather approach capability) operators are likely to look to move to used ATR aircraft if there is a need to replace existing equipment.

7.1.14 Further analysis will therefore focus upon the used ATR options to illustrate how the differing operating costs and capacity may link together with demand and frequency of operation.

7.1.15 Figure 23 shows a daily contribution profile for varying levels of daily demand. Contribution is defined as total revenue minus total direct operating costs and is used as our analysis does not consider business overheads. The saw-tooth line represents the contribution level for the Saab 340 with each step representing an additional frequency. The analysis assumes a fixed average fare net of taxes and charges for all scenarios.

Figure 23: Contribution versus one-way daily passenger demand for Saab 340

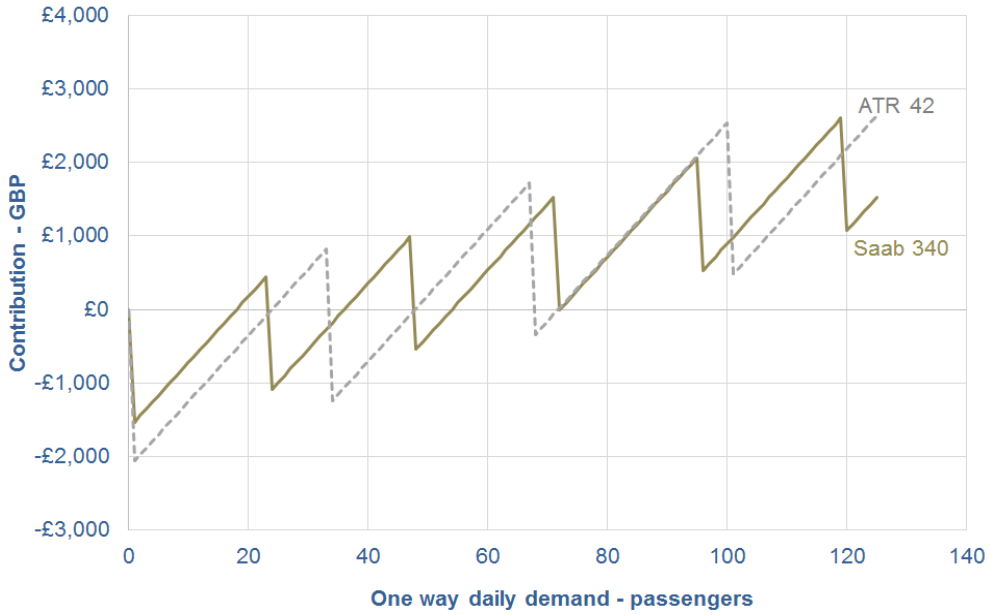


7.1.16 As would be expected, as demand grows contribution increases until an additional flight frequency is added which reduces the contribution followed by further growth as demand increases until a further frequency is needed. The

frequency steps are introduced at a planning load factor of 70% for the purposes of this illustration.

7.1.17 Figure 24 adds the contribution profile for the used ATR42 (the profile for the Saab 2000 would be relatively similar to the ATR so is not presented).

Figure 24: Contribution versus one-way daily passenger demand: Saab 340 versus ATR42



7.1.18 Over some ranges of demand the ATR42 offers better economic performance than the Saab 340 - this occurs where the larger ATR42 is using one flight per day less frequency to meet the demand. The consequences of any frequency loss in each market studied would require careful consideration, more so if it led to a reduction in the opportunity for day return travel.

7.1.19 The ATR performs better for the range of demand where its two daily frequencies are sufficient but the smaller Saab 340 needs to offer three daily flights. In the demand range from 72 to 95 daily one-way passengers four Saab 340 flights give essentially the same result as three ATR42 flights.

7.1.20 In this comparison, it is assumed that the spare ATR production capacity resulting from the lower frequencies can be deployed in other markets. This is an important assumption in delivering acceptable operational economics and, if not achieved, could raise unit costs on core routes.

