# The always-connected traveller: How mobile will transform the future of air travel

TRAVEL TECH CONSULTING

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# Foreword

Mobile is an unstoppable force that's set to transform the traveller experience.

In a mature industry such as aviation, it is crucial to combine a seamless customer experience and loyalty programme with the ability to differentiate. Mobile services give airlines new opportunities to achieve both.

Furthermore, whilst mobile is not widely used for revenue generation today, the channel is undoubtedly the most intimate and flexible way to interact with a customer, offering the ability to deliver tailored offers at any stage of the travel process.

This year we are seeing increasing numbers of our airline partners seeking to understand how they can innovate with mobile and many are planning a phased roll-out of new services to their customers. This whitepaper is focused on helping airlines to better make those strategic decisions, whilst providing insight into traveller wants and needs.

Our industry has been experimenting with mobile services over the previous few years and a number of basic services are now industrialised – delivering benefits to travellers today.

But it is the next five years that offer the greatest opportunity.

Increasing numbers of travellers are connected as the number of mobile phones has outstripped the world's population. Travellers are now empowered with advanced smartphones able to deliver new functionality related to location, payments and real-time information flows.

What's for certain is that mobile will be used to enhance the travel experience. The question is who will be centre stage in the revolution? A plethora of players are seeking to supply services to consumers through mobile - from application developers to global internet giants. As owners of the customer relationship, airlines are in prime position to enhance their customers' experience and drive greater revenue, but our industry must first understand the future landscape.

With this whitepaper, we are providing an independent, expert perspective on how your airline peers are engaging with mobile for strategic advantage and the services that travellers demand. We are also seeking to demystify many of the new mobile technologies that will impact our industry in the immediate and medium term. It is clear that travellers see the value that mobile services and information can add to their travel experience. It is now the responsibility of us all to understand and navigate the rapidly changing world of mobile in order to differentiate, secure customer loyalty and quickly adapt to new business models.

We look forward to participating in the debate we hope and anticipate this paper will generate.

**Julia Sattel**

VP Airline IT, Amadeus IT Group

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# 1 Executive summary

## Airline mobile functionality

There is no longer any question that mobile technology is transforming the travel experience. A mobile phone has become a standard accessory for all travellers. Passengers rely on mobile technology for instant information and connections to their social network. Airlines continue to introduce mobile capabilities to improve passenger processing and information flow. Globally a set of standard functions have emerged for airline mobile applications. This paper looks at mobile airline capabilities today, what is planned over the next 1-2 years and what we can expect in 3-5 years.

### What is standard today?

Airlines have recognised the opportunity to use mobile technology to improve passenger efficiency and as a communication tool during times of service disruption. Most airlines have done the basics which include mobile check-in, 2D bar code boarding passes and itinerary management. Many airlines have mobile booking capability today and most will be adding it over the next 12 months. In developing markets such as Africa and India where the primary connection to the Internet is the mobile device, the entire travel booking process may take place on the mobile phone. Today, airlines across the globe also use SMS as a means to provide information to travellers particularly in times of service disruptions. These may simply be messages which notify the passenger that the flight is delayed or those which offer alternatives when a flight is cancelled. This research uncovered that these standard functions are no longer a differentiating factor for the airline, but are a necessity in order to remain competitive.

### Planned functionality over the next 1-2 years

Over the next two years airlines will be adding key functionality to their mobile offering to expand merchandising opportunities. Key among these efforts is the ability to book ancillary services on mobile devices. Ancillary services are an important revenue source for airlines, but also provide a way to allow the passenger to customise their travel experience. Although there was no strong evidence in this research that airlines will be offering ancillary services on mobile in the immediate future, most airlines have plans to do so over the next 12- 24 months. Offering services such as premium seating, club access or the pre-purchase of meals are ideal for the mobile platform.

Offering promotions has been part of the airline tool kit since the launch of airline websites back in the mid 1990s. Mobile technology offers a new opportunity to personalise offers based on passenger history and future travel plans. Targeted promotions have the potential to provide more passenger specific offers that meet a customer's preferences and provide incremental revenues to the airline.

### Under consideration 3-5 years

This study classifies advanced functionality into two major categories:

1. Functions related to the passenger experience and
2. Capabilities that take advantage of advanced mobile device or software features.

The first category focuses on capabilities and products and services that help enhance the trip. The second category takes advantage of general mobile trends that will emerge over the next 3-5 years.

Functions related to the passenger experience include:

› **Location based services –** These are services that provide location sensitive advertisements promoting airport or local merchants as well as local information guides (e.g. airport, gates, baggage carousels, etc).

› **Advanced disruption management –** This includes the pushing of alternate flights and the offer of personalised compensation and electronic vouchers for hotels when a flight is cancelled.

› **Social media –** Monitoring social media comments and targeting the passenger's physical location to prioritise assistance based on the nature of the issue. Also being considered is the integration of peer reviews during the mobile ticket purchasing process.

› **Movement tracking –** Depending on local cultural and legal restrictions, automatically identifying a passenger's location in the airport.

› **Advanced push notifications –** This has two main purposes, providing the passenger with more information about their flight or baggage and selling ancillary services to monetise the mobile channel.

Mobile devices are increasingly becoming electronic wallets and sensors to the world around us. Two important advanced mobile device capabilities that will enable new services for airlines are:

› **Mobile payments –** The adoption of universal mobile payment systems will allow the passenger to use their phone to pay for goods and services.

› **NFC –** The integration of near field communication (NFC) technology into the handset. NFC involves two pieces of hardware. One is an NFC chip in a mobile phone and the other is an NFC reader at a merchant or transportation facility. NFC will allow the passenger to speed through the airport check-in and boarding process.

## Airport operational use of mobile

Mobile technology is also having an impact on airline airport operations. The main areas of impact are the ticket counter and ground and flight operations. At the ticket counters roaming agents using tablet technology will help lessen queue waits. Ground handlers and airport operations staff will continue to improve internal ground and flight operations for baggage processing and pre-flight preparations.

## Developing an airline mobile strategy

### Mobile web versus native apps

There is a lively debate across the technology industry on the value of the mobile web versus native downloadable applications. Both of these approaches have value to the airline. Redesigning an airline's web site for the mobile web is a mandatory requirement in today's connected world. Developing downloadable apps is most appropriate for frequent flyer use and thus should be designed to provide an airline's best customers with services and capabilities to improve their travel experience.

### Native app platforms

A major challenge for all companies developing native apps is to target the platform that will best match their customer requirements. There are a variety of choices for native app development, but the primary focus for most airlines has been the Apple iPhone, the Google Android and RIM BlackBerry platforms.

Despite the growth of smartphones worldwide, the majority of global mobile phone owners still use full feature phones. Most airlines view the mobile web as the way to reach these full feature phone users, but there is also is an opportunity to provide full feature phone users with a downloadable app written in Java. This is a similar strategy deployed by Facebook and LinkedIn who have both created downloadable Java apps for full feature phones. Since these types of phones do not have an independent operating system (OS) the downloadable function would require working with the individual wireless carrier to include the app on their deck of downloadable software for full feature phones.

### Role of third party developers

Most airlines work with a variety of third party developers who help create and deploy mobile applications. These third parties fall into four groupings:

1. Small – midsized mobile generalists
2. Travel mobile specialists
3. Large system integrators
4. PSS/DCS/GDS providers

Smaller mobile generalists are often local companies that provide mobile web re-design or app development for a variety of industries. Some airlines work with mobile travel specialists who only work within the travel industry. Larger system integrators are often employed to connect the mobile apps to the airline's infrastructure. Increasingly Passenger Service System (PSS) vendors, Departure Control System (DCS) companies or Global Distribution System (GDS) suppliers are contracted to provide the airline's mobile solution as any successful mobile application must work with these internal operational systems. Work is often spread across these third party categories dependent on the specific expertise required and in-house resources are generally used for overall design consistency and strategic direction.

### Infrastructure

Mobile must be an extension of current systems. Most airlines tie their mobile logic and business rules to their e-commerce engine, but integration with the Departure Control System and Passenger Service System is equally important to optimise ancillary delivery and provide mobile services for disruption situations.

## Critical functional issues

A set of critical functional issues must be met in order for an airline to execute a comprehensive and effective mobile strategy. These include:

› **Seamless interaction across platforms –** Passengers must be able to operate seamlessly across platforms. Simply stated, no matter what the step in the process, or on which device their booking begins, the passenger needs to be able to easily continue their activity on their platform of choice.

› **Covering the complete travel cycle –** Mobile applications should provide a full range of solutions across all aspects of the travel cycle. Passengers could use a smartphone or tablet anywhere to be inspired, dream or plan a specific trip. As airlines become more like traditional retailers, mobile devices provide a unique opportunity to work with the passenger during every step of the travel cycle including planning, booking, on board, at the destination and during the post trip experience.

› **Consistent user interface and branding –** Mobile applications must have a consistent user interface tied to overall brand presence. Investment in mobile web and apps development needs to be viewed as an extension of overall marketing expenses and brand management. With that in mind it is important to manage how your brand is perceived on various platforms. For example, if the mobile web app is slow and cumbersome to use or does not display well on all platforms, this will reflect poorly on the airline's overall brand image.

› **Robust architecture –** In order to prepare for the future, airlines must deploy a robust mobile architecture to support a high volume of transactions around the clock.

Mobile technology promises to transform the travel experience. The always-connected traveller will expect and demand information and services that simplify the planning, booking and overall airport experience. Investment in mobile technology is critical to help airlines differentiate their services and drive incremental revenue.

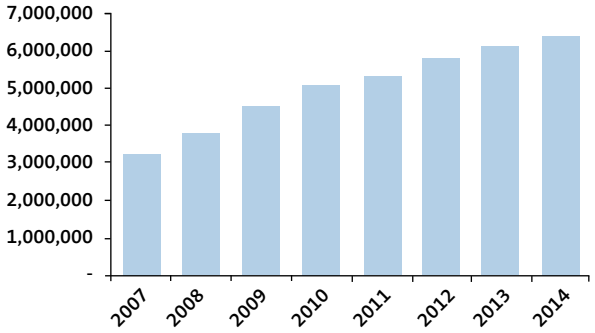
**Mobile technology promises to transform the travel experience. The always-connected traveller will expect and demand information and services that simplify the planning, booking and overall airport experience.**

# 2 Market overview

## Global trends

According to market research firm iSuppli Corp., the number of worldwide subscriptions for wireless services reached 5 billion in September 2010, equalling 73.4 percent of the earth's population.[1] (Figure 1)

Figure 1 **Global mobile device subscriptions**
(Thousands of subscriptions)




Source: iSuppli Corp

With 5 billion mobile devices across the globe and the rapid adoption of smartphones in many markets, mobile connectivity has become a major fabric of our society.

