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Strengthening the Airport Value Proposition

How Airports can Use Modern Technology to Build Value for Airlines and Passengers

A Frost & Sullivan White Paper

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Foreword

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How IT can strengthen the airport proposition to the benefit of airlines and passengers

With global growth in passenger volumes set to continue, as per IATA's 20 year passenger forecast, the competition amongst airports is likely to intensify.

In the past, when faced with competition, we have seen airports compete predominantly on financial terms. However, the reality is that this is no longer enough. Airlines have more complex needs than ever before, and using financial incentives no longer has the impact it once did.

It is therefore incumbent upon airport operators to demonstrate the value that they bring in the two areas of operational efficiency and passenger experience. Both of which are central to airline decision-making when it comes to airport selection and airport relationships.

Modern technology now offers airports a significant tool to enhance the value that they offer to airlines. It offers quantifiable advantages in easing the passenger journey, and therefore enhancing the travel experience, and in terms of operational efficiency, both in terms of improved productivity and cost reduction for airlines.

Therefore, by incorporating IT into its value proposition an airport can strengthen its positioning and points of differentiation. By doing so, airports are in a better position to protect aeronautical revenues by justifying fees, as well as in delivering new and innovative services.

This paper explores how airports can include IT into their value proposition to airlines and what this means both for airlines, as well as the passenger experience. I would like to thank both Frost & Sullivan for developing this report, and also to the many contributors that provided their time and insights.

I hope that this paper provides a source of insight, as well as some practical recommendations, as we work together in supporting the delivery of better journeys for all.

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Executive Summary

Unlocking the benefits of digital transformation

Today, digital transformation is a priority for airports, as well as many other organisations.

The challenge is to define what digital transformation means in the airport environment. So often a buzzword, or a catch-all term for everything related to technology, airports must embrace its potential to change how they do things. The proliferation of IT systems, and a lack of data, is endemic in many airport environments today. However, investment in airport IT offers the potential to sweep away many of the current constraints fragmented systems.

The common thread that unites all airport operators regardless of size, geography or model is the need to modernise, attract traffic, improve operational efficiency and enhance the passenger experience. The key component in delivering on each of these is technology, but also management vision. Despite this, airport value propositions regularly neglect the fact that IT can facilitate significant benefit across each of these key areas.

Airports also have to deal with a set of stakeholders which often have different interests. Indeed, airport interests are often different to those of their stakeholders too. Costs, revenue streams and growth opportunities are not always aligned. Therefore, airports must balance the different interests of customers, minimising frustration and identifying shared value.

Greater competition from other airports and new transport hubs makes it ineffective for airports to incentivise solely on costs. Instead, they have an opportunity to define more comprehensive value propositions underpinned by IT. By doing so airports can achieve greater value creation for all stakeholders, encourage collaboration and stimulate innovation and differentiation, but it requires a change in focus. By focussing on the passenger as the ultimate customer and by sharing key performance indicators that validate the passenger experience, airports can overcome many tensions with stakeholders.

A basic route economics business case remains the key driver of decision-making when airlines select airports for new routes, and route economics will always trump IT considerations. Nonetheless, route economics are increasingly a "hygiene factor" requiring airports to promote operational efficiency and improved passenger experience if they are to differentiate. Airport IT supports both. After an airline selects a new airport, there are ongoing opportunities to demonstrate value. These range from ease of setting up new applications; improved measurement of performance through shared KPIs; better management of logistics; and an enhanced passenger

experience. Technology, when deployed effectively, is instrumental in breaking down the silos which often frustrate customers.

Airports are realising that the true value of IT lies in enhancing customers' revenue streams, not just in optimising their own financials and KPIs. It is true that offering agility—allowing airlines to maximise incremental revenue—carries a cost borne by airports. However, that cost tends to be dwarfed by the opportunity cost incurred by airlines that fail to exploit short-term opportunities. This misalignment of IT cost and airline revenue streams is a long-standing problem in the airport environment, and has historically impeded the creation of accurate business cases behind IT investment.

Data analytics allow airports and airlines to better understand how they may increase each other's business. Because the exploitation of data analytics also leads to greater transparency of IT costs and related benefits, communication with airlines can improve. There is a strong correlation between IT investment, airline ground performance and passenger experience. So much so that in many cases, the acknowledged return on IT investments far exceeds the return on other airport capex projects. Airports should demonstrate this correlation in their value propositions.

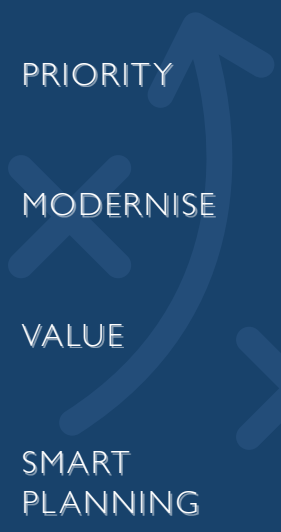
Pre-integrated IT solutions in the cloud should be the cornerstone of airport digital transformation, because they decrease complexity and increase agility. Airports should harness the power of the cloud to explore new business models; help customers trigger new revenue streams; and deliver a better experience for passengers. By doing so, airports will be able to turn the promise of digital transformation into real value for all.

Frost & Sullivan has engaged with 50 airports through its recent multi-client study and has interviewed 18 airports, airlines and industry experts for this paper specifically. They mostly agree on one thing: the basic value of an airport is its ability to attract traffic because it is convenient to passenger journeys. It is still true that if there is market demand for a particular airport, airlines will compromise on all other drivers, including the IT environment.

This paper explores the role of IT as part of the airport value proposition—neither over emphasising its role nor underplaying its significant potential—and it recommends the areas airports should be focussing on.

The role of the airport CIO is changing as IT and digitalisation become strategic imperatives

1 AIRPORT IT: AN INCREASINGLY STRATEGIC PRIORITY



Digital transformation is an emerging priority for airports which is why they are investing more in IT and why the position of the CIO is increasing in importance and taking on a more strategic position within the organisation.

While there are differences, based on region, ownership models and long-term strategic ambitions there is a uniform desire to modernise, attract airlines and improve both efficiency and passenger experience.

There are positive signs that IT and modernisation is a strategic imperative, however, the value propositions of many airports do not necessarily reflect this and they could do more to articulate the value they can offer to airlines.

Smart planning can drive cost reductions at the airport, as it will accommodate more traffic without the need for capacity expansion. As such, Frost & Sullivan expects IT budgets to rise faster than anywhere else at capacity constrained airports.

Airports are going through a period of deep digital transformation as they evolve from disparate IT systems and a lack of data exploitation to connected, intelligent airports that harness the benefits of digital platforms, data analytics, cloud, mobile and collaboration.

The digital transformation of airports supports more efficient operations, better passenger experiences and improved route economics—benefits which are central to the value offered by airports to their customers. That is why airport IT is a priority, why airports are investing more in technology and why the position of the airport CIO is increasing in importance, taking on a more strategic role.

Despite the encouraging signs that IT is a key focus for airports around the world, the value propositions articulated by airports do not necessarily reflect this. Airports would be able to build attractive value propositions that contain significant IT-enabled benefits but they must do more to express the value perceived by passengers, airlines and other customers.

Digital transformation redefines infrastructure and service provision

The airport industry is cautious and has traditionally not been at the forefront of embracing new IT paradigms, but current airport IT trends suggest the tide is slowly changing, and the provision of infrastructure and services is evolving.

Other conservative industries like retail banks and healthcare are on a similar trajectory. They have also realised the power of cloud and SaaS and are going away from doing everything in-house.

While it is true that many airports continue to run their own IT infrastructure for

security reasons, the notion that airport IT departments should be better at managing data and applications securely is increasingly perceived as a fallacy. Airports may fail to fully appreciate the characteristics of modern technology deployment and may assume that local deployment of departure control systems (DCS), generally accepted as the paramount critical airport IT component, leads to greater resilience. Ultimately, an airport IT department cannot have better physical security and better information security capabilities than cloud service providers.

The strategic role of the airport CIO

The role of the airport CIO is changing. Moving from an operational enablement role, CIOs are empowered to help set the vision of the 'Airport of the Future'. As the number of IT-enabled airline offerings increases, the role and power of IT departments inside airline organisations strengthens even further.

