

Northern Flights

Finland's northern location and small population have led Finnair, the country's state-controlled flag carrier, to adopt innovative strategies in these hard times for the airline industry. Chris Kjelgaard reports.

Finnair A340-300 OH-LQD departs Toulouse, France during a check flight from Airbus. Stephane Beilliard/AirTeamImages

For a country with a population of only 5.4 million, Finland has a large airline industry. There's a reason for this: much of the country is bordered by the Baltic Sea and the rest by inhospitable terrain in Russia and Sweden. Finns have such a long way to travel to get to most countries that it is effectively like an island in northern Europe.

It's not just the borders that make air travel important in Finland. Its amazing 'interior' geography has an impact too. The country's 188,000 lakes, its long winters (almost all of Finnish Lapland lies above the Arctic Circle) and its low population density often make road and rail travel impractical. So air travel has a long-established history in Finland and plays a fundamental role in its domestic and international transport links.

Helsinki-Vantaa, with IATA code 'HEL', is operated by Finavia, a state-controlled company that runs 25 of Finland's 27 civilian airports. It now markets the facility as 'Helsinki Airport' and four Finnish airlines dominate its aircraft movements. Aircraft belonging to charter carrier Air Finland, SAS subsidiary Blue1 and regional operator Finncomm Airlines all operate from here.

But it is Finnair that dominates HEL, which is by far the country's busiest airport. Finnair is 56%-owned by the government of Finland and regarded as one of three strategically vital companies whose ownership must not pass out of Finnish hands. It handles 60% of all aircraft operations at HEL.

Finnair's Fleet

By the end of 2010, Finnair will have a 65-aircraft fleet that is among the most modern and fuel-efficient in Europe. For short- and medium-haul operations to 12 domestic and 40 European destinations, it flies eight Embraer 170s (having just sold two to regional partner Fincomm Airlines) and 10 Embraer 190s; 11 Airbus A319s; 12 A320s; and six A321-200s. On charter flights – including long-haul non-stops and one-stops to Asia and the Caribbean – Finnair operates four leased Boeing 757s and one leased MD-11 (used also for scheduled services until February 22).

For scheduled long-haul flights, Finnair operates five A340-300s and it will have eight new A330-300s in service by the end of the year. Seven will be in service by the end of March. Finnair operates the A330s on its nine Asia routes and its year-round transatlantic route to New York JFK, as well as on other seasonal long-haul routes such as the Helsinki-

Toronto schedule it will operate this summer. Its A330s also operate charter flights to sunny tourist destinations such as Phuket in Thailand.

The 757s are likely to leave the fleet by



Europe – and even North America – to East and South Asia. Finnair’s Asia routes represent its key network asset.

“In the economic downturn, Finnair’s Asian strategy has proved to be particularly important,” said Jukka Heinonen, Finnair’s then-president and CEO, in October in the company’s nine-month interim financial report. (Heinonen left Finnair at the end of January, being replaced by former Nokia Siemens Networks executive Mika Vehviläinen.)

“The domestic market suffered from weak demand and price levels,” Heinonen wrote. “It is satisfying to note that new corporate agreements in other markets have offset to some extent the decline in domestic demand. Europe-Asia traffic already accounts for over 50% of Finnair’s scheduled traffic revenue.”

The growth in corporate-account business came mainly in markets linking Central Europe and Scandinavia with Asia, according to Taneli Hassinen, Finnair’s Vice President of Financial Communications and Investor Relations. “Companies in Finland have reduced their travel massively, but we’re trying to offset this with deals in Central European markets,” he says.

Key corporate accounts include deals with the governments of Sweden and Denmark for staff flying on long-haul flights to Asia, says Hassinen: Governments operate by “more strict rules” and the agreements they sign tend to be “more binding” than those signed with companies. Additionally, he says, “transatlantic traffic has been doing well, also in business class,” because of the strength of the euro against the dollar.

Finnair serves Nagoya, Osaka and Tokyo in

2012 and the airline could replace them and position itself to enter some new markets by ordering extended-range A321s. These aircraft would have two extra centre-fuselage fuel tanks and possibly other benefits resulting from a prospective mid-life upgrade that Airbus is considering, says Petteri Kostermäa, Finnair’s Vice President of Network Operations and Strategy Resource Management, noting that Finnair is likely to make a decision within a year.