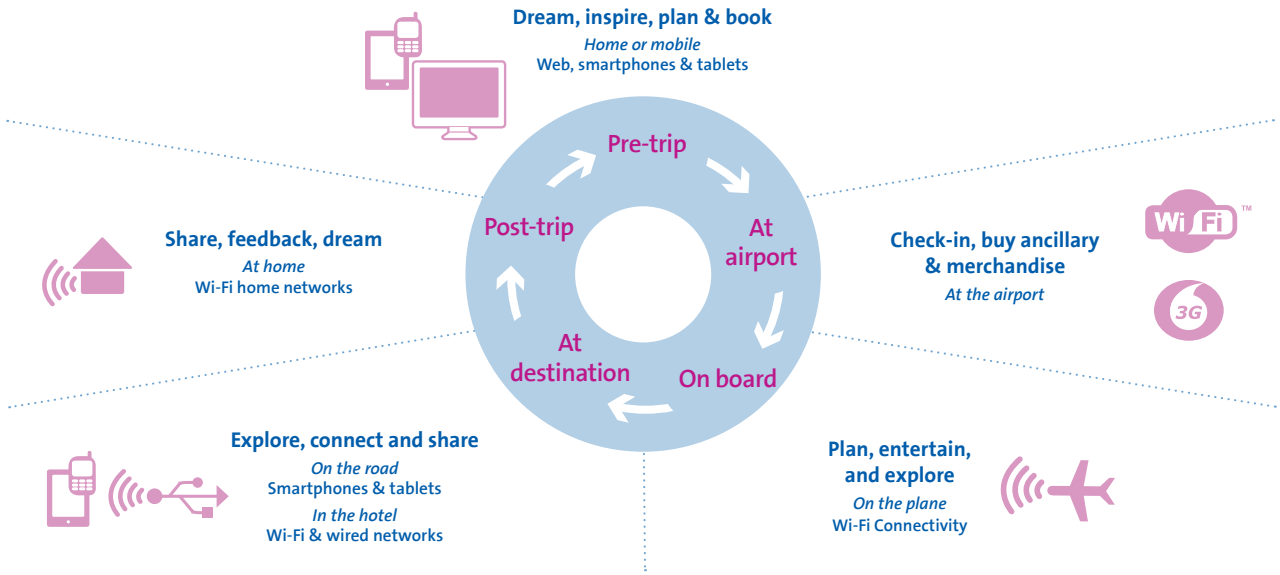
The worldwide smartphone market grew 79.7% year on year in the first quarter of 2011 , according to the International Data Corporation (IDC) Worldwide Quarterly Mobile Phone Tracker.[2]

A smartphone is essentially a converged device bringing together telephone, personal data assistant and other functions such as music players into an integrated mobile computing platform. A smartphone differs from a full feature phone in that it has an independent operating system (OS). The smartphone revolution was triggered with the introduction of the Apple iPhone in 2008 and now represents a global battleground between three primary OS providers, Apple (IOS), Google Android and RIM Blackberry. Mobile manufacturing heavyweight Nokia, which still dominates handsets worldwide, was caught unprepared for the smartphone revolution and has recently aligned with Microsoft abandoning their Symbian OS in favor of Windows 7. The most surprising growth has been by Google's Android OS which is used by a variety of manufacturers including HTC, Motorola and Samsung. IDC predicts Google Android will dominate 39.5% of the global smartphone OS market for 2011.[3]

With this type of rapid growth it is no wonder that mobile technology has become an integral part of an airline's service offering. Services such as mobile check-in, 2D Bar Code Boarding Passes (BCBP) and itinerary management are available today for most carriers across multiple regions of the world.

Mobile technology has impacted all phases of the travel life cycle. With advanced wireless networks, growing worldwide adoption of web-enabled full feature phones, smartphones and tablets; passengers are no longer tethered to a desktop PC, but now have instant access to information anywhere, anytime from multiple devices. Mobile technology provides airlines an opportunity for continuous engagement across the travel life cycle. (Figure 2)

Figure 2 **Mobile's impact across the travel life cycle on a variety of devices**




Source: Travel Tech Consulting Inc.

1 Rebello, Jagdish PHD iSuppli Press Release September 17, 2010 http://www.isuppli.com/Mobile-and-Wireless-Communications/News/Pages/Global-Wireless-Subscriptions-Reach-5-Billion.aspx
2 IDC Press Release May 5, 2011 http://www.idc.com/getdoc.jsp?containerId=prUS22815911
3 IDC Press Release http://www.idc.com/getdoc.jsp?containerId=prUS22762811

The always-connected passenger has an evolving set of requirements and expectations for information and services. This paper reviews how mobile technology is being used today by major carriers worldwide and what is coming in the near, mid and longer term future to improve passenger efficiency, increase loyalty and drive incremental revenue.

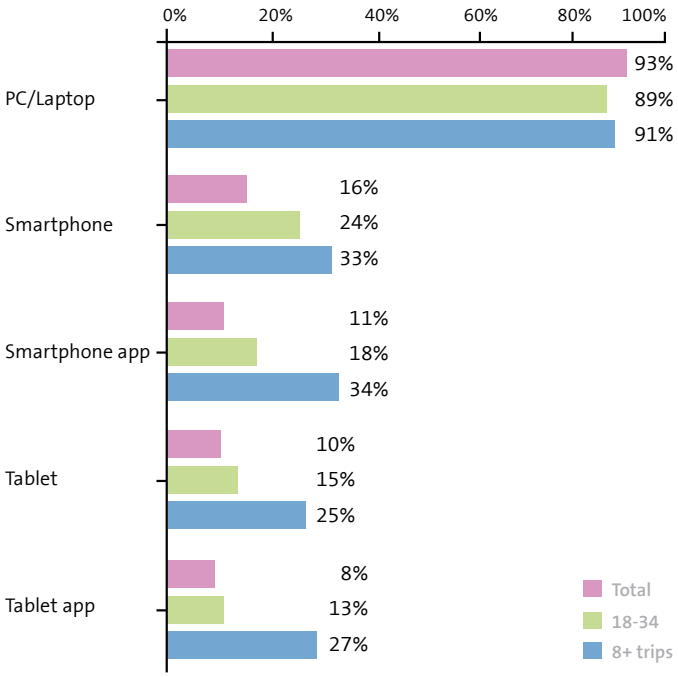
This study contains research from two primary sources:

1. A customer survey conducted by JD Power and Associates in the fourth quarter of 2010. The study covers 2,978 customers across 5 regions: Asia, Europe, Latin America, Middle East and North America.
2. Nine detailed interviews with airlines based in Europe, Asia, the Middle East, Latin America, Australia and the United States conducted by Travel Tech Consulting, Inc during April-May 2011. This interview information was expanded with general observations and monitoring of airline mobile developments worldwide.

Airlines are no longer limited to interacting with customers at the airport or onboard the aircraft. Mobile technology provides ubiquitous connectivity enabling airlines to continuously interact with their customers throughout the travel life cycle.

Age and travel frequency also impact the use of mobile technology for planning and booking travel. A recent study by Amadeus on U.S. traveller's mobile behaviour shows that one third of frequent flyers and one quarter of 18-34 year olds utilise smartphones and tablets for booking compared to 16% for total travellers. (Figure 3)

**Figure 3 Which of these do you typically use to book your trips?**




Base: Total (n=1,000),
Age 18-34 (359), 8+ trips (85)

Source: Amadeus U.S. Air Travel Survey April 2011

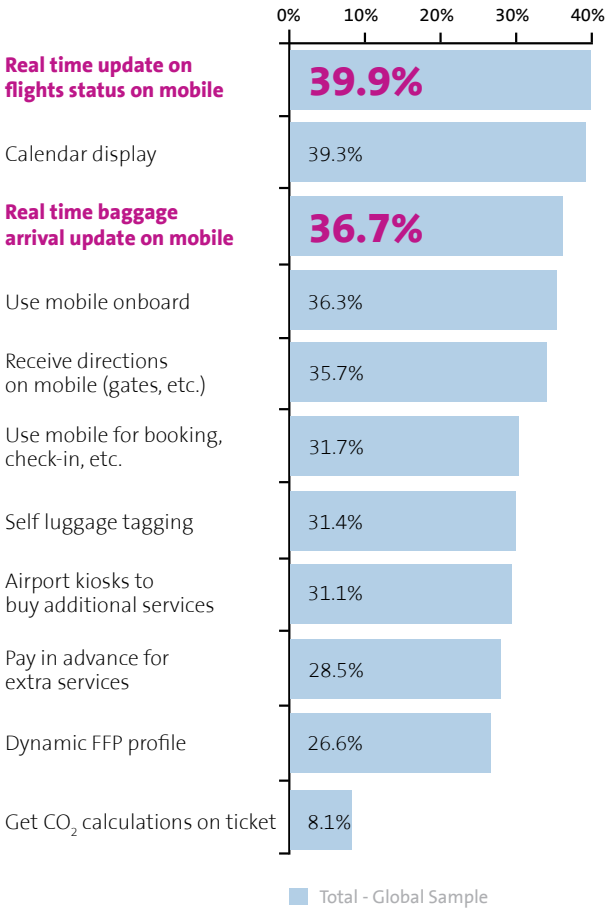
## Traveller requirements

Clearly mobile technology is impacting every step of the travel process, but what types of services do travellers want today and tomorrow on their mobile device? The JD Power research provides some insight. (Figure 4)

It is interesting to note that real time updates on flight status on mobile as well as baggage information are clearly innovative features desired by passengers. Passengers are also anxious to receive directions on mobile devices and are ready to embrace mobile check-in and self luggage tagging.

Specific market segments are particularly important for mobile services. Frequent business travellers have long been early adopters of next generation technology and therefore are ideal for targeted apps that help them be more productive on their trip. Business trips are often subject to frequent changes and thus the ability for a mobile app to help a traveller rebook their flight mid-trip, is an essential capability. Business travellers also need to track and capture expenses, so allowing the easy purchase and recording of corporate approved ancillary services is an important tool airlines can provide to this segment. Other segments may also have unique mobile needs such as frequent leisure travellers, families and groups. Mobile marketing is an extension of an airline's overall marketing approach to these segments and thus products and services need to be tailored to each segment's needs. Travellers also tend to act within different segments during different types of trips, so it is essential that services match the specific persona of that traveller. The needs of a business traveller on a trip with his family are often quite different to their needs during a business trip. Airlines need to work hard to deliver mobile services that not only reflect a travelling segment's needs but also recognise the role the traveller is playing on a particular trip.

**Figure 4** **Innovative features / services**
Which of the following innovative features or services would you use?




Source: 2010 JD Power's 'Global Airline Traveller Survey' commissioned by Amadeus

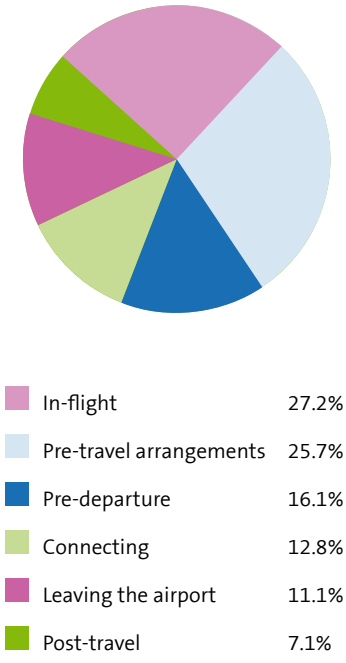
## Pre-trip

Research from JD Power asked consumers the relative importance of each step of the travel process. Passengers rated the pre-flight and in-flight experience as the most important part of the process. Passengers are looking for easy ways to plan, book and board the plane.

## At the airport

Today the airport environment is still a crowded chaotic experience particularly if something goes wrong. The biggest concern from the passenger's perspective is how airlines handle disruption management and checked luggage.