Frost & Sullivan observes that a number of airport CIOs are now being recruited directly from consumer industries unaffected by the critical-infrastructure sensitivities that have held IT innovation back at airports. Airport CIOs are increasingly well versed in cloud deployment, data analytics, automation and other technologies that accelerate innovation and enhance operations.

Airport information technology adoption can depend on the personal preferences and experience of decision makers and on their age. CIOs of private airports would be more attuned to cost control, whereas CIOs of public airports would be more focussed on preserving employment, not least due to complex union relations in public institutions. That said, Copenhagen Airport, which is gradually migrating its systems to the cloud, has not lost a single IT employee. Airports moving operations to the cloud change the role of IT staff, who are no longer needed to run servers and are redeployed to focus on IT innovation that will benefit the passenger experience.

Smart planning can drive cost reductions at the airport

Airport IT spending increasing with digital transformation

With increasing airport CIO powers comes increasing influence over budget allocation. In fact, airport IT spending is growing faster than total airport (opex and capex) expenditure. Frost & Sullivan estimates that IT budgets make up 6-9% of total investment for airports and expects IT budgets to continue growing by more than 5% annually, over the next 5 years.[1]

This growth remains above IATA's long-term passenger traffic CAGR of 3.7%.[2] Today, the majority of IT spending goes into passenger

1 Frost & Sullivan "Digital Transformation of Airports" research conducted March-May 2017

2 "20 Year Passenger Forecast" by IATA, released in October 2016

processing, security and border control solutions, although Frost & Sullivan expects that more and more airports will also invest in smart planning and mobility. Smart planning can drive cost reductions at the airport, as it will accommodate more traffic without the need for capacity expansion. As such, Frost & Sullivan expects IT budgets to rise most quickly at capacity constrained airports.

Digital transformation means that control of airport IT operations is no longer tied to physical assets inside the airport

Airport ownership influences long-term strategic ambitions

While airport IT procurement exhibits differences due to ownership models and differences due to long-term strategic ambitions, there is a uniform desire to modernise, to attract airlines and to improve both efficiency and the passenger experience.

In the US, where local or regional government airport owners lease assets to airport tenants, airports are allocated annual budgets to purchase IT systems that must be spent in one financial year. Acquisitions must be given accounting asset numbers, and the value of the assets must depreciate over a predetermined number of years. That is a clear deterrent to increased cloud operations. Additionally, publicly owned airports have a tendency to focus on capacity growth, rather than infrastructure utilisation, because capacity growth increases the status of the region. This is by no means a US phenomenon. Just think of Ciudad Real airport in Spain.

With a change in airport ownership, mainly seen in Europe and APAC, procurement is becoming more dynamic. Greater levels of innovation are observed in mid-sized airports where no single airline dominates operations, as well as in airports where decision making is centred in Finance and IT departments; these teams focus on reducing capex, transforming capex to opex and improving non-aeronautical revenue streams.

Dematerialisation of airport IT control

Digital transformation means that control of airport IT operations is no longer tied to physical assets inside the airport. Operational and passenger-related activities can take place outside the airport instead, allowing the airport to optimise its use of space, often releasing space to retail and other revenue-generating activities.

Like Copenhagen Airport, London Gatwick has migrated many of its operations to the cloud and as a result managed to demonstrate a reduction in single points of failure. Dematerialisation is spreading to air traffic control where the impact will be substantial in airport economics, particularly for small and medium-sized airports.

NATS, which provides air traffic control services at London City Airport, is to replace its air traffic control tower with a remotely operated digital system; it is the first UK airport to do so. The remote digital system will provide controllers with a 360-degree view of City Airport via 14 high-definition cameras and two cameras which are able to pan, tilt and zoom. The cameras will send a live feed to a new operations room built at the Hampshire base of NATS.

This follows the examples of LFV of Sweden, which pioneered the technology, Norway (Avinor), and USA (Fort Lauderdale) implementing remote towers to manage multiple airport sites.

RECOMMENDATIONS

for airports

Focus on building a strategic IT programme, whereby the role of IT in underpinning airport strategies for growth and development is clear.

Assess how IT can be used to drive greater transformation in the airport environment, allowing the **IT department to have more of a strategic rather than operational role** by looking at the mix of IT provision.

Improve the airport information security posture by embrace cloud because, ultimately, an airport IT department cannot have **better physical security and better information security** capabilities than cloud service providers.

2 CRAFTING STRONG AIRPORT VALUE PROPOSITIONS

IT-CENTRIC

While airlines may not begin to fly to an airport just because of its IT environment, airports can sustain IT-centric value propositions because IT will underpin almost all the benefits that an airport delivers to customers.

FIERCE COMPETITION

Competition from other airports and new transport hubs are a big incentive for change, and airports are realising that it is no longer possible to just incentivise on costs. Instead, they need to focus on more comprehensive benefits to customers.

PASSENGERS

All airports face the challenge of balancing the misaligned interests of their different customers and stakeholders. The dialogue between all stakeholders would improve if everyone focussed on the passenger as the ultimate customer. Even when data is available and presented by airports during negotiations, many airlines complain that the two sides have fundamentally misaligned views of the quality achieved.

The previous chapter concluded that information technology is intrinsic to the airport value proposition. Nonetheless, the interests of airport operators and their different customers are not always aligned, and the perception and accrual of value differs between customers, meaning that airport value propositions must appeal to specific targets.

From the point of view of airlines, there are at least six ways in which IT can enhance an airport value proposition, which shall be explored in the following chapters of this paper:

- Underpinning route economics by attracting passengers, expanding catchment areas and guaranteeing scalability
- Ensuring ease of setting up new airline applications, agility, set-up cost avoidance and elimination of sunk costs
- Providing operational efficiency, smooth processes for passengers and a good passenger experience
- Improving measurement and communication of performance, managing the passenger experience
- Enhancing and supporting revenue streams for all airport tenants
- Managing and optimising cost, reducing fixed IT expenses and increasing cost transparency

Traditionally, most airports have focussed on branding rather than the development of true value propositions. The markets of airports were typically understood as a function of catchment areas, traffic profiles and pricing incentives. These were crude criteria, which ignored the passenger as an individual, airline development in the long term and airline needs for agile adjustment to market signals.

However, during the past few years, airports have become much more mature in their market understanding. No longer guilty of "setting and forgetting" infrastructure, more

and more airports have begun to promote value propositions. A value proposition must express a specific offering to specific targets with a series of concrete and substantial benefits, and airports have been making investment decisions in support of those benefits.

Although an antiquated IT environment may not deter an airline from operating at an airport which enjoys passenger demand, it is possible to speak of IT-centric airport value propositions because IT will underpin almost all the benefits that an airport delivers to airline customers. Airports with a vision for IT services, communications infrastructure and logistics are far better placed to compete for airlines and passengers than airports that do not.

Airports with a vision for IT services, communications infrastructure and logistics are far better placed to compete

Balancing the interests of different airport customers

"If you know one airport, you know one airport" is a common saying in the airport community, but it is a false truism, because it does not take into consideration the shared opportunities and challenges faced by airports. For instance, all airports face the challenge of balancing the misaligned interests of their different customers and stakeholders, and all airports have basic business models that break down into aeronautical and non-aeronautical activities and revenue streams. Ownership, competition, regulation and constraints affect their business model with no exception.

Airports that are mainly funded by aeronautical charges consider airlines and other airport facility tenants (e.g. ground handlers and retailers) to be their main customer targets. Private airports with balanced revenue streams tend to address passengers as a separate customer target. This new customer target represents a new revenue stream opportunity, however it is a source of friction with airline customers, as airlines and airports must agree on who owns which part of the customer journey.

In the words of John Segaert, Principal at Polymath Consultants in Canada: "Both airlines and airports highly value customer service. However, if you sat down with airlines and airports to define it, you wouldn't get a consistent answer. Airlines' and airports' value are not the same things."

Airports will use the Airports Council International (ACI) "Airport Service Quality" benchmarking survey as their reference. They will experience big differences compared to the results obtained from airline customer satisfaction surveys because airlines define customer service differently. Even when data is available and presented by airports during negotiations, many airlines complain that the two sides have fundamentally misaligned views of the quality achieved, and that is not conducive to an agreement on common goals.