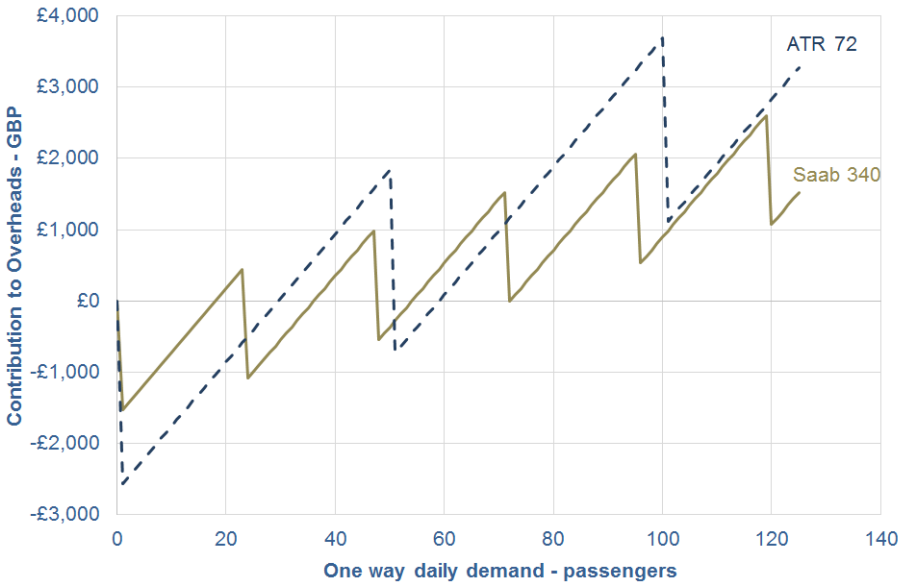
7.1.21 There is a significant jump in operating and ownership costs when a move to equipment larger than an ATR42 is considered. While some traffic growth can be anticipated to use part of the additional capacity which would be available, it is highly improbable that current load factors could be maintained. At the same

time any absolute traffic growth would come at the expense of reduced yields. It is not realistic to assume that yields would remain constant as any traffic stimulation could only be expected as a function of increased availability of lower fares. Therefore the combination of expected softening in load factor and lower unit yields make it highly unlikely that that the additional operating costs could be offset or a better financial result achieved than with today's market capacity. This would only be avoided if frequencies were reduced on routes where larger capacity was provided which would potentially reduce day return opportunities. It would also create the challenge of how best to then utilise the aircraft/crew time which would be created and whether this could be achieved economically.

7.1.22 Figure 25 shows the same comparison with the much larger ATR72. This shows that over large ranges of demand (above the level needed for two or more Saab frequencies) the ATR72 offers the potential for significantly higher contribution levels. Above 72 passengers per day it consistently out performs the smaller Saab 340, albeit on the assumption that average fares do not fall.

7.1.23 The better economic performance of the ATR72 results from its lower costs per seat but does imply that much lower frequency levels would be delivered for given demand, typically either one or two ATR72 flights per day in markets that would be receiving multiple Saab 340 flights daily.

Figure 25: Contribution versus one-way daily passenger demand: Saab 340 versus ATR72



7.1.24 This significantly lower frequency level may not be as attractive to the local markets as it would offer the passenger fewer travel options and so less

convenience. This may be particularly noticeable in markets which would drop to a single flight per day and lose their potential for a day-trip option.

7.1.25 Assessment of the impact or acceptability of such noticeable changes in service level is out-with the scope of this study.

7.1.26 On the other hand, for a given level of contribution and depending upon the market demand level, the ATR72 could offer average fares between 15 and 30% lower than the Saab340 if the frequency penalty is acceptable. This could be potentially positive in stimulating market growth.

7.1.27 We do not have sufficient data available for the subject markets to forecast how much additional demand such reduced fares may generate but clearly there would be some stimulation of demand as a result particularly if the offered fare reduction is significant.

