

White Paper - Number 20

The Airport of the Future?



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CAP Strategic Research Ltd conducts market research and marketing consultancy for the Aviation industry. Over the past 25 years we have carried out projects throughout Europe, US & Canada, China, Asia-Pacific, Middle East, Africa, South America and Australasia. We conduct surveys amongst the many customer groups that are important to Airlines - business & leisure travellers, corporate travel departments, OTAs, travel agents, airports, F&B operators, retailers etc. We also undertake research for airports and have 25 years experience of interviewing key decision-makers in airlines worldwide, and also passengers and customers of Retail and F&B at airports. We also undertake cargo surveys. Our airline clients include Cathay Pacific, Emirates, Thai Airways, BA, Lufthansa, KLM/Air France, SAS, AA, Delta, Continental etc. Airports we have conducted surveys for include Hong Kong, Singapore, Amsterdam Schiphol, Frankfurt, BAA, Copenhagen, Vienna, Zurich, Boston, Newark, JFK, Miami and Denver. With offices in China, Hong Kong and Singapore we are ideally placed to meet your research needs in Asia-Pacific.

The Airport of the Future?

Synopsis

Airports will have to change dramatically over the next 15 years in order to satisfy their passenger and airline customers. Passengers no longer enjoy air travel and are looking at alternative forms of travel, especially high speed trains. Many airports are at or near capacity, and cannot easily increase the infrastructure to process more passengers. Somehow they have to handle more passengers with their existing facilities. To attract passengers in the future airlines and airports have to make air travel more enjoyable and less stressful. Most airlines are not profitable and have to reduce costs in order to survive. As a result of these pressures the aviation industry by 2025-2030 will be very different. Based on interviews with passengers, airlines and airports we have identified what airports might look like in 2025-30, and outline the implications for passengers, airports and airlines. We make the following predictions.

- **In 2025 there will be no check-in desks at airports**
- **Passengers will not have to go through an emigration procedure**
- **“Trusted Travellers” will not be subject to any security checks**
- **Passengers will not be able to check-in any luggage**
- **Totally new boarding procedures will be in place**
- **There will be no shops at airports, just showrooms**
- **There will be no immigration on arrival**
- **Airports around the world will operate 24 hours a day**

These predictions might look radical and dramatic and perhaps scary to some people but it is important to know that many of these developments are already taking place. The outcome will be happier passengers, more profitable airlines and more efficient airports.

The Airport of The Future - The Implications

The Airport of the Future will have major implications for the aviation industry – and it's all good news.

Airports Will Benefit

- Airports will be able to handle 25-35% more passengers with existing facilities
- More airlines and more passengers = increased revenue from landing fees and handling charges
- No investment in baggage handling equipment and systems
- Reduced staff levels – check-in, security and baggage handling
- More space freed up for retail and F&B
- Increased levels of passenger satisfaction
- Improved revenue and profitability

Airlines Will Benefit

- Improved airports will persuade more people to fly
- 24/7 operation will give airlines more capacity and flexibility
- Airlines will be able to carry many more passengers
- Reduced fuel costs
- Increased volume of cargo handled
- Reduced landing fees and handling charges
- Improved punctuality, reduced minimum connecting times
- Reduced staff levels – check-in, security and baggage handling
- No problems with lost luggage
- Increased levels of passenger satisfaction
- Improved revenue and profitability

Passengers Will Benefit

- Air travel will become more enjoyable once more
- No queuing at check-in, emigration, security, boarding and immigration
- More time to shop, eat and drink
- Reduced costs and improved airline & airport efficiency could lead to lower fares
- No problems with lost luggage

The Airport of the Future?

Introduction

Airports will have to change dramatically over the next 15 years in order to satisfy their passenger and airline customers. Passengers no longer enjoy air travel, especially those based in Europe and the US. They regard flying as expensive, stressful, time-consuming and uncomfortable. Many have now started using other methods of travel. Airlines are also finding it very difficult to make profits and in the future they have to cost costs and maintain revenue. Moreover air travel is regarded by many as very damaging to the environment. The aviation industry therefore faces a difficult future. Airports – and airlines – will need to adapt to meet these market developments and in this document we present a picture of what airports might look like in 2025-2030, and outline the implications for airports, airlines and passengers. It is, of course, impossible to predict the future but we believe it is feasible to make reasoned estimates of airport developments over the 2012-2025 period based on the following.