Bridging the differences in value

Airports should do a better job of understanding airline key performance indicators (KPIs) and vice versa. Airports should better understand the needs and requirements of different stakeholders as well as the shifting circumstances of these stakeholders in the lifecycle of their relationship with the airport. This should be

reflected in the development and dynamism of strong value propositions.

Ideally, the KPIs used by airport customers should make up the KPI score card of the airport itself. It is important to acknowledge what is important to airlines and what is important to passengers, depending on their status at the airport. This is something that is not necessarily happening today. Ultimately there are three value categories—financial, operational and passenger experience—that different airport customers will weight differently.

Airline target

At their hub airport(s), airlines are especially interested in the end-to-end service. Depending on their business model, airlines assess the performance of airports across three categories: passenger experience, cost efficiency and operational efficiency. Within these categories, there are KPIs already tracked by airlines and KPIs airlines would like to track.

According to the Etihad IT business partners team, at out stations (or non-hubs), airlines judge airport performance primarily on operational efficiency, with the key performance metric being On-Time Performance (OTP). These differences become obvious in the way airlines typically interact with hubs and non-hubs. Etihad is closely aligned with Abu Dhabi Airport—its main hub—and enjoys transparency over related fees, associated services and technology roadmap. However in regards to the out stations, visibility is more limited. For example at Rome's Fiumicino Airport, technological solutions are largely dictated by the home carriers. Etihad's airport management team attends all meetings, airport steering committees etc. This allows for the ability to provide feedback and the capacity to understand next the overall picture. However the airline feels that it is not a decision maker there.

Passenger target

Passengers do not differentiate between hubs and out stations, although they have different needs and requirements depending on whether they are departing, arriving or transiting. Passengers' engagement with airlines and their agents is typically high, whereas their engagement with airport operators is usually limited. This has begun to change, as airports try to increase their "face time" with passengers. They use multiple touch points (e.g. information desks, dynamic signage and self-service kiosks) as well as online and offline media (e.g. mobile applications, websites, social media, newsletters, advertisements and magazines).

Value propositions beyond landing fees

Even at airports that faced competition, proper value propositions were an afterthought that largely failed to consider factors other than fees. Incentives to airlines to start operations at particular airports boiled down to financial sweeteners by contributing to airline marketing budgets, funding promotional activities and providing short-term waivers of landing fees.

Airports try to increase their "face time" with passengers, using multiple touch points

Many of these waivers were controversial. The standoff between Charleroi and the European Commission over sweeteners given to Ryanair is one example. Meanwhile, the European Commission has also investigated a list of regional airports because of state aid. Airports investigated include Hahn, Saarbrücken, Alghero,

Västerås, Schönefeld, Tirstrup, Marseille, Ostrava, Groningen, Stretto, Isles of Scilly, Canary Islands, Verona, Gdynia, Dubrovnik, Dortmund, Leipzig-Halle, Niederrhein-Weeze, Pau, Angoulême and Nîmes.

Competition from other airports and new transport hubs are a big incentive for change, and airports are realising that it is no longer possible to just incentivise on costs. Instead, they need to focus on a more comprehensive value proposition that also considers the economic needs of the surrounding communities. Aena, which operates 46 airports in Spain and 16 airports outside Spain, making it the biggest airport operator in the world in terms of passenger numbers, articulates the value it generates as a responsible company that takes its role as a growth engine for its catchment area very seriously with an unwavering commitment to development and sustainability. Supported by the interviews with airports, airlines and industry experts, Frost & Sullivan recommends that every airport develop a value proposition for each customer target. Communicating that value proposition effectively is now an essential feature of any modern airport.

Cork Airport, which competes against an "unusually" high number of airports in the Munster catchment area, takes a very passenger-centric view: "Operating a safe and efficient international airport with unrivalled customer experience is key. It really is a combination of a number of things that puts us ahead of our competitors, including the choice of destinations on offer (which is the biggest outside of Dublin), the overall passenger experience, which includes everything from the speed and friendliness of our security team, value for money car parking to the much-improved food and beverage experience now available at Cork Airport."

Examples of important benefits that airports should feature in their value propositions include:

- Efficient and cost-effective operations—with evidence to prove it
- A consistently good on-ground experience for passengers
- Catering to the specific needs of airlines setting up operations for the first time as opposed to airlines that are expanding operations
- The ability to look after airlines that are cutting costs
- Accommodating specific airline goals (e.g. improved customer service)

The benefit statements would all be underpinned by the airport IT vision.

Passenger focus to decrease the field of tension between airports and airlines

Airports can carve out a greater role for themselves as service providers to passengers. At airports without competition—in the sense that airlines wanting to serve an attractive catchment area and passengers needing to travel there have no alternatives—there are no real boundaries to that service provision role. That is one reason why the passenger "face time" has increased.

The airport service extension opportunity creates a field of tension with airlines. WOW air founder and CEO Skúli Mogensen recently said in an interview with Business Insider: "Our goal, and we're working hard towards it, is for our ancillary revenue to actually surpass our passenger revenue." When airports start competing with airlines to sell ancillary services to passengers, they create a field of tension,

which becomes an obstacle to much greater benefits being realised on both sides, not least the benefits of data sharing.

Most airlines would certainly feel that airports should stick to what they are really good at—which is providing infrastructure—and let others build on that value for passengers. In Frost & Sullivan's view, the dialogue between all stakeholders would improve, if everyone focussed on the passenger as the ultimate customer. It would then be easier to co-operate and share data in areas like optimisation (e.g. connection times), where benefits would accrue on both sides.

Studies have shown that the more efficiently and on-time an airport operates, the more money passengers are likely to spend at the airport. In other words, reduced stress equals more purchases. This observation is against common logic that airports lose ancillary revenue when passengers are given accurate information and plan their arrival to reach their gate on-time or the assumption that retail footfall decreases if total passenger time in terminal decreases.

RECOMMENDATIONS

for airports

Consider using **the passenger as the focal point** for assessing how to deliver best value—by doing so both airports and airlines have a shared incentive for collaboration and co-operation.

When developing a value proposition, consider how IT can underpin the benefits offered to all targets. Put in place KPIs that **allow for benefits to be measured**.

Study the development of a **value proposition for each customer target**. Communicating that value proposition effectively is an essential feature of a modern airport.

Do not just focus on the financial and infrastructure dimensions to the airport value proposition. Otherwise airports run the risk of neglecting the 'softer' areas (e.g. passenger experience where they can add significant value).


IT and collaboration between airports and airlines is key for growth

3 ATTRACTING AIRLINES TO AIRPORTS

ROUTE

Route economics will always trump IT considerations, but that is a "hygiene factor", which does not sufficiently sustain a value proposition and is difficult to prove upfront.

PROCESS

Quality of service is synonymous with operational efficiency and customer experience. An efficient process management framework, the use of technology to ensure seamless operations and improved ground experience for passengers are all key. Process increasingly factors into airline choices.

TECHNOLOGY

Even though technology does not play a direct role in the selection of an airport, the reliability, resilience and flexibility of existing IT systems remain important parameters. Advanced technology and services implementations positively affect airport KPIs and passenger satisfaction.

ZERO FOOTPRINT

Airlines like it when airports pick pre-integrated products. Start-up costs and speed matter to airlines, but so do wind-down costs. The aim for the airport is to achieve and communicate benefits of zero (capex) IT footprint for airlines.

Airlines select an airport based on recommendations by its network planning team and business case validation by the finance and commercial teams. Route planning is complemented by calculations on cost of operations to estimate route profitability. For airlines that depend on a hub-and-spoke model, overall network benefits are also taken into account.

The basic business case is route economics

Route economics is a "hygiene factor" in the sense that route profitability and passenger profiles remain the key driver of decision-making for airlines when selecting an airport. Route economics will always trump IT considerations.

A low cost of entry is always preferable. Airlines closely monitor traffic to ensure it ramps up to their expectations. They need flexibility to make adjustments if it does not. Adjustments could mean reducing capacity, ceasing operations altogether or even increasing frequency. Some airports still offer old CUTE/CUPPS models, based on airlines acquiring dedicated connectivity, and this stifles initiative. LCCs are especially keen to experiment with routes, but even legacy carriers are becoming more experimental.