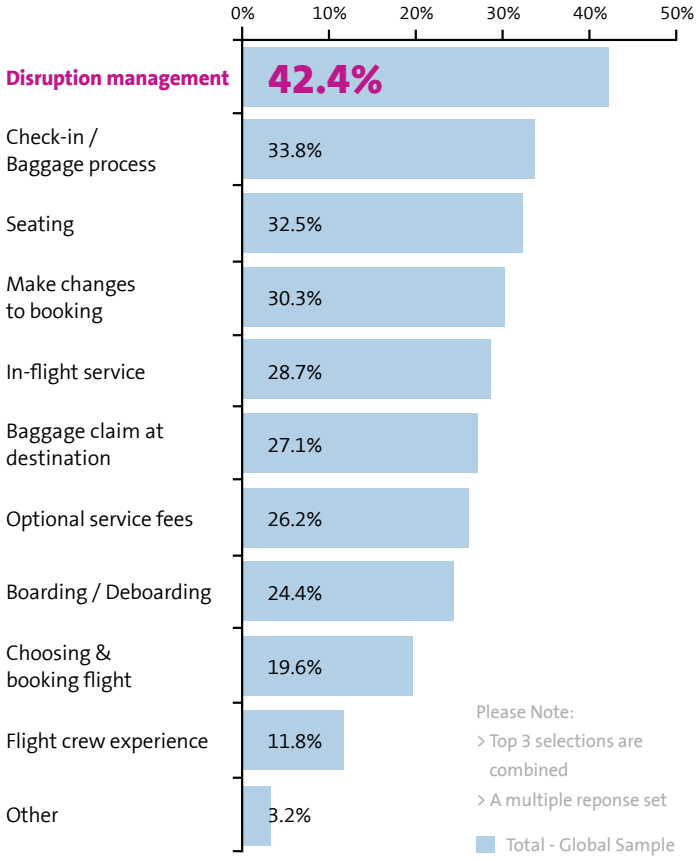
**Figure 5** **Overall airline experience: importance of every step**
When flying how important are the following 6 steps for your overall airline travel experience?




Sample: Total, 2,978, WTD.

Source: 2010 JD Power's 'Global Airline Traveller Survey' commissioned by Amadeus

**Figure 6** **Aspects of travel for improvement**
Which of the following aspects of your airlines travel experience do you think could be improved?




Source: 2010 JD Power's 'Global Airline Traveller Survey' commissioned by Amadeus

With the severe winter weather experienced in certain parts of the world earlier this year combined with the volcanic eruption in 2010, it is clear why service disruption is a major focus of passenger dissatisfaction. New systems for self-service baggage drop and technology to track baggage carry the promise of improve baggage servicing. Mobile technology will also play a role with many airlines implementing systems to notify the passenger via their mobile device that their bag is on-board or to help identify the location of a missing piece of luggage. Airlines will use mobile communication to ease disruption management offering alternate flights via mobile messaging as well as electronic vouchers to compensate the passenger for service delays.

Mobile check-in is just beginning to take hold in many markets around the world, but it is expected to grow dramatically in the next 2-5 years. (Figure 7)

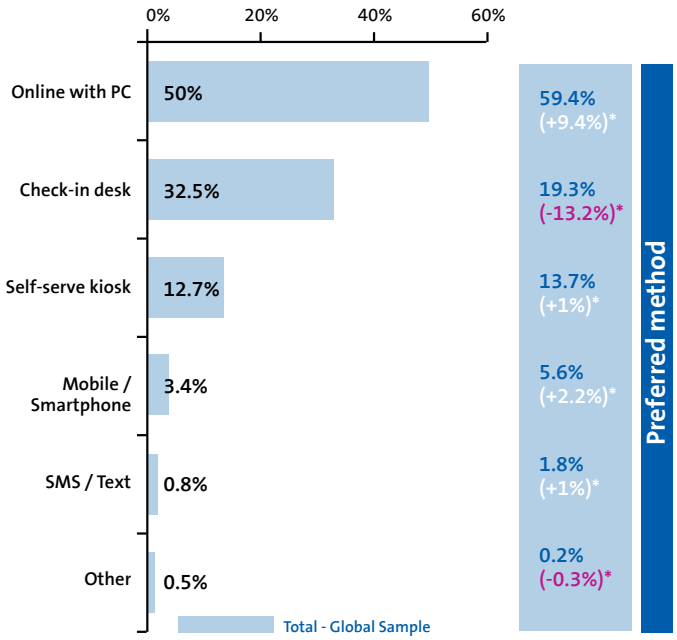
**Figure 7 Check-in method - total and region**

What is your preferred check-in method?

| Preferred method | Asia | Europe | Latin America | Middle East | North America |
|---|---|---|---|---|---|
| Online with PC | 55.7% | 60.9% | 45.4% | 59.7% | 62.7% |
| Check-in desk | 20.5% | 25.2% | 40.3% | 26.5% | 10.8% |
| Self-serve kiosk | 11.7% | 7.2% | 8.4% | 5.5% | 20.2% |
| Mobile/Smartphone | 7.5% | 5.0% | 4.3% | 3.2% | 5.6% |
| SMS/Text | 4.5% | 1.7% | 1.6% | 4.8% | 0.3% |
| Other | 0.0% | 0.0% | 0.0% | 0.5% | 0.4% |

Source: 2010 JD Power's 'Global Airline Traveller Survey' commissioned by Amadeus

How did you check-in for your flight?




Sample: Total, 2,978, WTD
*Variance between Preferred and Actual Purchase Channel

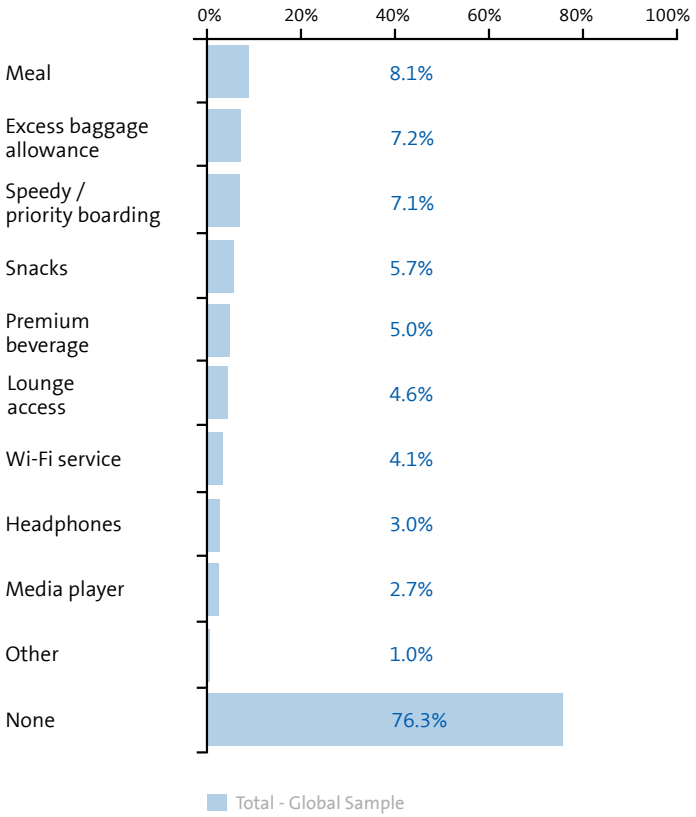
Source: 2010 JD Power's 'Global Airline Traveller Survey' commissioned by Amadeus

Most carriers interviewed admitted that a portion of mobile check-in is shifting some of the activity from online, but also reported that a significant percentage of mobile check-in is replacing airport check-in queues. This reinforces the nature of the mobile device as trusted personal accessory.

An important mobile selling opportunity for airlines is the sale of ancillary services at the airport. Globally, most airlines have recognised the value of selling ancillary services to passengers. These services are expanding and the opportunity to pre-sell meals, baggage fees, speedy boarding and lounge access on a mobile device will grow significantly over the next 1-2 years. **(Figure 8)**

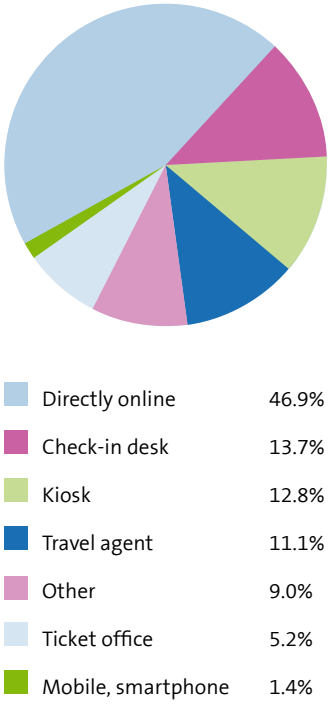
**Figure 8 Pre-purchase additional services**

Which additional airline services, if any, did you pre-purchase?




Source: 2010 JD Power's 'Global Airline Traveller Survey' commissioned by Amadeus

How did you purchase your additional airline services?




Please Note: A multiple response set
Sample: Total, 2,978, WTD

Source: 2010 JD Power's 'Global Airline Traveller Survey' commissioned by Amadeus

## On-board

Over 2,000 aircraft are Wi-Fi-equipped globally. With major carriers such as Delta and US Airways investing in Wi-Fi, the always-connected traveller is fast becoming a reality. In some parts of the world, the use of 3G phones is also allowed on board. Given this new level of connectivity, airlines have a unique opportunity to provide enhanced services and expand their merchandising efforts on-board. The concept of a mall in the sky is truly becoming digitised providing a unique selling environment for the airlines.

## At the destination

By its very nature, mobile technology is having the biggest impact at the destination. All types of travellers need to explore, connect and share their experiences. Airlines that are tied to specific tourist destinations (e.g. Hawaii, New York, Amsterdam) have a natural affinity to these locations and providing access to local content, activities and merchant offers helps to reinforce the view that the airline brand is an expert in that destination. Offering destination-based content which enhances the ability for the passenger to navigate the location provides the airline with a natural way to extend passenger interaction.

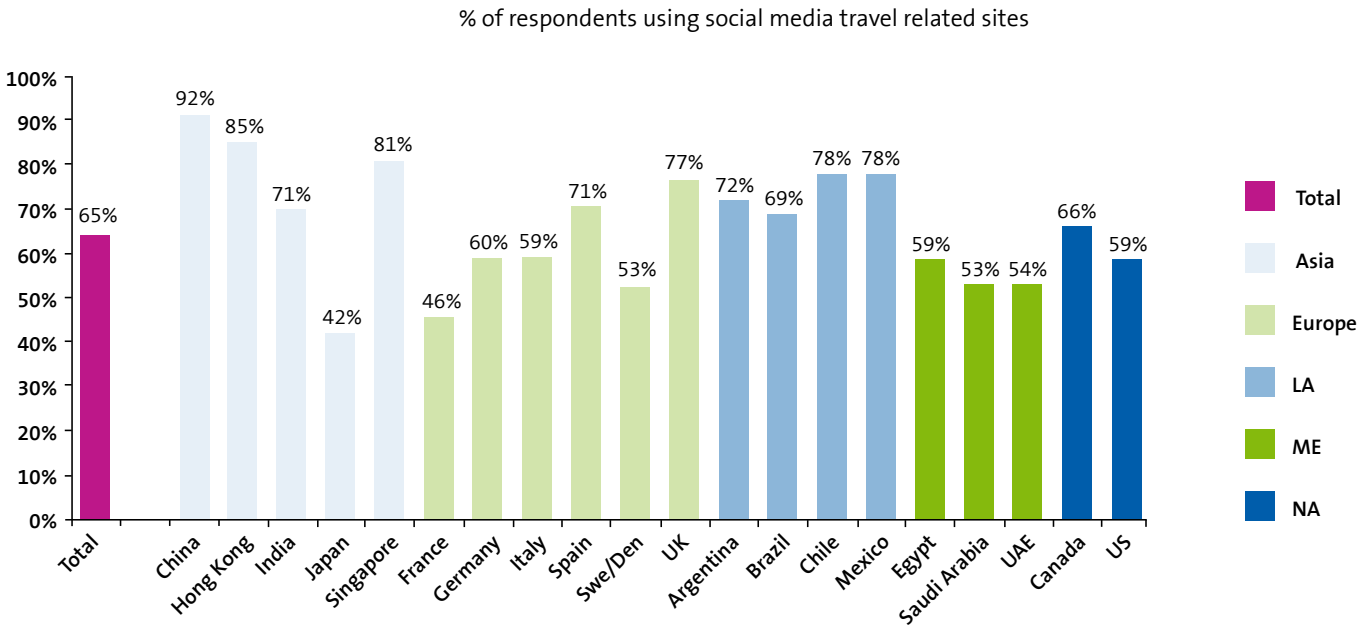
**Given this new level of connectivity, airlines have a unique opportunity to provide enhanced services and expand their merchandising efforts on-board. The concept of a mall in the sky is truly becoming digitised providing a unique selling environment for the airlines.**

## Post-trip

Social media is having a major impact on all parts of the travel life cycle. Feedback is instantaneous, causing airlines to respond to customers where and when an incident occurs. This is a worldwide phenomenon as reflected by the JD Power research. (Figure 9)

With 250 million active mobile Facebook users, the influence and impact of mobile social media on travel purchases and behaviour is significant.