1. **An assessment of current trends in airport and airline operations identifying new activities and facilities**
2. **An in-depth analysis of passenger attitudes and requirements towards airports and airlines, based on many thousands of interviews conducted with air travellers in Europe, US and Asia-Pacific**
3. **An analysis of the challenges facing the airline industry and a detailed look at what airlines will be doing in the future to ensure passenger satisfaction and profitability. We have interviewed senior decision-makers in over 80 airlines worldwide.**
4. **Finally an in-depth evaluation of what the competition is doing, especially high speed trains**

The major conclusions to be drawn from this analysis are as follows.

Passengers Don't Like Air Travel Anymore

Air travel is no longer fun or glamorous, it's expensive, stressful, time-consuming and uncomfortable. Passengers are required to arrive at the airport 2-3 hours in advance of departure. They have to queue to check-in, queue for emigration, queue for security checks and queue to board the plane. And when they land they have to queue for immigration, wait patiently for their bags to arrive (if at all) and then queue for a taxi, train or bus. This is especially true in Europe and the US but Asia-Pacific will soon face the same problems. Passenger numbers are increasing faster than airports can create new or refurbished infrastructure. Getting more from existing airports is the only way forward.



Security checks are proving a real headache. Not only do passengers have to queue for a security check they are then subjected to intimate body searching and now face the embarrassment of body scanners. And this applies to all class of passengers. First and business class passengers can access very comfortable lounges but they still have to go through security and emigration/immigration like everyone else. Passengers now regard security checks as one of the major problems with airports.

Air Travel Is Very Expensive

The days of cheap air travel are fading fast. Airlines have been losing money for decades and will not continue in the future unless they become profitable, and that is leading them to raise fares. The serious increase in the price of fuel has also made air travel more expensive. On top of this governments see air travel as an easy way to generate revenue so they slap taxes on the flying public, often on the debatable premise that they are protecting the environment. Passengers, especially family groups, now find that flying is very expensive and are therefore looking at alternative ways of travel, or are deciding to stay at home. Whatever they choose to do, it is not good news for the aviation industry.

Flying Damages the Environment

Air travel has been singled out as a major danger to the environment. Pressure groups all over the world are hammering the message that aircraft emissions are extremely damaging and as such passengers should choose alternative forms of transport, or not travel at all. It's almost coming to the point where it is socially unacceptable to fly.

Passengers Prefer the Train to Air Travel

High speed rail has already emerged as a very strong competitor to air travel. All over the world countries are investing in high speed rail links and experience shows that passengers often prefer fast train services to air travel. Rail travel now accounts for 80% of all travel London-Paris, 90% of the air/rail market between Paris and Lyon, 85% of the air/rail market between Tokyo and Osaka and 74% of the air/rail market between Rome and Bologna.

Why do passengers prefer high speed rail to air travel? Because they find it more enjoyable and less

stressful. They can arrive only 30 minutes before departure, and journey from convenient city centre to city centre locations. Trains are comfortable and very safe and leave and arrive on time. And there are no time-wasting, tedious and nowadays embarrassing security checks. Moreover rail passengers don't have to check-in their luggage. And rail travel is seen as much kinder to the environment than flying.

High speed rail is forecast to gain even higher market shares in the future. "By 2020 passengers will be able to arrive at their destinations faster by high speed rail than by plane on nearly half of the densest European air routes" Boston Consulting Group.

Airports therefore face a very strong competitor.

Airlines Are Not Profitable

According to IATA the airline industry's profit margin will remain "razor thin" in 2011 and is expected to be even thinner in 2012. IATA is now projecting a profit margin of only 1.2% this year followed by 0.8% in 2012. "Unfortunately, poor margins seem to be a characteristic of the industry," IATA General Secretary Tony Tyler said recently. IATA is warning 2012 will be a year defined by "sluggish growth and weak profits" with a forecast net profit of only USD4.9 billion. And this is before the real impacts of the global economic downturn really kick in.

A recent European survey shows the threat of Air Passenger Duty (APD) being imposed alongside the EU Emissions Trading Scheme (EU ETS) next year will have a "critical impact on profitability" said nearly half the airlines (46%), with 42% saying it would have a "significant" impact.

This lack of profitability will force the aviation industry to change. They will have to save costs but at the same time make air travel attractive to their passengers. The LCCs and other switched-on carriers are leading this trend and already we see important changes e.g. removal of check-in desks, charging for baggage, food, drinks etc.

The Airport in 2025

Based on the above analysis we make the following predictions.