For this reason, airlines like it when airports pick pre-integrated products. Start-up costs and speed matter to airlines, but so do wind-down costs. The aim for the airport is to achieve and communicate benefits of zero (capex) IT footprint for airlines.

The efforts of an airport to attract airlines are mainly driven by perceived competition, whether this comes from neighbouring airports

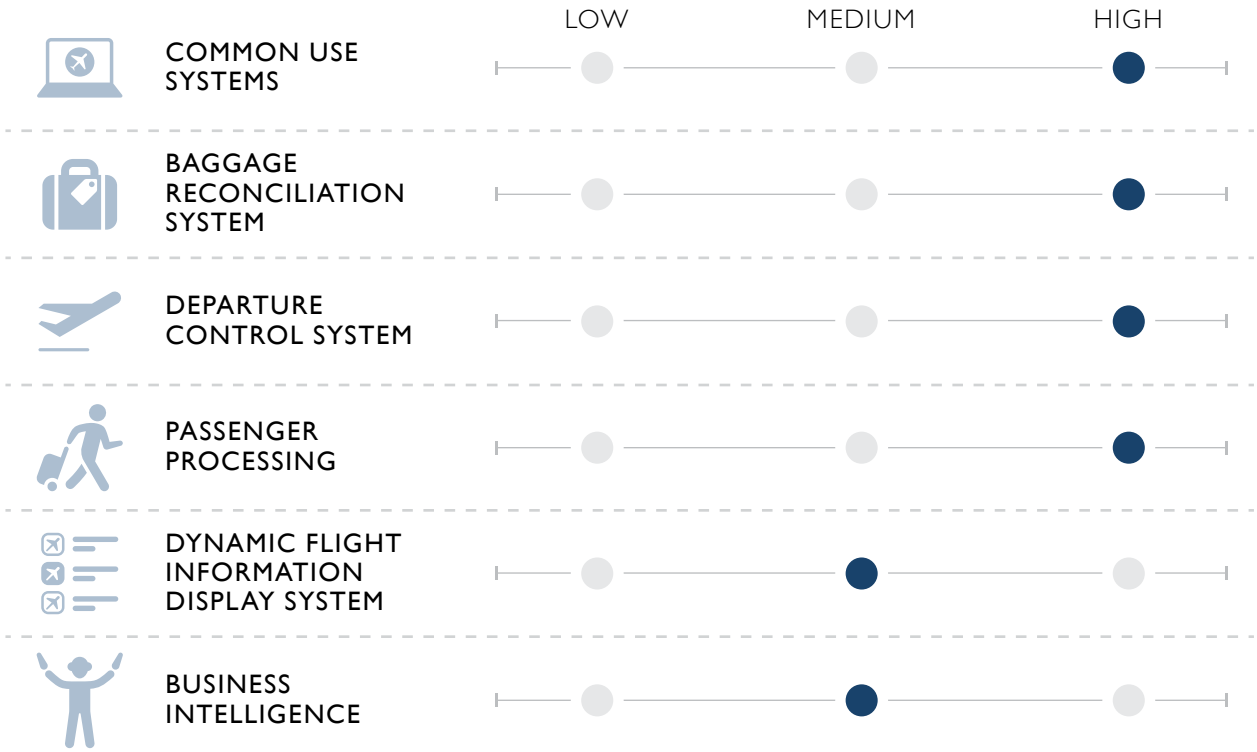
(e.g. London City Airport v. London Heathrow), regional hubs (e.g. Amsterdam v. Frankfurt) and intercontinental hubs (e.g. Dubai v. Doha). When competition exists and an airline has a real choice between two airports with similar demand profiles, the level of aeronautical fees will play a significant role in the final decision as they affect route economics.

Operational efficiency and passenger experience are equally important

Views differ on whether airlines appreciate operational efficiency or passenger experience more. It is widely assumed that LCCs value operational KPIs more than passenger satisfaction, even though the concepts are linked. At the same time, legacy carriers that have invested in a premium brand and good customer service at their hub airports could value operational efficiency more than passenger experience at out stations.

Feedback received during Frost & Sullivan's research suggests that both operational efficiency and passenger experience are equally important to airlines of different sizes and business models. Quality of service is essentially synonymous with operational efficiency and customer experience.

Airline Perceptions of System Impact on Operational KPIs



Source: Frost & Sullivan

Airport IT supports both operational efficiency and passenger experience

As such, even though technology does not play a direct role in the selection of an airport, the reliability, resilience and flexibility of existing IT systems remain important parameters. Aena, for example, strongly believes that automation of the main processes that employ airport infrastructure makes it particularly attractive to new airlines, and that the real value of IT systems lies in the control and management of those processes. Availability of IT systems is an important performance indicator for Aena, "because there is no point in operating a system if customers do not trust that the system will be available when they need it."

Airlines that already have IT embedded in core service offerings prioritise airports with a similar emphasis on technology

According to Rowan Chalmers, Executive General Manager, Operations, Airport & Inflight Services and Freight at Fiji Airways, IT components traditionally did not play a role, because airport IT was a relatively small cost for an airline and because few airport IT suppliers existed, and the common use passenger processing systems and technical equipment (CUTE/CUPPS) systems provided at every airport were the essentially the same.

Mr Chalmers feels that this view regarding airport IT systems has started to shift. Not only are there more airport IT suppliers offering passenger processing technology and shared technology, but advanced technology and services implementations now have a larger capacity to positively affect airport KPIs and passenger satisfaction.

Different airlines are at different stages in their evolution towards digital strategy. Fiji Airways is at the early stages of embracing customer and airport technology, whereas other airlines that might already have information technology embedded in core service offerings would prioritise airports with a similar emphasis on technology.

Airport IT supports end-to-end process management

Airport operations and the passenger journey through the airport are affected by a multitude of agents across numerous passenger touch points and dozens of processes. This phenomenon requires a different approach by airport stakeholders, who are now starting to collaborate and manage the end-to-end process rather than their own siloed functional areas.

End-to-end process management, which has only been partially achieved in airside operations through Airport Collaborative Decision Making (A-CDM), creates convergence opportunities and improved collaboration. For example, check-in and immigration are two processes that can be integrated in order to achieve seamless operations and improve the passenger experience. In this case, the airline, ground handler, security and border control stakeholders all have to be part of the end-to-end process.

The technology exists to clear immigration at check-in through an end-to-end process, and Singapore Changi ran a successful proof-of-concept project. Unfortunately, the

airport and government sides could not find a working model of co-operation, and the project was scrapped. Clearly, the main constraint for more efficient operations is on international flights, but creating motivation amongst the government agencies that are involved can be difficult, resulting in fragmentation and lack of data-sharing between stakeholders.

Airport IT supports process innovation

Having an efficient process management framework and employing technology to ensure seamless operations and improved ground experience for passengers is key. Process increasingly factors into airline choices, and airports must invest in technology to enable process innovation. Norwegian, for example, pioneered a rear-door boarding process developed jointly with Gatwick, and it has been a major factor in the rapid expansion of its Gatwick operations.

Occasionally, sophisticated airports will articulate the strength of their processes as a benefit delivered to airlines. Copenhagen Airport, one of the most technologically advanced airports globally, is a prime example of an airport that actively promotes its certified process management, while also successfully using technology to ensure process automation and improved experience for passengers.

In a recent article written by Marisa Garcia for tnooz, the CEO of Copenhagen Airport, Thomas Woldbye, says: "We want to be an attractive airport, so we're investing not just in building new capacity, but also in optimising processes, introducing new technology and making things smarter. We're therefore ready to invest DKK 500 million over the next four years specifically to reduce the airlines' operational costs at CPH."

RECOMMENDATIONS

for airports

Offer a low cost of entry to airlines because it allows them to make adjustments based on the traffic development. The cost of potentially winding down operations could be just as important to airline decision-making as the cost to set-up.

Use products which can be easily integrated and interoperable as this reduces both complexity and associated costs for airlines, especially when there is a choice of airports around key cities

Think about airport **operations from the perspective of the passenger journey**, this will help to improve the passenger experience and remove the unnecessary and outdated silos. Think of A-CDM principles to be applied to landside processes.