Finnair also has two more A330-300s on order, but won’t take them before 2012. Additionally, the airline was an early customer for the A350, ordering 11 aircraft and optioning four even before ILFC forced Airbus to redesign the A350 completely. So early did Finnair order its A350s, says Kostermäa that the airline has ended up with a bargain – it got the A350 XWB for the same price it agreed with Airbus for the original A350.

Kostermäa says that although “we’re not desperate if they’re delayed,” Finnair’s A350-900s (due for delivery from 2014) will carry

10% more passengers the same distance as its A340-300s and will burn 20% less fuel – or will carry more than 6 tonnes more cargo. “It’s got the payload characteristics of the MD-11, but will burn 30% less fuel,” he says.

An Asia-driven Business Strategy

Although 86-year-old Finnair, like every other airline, is finding today’s economic conditions very challenging and has seen big changes – particularly a stagnation of traffic on Finnish domestic routes – in the past decade, it has developed an innovative business strategy to survive.

Finnair’s business model rests on the triple foundations of environmental leadership, Finland’s unique geographical situation and a passenger-friendly main hub. Embodying these factors in the marketing campaign ‘Via Helsinki’, the airline positions itself as the logical airline for people to use when flying from central



Japan; Beijing, Hong Kong and Shanghai in China; Bangkok; Seoul; and Delhi. Most are served daily, except Seoul (to which Finnair flies five times a week) and Tokyo, though Finnair’s six-times-weekly service will become daily in April when a new runway extension opens at Narita.

The carrier served Mumbai until recently, when capacity added there by Middle East carriers grew so great that several European carriers pulled out. However, “I have not lost my belief in India,” says Petteri Kostermäa, and hopes Finnair eventually will return to Mumbai and notes it also holds rights to serve Chennai.

Finnair’s Connecting Strategy

Finnair’s “Via Helsinki” marketing rests on the fact that Helsinki lies directly on the shortest great-circle routes from western and central Europe to Asia. “It’s an advantage that cannot easily be taken away from us,” says Kostermäa – noting that, crucially, Helsinki is the only major European city from which an airline can operate a Europe-East Asia round-trip within 24 hours.

As a result, says Kati Ihamäki, Finnair’s Vice President of Sustainable Development, it makes compelling environmental sense and hard business sense to connect at Helsinki

when travelling from any secondary European city to any Asian city that Finnair serves. This belief is encapsulated in a marketing slogan: “With Finnair, you’re always moving in the right direction.”

This wouldn’t be true if Finnair couldn’t guarantee good connections at HEL. However, because HEL has three long runways but is much less busy than the biggest European hubs (HEL saw 13 million passengers in 2008 and 12 million in 2009), it rarely experiences any hold delays. In winter, because of Finavia’s long experience with extreme-weather operations, the airport virtually never closes.

These factors, along with Finnair’s near-90% on-time record and the compact design of HEL’s Terminal 2 – from which Finnair now operates all its Helsinki flights – allows the airline to offer connecting times of just 35 minutes between its European and Asian flights. This is far better than the connection times possible at any major European hub.

Finnair’s Extreme-weather Winter Operations

Finnair likes to boast it is “one of Europe’s most punctual network airlines,” regularly achieving an annual on-time arrival rate between 80% and 90% and an even higher rate for its scheduled flights. (Although Finnair’s on-time arrival rate in December 2009 was just 50%, the airline says this was mainly due to poor weather at airports elsewhere in Europe and to a strike by baggage handlers

1 Finnair Boeing 757-200 OH-LBV on a snowy apron at Helsinki-Vantaa Airport. Matti Kokkonen

2 De-icing in progress on Embraer 190 OK-LKH at Oslo-Gardermoen Airport, Norway. Jorgen Syversen/AirTeamImages

3 A multi-line formation of Hagie/Vammas PSB 5500 self-propelled snow removal machines clear the main runway at Helsinki-Vantaa Airport. Finavia

4 The snow blower units used by Finavia are capable of throwing 5 cubic metres of snow per second to a distance of 35m (114ft). Finavia

5 A snow blower loads trucks with snow on an area of the taxiway at Helsinki. Finavia

6 Finnair has implemented ‘demand-driven scheduling’ which matches an aircraft type to the passenger load. The smallest type in the fleet is Embraer 170, which Finnair has configured to carry 76 passengers. Jorgen Syversen/AirTeamImages

at Helsinki. Finnair achieved an overall 87% on-time-arrival rate for the full year.)