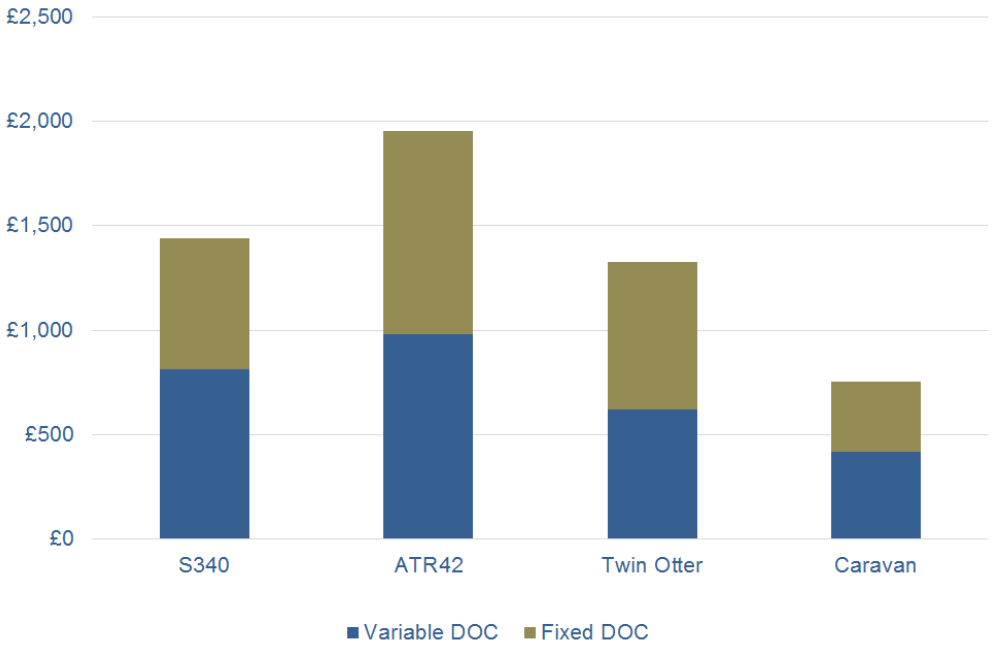
7.2 Small turboprop versus Saab 340 and ATR42

7.2.1 In this section of the report we examine how the operating costs of smaller turboprops (the Cessna Caravan and Viking Twin Otter) compare with the Saab340 and used ATR42.

7.2.2 Cost levels are based upon typical operating cost assumptions for UK regional operations of this category of aircraft (see Appendix B for details).

7.2.3 Figure 26 shows the variable and fixed operating costs for an average sector length of 100nm which is typical of Scottish regional route lengths.

Figure 26: Variable and fixed direct operating costs ATR42, Saab 340, Twin Otter & Cessna Caravan



7.2.4 This basic analysis shows that the 9 seat Cessna Caravan delivers the lowest variable direct operating costs which may be expected as it is a much smaller single engine aircraft. It also has moderate fixed direct operating costs particularly because it is possible to operate the aircraft with a single pilot.

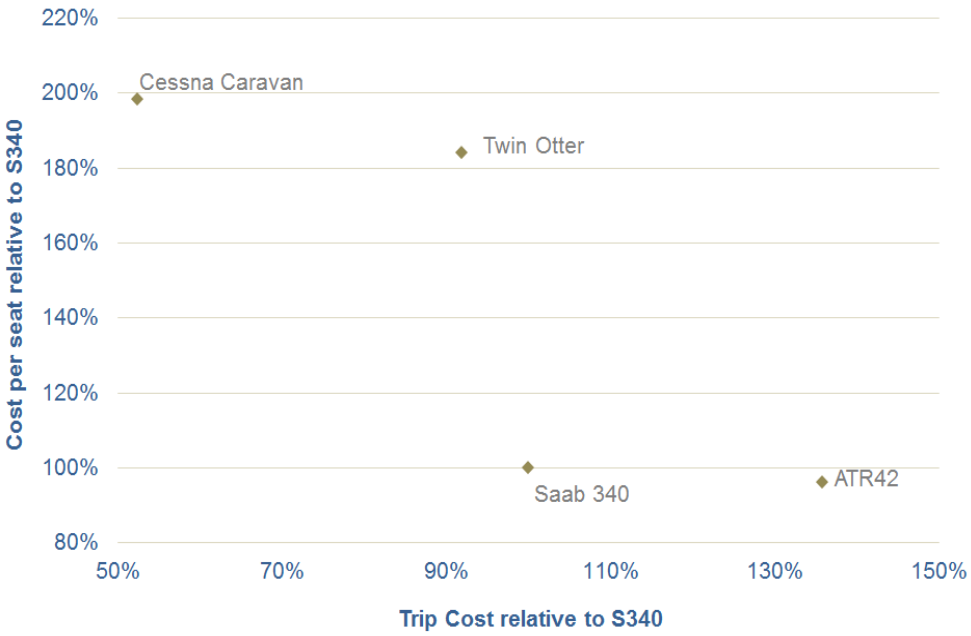
7.2.5 The Twin Otter is a relatively specialised aircraft with outstanding airfield performance. With 17-18 seats, it has operating costs that are slightly lower than the Saab 340. Its variable direct operating costs are assisted by its simple fixed landing gear design but are offset in this analysis by relatively high fixed direct operating costs resulting from the high acquisition costs of the type.