4 KEEPING AIRLINES HAPPY AT AIRPORTS

APPLICATIONS

Airports can demonstrate significant added value through the ease of setting up airline applications at the airport. With conventional airport IT vendors the process might take many months, a problem that would be solved using modern cloud-based common use services.

CONTROL

Many factors that are not under the direct control of the airport operator come into play to define the overall passenger experience at the airport. Small parts of the overall passenger journey could prove to have a disproportionately negative impact on the overall experience. Technology can give back control to the airport, even when facilities or certain airport operations are not directly managed by the airport operator.

The game is not won when a new airline selects an airport. There are ongoing opportunities to demonstrate value in terms of setting up new applications, communicating shared KPIs and managing the passenger experience.

Ease of setting up new airline applications and services

Making it really easy to set up airline operations at a new airport is a benefit that significantly reduces the workload, the cost and the complexity of airline IT departments.

To Fredrik Buxfeldt, Business CIO, Ground Handling & Inflight at SAS, the typical infrastructural and architectural set-up at many airports SAS flies to is a major pain point: "The way everything is currently handled is very old fashioned and inefficient: It is hilarious that, in 2017, we need to have SAS applications installed in a gate in New York instead of having everything in the cloud." SAS wants more airports to operate systems in the cloud so that setting up SAS applications would just be plug-and-play, almost like bringing a bag containing every necessary IT application on the first flight to a new destination.

Mr Buxfeldt is not alone with that wish. It can be expensive to install connectivity and cumbersome to deploy airline applications. With traditional CUTE/CUPPS technology it might take many months for an airline to deploy their systems to an airport, a problem that would be solved using modern cloud-based, centralised models.

Etihad is on the same wavelength and feels that the strength and maturity of airline IT support teams is also a factor. Without common use, a small airline without mature IT support might take three times as long as Etihad to set up at a new airport. When a new airport offers a cloud-based, centralised common use model,

Etihad can achieve an airport start-up in two months, and it is easy and stress-free. When the common use philosophy extends to bag drop, there is even less stress for the airline. To avoid working with local self-service providers which takes more time, many airlines would like to see airports invest more in common use service provision.

Improved communication of critical performance through shared KPIs

When airlines are well established at a particular airport, airline management ensures the value that they and passengers extract from the airport remains higher than the cost of continuous operations. Airports have traditionally tackled this by engaging with the local operations team of the airline on a regular basis, typically through the establishment of committees of airline operators. These committees are mainly concerned with operational issues at the airport, as well as the implementation of large capex projects that will have an impact on airline/airport KPIs and the passenger experience, but sometimes the issues go a lot deeper.

Information technology could act as an enabler for a better ground experience

Whether passengers choose airports or airlines is a matter for debate, and the purpose of passengers' trips is certainly a factor. When passengers' primary choice is the airline, their ground experience is affected by airport facilities and touch points with airport, airline, security and ground handler agents. Repeated negative experiences could have an impact on the airline choice of airport in the long-term if an alternative exists.

Steve Tarbuck, Director Ground Operations & Nominated Person (NP) at WOW Air, feels that more airports could do a better job of communicating critical performance data to carriers: "Airports need to use the data they capture to demonstrate their performance, then craft solutions to improve their overall running. Often viewed as discriminatory, airlines invariably use internal methods, to understand their turnaround efficiency. However, if optimisation of assets is to be improved, a more collaborative approach to data sharing needs to be established amongst airlines and airports."

Enhanced Management of the Passenger Experience

Many factors that are not under the direct control of the airport operator come into play to define the overall passenger experience at the airport. As an example, tour groups that arrive by bus and hit check-in at the same time may provide a negative experience for all other passengers. Even small parts of the overall passenger journey could prove to have a disproportionately negative impact on the overall experience, such as the lack of a reliable or reasonably priced Wi-Fi service. As Emirates saw passengers disappearing off to connect through Doha and Abu Dhabi, it had to address something as basic as the quality and cost of Wi-Fi at Dubai International, because it had become a major passenger pain point.

Information technology could act as an enabler for a better ground experience just by giving airports advance visibility of passenger volumes at their terminals in a given time window.

Cloud-based platforms that accumulate up-to-date information from multiple external sources (not least passenger reservations) would make a material difference to the passenger experience.

If, for example, airports could anticipate the arrival of large tour groups, and if cloud-based airport platforms allowed check-in and bag drop activities of the tour group to take place off airport, then the experience would be much better for everyone. Efficient departure optimisation software could reduce airport delays and therefore disgruntled passengers at the gate. Technology can give back control to the airport, even when facilities or certain airport operations are not directly managed by the airport operator.

RECOMMENDATIONS

for airports

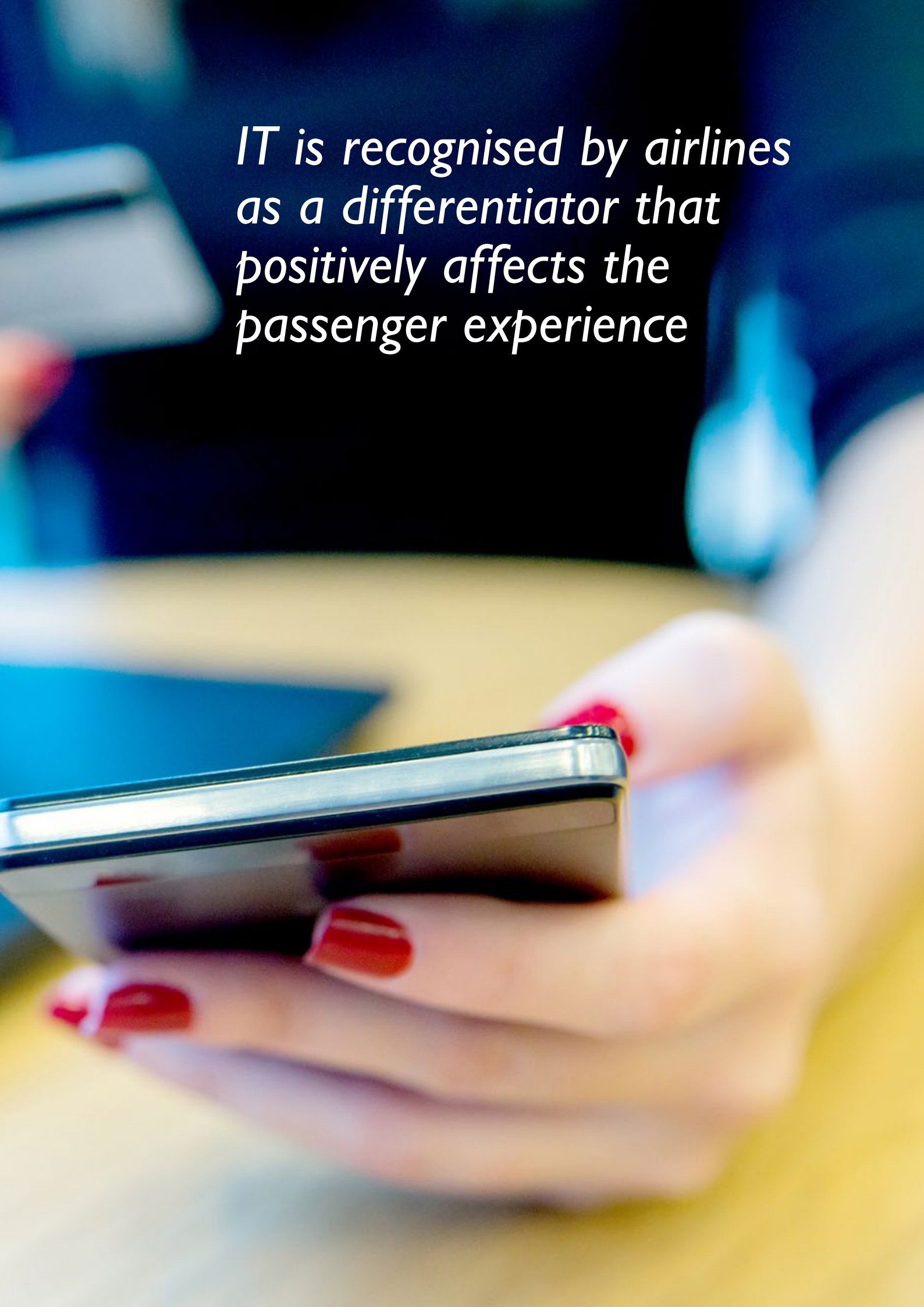
Make it easy and quick to set up new airline applications and communicate that benefit as part of your value proposition. Work with the other airport tenants (e.g. baggage handlers) that play a role in keeping airlines happy.