The airline's strong punctuality record is remarkable considering it is based at Helsinki-Vantaa, an airport that in the winter of 2008-2009 officially had 970mm (39 inches) of snow. Unofficially, the airport actually saw about 1,400mm (55 inches), as measured by the airfield maintenance department of Finavia, which operates HEL and is responsible for clearing the snow from all the airport's airside and landside facilities.

Finnair accounts for 60% of the operations at HEL and its domestic network includes 12 of Finland's 25 commercial airports. At these airports, the airline experiences a wide variety of extreme-weather winter conditions, says Jari Pontinen, an A330 and A340 captain who is manager of the flight planning centre in Finnair's flight operations division.

Pontinen says conditions range from very moist, snow-contaminated, "difficult runway conditions" at airports in southern Finland such as HEL and coastal airports such as Turku and Oulu, to "the "very different", extreme-cold conditions found at airports in the middle of the country – particularly Lapland airports such

as Rovaniemi and Kittilä.

Heavy, wet snow, typically found at the southern Finnish and coastal airports rather than at the colder inland airports, creates the worst problems for runway clearing and runway contamination, according to Jyrki Pulkkinen, Finavia's manager of airfield maintenance at Helsinki-Vantaa.

So how has Finnair managed for the past 86 years to stay mainly on time in severe winter weather?

"It's a must," says Pontinen. "For six months of the year, somewhere in Finland you have winter. You need to be familiar with weather and with contaminated runways. It's the same issue as how people have to be familiar with driving in winter."

That said, Finnair takes winter

operations very seriously. It holds regular meetings with Finavia, which operates 25 of Finland's 27 civilian airfields and all of the commercial airports and is responsible for snow-clearing and runway maintenance at each. That way,

each party remains fully conversant with the other's requirements and procedures. This communication has worked so well, says Pontinen, that delegations from other airport operators – the Port Authority of New York and New Jersey being one – often visit HEL to learn how to operate in severe winter conditions. In turn, these visits create "very valuable" communication with other airports and airlines, whereby Pontinen can then visit JFK (for instance) to learn its best practices and apply them in-house where applicable. Vitaly, too, Finnair's pilot training emphasises winter operations. The airline's theoretical-training courses, manuals and notices provide "very precise instructions for calculations for performance limits, cross-wind components and runway length" for given

Finnair Embraer 170 OH-LEH on the stand at Oslo-Gardermoen Airport, Norway. Jorgen Syversen/AirTeamImages



runway-friction-coefficient measurements, says Pontinen. Every year, Finnair's pilots receive recurrent theoretical training on winter operations and they are informed of any new developments in de-icing and anti-icing practices.

"In our training model, winter is covered very clearly," says Pontinen. Finnair's computer training for winter operations includes video, still photographs and text and is so good the airline often sells it to other airlines. Recurrent training includes briefings on why de-icing and anti-icing procedures are so important and why pilots must de-ice again if, after the original de-icing, their aircraft exceed specified wait-times while holding before take-off. (At a certain time after application, de-icing fluid becomes incapable of absorbing any more precipitation.)

In addition, Finnair includes winter-operations training in all its pilots' line-flying training, which each first officer receives (after completing basic type training) from line-flying instructors. Winter-ops training is taught both during winter and summer line flying. Each Finnair pilot also receives winter-operations training at least once every three years during his or her regular simulator checks.

Most of Finnair's de-icing and ground anti-icing is performed by the airline's Northport ground services subsidiary, "but the technical department is responsible for buying it," says Pontinen. "The flight operations department is involved in that process and training, so the end user's point of view is included."

Finnair's current fleet, which currently features under-wing engines, is easier to operate in conditions requiring de-icing and ground anti-icing than the McDonnell Douglas short-haul fleet it used to fly, says Pontinen. The airline joined the Association of European Airlines' de-icing and anti-icing working group back in the early 1980s because its DC-9s and MD-80s – which had rear-fuselage-mounted engines – "very easily got ice on the wing-root areas close to the fuselage on ground stops, and there was a risk of ice separating on take-off and ingesting in the engines."

While this isn't a problem for Finnair's current Airbus, Embraer and Boeing aircraft, the airline does sometimes need to warm up the engine intakes and fan blades of its aircraft with hot air before starting engines in very cold weather at some airports.