**Figure 9** **Social media total and country – use social media for travel related purposes**




Source: 2010 JD Power's 'Global Airline Traveller Survey' commissioned by Amadeus

Sample: Asia 700, Europe 574, Latin America 700, Middle East 403, North America 601 & Total, 2,978, WTD.

# 3 Airline standard mobile functionality – today or within 12 months

For this research, Travel Tech Consulting, Inc. interviewed a cross section of airline executives from all corners of the world. The goal of this research was to identify mobile functionality available today and understand mobile features in the near term and longer term horizon.

## Defining standard functionality

For the purpose of this research, standard functionality refers to a mobile capability that is widely used today. This feature may be delivered through a specifically formatted mobile website or a native downloadable mobile app. If the feature was simply available on the normal web and accessible via a mobile device viewing the non-formatted website, it was not considered a mobile feature.

## Common trends across markets

Across the globe there are common trends in airline mobile deployments. These include services such as mobile check-in, 2D Bar Code Boarding Passes (BCBP), and itinerary management. Our research found that these services are available today or will be available from most carriers across multiple regions of the world within 12 months.

## Unique market trends

Despite commonalities in standard mobile capabilities, differences across markets do exist and airline mobile strategies for these markets often reflect the particular geographic mobile trends.

### North America

With smartphones having their roots with North American companies, the focus of North American airlines has been on the three market leaders: iPhone, Android and BlackBerry. The app store phenomenon which also began in the U.S. has prompted many U.S. carriers to develop their own mobile apps. In the U.S., smartphone ownership is expected to surpass full feature phone ownership this year and building apps for smartphone platforms has become a standard development strategy for most U.S. based carriers.

### Europe

Europe has always benefited from a common GSM wireless standard, but traditionally mobile devices have been dominated by Nokia. With Nokia slow to react to the growing popularity of smartphones, Android and Apple have successfully captured significant smartphone market share. Mobile app development is now common among European carriers. A major issue for widespread adoption of mobile data technology is the relatively high roaming costs which are still charged by the European telecommunication companies. Rates are coming down and network speed is increasing, but cross boarder roaming still remains a problem for many European travellers.

### Japan

Japan has always been the model of mobile innovation. Integrated Circuit (IC) chips have been common in most mobile phones for nearly a decade. The IC chip enables advanced functions such as mobile check-in, mobile boarding and mobile payments by simply swiping the phone against a reader. The rest of the world is still trying to catch up to this efficient use of mobile technology. The ironic situation faced by Japanese Airlines is the fact that U.S. smartphones such as the Apple iPhone have penetrated a portion of the market, frequently as a fashion statement. This has caused Japanese airlines to retool many of their more advanced processes to accommodate global trends such as the 2D barcode boarding pass.

### Middle East

In many Middle Eastern countries the population is dominated by people under 35 years of age where mobile technology is part of their everyday lives. In some of the more affluent Arab countries it is not unusual for passengers to own two mobile devices. The world has seen the impact of social media on the region's politics and airlines in the region are sensitive to this very connected youth centred culture and are deploying applications to take advantage of mobile/social trends.

### Latin America

Although smartphone penetration varies across the region, mobile technology is a common phenomenon across Latin America. Over the last 12 months many countries in Latin America have embraced smartphones and use the device as the preferred way to connect to the Internet. This shift to smartphones is impacting Latin American carriers who must now prioritise their e-commerce strategy for mobile as it becomes the preferred platform for web-based activity.

### Africa

Due to their price, smartphones have not penetrated Africa, but the impact of mobile on the region is dramatic. For many Africans, the first time they connect to the Internet is through their mobile device. Credit card penetration is low and thus the mobile phone has become a form of payment for many Africans who have micro-banking capabilities on their mobile device. African carriers have recognised this trend and have subsequently enabled their websites to accept mobile as a form of payment.

## Review of common mobile functionality

Figure 10 shows the results of our research in respect to standard airline features for mobile phones. The airline results shown reflect functions available in either a reformatted specific mobile web environment or a specific downloadable native app. If only the standard web capability was available it was not considered as a mobile application.

### Booking, schedules, check-in, BCBP, itinerary management, seat selection, flight status

For the majority of interviews these basic functions were already available via a mobile web or smartphone application or will be deployed over the next 12 months.

### Disruption management and push notifications

The majority of airlines interviewed had some type of basic disruption management capability. Often this was simply an SMS message notifying the passenger of a delay or cancellation.

### Loyalty programs

The ability to access balances is a common feature across most geographies, but few airlines have enabled enrollment or loyalty bookings via mobile.

### Airport information

Airport information is a pretty common functionality available from most carriers, but detailed airport information is often contingent on the airport's ability or willingness to make the data available. With the success of third party apps such as Gate Guru, providing basic airport information has now become a required airline app capability. **(Figure 10)**

Like many things in the highly competitive airline business, unique functionality soon becomes standard and expected. This is similar to the process where one carrier adds a fully reclining business class seat and then all carriers who compete on that route need to provide a similar type of seat to remain competitive. Offering a passenger the ability to use their mobile phones for the standard functions listed above are no longer differentiating factors, but have become expected offerings from major carriers worldwide.

## Mobile reporting and tracking

The majority of airlines interviewed used standard e-commerce tracking such as Omniture for mobile reporting. From mobile reports airlines gain insight into:

› types of devices being used

› operating systems of those devices

› number of visits to mobile website

› sales volumes through mobile devices

› use of mobile check-in

Mobile tracking and reporting will become more valuable as mobile commerce heats up and airlines launch sales of ancillary services via mobile platforms. Mobile reporting should include new elements in the analysis such as location of the customer purchase and sales of products and services from merchant partners.

Figure 10 **Standard functionality matrix**

| | AF | APAC 1 | APAC 2 | EU | JP* | LA | ME | NA | SC |
|---|---|---|---|---|---|---|---|---|---|
| Booking | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| Schedules | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| Check-in | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| BCBP | ○ | ● | ● | ● | ● | ● | ● | ● | ● |
| Itinerary management | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| Disruption management | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| Loyalty access | ○ | ● | ● | ● | ● | ○ | ● | ● | ● |
| Loyalty enroll | ○ | ○ | ● | ● | ● | ○ | ● | ● | ● |
| Book loyalty | ○ | ● | ● | ○ | ● | ○ | ● | ● | ● |
| Seats | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| Flight status | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| Airport info | ● | ○ | ● | ● | ● | ● | ● | ● | ● |

● Today
● 6 months
● 12 months
○ > 12 months or no plan

**APAC** Asia / Pacific
**AF** Africa
**EU** Europe
**LA** Latin America
**JP** Japan

**ME** Middle East
**NA** North America
**SC** Scandinavia
***** Domestic Japan only

Source:Travel Tech Consulting Inc.

# 4 Emerging capabilities – 1-2 years

## Ancillary services

A key area of focus for airlines worldwide is the offering of ancillary services. Apart from the obvious economic benefits these services provide to the airlines' profitability, ancillary services help drive airline product differentiation and are critical to the airlines' efforts to de-commoditise their services. By its very nature, the mobile platform is a personalised computing device and is an ideal platform for the sale of ancillary services.

### Today and tomorrow

Despite this seemingly obvious fact, there was little evidence in the research that airlines are aggressively implementing mobile capabilities for ancillary sales. Even if the airline has formatted their normal website for the mobile web, all the ancillary capabilities are rarely available. Only one interviewee, a North American full service carrier, currently had the ability to pay for baggage fees via the mobile web. Most interviewees recognised that there was an opportunity to sell ancillary services via a mobile device, but most stated that this capability was at least 12 months away from coming to market. The most aggressive approach to ancillaries seem to come from the Middle East and Scandinavian carriers as each plans to implement ancillary services within 6-12 months. With ancillary sales being a major strategy for airlines worldwide it was surprising to learn that mobile capabilities were not a greater priority.

Figure 11 **Ancillary services on mobile devices**

| | AF | APAC 1 | APAC 2 | EU | LA | JP | ME | NA | SC |
|---|---|---|---|---|---|---|---|---|---|
| Baggage | ○ | ○ | ○ | ○ | ● | ○ | ● | ● | ● |
| Premium seating | ○ | ○ | ○ | ● | ● | ○ | ● | ○ | ● |
| Premium boarding | ○ | ○ | ○ | ○ | ○ | ○ | ● | ○ | ○ |
| Pre-purchase meal | ○ | ○ | ● | ○ | ○ | ○ | ● | ○ | ○ |
| Club access | ○ | ○ | ○ | ○ | ○ | ○ | ● | ○ | ● |
| On board Wi-Fi | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| Deals and offers | ● | ● | ● | ○ | ● | ● | ● | ● | ● |
| Other | Cars & hotels | Frequent Flyer - use points at merchants | | No plan but looking at cars & hotels | Travel insurance | | Wheelchair | | Hotels & cars (end of 2011) |

● Today
● 6 months
● 12 months
○ > 12 months or no plan

**APAC** Asia / Pacific
**AF** Africa
**EU** Europe
**LA** Latin America
**JP** Japan
**ME** Middle East
**NA** North America
**SC** Scandinavia

Source:Travel Tech Consulting Inc.

### An opportunity for airline differentiation

Ancillary services represent a unique opportunity for airlines to allow passengers to customise their airport and in-flight experience. With mobile enabled ancillary services, this customisation could take place at any time and any place on multiple devices. Tying ancillary services to frequent flyer status allows the airlines to deliver unique services based on customer value.

### Ancillary services to drive greater customer insight and intimacy

Ultimately airlines need to understand the personal preferences of their passengers and match services that fit those preferences based on the particular needs of a given trip. Gaining customer insight is the goal of all airlines and observing patterns of ancillary purchases, particularly on mobile devices is an important method to achieve greater customer intimacy.

## Promotions

### How are promotions being used today?

Mobile promotions today are basically an extension of an airline's web promotions. When airlines launched websites in the mid-1990s, offering promotions became part of the weekly email blasts. Today promotions have not changed as they still tend to be based on new routes, discounts for destinations with soft future bookings or joint promotions with hotel partners.

### Targeted promotions

Mobile platforms have the potential to transform generic promotions into more specific tailor-made offers specifically tied to a user's preferences and interests. The entire process of opt-in puts the passenger in control over what he is willing to see and the relevance of the offer will dictate whether the promotional messages will continue to be accepted. Mobile technology allows the promotions to be location sensitive and personalised.