Remember the importance of airline IT departments to the health of the customer relationship.

Prove to airlines that **the value they generate is higher than the cost of continuous operations**.

Deploy technology effectively to **better manage disparate operations and provide attention to the detail that matters to passengers**. Break down the silos, which frustrate all airport customers.

Actively use cloud-based solutions to **improve the ground experience for everyone** by anticipating passenger volumes and processing passengers off-airport if able.


IT is recognised by airlines as a differentiator that positively affects the passenger experience

5 THE ROLE OF IT IN ENHANCING REVENUE STREAMS

VALUE

Airports are realising that the value of IT lies not just in enhancing their own financials and improving own KPIs but in improving the value proposition to both airlines and passengers.

GORDIAN KNOT

Airlines may incur an opportunity cost if they lose incremental revenue from not exploiting short-term opportunities. Airports incur the cost of providing agility at the airport (allowing airlines to maximise incremental revenue). The misalignment of cost and opportunity is the Gordian knot that must be disentangled. Legacy systems have high hidden costs that are largely ignored by decision makers on both sides.

DATA ANALYTICS

The benefits of data analytics work both ways, and airports should be aware that airlines will put any additional insight to good use when they negotiate Service Level Agreements (SLA). Data analytics will allow airports and airlines to acknowledge and understand how they increase each other's business to a far greater extent than today.

Airports are realising that the value of IT lies not just in enhancing their own financials and improving own KPIs but in improving the value proposition to both airlines and passengers. This, in turn, provides them with an opportunity to differentiate, improve airline route economics, identify new revenue streams and ensure improved passenger experience, thereby enhancing their competitive positioning and business model.

Collaboration benefits enabled by IT

Collaboration has been proven to improve efficiencies for the airport community, where this has taken place. There is plenty of evidence of the correlation between successful implementation of collaboration projects and airline capacity growth at airports. One such example is Toronto-Pearson. According to John Segaert: "Pearson used to resemble a 'war' between Greater Toronto Airports Authority (GTAA) and Air Canada. Finally, through expansion at Pearson, they got closer and closer and were really able to up the numbers. Air Canada's schedule is now higher than ever at Pearson."

Things that are conceptually simple become complicated without collaboration. The airport scans boarding cards at security, but the system is separate from the carrier systems. It would be hugely beneficial to an airline receiving an update in departure control that a passenger has passed security, but that requires a negotiation. Airports might not provide the data, although it would lead to greater accuracy with more flights vacating gates on time.

A-CDM projects have improved tactical planning for airside operations, by allowing the anticipation of aircraft movements and better turnaround management, thereby improving On-Time Performance and aircraft utilisation for airlines. As an example, Munich Airport has benefited from improved flight departure planning and increased runway capacity through implementation of A-CDM and supported by modern IT like a system to optimise the flight departure sequence. For airlines using Munich Airport, this has resulted in Just-in-Time push back, reducing taxiing time and fuel consumption at the airport.

The next step in airport collaboration is in Total Airport Management, which aims to provide tactical planning benefits across airside and landside operations. The main obstacle to this lies in data sharing among the airport community, which will require partnerships among authorities, industry bodies and airport IT suppliers to develop a strong governance framework.

Data analytics improve business on both sides

IT is a big enabler for sharing data, but the airport community has not taken full advantage of data generated by assets (aircraft, ground) and passengers, resulting in apparent inefficiencies across the airport environment. As an example, slot constrained airports may only have a view of airline schedules six months in advance. Airlines, on the other hand, have plan schedules over 12 months, but these plans are not shared with airports. In this case, airport IT suppliers with access to schedules can step in to bridge data sharing gaps, providing airports with systematic 12-month advance airline schedule intelligence, including aircraft types and seat maps, to improve airport tactical planning.

The benefits of data analytics work both ways, and airports should be aware that airlines will put any additional insight to good use when they negotiate SLAs. Hypothetically, data analytics could help determine the optimal wait time in security that would ensure all passengers made departures exactly at the right time and maximised footfall in retail outlets. Revenue streams for all other airport tenants could be factored into the cost of specific SLA times, and the same phenomenon could apply to irregularities. Airlines pay compensation and supply food vouchers to delayed and stranded passengers, but airlines are also holding passengers in the airport shopping window for much longer than anticipated, so they might demand to receive commissions from the airport. Data analytics will allow airports and airlines to acknowledge and understand how they increase each other's business to a far greater extent than today.

Data analytics will allow airports and airlines to acknowledge and understand how they can increase each other's business

In operational terms, the biggest inefficiency remains in the planning and recovery from flight disruptions, irrespective of its source (weather, technical, ATC, system failure, industrial action). Airlines tend to look six hours out to anticipate and mitigate disruption, but that data is not shared with airports. A shared disruption management solution would allow the effect

of disruption at one airline on other airlines operating at an airport to be factored into action plans, speeding up recovery across the airport and reducing total disruption costs.

There needs to be a change in airport operations thinking, moving from reactive ("how did we do") to predictive ("how will we do") operations. This mind set shift requires airports to partner with suppliers that have access to the necessary data streams and have developed analytics solutions. A predictive centre of excellence must exploit synergies between airline distribution, airline finance and airport operations.

The cost of airport IT solutions is not aligned with or adapted to the airline revenue streams

Having access to data and advanced analytic tools goes beyond disruption management and predictive planning. Security data, collected at security touch points, could be used to improve baggage handling system utilisation for example. Passenger data could be used to develop personalised passenger services on the ground, benefiting both the airport and airlines.

Finally, data analytics could assist airports in improving master planning and design, thereby reducing wasted resources and improving airport utilisation. In this case, collaboration amongst community members is needed and could be achieved if airports were able to offer incentives for enhanced data sharing. At slot controlled airports, airport operators will, of course, know that a given airline owns a certain slot, but the airport will not know how that slot is going to be used until six months before the schedule becomes effective, at best. Not knowing the terminal capacity that will be required a year into the future, an airport operator will tend to over provision, building more capacity than will eventually be required. The savings from not over provisioning would be substantial, but as long as they are not shared with airlines, airlines have no direct interest in sharing data.

Agility triggers incremental revenue

Airport agility is an important element of the value proposition to airline customers. Beyond the ability to eliminate sunk costs and instilling flexibility in airline scheduling, it allows reconfiguration of services.

Sometimes airlines abandon routes—especially in the long-haul business—but choose to remain in the solution at the abandoned airport. Markets might change, and airlines might want to fly there again, avoiding the substantial sunk cost of having set up with a conventional airport IT solution. A major problem for almost all airlines today, is that the cost of airport IT solutions is not aligned with or adapted to the airline revenue streams.

Ultimately, the cost of agility (i.e. the cost of provisioning sophisticated common use cloud-based IT solutions) is far lower than the opportunity cost incurred through conventional fixed infrastructure, even when that infrastructure has been fully amortised by the airport.

The opportunity cost is the loss of incremental revenue from not exploiting short-term opportunities such as sporting events, big trade and political conventions, pilgrimages and special

tourist charters when carriers have excess capacity. If special charters had a zero footprint of IT infrastructure, the commercial risk would also be close to zero. Naturally, the opportunity cost is incurred by the airlines, whereas the agility cost is borne by the airport. That is the Gordian knot that must be disentangled before the zero IT footprint benefit can find its way into the airport value proposition.

Successful airport IT providers must provide flexibility in airline operations by eliminating sunk costs, allowing an airline to make decisions purely on demand profiles of airports, regardless of investment considerations. This type of "agile" philosophy is relatively new in the airport environment and is linked to the view of IT vendors and the airport community as partners.

If dynamic reconfiguration of terminal services became the norm and the benefits of dematerialisation were fully exploited, airport floor space could be tailored to meet demand at different times of day or week, using wireless and portable elements. Airports with mixed traffic profiles would benefit greatly from this and, again, costs would be avoided by not over provisioning infrastructure.