- **In 2025 there will be no check-in desks at airports**
- **Passengers will not have to go through an emigration procedure**
- **“Trusted Travellers” will not be subject to any security checks**
- **Passengers will not be able to check-in any luggage**
- **Totally new boarding procedures will be in place**
- **There will be no shops at airports, just showrooms**
- **There will be no immigration on arrival**
- **Airports around the world will operate 24 hours a day**

These predictions might look radical and dramatic and perhaps scary to some people but it is important to know that many of these developments are already taking place.

No Check-In Desks At Airports

It's Already Happening!

Check-In desks are an expensive and time consuming way for airlines and airports to process passengers. Check-in costs money especially in terms of staff employed and also takes up much valuable space. And passengers find checking-in one of the least enjoyable part of their journey.

The move to self-service at airports is well underway. Europe is leading the way towards to online check-in/self check-In machines/kiosks at the airport. Regular travellers now appreciate the speed and ease with which they can check-in, choose a seat and obtain a boarding pass via the internet, in the comfort of their office or home. People can also now check-in using their mobile phones.

Airlines are also driving the move away from check-in desks. Ryanair actually charge you extra if you want to check-in online. Airlines are moving away from having online and self-check-in as optional to

it being mandatory, easyJet now says that “all passengers checking-in for flights, including those with hold baggage, will use the self-check-in kiosks rather than the traditional check-in desks”. Qantas has a very strong policy on people using self-check in machines, passengers have to do this, there are no manned desks for many Qantas flights. The airline’s Frequent Flyers can use their Qantas Card to check-in simply by touching it against a Q Card Reader.

IATA is promoting process improvements that could increase the quality and efficiency of the passenger experience, namely IATA Fast Travel for passenger processing and Checkpoint of the Future for security. IATA Fast Travel gives passengers more control of their travel through self-service options for baggage tagging, travel documents scanning, flight rebooking, boarding and baggage recovery.

Passengers Will Not Have To Go Through Any Emigration

It's Already Happening!

This is another aspect of flying that passengers don't like. Queuing at emigration is commonplace and many passengers question the need for them to go through this process when they are leaving a country not arriving.

The move to do away with emigration is already underway. In certain airports locals can use their passports to bypass emigration checks. There are other schemes whereby regular travellers enrol for a card which allows them to bypass traditional immigration procedures e.g. INSPASS in the US, the Iris Recognition Immigration System (IRIS) at Heathrow, IACS at Changi. SmartGate has been launched, with the aim of expediting the Customs and border clearance process for passengers travelling between Australia and New Zealand.

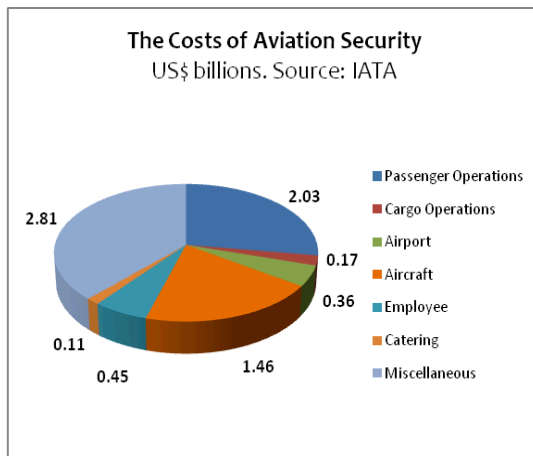
Amsterdam Airport Schiphol has announced that a new automated border control system will be installed to increase border security and expedite passenger processing. Incheon International Airport boasts one of the industry's most innovative self-service solutions by way of its 'U-Airport' concept. Essentially, the concept relies on the e-Passport and biometric-based technology to expedite the airport experience.

U-Airport focuses on the four basic processes that the passenger encounters in an airport environment: check-in, security, immigration and boarding. At Incheon International Airport, each of these processes can be completed with just the e-Passport and biometric information.

Passengers Will Not Be Subject To Any Security Checks

It's Already Happening!