**Ancillary services represent a unique opportunity for airlines to allow passengers to customise their airport and in-flight experience.**

**With the majority of phones now containing GPS, user location is often available. Equating location to airport based promotions is a logical extension of this theme.**

## Location Based Services (LBS)

Location represents a key dimension to offer services on mobile devices. With the majority of phones now containing GPS, user location is often available. Many of the airlines interviewed saw the value of location based services, particularly if the location could be determined within the airport. Equating location to airport based promotions is a logical extension of this theme. The passenger's willingness to disclose their location depends on culture and comfort with the process. Here are a few examples of how airlines are using LBS today:

- A full service APAC carrier uses location to promote merchants that work with their frequent flyer program. This capability is triggered by the airline's iPhone app.
- A full service Latin American carrier is looking to integrate with Foursquare to allow check-ins at airport shops.
- In Japan, members of the NTT Docomo "i-concier" service will receive automatic updates on their flights as they arrive at the airport.
- A major North American carrier is looking to integrate real-time airport information into its mobile app providing navigation and promotions with airport merchants.
- A full service Scandinavian carrier is implementing location based services to help their passengers navigate through the airport with up to date gate information.

## Merchandising

The shopping experience is being transformed by mobile technology. In the retail market, applications such as Shopkick provide specific coupon offers to shoppers at Best Buy or Macy's based on their location in the store. The airport is becoming a shopping mall and airlines are beginning to use similar techniques to promote airport shops and local merchants. Current efforts in this area are mostly tied to merchants that have a relationship with the carrier through the frequent flyer program. Extensive airline merchandising will not likely appear for another 12-24 months.

## Social media

No one can deny the importance of social media in today's travel industry. Airlines are extending their social media efforts to mobile platforms by using location to identify dissatisfied customers at the airport. For example:

› A major Latin American carrier has identified that a large volume of social media is coming from mobile devices so as part of their monitoring process, the carrier is targeting the passenger's physical location and prioritising assistance to that individual based on the nature of their issue.

› Airlines in Asia, Scandinavia and the U.S. are using Facebook to send out information proactively to users facing specific operational issues.

› In the Middle East, a major full service carrier is recognising the importance of peer influence on ticket purchases and is working to deliver a system on the web and mobile platforms that integrates peer reviews into the ticket buying process.

## Airport operational uses of mobile

### Ticket counter

Over the next few years we will see the increased use of tablet computers to allow airline agents to roam, reducing lines and addressing specific passenger needs. With a major full service APAC carrier implementing permanent bag tags and boarding passes for domestic Australian travel, a new era in check-in has arrived. This will free up airline agents to handle areas of congestion or deal with passengers experiencing problems with the check-in process.

### Ground operations

The use of dedicated mobile devices for baggage tracking and to help manage airline ground operations is one area where mobile technology may improve ground handling. These systems need to be tightly integrated with an airline's departure control system (DCS) and an airport baggage reconciliation system to provide a complete solution. Although commercial mobile platforms such as tablets may be used for these operations, specific application development is required to integrate these devices with airline operational systems.

# 5 Advanced functionality – 3-5 years

## Tablets

### The impact of tablets

It began in 2010 with the introduction of the iPad and in 2011 the market will see over 100 different tablets coming from a variety of manufacturers. The tablet represents a new platform for an airline to consider when building mobile apps. Some early iPad apps from airlines such as Cathay Pacific begin to address this new platform, but we are at a very early stage of development of this technology. The tablet has characteristics of both the smartphone i.e always on, touchscreen, instant connectivity, often involving location based search and also certain characteristics of a laptop i.e large viewing screen and immersive web experience. Although there is evidence that tablets are cannibalising some laptop sales; these devices are lighter, have longer battery life and are more portable than traditional laptops. Some airlines are already porting their in-flight magazines to downloadable tablet apps taking advantage of this interactive platform.

Recent research from Ypartnership/Harrison Group showed that about 7 percent of active U.S. travellers currently access the Internet from a tablet computer.[4] This is a pretty amazing statistic considering tablets are only a year old. According to this research travellers typically use the device to find local restaurants or shops, comparison shop for airfares and hotel rates, and search for the latest updates on flight schedules and delays.

### Specific airline approaches to tablet

Airlines may simply view the tablet as another web browser and therefore feel a separate tablet app is unnecessary, but the immersive nature of these devices may prove the need to create a tablet specific version of an app. In addition, low end e-readers such as the Barnes and Noble Color Nook are becoming inexpensive tablet alternatives running the popular Google Android OS and allowing the download of apps to the e-reader. As tablets prices come down and e-readers add functionality, tablet penetration will grow. Airlines need to pay attention to this growing tablet segment and ensure that their offering meets the needs of the tablet user, especially as frequent travellers are often early adopters of tablet computers.

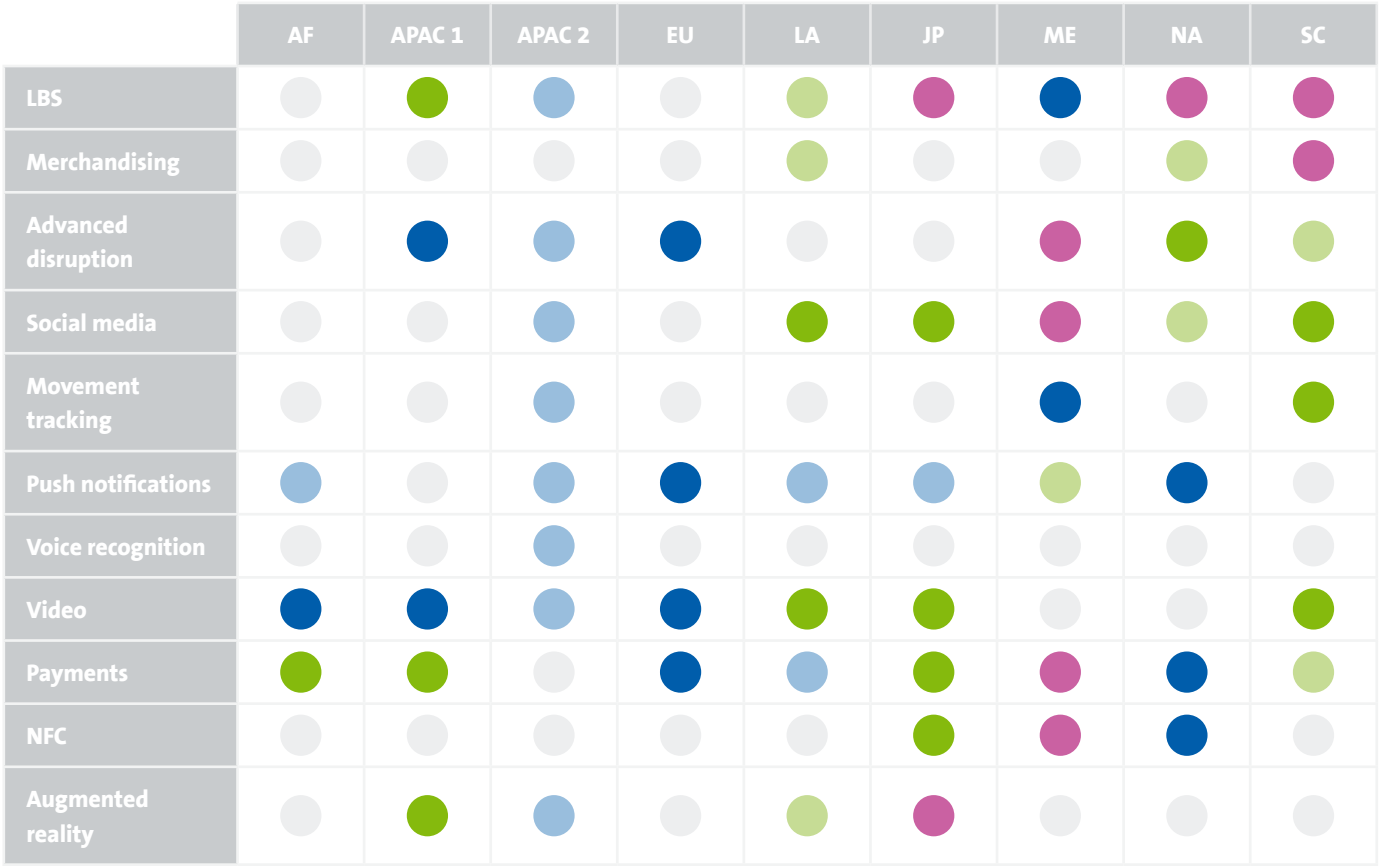
The airlines were asked to comment on their plans for advanced functionality. Advanced functionality falls into two broad categories:

1. Emerging mobile airline capabilities - refers to activities related to the passenger experience either with the airline, with related merchants or with other passengers
2. Emerging general mobile capabilities - refers to functions that take advantage of advanced mobile device or software capabilities

4 May, Kevin TNOOZ May 3, 2011 iPad Almost non-existent in Lives of Travelers" http://www.tnooz.com/2011/05/03/mobile/ipad-almost-non-existent-in-the-lives-of-travellers/

**Airlines need to pay attention to this growing tablet segment and ensure that their offering meets the needs of the tablet user, especially as frequent travellers are often early adopters of tablet computers.**

Figure 12 Advanced functionality by region




- Today
- 6 months
- 12 months
- 12-24 months
- < 24 months or under consideration
- No plan

**APAC** Asia / Pacific
**AF** Africa
**EU** Europe
**LA** Latin America
**JP** Japan
**ME** Middle East
**NA** North America
**SC** Scandinavia

Source:Travel Tech Consulting Inc.

## Emerging mobile airline capabilities

### Advanced disruption management

With service disruptions cited as a major passenger pain point, many airlines are working on ways to enhance their disruption management services. Today, SMS messaging is common, but in the next few years the mobile platform will be used to push alternative flights, offer personalised compensation to an airline's best customers and provide electronic vouchers for hotels when a flight is cancelled. Airlines will use these techniques to shorten lines and increase customer satisfaction during times of service disruptions.

### Movement tracking

Knowing where the passenger is at the airport can help airlines better manage loads and on time departures. In Japan where a majority of phones already have an IC chip, the customer is automatically checked-in as they pass through security. Automatically identifying a passenger's location will be possible over the next 3-5 years as advanced near field communication (NFC) chips become a standard part of mobile phones and NFC readers are installed throughout airports worldwide. However, uptake will be dependent upon cultural and country specific legal restrictions.

### Advanced push notifications

The goal of more advanced push notifications is twofold, to provide the customer with more information about their flight or baggage and to sell ancillary services to monetise the mobile channel.

The most common use of push notifications in the near future will be to notify the passenger that their baggage is on board the aircraft. As previously stated some airlines are considering the use of push technology to provide passengers with compensation in the form of electronic vouchers. Some airlines are also looking to push ancillary service information offering club access or upgraded seating.

## Emerging general mobile trends and applicability for airline mobile development

Smartphones represent a new converged computing platform and as a result new capabilities are now available through mobile technology. There is a fierce global battle between Apple, Google, RIM and Microsoft. Each company is trying to find ways to use mobile technology to edge out the competition with new features and capabilities. Unlike the PC world which has been fairly stagnant due to Microsoft desktop dominance or web search which continues to be controlled by Google, mobile competition is red hot and thus all developers of mobile technology will benefit. For example over the next few years, the smartphone will become a mobile wallet and an NFC chip will become a standard component of the platform. These trends will happen without any influence from airline specific initiatives, but airlines overall can benefit from these trends.

### Mobile payments

The transformation of the mobile phone into a mobile wallet is progressing at a rapid pace with agreements between telecommunication companies, banks and credit card companies. In emerging markets such as Africa and India where mobile penetration is growing rapidly and leapfrogging landline technology, mobile wallets compete with cash rather than with credit cards. As a result mobile wallets have become commonplace in these markets. Security and safety are major issues in these countries, and in some ways, mobile wallets offer a safer alternative to cash, and are used to pay for goods and services essentially acting as a mobile bank, allowing a more secure storage of currency. This is the case with a major African Airline where mobile is the primary form of payment for electronic transactions. For mobile payments to become a reality overall security issues such as PCI-DCSS compliance will have to be resolved.