7.2.6 As seen earlier in this report, the larger ATR42 has higher operating costs than the Saab 340 which is not surprising as it is a larger capacity aircraft.

7.2.7 Total operating costs or trip costs show how much financial risk is being taken by deploying a particular aircraft type but they do not reflect the production efficiency of each aircraft type, especially where seat capacities vary significantly. It is also necessary to look at how the cost per seat of each type compares.

7.2.8 Figure 27 shows a comparison of relative trip costs and costs per seat for each of the aircraft types analysed in this section taking the Saab 340 as the reference aircraft.

Figure 27: : Cost per seat relative to Saab 340 versus trip cost relative to Saab 340, ATR42, Cessna Caravan & Twin Otter



7.2.9 This highlights the lower trip costs of the smaller aircraft types but due to their much lower seating capacities clearly illustrates their intrinsically higher costs

per seat.

7.2.10 It is therefore clear that the smaller aircraft would only be deployed into markets with much lower traffic volumes than those currently served by the Saab 340.

7.2.11 In addition, the high costs per seat show that noticeably higher average fare levels would be required if the small aircraft are to achieve a viable economic performance without the need for subsidy support.

8 Route Hierarchy

8.1.1 In this section of the report we examine how the selection of Scottish domestic routes have performed financially for the year 2016 to establish a hierarchy of routes to highlight those which perform strongly and show which are weaker economic performers.

8.1.2 The analysis is based upon the representative operating cost assumptions used elsewhere in this report (see Appendix B), combined with annual traffic data sourced from the CAA. And flight schedule information from OAG. Estimated average fares net of taxes and charges have been used. Fares include any ADS contribution where this was made.

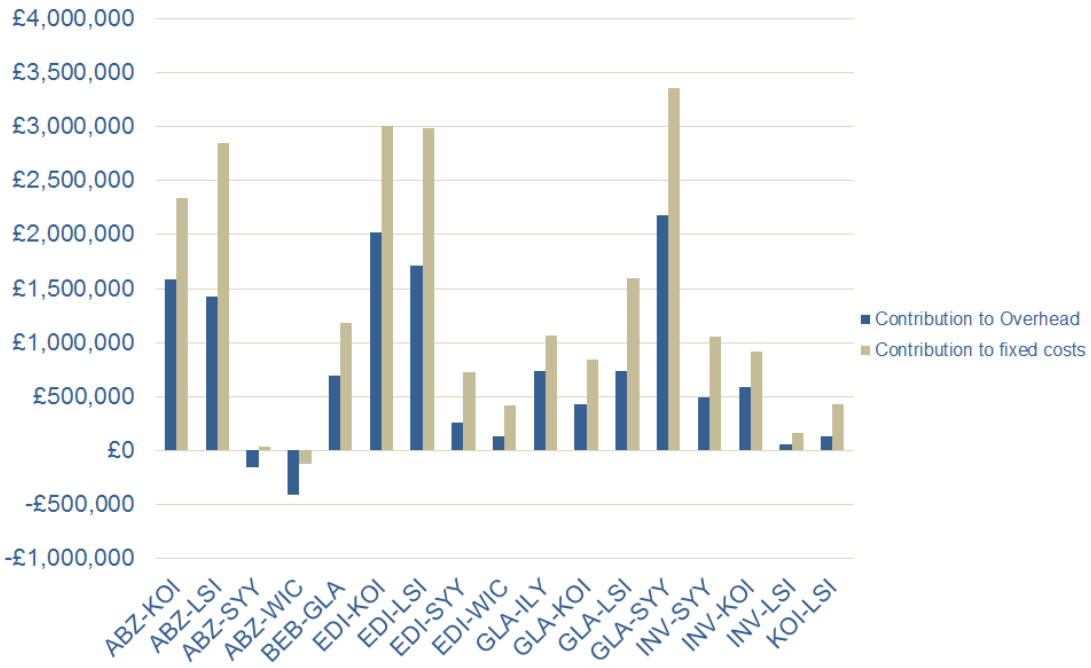
8.1.3 Airline overheads are not considered as an arbitrary method to allocate these to the routes in question would have had to be used. The analysis therefore, considers contribution to overheads (Revenue minus total direct operating costs) as the main measure of route economic performance.