This is an aspect of flying that passengers hate. It's invariably time-consuming, often annoying especially when passengers have to remove their shoes and be subjected to intimate body searching and now passengers face the embarrassment of body scanners. And this applies to all class of passengers. People are no longer prepared to put up with security checks that are seen as "over-the-top" - and not necessarily that efficient. Security costs the industry US\$ 7.3 billion. Huge cost savings for airports and airlines could be achieved by significantly reducing security checks at airports



The key question is how will it be possible in the future for passengers to avoid security checks. The

process is underway. Incheon's 'U-Airport' concept relies on the e-Passport and biometric-based technology to expedite security. We also predict that in the future passengers, especially the "Trusted Traveller", will choose to go undergo a thorough security vetting process, undertaken by the police, security forces and/or government departments. This will be an expensive and time consuming process but well worth it for those passengers who no longer want the hassle of security checks. It will especially suit the frequent traveller. A successful security vetting procedure would result in the passenger being given a biometric security pass which he/she can then use to access a special lane at an airport, allowing them to bypass security. The occasional traveller would probably not see the benefit of such a security card and would choose not spend the time and money, but for the frequent traveller it will become a "must"

IATA's Checkpoint of the Future is an initiative to modernize and improve security by combining a risk-based approach with technology that will allow passengers to get from curb to gate without stopping, unpacking or intrusive checks. It includes a prescreening concept that has passengers going through three different types of security lanes - known traveller, normal traveller, and enhanced traveller.

Passengers Will Not Be Allowed Check-In Baggage

It's Already Happening!

Baggage is a problem for both airlines and airports and both would love to get rid of it. Just imagine the savings that would arise from no check-in luggage. Airports would save all the money they now have to invest in baggage handling systems, staff and security. Also they would save huge amounts of space not having to operate large baggage carousels. Airlines would also benefit. By not having check-in baggage there would be much more space to carry lucrative cargo and/or reduced weight resulting in better fuel efficiency.

Aircraft would have to be re-designed to make for larger overhead lockers or separate baggage departments (as with trains) to accommodate the extra hand luggage that passengers would carry. But this would be a small investment put alongside the enormous savings that would accrue from a no check-in luggage policy. And remember high speed trains don't have this baggage problem!

Airlines are already encouraging passengers not to check-in luggage, but to take it onboard as hand luggage. Ryanair leads this development by charging passengers (hefty) amounts to check in each piece of luggage. Many others levy high fees to carry golf clubs and skis. . We predict that this policy will strengthen and develop such that by 2025 passengers will not be allowed any check-in luggage. They will have to take hand luggage only, or ship their baggage by cargo – this system already exists. Passengers are also deciding to rent skis and golf clubs on arrival rather than check-in their own equipment.

Passengers would have to learn to pack less clothing when they travel. Many are already doing this and realise that it is possible to go on holiday or a business trip without a large suitcase. One concomitant is that hotels will install washer/dryers in their bedrooms/bathrooms or introduce mini-laundries for their guests to clean their clothes.

Totally New Boarding Procedures Will Be In Place

It's Already Happening!

Aircraft boarding is chaotic, even at the best run airports, and leads to much stress and frustration and results in delays to departures. This will have to change, passengers will demand a quicker, more pleasant way to board an aircraft in the future. Currently airlines/airports attempt to improve boarding by having passengers board in blocks of rows at a time, from the back to the front of the plane, but this rarely works smoothly and recent research shows that this is not even an efficient method.

Recent work undertaken in the US has shown a new method – which takes about half the time – that has only one person from a given row take their seat at a time. Simulations showed that the best way to board a plane is by placing passengers every other row of window seats on one side of

the plane, starting from the back, then do the mirror image on the other side. The remaining window seats on the first side would follow, again starting from the back; then their counterparts on the second side; followed by the same procedure with middle seats and lastly aisles.

Vienna International Airport is now installing self-boarding gates in all its terminals. A total of 92 double-lane gates are being installed to board an estimated 20 million passengers annually.

By 2025 passengers will board in differing ways from now. Future boarding procedures will require a more disciplined approach from passengers and airlines will become much stricter in telling passengers when and how they board.

There Will Be No Shops At Airports – Only Showrooms

It's Already Happening!

There is an important trend occurring in the retail environment. Traditional shopping is being replaced by online purchasing. In 15 years time people will still be flocking to the mall or the high street, but the big difference is that they will be visiting showrooms not shops. They will be examining the goods in a retail environment but not buying them. After sampling and evaluating a particular item the consumer will pop back home and buy it online – where it would cost much less than if the consumer had bought it in the shop. Shops will have become showrooms. This is already happening in China. Alibaba Group's Taobao recently opened a new five-story home furnishings showroom in Beijing for customers to try out sofas, tables and other big-ticket items before placing an order online with one of its merchants. Other Internet retailers such as jewellery seller Zbird.com have opened showrooms to encourage customers to buy higher-priced items online.