## Near Field Communications (NFC)

NFC involves two pieces of hardware. One is an NFC chip in a mobile phone and the other is an NFC reader at a merchant or transportation facility. NFC enabled phones can also be used to read RFID tags. ABI Research forecasts that the number of NFC enabled phones sold will rise from 700,000 in 2009 to 247 million in 2015.[5] The growth is dramatic in every region of the world.

As mobile enabled NFC devices become more common and the reader infrastructure is installed at airports and merchants, the NFC process will change the travel experience at multiple customer touch points. By swiping their NFC enabled smartphone against an airport reader passengers will be able to:

› check-in

› receive coupons for airport shops

› pay for goods and services

› interact with NFC enabled advertisements

› exchange information with other travellers by simply bumping phones

› use the phone for boarding

› use the phone for public transportation

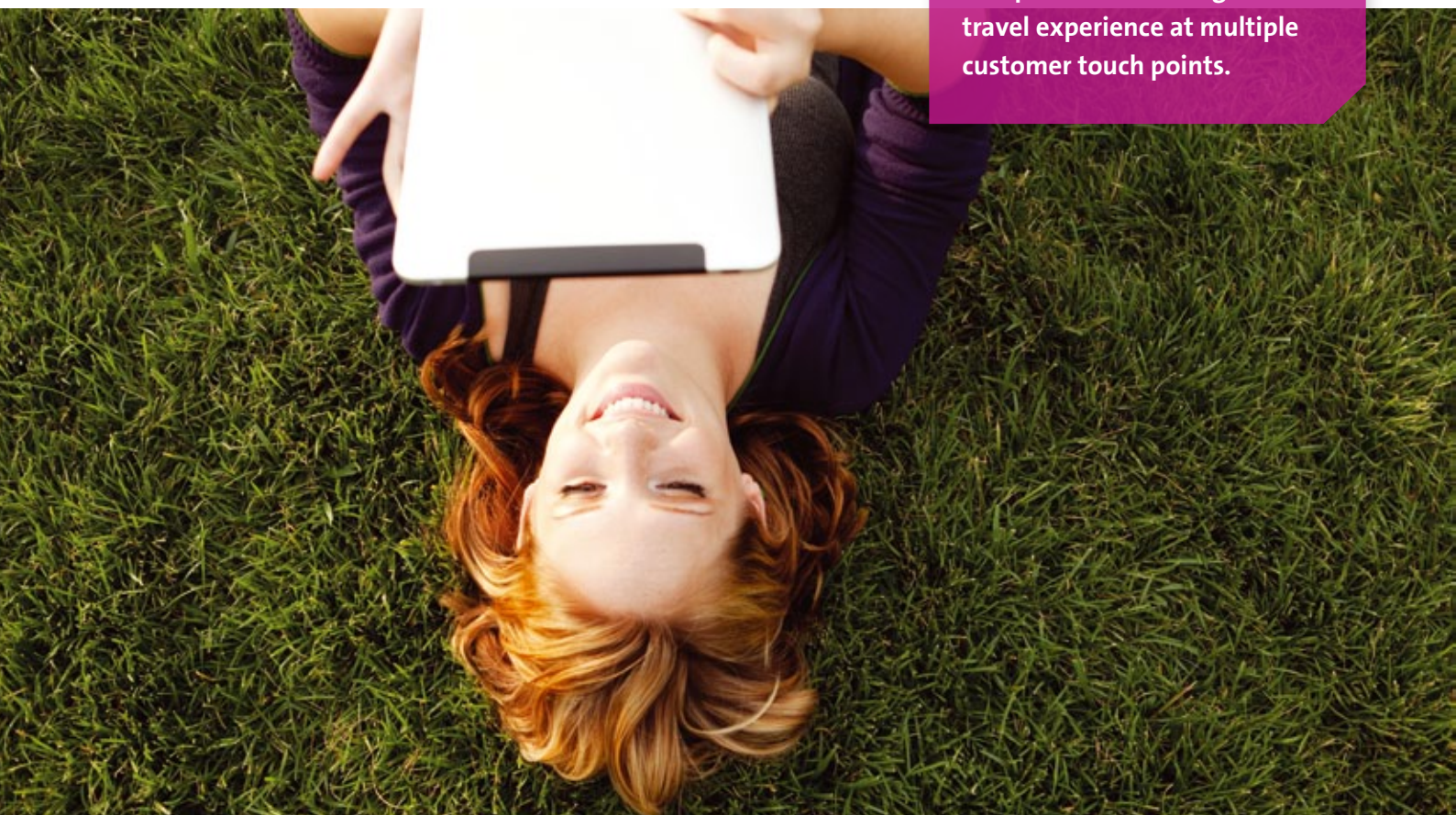
(Figure 13)

NFC does require a significant infrastructure investment and a critical mass of NFC mobile phone penetration, and as a result, the move to NFC will be evolutionary. Pilot tests at airports around the world have begun, but full implementation of NFC at airports worldwide is likely to take between 4-7 years.

However, this vision of NFC is already common practice in Japan where 90% of all mobile phones have IC chips installed and the Japanese airport infrastructure has been built to accommodate NFC.

5 Rubenstein, Roy. September 7, 2010. "Near Field Communications Playing Tag," Total Telecom. http://www.totaltele.com/view.aspx?ID=458381

**As mobile enabled NFC devices become more common and the reader infrastructure is installed at airports and merchants, the NFC process will change the travel experience at multiple customer touch points.**



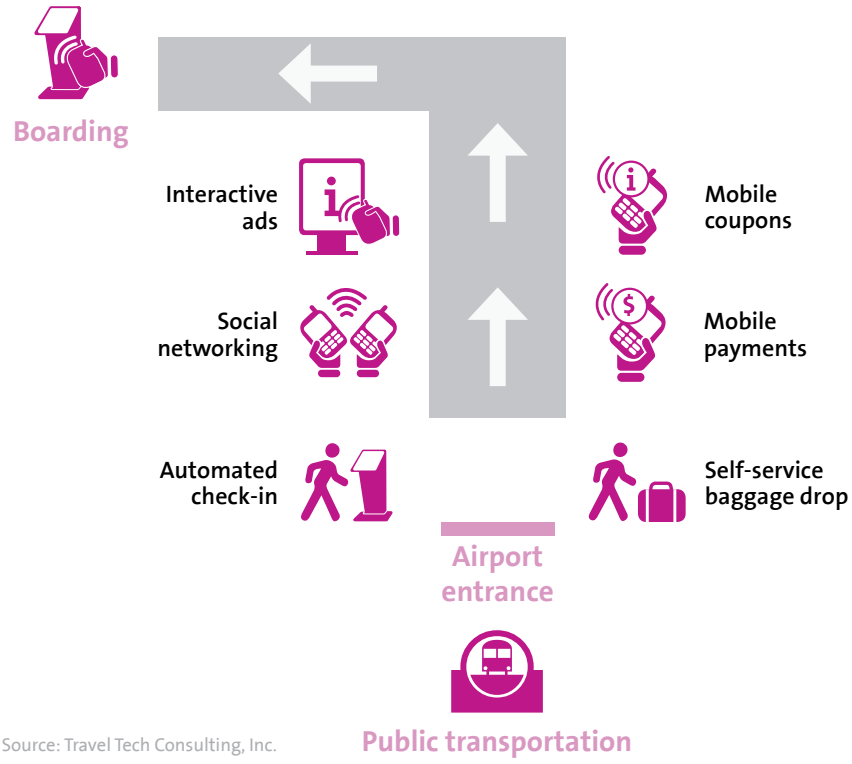
## Voice recognition

Little evidence was found that any airline is anticipating widespread use of voice recognition as part of their mobile offering. General mobile trends may alter this strategy as Apple and Google embrace voice enabled search. With Apple's purchase of Siri in 2010[6] and recent news reports of a relationship with voice recognition leader Nuance[7], the company is clearly looking at voice recognition as a major way to interact with mobile devices. Google is also investing heavily in voice interactive search. As these initiatives become mainstream, voice interaction for airline apps, may become a competitive necessity. A passenger may simply ask "show me the location of the nearest club room" and an interactive map will appear directing them to the nearest airport lounge.

## Augmented reality

Some airlines view augmented reality as gimmicky and not applicable to airline applications whilst other airlines are investing in augmented reality as a way to help passengers navigate the airport. The acceptance of augmented reality by passengers will ultimately dictate which vision is correct. Passengers will embrace augmented reality if it helps their efficiency and provides added value. The overall acceptance of augmented reality by mobile users will also have an impact on the value of this technology for travel.

**Figure 13** NFC at the airport




Source: Travel Tech Consulting, Inc.

6 Frommer, Dan Apple Buys Siri, A Mobile Assistant App, As War With Google Heats Up April 28, 2011 http://www.businessinsider.com/apple-buys-siri-a-mobile-assistant-app-as-war-with-google-heats-up-2010-4

7 Siegler, MG May 5, 2011 Tech Crunch http://techcrunch.com/2011/05/06/apple-nuance-ios-siri/

# 6 Developing a mobile strategy

## Development strategies

### Mobile web versus native app

Does an airline need a downloadable native app or is a mobile optimised version of the website sufficient? Most airlines interviewed have invested in native app development with the Apple iPhone as the primary platform of choice, followed closely by Google's Android OS. This does not diminish the need to redesign and optimise for the mobile web, as viewing a normal website on even the most advanced smartphone can be a frustrating experience. **(Figure 14)**

### What role do downloadable (native) apps play in the new mobile ecosystem compared to mobile web apps?

Some airlines do not have a targeted approach to deploying native apps versus the mobile web, whilst others view the native app as tool for the frequent traveller. Until HTML5 matures as a web authoring language, native apps will continue to function faster and provide more capabilities than the mobile web. It is more likely that the loyal frequent traveller will be the user of the native app and therefore the capabilities within that app need to reflect the needs of that customer segment. More importantly as airlines increase their merchandising efforts, native apps can provide a unique platform to create personalised offers to an airline's best customers.

## Internal organisation (resources and management)

Most airlines interviewed have minimal internal staff devoted to mobile app development and outsource this activity to third parties. The one exception to this was a large European full service carrier that has in-sourced its app development, but this reflects that airline's overall IT strategy of internally built systems. For most airlines, staff working in the mobile area are primarily for overall mobile strategy development and are focused on ensuring style consistency and coordinating integration with in-house systems and marketing efforts.