8.1.4 Contribution to fixed costs (Revenue minus variable direct operating costs) is also assessed for each route. This measure is included as it would highlight any route not generating sufficient revenue to cover the variable costs of operation.

8.1.5 The analysis does not exactly model the actual costs of operation for the two incumbent operators but does provide a reasonable indication of the level of economic performance across the route network to allow relative comparison of various routes.

8.1.6 Figure 28 shows the relative performance of the routes analysed.

Figure 28: Contribution to overhead and fixed costs by route



8.1.7 Even without this analysis, the average load factors presented earlier in Table 2 would suggest that the Loganair operated routes are performing reasonably whereas the much lower load factor of the two Eastern Airways operated routes would be of more concern.

8.1.8 The results shown in Figure 28 bear out this initial indication.

8.1.9 The Loganair routes are all showing positive contributions at both the fixed cost and overhead level although there is a marked variation between the strongest performers and the weakest. Even the weakest are still delivering worthwhile contributions to overheads.

8.1.10 In contrast, the two Eastern Airways flown routes struggle to deliver positive contributions even at the fixed cost level and are not contributing at the overhead level. It may be that these routes have been hardest hit by the contraction in oil industry markets and in the case of Wick - Aberdeen by increased activity on the Wick - Edinburgh route in addition.

8.1.11 Several of the strongest performing routes will shortly feature competition as Flybe establish their own operations alongside incumbent Loganair.

8.1.12 Table 15 below ranks each route in terms of the level of contribution to overhead. We can cluster our sample of routes into four categories each associated with our estimation risks of market failure facing each route. These categories are defined as follows:

- **Very low**; Defined as a route with an annual contribution that is greater than £1,000,000
- **Low**; Defined as a route with an annual contribution that is greater than £400,00 and less than £1,000,000
- **Moderate**; Defined as a route with an annual contribution that is greater than break-even and less than £400,000
- **High**; Defined as a route with an annual contribution that is below break-even

8.1.13 Five of our routes have a very low risk of market failure and these are Glasgow-Stornoway and connections linking the Northern Isles with both Aberdeen and the Central Belt airports. Levels of contribution to overhead are high. This explains why Flybe has taken a decision to establish competing services to Loganair in four of these routes.

8.1.14 We have defined a cluster of six routes where the risk of market failure is low and where contribution to overhead is between £400,000 and £1,000,000. These include at the top end, Glasgow-Sumburgh and at the lower end

Glasgow-Kirkwall.

8.1.15 We have defined four routes that are classified as moderate risk and these are: Edinburgh-Stornoway, Kirkwall-Sumburgh, Edinburgh-Wick and Inverness-Sumburgh.

Table 15: Route hierarchy

Rank	Category	Contribution to overhead	Risk of market failure
1 2 3 4 5	Glasgow-Stornoway Edinburgh-Kirkwall Edinburgh-Sumburgh Aberdeen-Kirkwall Aberdeen-Sumburgh	greater than £1,000,000	Very low
6 7 8 9 10 11	Glasgow-Sumburgh Glasgow-Islay Benbecula-Glasgow Inverness-Kirkwall Inverness-Stornoway Glasgow-Kirkwall	Between £400,000 and £1,000,000	low
12 13 14 15	Edinburgh-Stornoway Kirkwall-Sumburgh Edinburgh-Wick Inverness-Sumburgh	Between break-even and £400,000	Moderate
16 17	Aberdeen-Stornoway Aberdeen-Wick	Below break-even	High

8.1.16 In Table 2 on page 13, we combine capacity and traffic to generate an average load factor on Edinburgh-Inverness-Stornoway because some services between Edinburgh and Stornoway historically were routed via Inverness. This explains the low load factors on this route. We understand that this routing is no longer scheduled in 2017. If we consider just the Edinburgh-Stornoway sector, it is worth noting that load factor is higher but has steadily fallen from a high of 64% in 2012 to 60% in 2016.