The same process will occur in airports. One of the main reasons why passengers don't shop at an

airport, or buy fewer items than they would ideally like, is the chore of having to carry even more items when they board the plane. Already certain airports have introduced "You Shop, We Drop" programmes whereby passengers buy the items and they get delivered to their home address. Airlines also offer a delivery service. If companies like Amazon and Taobao were to get involved in airport retailing then the showroom concept would develop very quickly.

Also carrying duty free and other items onboard adds to aircraft weight so "You Shop, We Drop" would also have benefits in cost savings for the airlines.

We see this trend continuing, especially as passengers will be carrying more hand luggage as they will not be allowed to check-in any baggage. In 2025 therefore we expect passengers to be visiting showrooms at an airport, rather than shops.

There Will Be No Immigration On Arrival

It's Already Happening!

Immigration is one of the banes of travel. Nothing is more infuriating than having spent 8 hours in a plane the tired passenger has to queue for an hour or more before being met by a surly immigration officer. The US is particularly bad at immigration but even the very best airports such as Hong Kong and Incheon can have long queues at immigration. Holiday makers have already started voting with their feet and choose to avoid places where they know immigration is a problem.

"Entry requirements in the United States are the worst in the world" and visa rules are "cumbersome", causing tourists to steer clear of America" Jonathan Tisch, Chairman, Travel Business Round

As outlined above Immigration is an area of airport operations that is already showing dramatic change. Automated immigration procedures are being installed in airports across the world, including JFK, Heathrow, Schiphol, Incheon, Changi and Auckland.

Immigration can also take place in the airport before departure (Eurostar does this on the London-Paris route) or even on the plane itself, as recently introduced by Garuda for its premium class passengers.

By 2025 immigration queues will be a thing of the past.

Airports Around The World Will Operate 24 Hours A Day

Airports are getting increasingly congested, especially in Europe and US. Some, like Heathrow and Charles de Gaulle are “full” and have only limited means of expansion. Heathrow’s plan to build a new third runway was vetoed by the British Government. One of the reasons for this congestion is that airports are not allowed to operate 24 hours a day. Curfews are the norm in many developed countries, whereby landing and taking off is prohibited at night, usually between 12.00 and 6.00am, some 25% of the operational day.

This also leads to unsuitable schedules for airlines serving Asia-Pacific and other regions. An end to curfews would have great benefits for airports, airlines and passengers.

As demand for air travel increases there will be great pressure on Governments to lift these curfews. At a stroke this will increase airport capacity and give airlines much more flexibility. A development that will hasten the ending of

curfews is improvement in aircraft noise. The A380 has shown how such noise can be significantly reduced.

London Heathrow is already conducting trials on a new runway system that has seen hundreds of flights land and take off during supposedly "quiet" periods. The local Wandsworth Council has given planes more freedom to land on either of Heathrow's runways. The trial is designed to make the airport more efficient and cut delays.

We therefore predict that by 2025 many airports in Europe and US will operate 24/7. Airports in the Middle East and Asia-Pacific already have this freedom.

Moreover to reduce congestion in the air Governments are going to have to relinquish the control of air space from the military, China is a great example with restricted use of air routes many under military control.

The Implications

So what will this all mean to the aviation industry, to airports, airlines and passengers. Well it's all good news.

Passengers Will Benefit

Passengers will love airports in 2025. They will be able to arrive at the airport just an hour before departure and breeze through to airside without having to check-in, go through immigration or undergo any security checks. They will board quickly and pleasantly. And when they land they won't have to queue at immigration, nor wait for their bags – they can go straight to the taxi or train taking them to their final destination. They also won't have the fear of the airline losing their luggage. Flying will have become enjoyable once more

Airlines Will Benefit

Improved airports will persuade more people to fly. A 24/7 operation will give airlines more capacity and flexibility. They will not be spending money on check-in staff or on baggage handling. This will result in much lower operating costs. Their passengers will be much more satisfied and will fly more. No check-in luggage equals cost savings on fuel. Extra hold capacity will result in improved cargo revenues. Improved boarding procedures will enable more punctual departures.

Airports Will Benefit

People will actually enjoy going to airports, they will become fun and glamorous once more. Airport revenues will increase as 24/7 operation allows more take-offs and landings and more passenger throughput. Airports won't have to invest in baggage handling and check-in. Huge amounts of valuable space will be freed up to allow for more shops, bars and restaurants and other places of entertainment.



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Experience & Expertise in Aviation Research

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