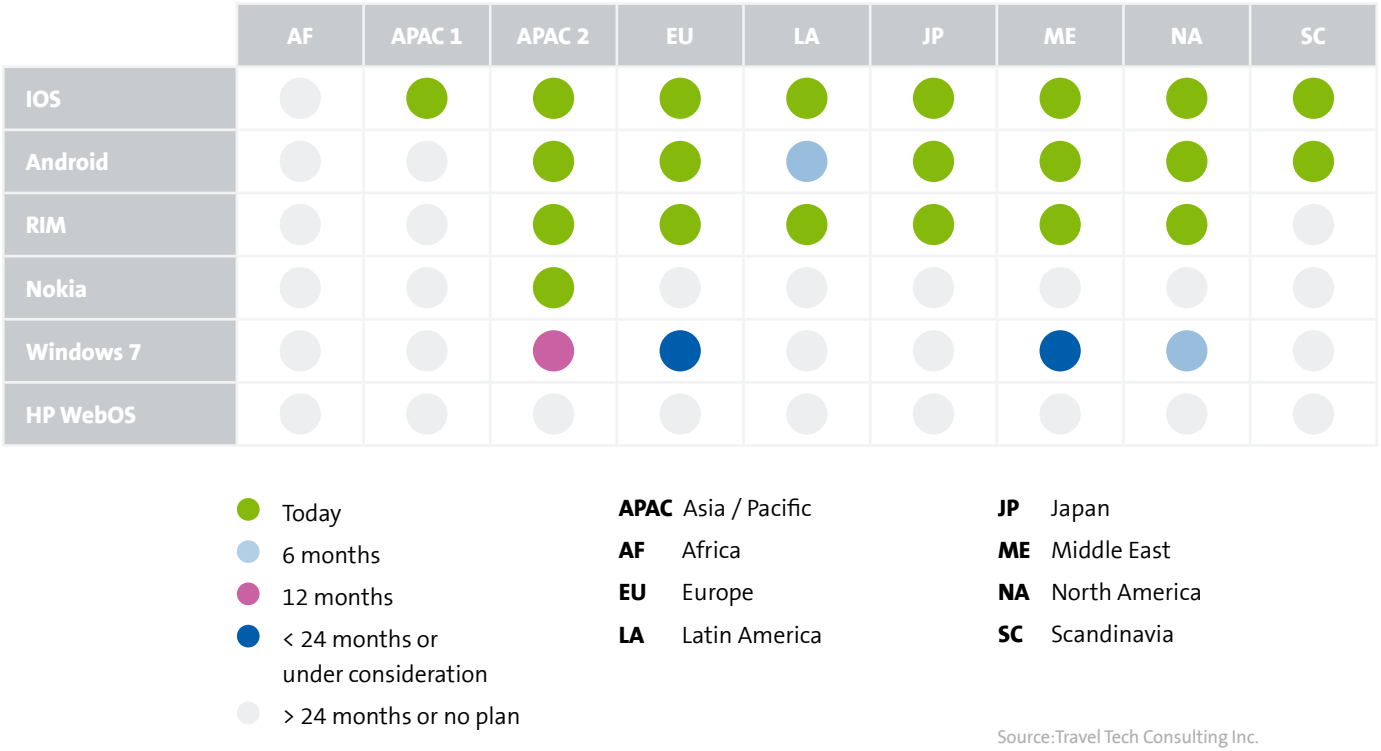
### Role of third party developers

What types of companies do airlines generally use for third party mobile development? For this research we grouped third party developers into four categories

1. Small to midsized mobile generalists
2. Travel specific mobile specialists
3. Large system integrators
4. PSS/DCS/GDS providers.

**(Figure 15)**

**Figure 14 Native app development**




Source:Travel Tech Consulting Inc.

Many airlines use small to midsized mobile generalists for their mobile web and app development. These companies are often based locally and therefore have specific market experience. Travel mobile specialists are less used by airlines whilst large system integrators often help airlines integrate their mobile applications with their existing internal infrastructure. Many airlines rely on PSS/DCS/GDS providers to develop mobile solutions that are tightly integrated with their internal systems. The most common response from the airlines interviewed was the use of three out of four of these types of third parties all performing different functions.

## The opportunity with full feature phones

When considering development alternatives no airlines interviewed considered the creation of an application for full feature phones. Most felt their mobile web capabilities would be sufficient for this market segment. This may point to a missed opportunity. Smartphones are becoming a worldwide phenomenon, but full feature phones still dominate much of the world. Web browsing on a full feature phone can be a frustrating experience.

Social media sites such as LinkedIn and Facebook have recognised the fact that a vast majority of the world is still using full feature phones and have created Java applications that work on these phones and contain similar functionality to their smartphone counterparts. (Figure 16)

**Figure 16 LinkedIn and Facebook adapted for full feature phones**

LinkedIn for Full Feature Phone Java App[8]

Facebook for Feature Phone Java App[9]

Source: LinkedIn and Facebook

8 Snaptu Brings LinkedIn to Feature Phones LinkedIn Blog March 15, 2011 http://blog.linkedin.com/2011/03/15/linkedin-snaptu/

9 The Facebook Blog A Better Mobile Experience for More People http://blog.facebook.com/blog.php?post=483824142130

**Figure 15 Use of third party developers**

| | AF | APAC 1 | APAC 2 | EU | LA | JP | ME | NA | SC |
|---|---|---|---|---|---|---|---|---|---|
| Small - midsized mobile generalists | ● | ● | ● | ● | ● | ● | ○ | ● | ● |
| Travel mobile specialists | ○ | ○ | ○ | ○ | ● | ● | ○ | ○ | ○ |
| Large system integrators | ● | ○ | ○ | ○ | ● | ● | ● | ● | ○ |
| PSS/DCS/GDS providers | ● | ○ | ○ | ○ | ● | ● | ● | ○ | ● |
| In house | ○ | ○ | ○ | ● | ○ | ○ | ● | ● | ○ |

● Used today and tomorrow
● Considering
○ Not used

**APAC** Asia / Pacific
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Source:Travel Tech Consulting Inc.

## Using advanced phone features – Accelerometer, Compass, Gyroscope

Smartphones contain advanced capabilities that are embedded into the device. The three main sensor capabilities are the accelerometer which tracks the motion of the phone, the compass which tracks the direction the phone is facing and the gyroscope which calculates the relative position of the device. No airline interviewed for this research saw value in these embedded functions. However, understanding the significance of these capabilities is important to consider for future app development. These advanced features represent sensors, much in the way the fictional Star Trek "Tricorder "was supposed to work. As smartphones evolve to sense more of the world around us, airlines may find that using these capabilities to provide directions and guidance will be useful to the traveller.

## Infrastructure

Mobile airline applications cannot operate as standalone solutions. Even native apps connect to existing infrastructure to enable check-in and access reservation information. Therefore it is essential that mobile app development be integrated with airline systems. Most interviewees talked about mobile applications being part of their e-commerce platform, with much of the business logic residing in the web layer. It is important to note that even the most sophisticated airline websites still rely on core airline systems such as the Passenger Service System (PSS) or Departure Control System (DCS) for key reservation and check-in functions. Mobile airline implementations must embrace the entire airline eco-system and seamlessly exchange information between platforms ultimately delivering personalised services to the airline passenger on any device wherever they are connected.

## Critical functionality issues

To successfully implement a fully integrated mobile solution, airlines must keep the following factors in mind:

**› Ability to operate multi-channels**

Passengers must be able to operate seamlessly across platforms. If a reservation is made online it should be able to be accessed and amended on a mobile device. The reality of the future is that the passenger will be accessing airline information from a variety of devices and all information must be fully interchangeable. All points of customer contact such as the airline call centre or airport staff must integrate their procedures and processes to work in a uniform way with passenger mobile phone activity.

**› Full range of solutions covering all aspects of cycle**

To provide a comprehensive solution, all mobile applications should cover the full range of the travel life cycle. Allowing a passenger to only check-in via a mobile app or mobile web and not enabling a full reservation creates frustration. A more holistic approach to delivering full functionality to every device must be taken to allow passengers the ability to interact the way they wish with their chosen device.

**› Integration with airline IT**

Mobile solutions must fully integrate with airline IT. As airlines begin to execute strategies that equate services to the value of a customer, a passenger's past history, future travel plans and personal preferences must all be taken into account in order to deliver a truly unique experience.

**› Consistency across channels**

Mobile native and web applications must provide a consistent user interface and set of functions similar to the online or kiosk experience. If the passenger user experience is different on a given device, their ability to easily perform the desired activity may be impaired. For example, the ability to check-in to a flight must have some consistent logic and process across mobile and native apps that mirrors the kiosk and online process.

**› Common business logic**

Mobile applications must reflect a common set of business logic in order to accurately provide the right content to the right customer at the right time. Business logic drives customer value delivery and as airlines use the mobile platform to drive incremental revenue, common business logic must exist across all points of passenger interaction.

**› Robust architecture**

Lastly, a mobile application must reside on a robust architecture. It is very likely that mobile commerce will exceed web bookings in the next five years. Therefore the underlying infrastructure must be in place to enable efficient and reliable transactions across multiple mobile platforms.

## Defining an ROI for mobile development

In conversations with airline executives around the world a familiar theme was heard; a common challenge was the ability to justify mobile initiatives to the airline's finance department. Simply stating that a mobile investment will improve loyalty, enhance the customer experience or promote the airline brand often results in a difficult sell to traditional "bean counters". Successful airlines have used the following to define a Return on Investment for mobile initiatives:

### Efficiencies

**a. Reduction in staffing**

There is no question that mobile applications lead to more self-service activity. The challenge in using this as an ROI indicator is to accurately isolate the impact of mobile self-service from web or kiosk check-in as it relates to staffing levels. It is therefore important to use mobile reporting to measure check-in as a standalone benefit and compare it to pre-mobile check-in levels.

**b. Reduction in kiosk hardware needed**

Ultimately the advent of increased use of mobile check-in results in less requirement for mobile kiosks.

**c. More efficient use of staff time**

All passenger needs are not the same. By initiating more mobile check-in and reducing kiosk deployment, airport staff should be able to focus on more complex check-in issues involving groups, disabled passengers or those customers who simply have an aversion to technology. More effective use of airport staff is a key benefit of greater use of mobile self-service. Mobile technology should also help reduce the need for informational questions about gates, departure times and airline policies.

## New revenue opportunities

**a. Ancillary sales**

Ancillary sales represent the single most important area of additional revenue from mobile initiatives. The mobile platform is unique in its ability to provide more personalised communication to passengers. In this age of "design your own products and services", airline ancillary services allow the passenger to customise their experience to meet their particular preferences and needs for a particular trip. Mobile commerce is all about immediacy and ancillary sales on mobile devices provide the passenger the ability to instantaneously alter their travel experience.

**b. Impulse buying**

Related to this instantaneous change is the ability to allow consumers to buy impulsively. New data from research firm eDigitalResearch shows that 50% of Smartphone owners have now completed some sort of purchase on their mobile device, increasing by 20% over just nine short months, with 11% of Smartphone shoppers now using the device to make a purchase on a weekly basis.[10] Mobile commerce is all about allowing the consumer to buy what they want, when they want it on any device. Triggering impulse buying should be a part of all airlines' mobile strategy.

**c. Last minute bookings**

In September of 2010, Priceline released an amazing statistic. According to a two-week sample, Priceline said 82% of mobile customers booked their hotel rooms within one day of arrival.[11] By its very nature, mobile technology is ideal for last minute bookings. For airlines this may be associated with flash sales for destinations with weak load factors or selling ancillary products for hotels, car rental and activities.

## Maintaining or improving loyalty amongst frequent travellers

At the end of the day, mobile initiatives do provide an airline a unique ability to create a personal bond with their best customers. From this perspective investment in mobile web and apps development needs to be viewed as an extension of overall marketing expenses and brand management. With that in mind how your brand is perceived on various platforms needs to be consistently managed. For example, if the mobile web app does not display well on all platforms or is slow and cumbersome to use, this will reflect poorly on an airline's overall brand image. It is somewhat easier to manage the airline brand experience with native apps, but ensuring that all versions of the Google Android and BlackBerry OS are supported can be tricky. Airlines also need to be sensitive as to how their app presence is displayed on tablets as traditional smartphone apps do not take advantage of the larger screen and added functionality of the tablet platform. As tablets become more mainstream, going beyond the simple web browser and embracing the full capabilities of location, video and interactivity availability on the tablet can help enhance the user experience and thus reflect positively on the airline brand. Mobile technology represents an ideal platform for airlines to compete against general, meta- search and online travel agencies by servicing the complete passenger travel life cycle.