8.1.17 Kirkwall-Sumburgh and Edinburgh-Wick have very similar load factors- averaging around 55%. These services appear marginal and tie in with our estimations on contributions to overhead. The direct services between Inverness and Sumburgh, likewise achieved very low load factors. There is a risk that these services could be terminated in future. Given the geographies involved, we think that market failure on Kirkwall-Sumburgh and Edinburgh-Wick would be quite disruptive to connectivity given the nature of the public transport alternatives available to the affected communities. Rail transit times between Edinburgh and Wick via Inverness are around 8 to 9 hours. The

alternative to direct air services for those travelling between Orkney and Shetland is to take a connecting flight via Aberdeen or endure an 8 hour sailing on the daily Northlink Ferries service between Kirkwall and Lerwick. Direct air services are quite important to both markets with direct air services providing significant time savings.

8.1.18 It is possible that Loganair could maintain its Edinburgh-Wick services by introducing a stop on one of its existing Edinburgh-Kirkwall daily rotations, re-instating a previous service that linked Kirkwall with Wick. But this depends on whether Loganair has available capacity, as load factors on Edinburgh-Kirkwall are amongst the highest in the network.

8.1.19 The two routes where we think are most vulnerable to market failure are Aberdeen-Wick and Aberdeen-Stornoway, both served by Eastern Airways.

8.1.20 The loss of Aberdeen-Wick air services means travellers having to endure a six to seven hour train journey via Inverness. The Aberdeen link is critical not only to the future sustainability of Wick airport but also to ensuring a reasonable degree of accessibility between Caithness and UK, European and Worldwide markets.

8.1.21 The loss of Aberdeen-Stornoway would not have the same effect as Aberdeen-Wick because residents from, and visitors to Lewis and Harris are able to access air services from Glasgow, Edinburgh and Inverness.

8.1.22 Eastern's weakness on these two routes is evident both from financial and market access (pricing and capacity) standpoints. It is conceivable that different scenarios could be envisaged which might potentially stimulate traffic, improve pricing and or enhance schedules.

8.1.23 More broadly for both incumbent carriers the observed advance pricing patterns in the sample suggest there is at least modest scope for both to test, if they have not done so already, a more creative pricing approach on a strictly capacity-controlled basis. For long range selling periods, beyond say 6-8 weeks prior to departure on most routes, lower prices could stimulate some incremental discretionary leisure demand and boost load factors without damaging core revenues.

APPENDIX A: Citywings case study

Background

The airline was established by David Buck in November 2012 having secured the assets of the defunct Manx2. The airline was described as a virtual airline by virtue of the fact that it did not hold an air operators certificate. Instead they entered into a wet lease agreement with the Czech charter airline Van Air Europe which supplied both crew and aircraft operations (19-seat Let 410 turboprop).

The airline operated a network of five routes from its base in the Isle of Man to Blackpool, Belfast, Glasgow, Gloucester and Newcastle. Citywing also operated an additional Gloucester-Jersey Saturday seasonal service. Separately, the airline also operated the Anglesey-Cardiff PSO route under contract with the Welsh Government. Whilst some potential users were not keen on flying on foreign registered or propeller powered aircraft, the airline enjoyed a loyal clientele and was perceived as reliable, maintaining a high degree of consistency in its schedules.

Strategy

Being island-based was a key strategic advantage with all routes being over water and therefore not subject to competition from surface transport. The business model was based on the following important features:

- Schedules were geared towards meeting the needs of higher yield business passengers and so Citywing aimed for double daily rotations in order to pick up late booking high yield traffic.
- Schedule consistency was important with care exercised to avoid "chopping and changing" timetables.
- No interline agreements were established and so no through connections with other airlines were offered.
- The nature of the operation required a low cost base and a low level of staff costs/pay structure.
- Marketing costs were expensive so it was essential to have a clear message by understanding what is the market, who to reach and how to do so.