Finnair has been operating continuous descent approaches to 1,500ft (450m) at HEL since 2001, but the airport's instrument landing systems (ILS) at present are rated for Category 2 ILS approaches rather than Category 3A or 3B. However, this isn't a problem in winter, says Pontinen. Finnair is able to operate at HEL with just a 75m (246ft) runway visual range, "the lowest in the world" for a Category 2 airport, and has no minimum decision height. For winter operations "visibility is not so much of a problem" as are runway contamination and wind-related friction problems – particularly from the crosswind component. "Oslo Gardermoen is very difficult in this regard," says Pontinen.

Snow-clearing

Of course, Finnair could not maintain its winter-operations performance without the help of Finavia. HEL's own boast is that "the airport



1 A320-200 OH-LXD on a freezing stand at Kittilä Airport in Lapland during the twilight hours of the day at 1:30PM. Christian Kjelgaard 2 De-icing of a Finnair A320 at Helsinki. Finnair pilots get thorough training on the winter operations. Christian Kjelgaard 3 De-icing an Embraer 170 at Helsinki. Teemu Pesonen 4 For charter flights Finnair uses four Boeing 757s, one of which is pictured taking off from Corfu in Greece. Steve Morris /AirTeamImages 5 Finnair's first A330-300, OH-LTM, flew its first commercial service for the airline on April 6, 2009. Finnair 6 Nice shot of A320 OH-LXG taking off from Innsbruck, Austria. Florian Trojer /AirTeamImages 7 This A319 has been painted to highlight Finnair's membership of the oneworld alliance, which it joined in 1998. Europix/AirTeamImages



never closes down" in severe winter weather. For instance, 420mm (16.5 inches) of snow fell in one two-day period in November 2008 and the airport did not close at all. "There were delays, but it remained open," says Pulkkinen.

Finavia's snow-clearing and anti-icing operation at HEL is impressive to watch. Pulkkinen's winter team – 121 people, including three 11-person shifts for the taxis and runways, two or three eight-person shifts for the apron area and one eight-person team for the landside area – keep HEL open 24 hours a day, seven days a week. This involves keeping 2.5 million square metres of runway and taxiway and approximately 1 million square metres of ramp area clear of snow, as well as roads, pathways, 13,000 car-park spaces and 200 hectares of barrier-forest.

To clear snow away from one of HEL's three 60m-wide (197ft) runways, a chevron-shaped or multi-line formation of 10 Hagie/Vammas PSB 5500 self-propelled snow removal machines (made in Finland), capable of clearing a runway at a speed of 65kmh

(40mph), does the heavy work. Each PSB 5500 is 20.9m (66ft 7in) long, weighs 30 tonnes and has a plough 6.7m (22ft) wide. (Finavia also operates four big Hagie sweepers at Oulu.)

Immediately behind the line of snow-sweeping machines come two snow blowers, each capable of throwing 5 cubic metres of snow per second to a distance of 35m (114ft). These throw far from the runway the piles of snow the PSB 5500s have pushed to its sides. Just behind the throwers come two 'combispreaders', which spray non-toxic potassium formate over the runway's entire surface area to prevent ice formation.

Right behind these machines travels the supervisor's vehicle, trailing a friction tester, to measure the runway's friction coefficient and relay this data to air traffic controllers to relay to aircraft for use in calculating take-off and landing distances.

Clearing an entire runway takes just 11 to 13 minutes, says Pulkkinen. (HEL's three runways measure 9,518ft [2,900m], 10,039ft [3,060m] and 11,286ft [3,440m].) To clear all three runways

from the 'zero point' on one runway, around all the manoeuvring area and back to the starting point takes 72 minutes, during which time at least one runway is temporarily closed.

Finavia's snow-clearing teams coordinate closely with air traffic control and the airport operator has 21 different runway-clearing plans for HEL, each being employed for a particular set of runway-usage conditions. "Finavia has calculated how many minutes it takes for each plan, so ATC knows how long it will take for full clearance and can adjust traffic accordingly," says Pulkkinen.

In addition, Finavia operates fleets of smaller snow-sweepers (mounted on trucks) to keep the ramps clear of snow, as well as suction trucks to vacuum up excess propylene glycol-and-water de-icing fluid from the apron after each aircraft spraying.