10 eDigitalResearch Press Release May 10, 2011 http://www.edigitalresearch.com/news/item/nid/457336168

11 Limone, Jerry Priceline: Mobile app users are last-minute hotel bookers Travel Weekly September 7, 2010 http://www.travelweekly.com/Travel-News/Online-Travel/Priceline--Mobile-app-users-are-last-minute-hotel-bookers/

# 7 What is mobile innovation?

## Defining mobile innovation in an airline context

### How is innovation defined?

Innovation is probably the most overused technology term in the last few years. Everyone is searching for innovation, but what does it mean to an airline within a mobile context? To better understand this term, our interviewees were asked to define innovation. Most of the airline executives felt innovation was not really inventing new technology, but rather, deploying technology to make the passenger experience easier and the airline more efficient. Often a technology has already existed for many years such as NFC or RFID, but has yet to be deployed in a creative way. In Japan, the widespread use of IC chips to speed boarding for domestic Japanese travel has been used for years to improve the customer experience. The implementation of smart chips and self baggage check-in by a major full service APAC carrier for domestic travel is utilising technology first introduced 5-7 years ago. SMS has been around for over 15 years, but many airlines now use it very creatively to inform passengers on schedule changes and drive incremental revenue. So when it comes to airline mobile initiatives, innovation should be simply measured on how successfully technology is deployed and how it impacts the passenger experience. Emerging trends such as augmented reality and RFID bag tags are innovative only if their value is perceived as improving the passenger experience.

When striving for innovation, airlines need to guard against the allure of the novelty of a new device and think of true innovation in more practical and pragmatic terms. That being said, smartphones and tablets are new computing platforms that take advantage of location, personalisation and context in a new way and thus true airline mobile innovation needs to deliver information based on the passenger's location, their personal preferences and provide relevant content that is meaningful to the passenger's particular situation. **(Figure 17)**

### Using mobile as an airline differentiator

Universally, the airlines interviewed for this research felt strongly that mobile technology could be used as an airline differentiator. Fulfilling that vision is a bit more challenging. As with every other aspect of airline competition, each new feature added can quickly be matched by the competition. That being said, the opportunity that mobile technology provides is unique based on the speed of mobile evolution and the continued efforts of the airlines to use ancillary services and market segmentation techniques to differentiate their products.

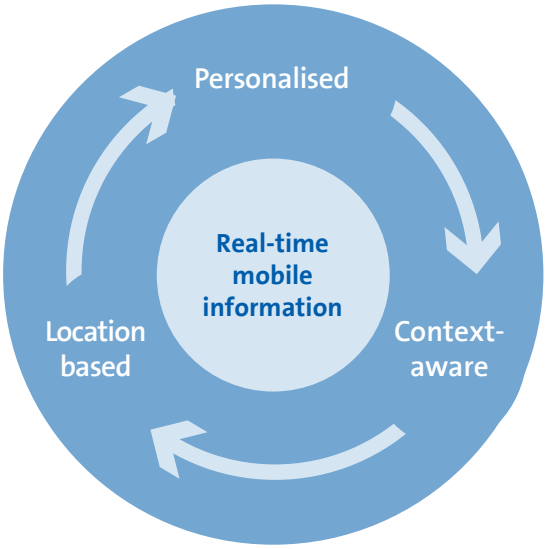
### What is the relationship between innovation and airline service differentiation?

So the question is, if all airlines have mobile apps with check-in, booking, loyalty, etc., where is the innovation that drives differentiation? In essence, these mobile capabilities are not differentiators but are simply the price to pay to be in the game. As the advanced functionality described in this research report becomes mainstream, new advanced features will emerge. At the heart of true airline mobile differentiation is service delivery. Therefore it is not just a function of what a mobile app can do, but how an airline's services can be tailored to specific customer requirements.

### If a third party vendor provides services to multiple airlines, how are airline apps differentiated?

Considering the fact that most airlines depend on third party providers to deliver mobile solutions, differentiation must come from core airline services and systems. Airlines are in a constant race to improve product delivery. The foundation of differentiation is not just unique services but the ability for the airline to match those services with customer needs based on their particular preferences, and situation. As loyalty programs move from passenger rewards to true customer insight, mobile platforms become the delivery mechanism for personalised offers and services matching specific customer requirements for a given trip. This level of mass customisation is a logical evolution of passenger marketing and mobile technology provides the ideal platform to deliver these services.

**Figure 17 Real-time information**




Source: Travel Tech Consulting, Inc.

# 8 Summary

## Challenges

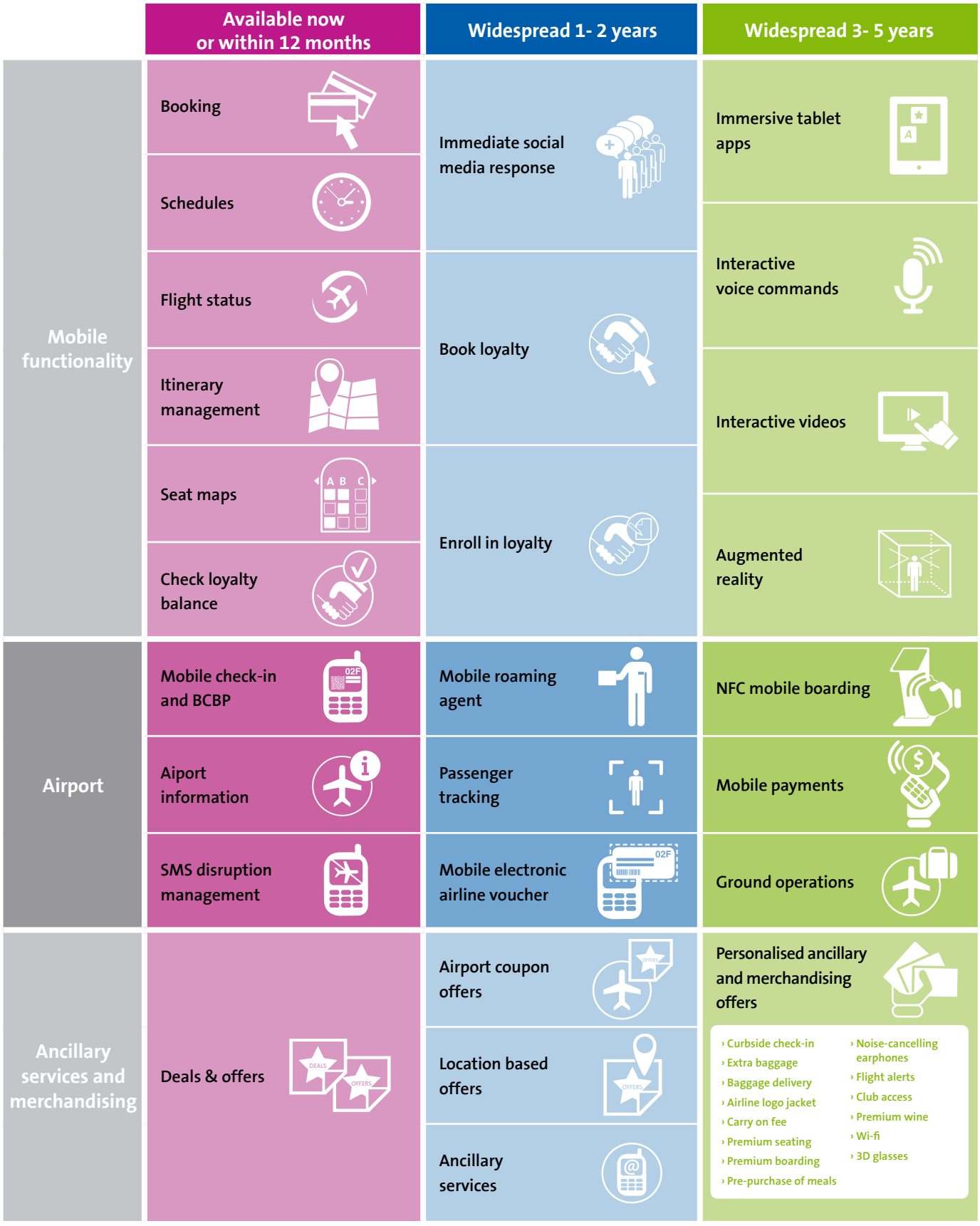
All industries and companies face a common mobile challenge, how to deal with the increasing fragmentation of platforms and how to keep up with accelerating mobile innovation. Airlines are finding it challenging to not only keep up with these trends but finding ways to exploit mobile capabilities to drive new revenue and enhance customer loyalty.

## Airline mobile travel timeline

Figure 18 illustrates mobile functionality today (or within 12 months), what will be widespread over the next 1-2 years and looks at potential mobile initiatives in a 3-5 year time frame. The common theme across these efforts is greater self-service capabilities, more immersive mobile experiences, more efficient airport processing and greater personalised merchandising of products and services.

Across the globe mobile technology is transforming the future of air travel. Airlines not only need to keep pace with passenger expectations, but also maximise the unique opportunity to use mobile technology for product differentiation, incremental sales and increased brand loyalty. The next 10 years promises to be a wild ride, but for those airlines who seize the opportunity, mobile technology can provide a more efficient, intimate and profitable relationship with passengers.

Figure 18 Airline mobile travel timeline




Source: Travel Tech Consulting, Inc.

# 9 About Travel Tech Consulting Inc.

Founded in 1995, Travel Tech Consulting, Inc. is the recognised leader on how emerging technologies impact the global travel industry. Their knowledge reaches across all industry segments including airlines, online travel agencies, corporate, leisure, hospitality, and government with a particular focus on emerging technologies such as mobile and social networking.

Founded by Travel Tech Consulting President, Norm Rose, the company works with a global network of travel industry experts who join forces to meet the needs of specific client engagements worldwide. Travel Tech's consultants are experts in all sectors of the travel industry including airline reservations & loyalty systems, online travel booking & wholesale technology, global distribution systems , travel agent point of sale & distribution platforms and booking & voucher automation amongst many others.

## About the writer

Norm Rose is world renowned for his travel technology expertise, particularly his analysis of the impact of emerging trends such as mobile and social media. From 1982-1988 he held sales and marketing management positions at United Airlines and from 1989 -1995, Norm was corporate travel manager for Sun Microsystems. At Sun, he worked with a number of third-party developers creating client/server software for the business travel market. This included early prototypes of self-booking tools and expense management systems. He is also the author of numerous publications and articles including Mobile: the Next Platform for Travel (March 2009) Corporate Travel Technology Today and Tomorrow (Fall 2007); Selling Complex Leisure Travel Online: Focus on Dynamic Packaging Technology (December 2004), Emerging Trends in Wireless Technology and The Global Travel Industry (October 2003) and Corporate Travel: Technology Trends and Market Analysis (Spring 2002).

# 10 About Amadeus

Amadeus is a leading transaction processor and provider of advanced technology solutions for the global travel and tourism industry.

Customer groups include travel providers (e.g. airlines, hotels, rail, ferries, etc.), travel sellers (travel agencies and websites), and travel buyers (corporations and individual travellers).

The group operates a transaction-based business model and processed 850 million billable travel transactions in 2010.

Amadeus has central sites in Madrid (corporate headquarters and marketing), Nice (development) and Erding (operations – data processing centre) and regional offices in Miami, Buenos Aires, Bangkok and Dubai. At a market level, Amadeus maintains customer operations through 73 local Amadeus Commercial Organisations covering 195 countries.

Amadeus is listed on the Madrid, Barcelona, Bilbao and Valencia stock exchanges and trades under the symbol "AMS.MC". For the year ended December 31 2010, the company reported revenues of €2,683 million and EBITDA of €1,015 million. The Amadeus group employs over 10,270 people worldwide, with 123 nationalities represented at the central offices.

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