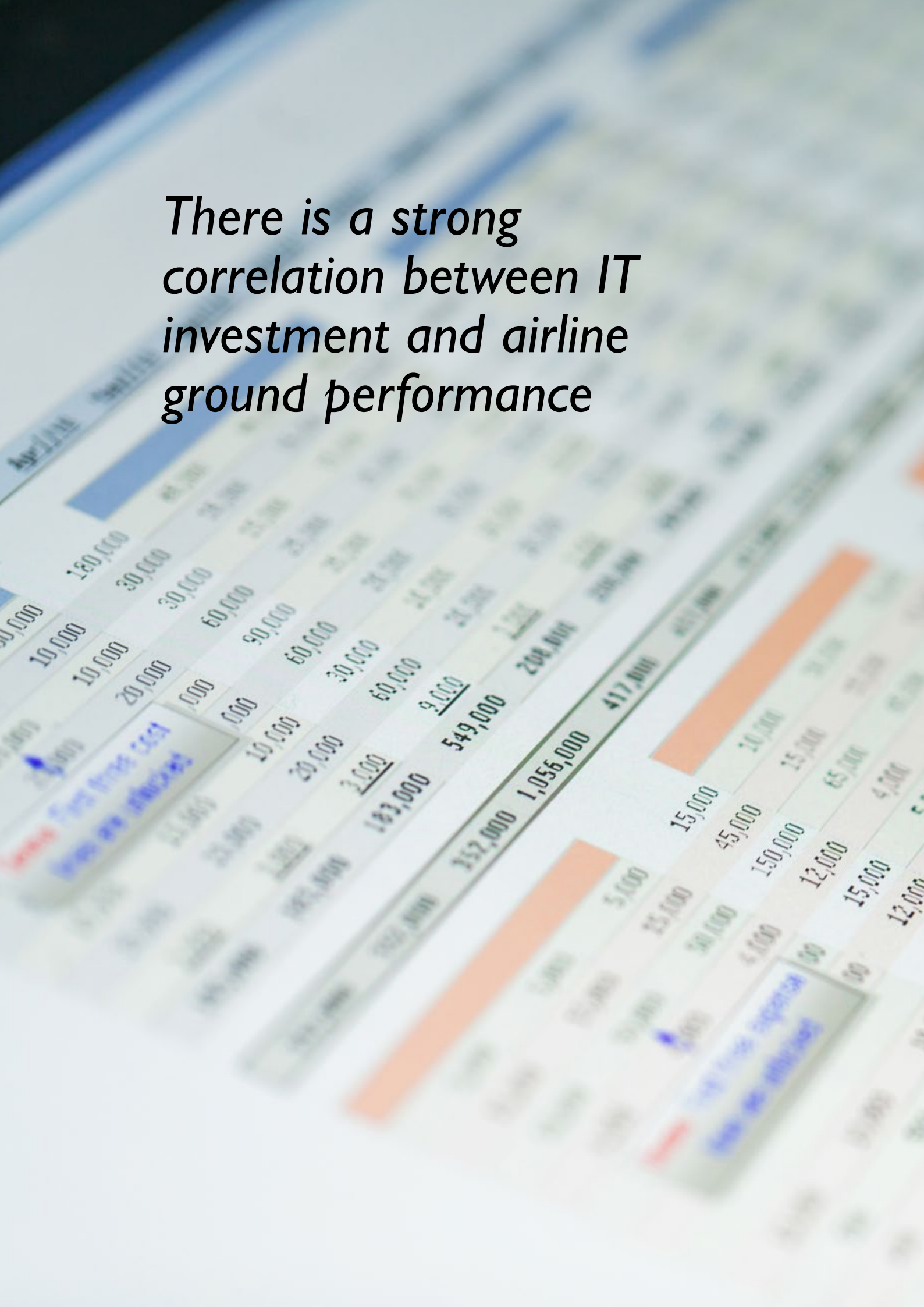
RECOMMENDATIONS

for airports

Use data analytics to **better understand how airports and airlines affect each other's business** and optimise revenue streams on both sides.

Work with IT vendors offering **modern technology to enhance collaboration** with prejudicing revenue opportunities on either side.

Be proactive in the communication of agility benefits and the ability of airports to enable incremental revenue for customers.


There is a strong correlation between IT investment and airline ground performance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6 THE ROLE OF IT IN MANAGING COST AND PERFORMANCE

ALIGNMENT

A major problem for almost all airlines today, is that the cost of airport IT solutions is not aligned with or adapted to the airline revenue streams.

SET UP

A business development challenge for airports is not knowing what it costs an airline to set up at the airport and airlines not knowing what it costs the airport to set up for them. Many airlines are blind to the fact that they pay high charges for using conventional airport systems.

CORRELATION

Transparency of IT investments and related benefits would improve communication with airlines. There is a strong correlation between IT investment and airline ground performance. In many cases the acknowledged ROI of IT investments far exceeds ROI of other capex projects.

Frost & Sullivan observes a strong correlation between airport IT investment and performance experienced by airlines. In many cases the acknowledged ROI of IT investments far exceeds ROI of other capex projects, though this is not communicated to the airline community. Overall, airlines will be more willing to accept the cost of IT investments, which remain unregulated, if the airport correlates cost with increased agility, passenger satisfaction, greater operational efficiencies and TCO reductions. This will illustrate overall benefits and alleviate concerns of airports using airlines as funding mechanisms.

Transparency of IT investments and related benefits would improve communication with airlines, and financial, operational and passenger experience improvements can be demonstrated based on performance data from IT systems. Transparency should not be constrained by size of investment. Today IT investments make up just 6–9% of the total capital investment of a typical airport, which partly explains the limited interest in engaging with airline customers on IT projects. Airline executives are used to negotiating aeronautical charges but are largely unaware of IT system costs.

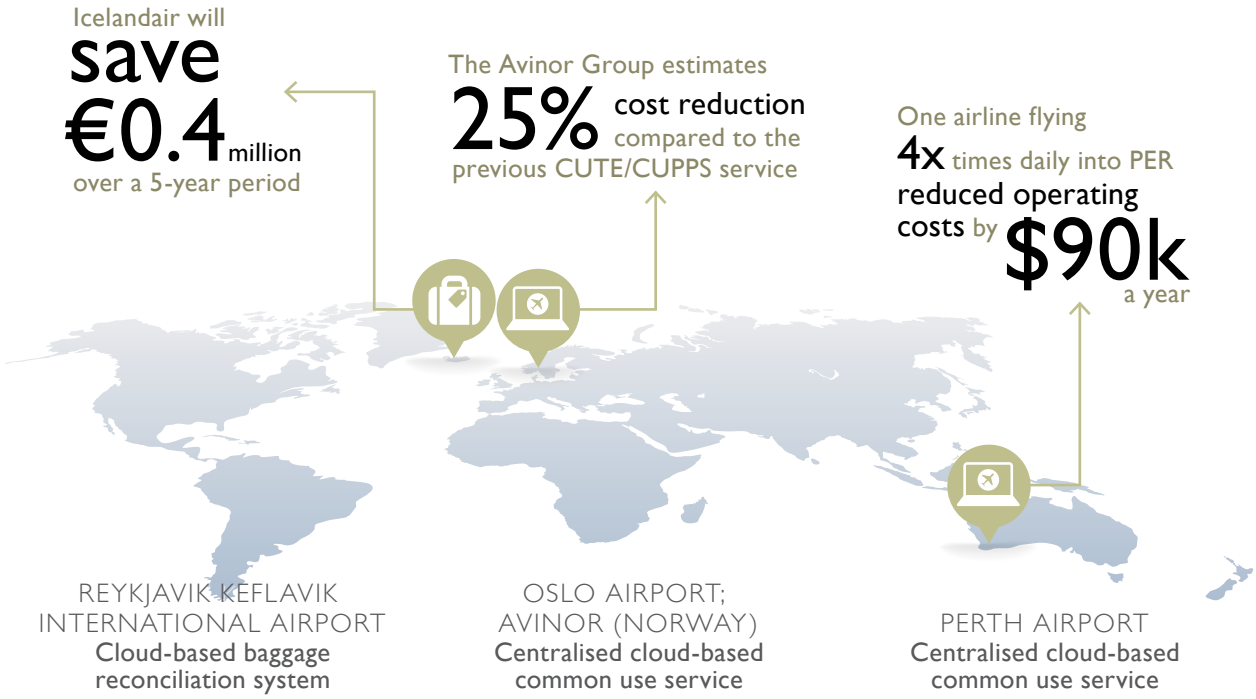
Communication of these costs, however, is constrained by the setup of airline teams that the airports engage with. The level of engagement and communication between airlines and airports should change. It has been suggested that airports could vastly improve the perceived value of IT projects if they established active lines of communication with multiple airline teams.