Finnair's Environment-based Strategy

Another key component of Finnair's business model is its dedication to the environment, a trait that reflects Finns' passion for preserving Finland's pristine forests, lakes and wildernesses. When people are travelling within Central and Western Europe and within Finland, Finnair prefers them actually to travel by train, says Ihamäki.

"In the centre of Europe, from city to city, it's not very wise to take a flight," she says. "You have to go through security, and usually the airports are outside the town. If I were living in Central Europe, I would take more trains." But, "coming from Finland, you have to have connections. I think our strategy in that sense is very effective, because as we show in the example of flying from New York to Delhi, if you make a stop you have less emissions," than if flying non-stop. "The same holds true





1 Another shot of A319 OH-LVE on the stand at Copenhagen - Kastrup, Denmark, one of 25 European Capitol cities served by the airline. *Europix/AirTeamImages* 2 Finnair operates the A319, A320 and A321 with the same pilots able to fly all three types. *Simon Gregory/AirTeamImages* 3 To celebrate its 85th anniversary in 2008 Finnair painted A319, OH-LVE, in this retro scheme from the 1950s. *Philippe Noret/AirTeamImages* 4 Finnair operates five Airbus A340-300s for many of its long-haul routes. *Finnair* 5 Finnair's last MD-11, which is used for charters, is due to be phased out on February 22 this year. *Javier Bravo Muñoz* 6 As Finland's flag-carrier Finnair has an extensive fleet. Part of which are ten Embraer 190s. *Sven Waeder* 7 Finavia's snow-clearing and anticicing operation at Helsinki is impressive and involves keeping 2.5 million square metres of runway and taxiway and approximately 1 million square metres of ramp area clear of snow. *Finavia*

using CDAs – and Finnair uses CDAs for almost all its arrivals at other Finnish airports.

Kostermaa says Finnair has adopted two other measures to increase operational efficiency and reduce fuel burn. One, demand-driven scheduling, relies on the fact that Finnair's five different short-haul aircraft models belong to just two aircraft families. Each family offers a standardised flight deck, and cross training allows pilots to fly either of two Embraer types or any of three Airbus types at practically no notice.

As Finnair's experience of demand-driven scheduling grows, it can increasingly schedule at short notice the right-sized aircraft for a given passenger load. Today, this ability is aided by Finnair's decision to reduce the utilisation of its short-haul fleet by the equivalent of five narrowbodies in response to the slowing of traffic demand in 2009.

The airline also employs a technique called cost-index flying, now becoming familiar to leading airlines. Basically cost-index flying relies on the airline's flight operations department calculating the trade-off point between the monetary saving produced by flying at a slower cruise speed or using a particular altitude and routing against the revenue value of the time saving the flight would otherwise experience.

Technical Innovation

Finnair Plc subsidiary Finnair Technical Services also contributes extensively to the airline's environmental and operational efficiency. Following the banning of chlorinated hydrocarbons such as methylene chloride-based paint strippers, Finnair had to find a new way to repaint its Airbus aircraft.

While Boeing's aircraft-construction techniques allow unlimited re-use of acid-activated paint strippers (AAPS), AAPS can only be applied to Airbus aircraft once, according to Tuomo Karppinen of Finnair Engine Services Ltd. (Karppinen, formerly in charge of Finnair's materials technology office, is now manager of the repair engineering office at Finnair Engine Services, another subsidiary).

Rather than strip its Airbus jets down to bare metal each time they needed repainting, in 2006 Finnair decided to become one of the first airlines to convert from using a conventional painting system during heavy maintenance to using Airbus' new selectively strippable system (SSS). This system, which Karppinen says uses "approximately the same" amount of paint weight per A320-family aircraft as for an equivalent Boeing, employs benzyl alcohol-based, caustic paint strippers that are environmentally more friendly than AAPS and are better for the high-strength steels in Airbus jets.

Additionally, SSS doesn't remove either the primer coat that lies underneath the aircraft's topcoat and intermediate coat, or the primer's underlying sealant. This means that less painting and no sealant removal is required, saving labour time. Finnair first employed SSS repainting in August 2006 and by January 2010 had repainted 20 A320-family jets using SSS.