Aircraft Capacity

It was necessary to operate with financial caution so the airline adopted a fairly conservative approach to capacity management in order to minimise costs whilst acknowledging that unit seat costs for small aircraft are generally quite high, making it, therefore, challenging to deliver low fares.

By staying below 19 seats Citywing was able to avoid ATOL costs. This provided significant cost economies and assisted in offering some fare reductions (see below)

When Citywing's wet lease supplier Van Air Europe lost its licence13, finding alternative capacity was a real challenge as there seemed to be few operators in the market with suitably sized small aircraft. There was no choice but to charter capacity which was too large and which could not be sold due to the ATOL licensing restriction which limited the operation to 19 seats

Revenue Management and Pricing

The airline evaluated different suppliers of revenue management software to understand the capabilities that each could provide. Initially the Air Kiosk system was procured.

For an operation of this size, it is important to understand what product is being offered and what a vendor can supply as it was not possible, or even necessary to procure from high-end suppliers

Typically vendor fees may be charged as a cost per seat or as a fixed minimum cost per month.

Any changes or enhancement to specifications can be costly and moving data from one system to another can be expensive making it critical to define the correct specification at the outset.

The airline hired a proficient revenue management analyst who worked half a day, 5 days per week.

The pricing strategy, within which the revenue management system operated, was determined directly by the Managing Director. This was based more on a feeling for what yield should be achieved rather than relying solely on a mechanistic quantitative process.

As mentioned above, the high unit seat costs that is typically associated with small aircraft were a limiting factor on the ability to offer low fares. However, the saving of per passenger ATOL fees and the fact that there is no APD levied on flights to and from the Isle of Man nevertheless allowed Citywing to be price competitive.

- The lowest fare level was £23.95 one-way between the Isle of Man and Liverpool. This was very competitive when compared to EasyJet and Flybe pricing on the Liverpool and Manchester routes respectively.
- The highest fare on the network was £180.00 one way, offering full flexibility and lounge access
- Through fares were offered to Belfast via the Isle of Man and these were higher and more profitable than on other parts of the network.

[13] The UK CAA revoked Van Air Europe's license in February 2017 after it attempted operate a Let-410 in extreme weather conditions on a flight between the Isle of Man and Belfast City.

- The achieved average yield per route was around £50, much lower than on many HIAL routes.

Significant variations in revenue were experienced by month, the TT races for example, were a significant driver of high revenues; but his was for a relatively short period. Increased focus was placed on all special events and there was a frequent challenge of seasonality and variation in passenger loads with, on occasion, zero load in one direction whilst being full in the other direction.

APPENDIX B: Route hierarchy model assumptions

Operating Cost and Economic Analysis Assumptions

Aircraft lease rates (per month)
Cessna Caravan – USD15,000
Twin Otter – USD42,000
Saab 340 – USD25,000
Saab 2000 – USD39,000
ATR 42 used – USD65,000
ATR42 new – USD150,000
ATR72 used – USD100,000
ATR72 new – USD170,000

Insurance (annual)
Hull insurance – 1% of hull value
Liability insurance – USD10,000 plus USD300 per seat

Crew Salaries
Captain (Caravan and Twin Otter) – GBP47,000
Captain (S340 and ATR42) – GBP52,000
Captain (S2000 and ATR72) – GBP55,000
First Officer – GBP30,000
Cabin Attendant – GBP15,000
No of crews per aircraft – 4
Allowance for NI & Pension – 14%
Allowance for training – 10%

En-route navigation – Eurocontrol formula with GBP72.40 unit rate

Maintenance (USD per hour)
Cessna Caravan – USD250
Twin Otter – USD420
Saab 340 – USD646
Saab 2000 – USD1280
ATR 42 used – USD695
ATR42 new – USD605
ATR72 used – USD785
ATR72 new – USD695

Fuel price – GBP0.60 per Kg

Landing fees
Average sector analyses – GBP11 per Tonne MTOW
Route Hierarchy – Airport published rates

Handling
Cessna Caravan – GBP100
Twin Otter – GBP100
Saab 340 – GBP150

ATR42 – GBP180
Saab 2000 – GBP180
ATR72 – GBP180
For Route Hierarchy – non major airport handling assumed to be included in overheads

Fares
Contribution profiles – GBP90
Route Hierarchy – estimates of average fare by route
Fares exclude passenger fees and taxes