Recommended New Lines of Communication between Airports and Airline Teams

AIRLINE TEAM	COMMUNICATION FREQUENCY/TYPE
Commercial (Sales & Marketing)	During launch of new routes or in joint marketing campaigns.
Finance	Prior to launch of new route During final stages of business case development.
IT	Minimal. Airline IT engaged only for hub airlines.
Operational (Airport)	Main Airline stakeholder. Communication is regular, while team members form part of airport community committees.
Network Planning	Prior to launch of new route During early stages of business case development.

Source: Frost & Sullivan

Tangible Airport IT-related Benefits Already Realised



Source: Frost & Sullivan

Passing on IT-enabled direct cost savings

David Blackwell, Executive General Manager, Customer Service at Adelaide Airport says that because of new technology that will be deployed at Adelaide, it will begin to promote the efficiency the airport will observe and its ability to make better and faster decisions to the benefit of airlines. Adelaide had never previously thought of using its IT capabilities as leverage during business development with airlines, but it now offers tangible benefits such as its IT charges being 10% lower than at comparable airports, owing to advanced technology.

A business development challenge for Adelaide is essentially not knowing what it costs an airline to set up at the airport and airlines not knowing what it costs the airport to set up for them.

TCO should consider the wider airport user community

Total Cost of Ownership: IT makes hidden costs transparent

Fiji Airways believes that many airlines are actually blind to the fact that they pay high charges for using conventional airport systems or feel there is little they can do to influence systems selection by airports. In some cases there might be some laziness or reluctance from airlines to push for advanced technology at airports. Airports, on the other hand, might also shy away from introducing advanced technology because of limited advantages to them profit-wise, even though airlines might benefit from it.

At Adelaide, all the IT costs are wrapped up into one infrastructure charge—not segregated and itemised to airlines—and the capital cost is revised every two years and the pricing structure revised every five years. That is a fairly typical scenario, and there is always pressure from airlines to reduce fees in line with the depreciation of assets.

Airports should look at the Total Cost of Ownership (TCO) of IT systems and offer transparency to airline customers. Today, airports develop narrow business cases, looking at the financial ROI of a particular capex project, but ignoring other important metrics. For an example, by focussing on capex cost of a locally hosted legacy IT system, airlines may be ignoring high network and messaging costs over a 10 year period. Legacy systems have high hidden costs that are largely ignored by decision makers on both sides.

TCO should consider the wider airport user community (including service costs for all system end-users and quantified benefits of agile operations for all users). An airport should be able to define a holistic business case for the deployment of specific IT systems that considers the impact of the project on all relevant airline and passenger KPIs (across financial, operational and passenger experience value categories).

When previously hidden costs become transparent, completely new business models can emerge. We could call such a business model AaaS—Airport as a Service—in which the concept of pay-per-use applied to all services at the airport with an almost endless opportunity to mix and match. Utopian as it may sound, pay-per-use has always been the business model in general aviation, so it is nothing new.

Sharing benefits, justifying investment

Airports will attempt to factor investment in physical expansion, upgrades, terminal

renovation and airfield improvements into the aeronautical charges. They will argue that airlines will reap the benefits of those investments in the long run and should accept the changes.

Even if advanced technology at airports is beneficial to airlines, the airline counter argument is that airport operators realise even greater benefits through ancillary revenue (greater efficiency, less queueing, longer dwell times and more ancillary revenue). So why should the investment be amortised across aeronautical charges?

It is a highly controversial question. Mr Buxfeldt at SAS disagrees with the approach of using IT investment to justify aeronautical charge increases. Often, IT investment is presented as a possibility to reduce problems with infrastructure logistics, because the number of carriers flying into the airport has increased. An airport with increased passenger numbers may develop problems with logistics, security or boarding processes and invests in IT solutions to reduce bottlenecks. This means that, instead of achieving smoother processes, it opens the door to new carriers. It is peculiar that existing carriers should be expected to fund technology investment that attracts additional competition for themselves.

Greg Fordham, Managing Director at AirBiz, says that airport operators can invest in IT and experience the same benefits that they would receive from an extensive capital investment. Deployment of self-service and bag drop units (IT investment) can substitute expansion of check-in halls (capital investment). Airports do not converse about the operational savings they experience due to IT investments and the trickle down benefit to airlines. If airports do pass on the benefits to airlines (like the case of Perth Airport with ACUS) airlines will be more inclined to support IT investments.

A final cost avoidance element that is often overlooked is airline staffing at out stations. James K. Wheeler, IT Manager at Sacramento International, has found that common use technology enables a reduction in airline staffing because no equipment needs to be brought in from airlines and run by them. If airlines needed to maintain their own IT support staff, because they had stuck to proprietary kiosks for branding purposes, some staff members might be redundant at times. Sacramento will still offer to keep applications for all airlines on several common use kiosks, so that service is still available, as a back-up, if the proprietary kiosks fail. Airlines avoid cost by not keeping IT staff on site.

RECOMMENDATIONS

for airports

Be very specific about cost savings that new IT systems could generate for airlines. Share those savings with airlines and make sure you **justify investment based on tangible benefits realised** by airlines and other airport customers.

Explore Community TCO to **drive greater discipline** when it comes to investment decisions and prioritisation.


The passenger is the focal point in creating value

7 THE LAST WORD

The fundamental value of an airport—the ability to attract passengers who want to fly there—remains unchanged, but as competition increases, not just from neighbouring airports (with separate ownership) but from other hubs and other forms of transport, every airport should craft strong value propositions, to avoid competing on landing fee reductions and other financial sweeteners.

Airports should concentrate on the real value drivers (passenger experience, logistics, revenue enablement and cost) and use the passenger as the focal point in their delivery and communication of value, creating shared incentives for collaboration and co-operation.

At airports that have invested in advanced IT solutions, IT should feature prominently in the value proposition, because IT is recognised by airlines as a differentiator that positively affects processes and the passenger experience. Airports should be very specific about the IT environment underpinning benefits, and they should articulate those benefits through shared KPIs recognised by airlines.

Airports should always consider the value-add of new technology provided by advanced IT vendors for all customers. Many IT investments would accrue benefits on both sides, and if benefits and the investment burden are shared in a transparent manner, the parties will be motivated to share data. Cost savings for customers may emerge as well as enhanced business models, which will strengthen the relationship between airports, airlines, other tenants and passengers.

Airlines appreciate pre-integrated IT solutions in the cloud because they decrease complexity and increase agility. Airport should harness the power of cloud to drive the digital transformation of the airport environment. Digital transformation will help customers trigger new revenue streams and reimagine their business.

The most important thing that needs to change in the commercial aviation business is not information technology: the technology is already available to generate the benefits that would make an airport value proposition strong. What must evolve is the culture of resisting change. Airlines and airports are equally grounded in tradition, but if they challenged each other to prove and enhance value, the response would be phenomenal.

By allowing airport IT departments to take a strategic role, they can create the kind of vision for IT and the wider communications and logistics infrastructure that will make the airport and its customers far more competitive.

Frost & Sullivan would like to **thank the industry experts** from the following organisations for their contribution to this paper

Adelaide Airport

Airbiz

Aena

Amadeus

DAA, Cork Airport

Etihad Airways

Fiji Airways

Horry County Department of Airports, Myrtle Beach International Airport

Munich Airport

Polymath Consultants

Sacramento County Airport System, Sacramento International Airport

SAS Scandinavian Airlines

WOW air

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- **Schedule a meeting with our global team** to experience our thought leadership and to integrate your ideas, opportunities and challenges into the discussion.
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