Three years ago, Finnair Technical Services also became one of the first maintenance organisations in Europe certificated to install blended winglets on Boeing 757s. The carrier has installed the winglets on all its own aircraft and now performs installations for other airlines, says Karppinen.

ago began participating in the worldwide Carbon Disclosure Project (CDP). By 2009, Finnair's environmental index performance – as measured by CDP's Carbon Disclosure Leadership Index – had doubled to a figure of 61, making it "clearly the leading Nordic airline in terms of environmental measures," according to Ihamäki. Additionally, "Finnair was one of the first airlines to publish a Global Reporting Initiative Report," she says.

Operational Innovation

Its environmental sensitivity also stands on a foundation of technical and operational innovation. Although other carriers have publicised heavily their experiments with fuel-saving continuous descent approaches (CDAs) in the past three years, it is a remarkable fact that without publicity Finnair (in cooperation with Finavia) began using CDAs for 30% or more of its arrivals at HEL back in 2001. Now, says Finavia, around 60% of all arrivals at HEL are performed

coming from Paris or Amsterdam, for instance, to Japan or China: You should make a stop in Helsinki and then continue."

Ihamäki's claim refers to calculations performed by Finnair network analysts using its official Airbus and Boeing performance data. These showed that an Airbus A330-300 flying from New York to Delhi via Helsinki would use 19 tons less of fuel and emit 60 tons less CO₂ than would an Airbus A340-300 flying non-stop with the same passenger load. (It would also burn less fuel per seat than larger 777s operating non-stop.) This counter-intuitive conclusion results from the fact that during the early part of the non-stop flight, the A340 would fly at a higher rate of fuel-burn simply because of the fuel load required to keep it aloft during the latter part of the flight.

Finnair's environmentally friendly ethos extends throughout its business. The airline is a major recycler of office and in-flight-service consumables, has long published an annual sustainability report and three years



Finnair's Corporate Restructuring and Finances

Nationally important though it is, Finnair is run as a business and is subject to all the commercial pressures other airlines have faced since the turn of the millennium. It isn't always able to surmount them: After just about breaking even in 2008, Finnair saw revenues plummet by 18.5% for 2009 as passenger numbers, cargo traffic and yields dropped sharply. Its passenger traffic declined by 9% for the 12 months. The airline reported a €124m operating loss and a €102m after-tax loss for the year.

In late 2008 Finnair had already reacted to the downturn by beginning a €200m cost-cutting programme. This led to a corporate restructuring exercise in 2009 that (among other steps) combined Finnair's scheduled and leisure flight divisions into one division. One result, says Kostermaa, is that Finnair's scheduled and charter operations now must compete on a revenue basis to win daily aircraft flying time.

Around €120m of the restructuring was staff-related. By late 2009 it included furloughing of pilots, lay-offs of about 200 back-office staff and – after flexible-employment productivity negotiations failed – the airline transferring its baggage-handling and cargo warehouse operations along with their staff (under their existing employment contracts) to third-party contractors. It also included the transfer of two Embraer 170s and their crews to Fincomm Airlines. Not surprisingly, the moves produced two strikes late in 2009: first a strike by Finnair's pilots, then an allegedly illegal action by its baggage handlers. In December these devastated Finnair's normally excellent on-time record.

Influenced by this commotion, an online bookmaker that offers odds on airline collapses ranked Finnair in January as one of the six airlines most likely to file for bankruptcy. However, the bookie's analysis seems superficial. Even though Hassinen says 2010 will be another "tough year" for the airline because of continuing lethargic traffic demand, Finnair boasts a debt-to-equity ratio of 1 to 1. Most airlines would envy such a balance-sheet-gearing ratio; but, more importantly, it enables Finnair to continue to raise financing if necessary – though Hassinen says Finnair has plenty of cash for any foreseeable financing need.

In September, Finnair successfully sold €120 million's worth of 'hybrid bonds'. Officially debt securities, the hybrid bonds do not have a maturity date and international accounting standards treat them as equity. In addition, Finnair successfully obtained in 2009 two separate €160 million loans, one from the European Investment Bank and one from the export credit agencies of Germany, France and the UK to support Finnair's A330 financings.

As a result, says Hassinen, the financing of all of Finnair's A330 deliveries through 2010 is guaranteed and the airline still has a cash pile big enough to support its goal of being able to operate for four months even if no revenue were coming in at all. That eventuality appears unlikely, given Finnair's innovative marketing.

