

One last bastion of costs in the passenger sales process is costs related to check-in and passenger handling. Self-service kiosks, web and mobile check-in have all contributed to lowering these costs, but also deliver other spin-off benefits.

The savings & benefits of automated check-in & passenger handling

Passenger handling had been a bastion of airline costs that had remained insurmountable for decades. However, the advent of self-service kiosk and web check-in over the past 10 years has finally overcome the huge cost of conventional check-in with clerks and check-in desks. While the original intention of employing this technology was to reduce passenger-handling costs, airlines have realised other spin-off benefits.

Self-service technology

The first level of self-service technology involves self-service check-in kiosks, used in conjunction with bag-drop stations. The next two levels that have followed are: web check-in, which allows passengers to check in via an airline's website; and mobile check-in, the most recent development, which involves passengers checking in via mobile and smartphone devices.

"Most airlines have their own kiosks in the check-in halls of airport terminals, and these are used to replace check-in desks and the associated clerks," says Kevin Peterson, product management at SITA. "The platforms and hardware used are the kiosks and bag drop stations, which employ barcode scanners and readers as part of the process. They utilise common use self-service (CUSS) software applications that can be used on any type of kiosk. While an airline may have its own, exclusive and branded kiosks in the airport terminals at its homebase, it will need to share unbranded kiosks at outstations with other carriers. CUSS applications allow this."

The issue is complicated for airlines in alliances. "Each airline in an alliance has its own back-end check-in, passenger-handling and baggage-control system and

applications," says Dr Anselm Eggert, senior vice president of passenger airline solutions at Lufthansa Systems. "It can take up to five years for an airline to get a check-in and passenger-handling system that is common with other carriers, since replacing all the hardware and applications involves a high capital expenditure. The problem with this is that passengers want a seamless service as soon as possible, which requires significant investment in technology."

The second level of self-service check-in and passenger handling is web check-in. This requires an application to link an airline's website with its reservation and passenger boarding applications. This came later than self-service kiosks, so web check-in has not had the same level of uptake by passengers.

Travelport, for example, offers a web check-in product, which it offers together with its booking product. "The system sends an e-mail to the customer 24 hours prior to departure to allow them to check themselves in via the web," explains Sue Powers, chief executive officer at Travelport. "This product is called 'Viewtrip'. Delta and United use Travelport's hosting system for reservations, and their self-service kiosks connect to the hosting system. Travel agencies can also offer on-line check-in using Viewtrip."

The third level of self-service technology is mobile check-in using mobile and smart phones, and other handheld devices. This is the latest development, and so far it is employed by only a few airlines. "This technology links an airline's website with a passenger's mobile device," says Peterson. "The user goes through to the web check-in via their mobile device, and once they have checked in, a barcode is sent to the user's mobile device. The

passenger can then check in using the barcode device. The barcode is a substitute for a boarding card, so it will allow the passenger to go through flight departures. It can also be used by the passenger to print a baggage tag so that they can drop off their luggage at a bag drop station.

"We have also developed a multi-mobile self-service platform for Malaysian Airlines," says Peterson. "This is used on a smartphone and allows passengers to book flights, check in, check the status of their reservations, and claim baggage with a barcoded baggage receipt. The system therefore not only allows passengers to access their reservation via the airline's website for check-in, but also allows them to access the website to make an initial reservation. Clearly the same amount of detail cannot be displayed on the screen of a mobile device that can be displayed on a desktop computer screen. The multi-mobile technology therefore requires information to be presented in a simplified way."

In conjunction with self-service kiosks, web check-in and mobile check-in there has to be a mechanism for handling passengers' bags once boarding passes have been issued by one of the three methods. Each of these three check-in systems has the ability to print baggage tags. Most airlines currently use manned bag-drop desks. Although this still requires airline staff, the combination of a self-service check-in and a manned bag-drop desk still uses less labour overall. In the case of some airlines, passengers that have checked in using one of the three systems, still like to use manned desks for checking in their baggage.

Dutch company BagDrop is taking the baggage check-in a stage further by combining self-service kiosks with an automatic bag-drop facility. Airlines and



airports are both challenged to use less airport space and reduce passenger transit times, and automate the baggage check-in process. BagDrop's automated bag-drop process uses a bank of unmanned desks, and claims to increase an airline's check-in capacity by up to 80% through reduced processing time. The system also uses less overall space than the conventional system of manned desks.

The system not only allows increased throughput at airports, but also allows automated check-in at terminal kerbsides, airport car parks and in hotels.

BagDrop's system works by first identifying the passenger by their passport, boarding card from web check-in or the barcode sent to their mobile device. The system then retrieves the booking and reservation to verify the passenger's flight details, and takes the passenger through various security questions.

At this stage the boarding pass and baggage tag are both printed, with the latter attached to the bag by the passenger. The bag is then placed on the receptacle on the BagDrop counter. The counter has the hardware and capability to read the bag tag, as well as weigh the bag and measure its dimensions, which is an important issue for overweight or oversized bags. The final

step has the system printing a baggage claim tag or receipt for the passenger.

The system can be configured to provide a solid bank of check-in kiosks and bag-drop receptacles, or a row of several detached units, with automatic gates and passage doors between each one to allow the passenger to pass through to the departure area after they have completed the check-in process.

The system is also able to interface with airlines' departure control systems (DCS) in order to complete the passenger handling process. The system can also be branded for an airline or alliance, or left unbranded.

Passenger acceptance

The use of these three self-service techniques is clearly growing, and is favoured by airlines and passengers alike. SITA's surveys have revealed that during 2009 there was a 20% increase in the overall adoption of self-service facilities. The main attraction for passengers has been the ability to avoid queues. A preference for checking in baggage using conventional means by some passengers, however, was the main reason for passengers not using self-service systems.

Self-service kiosks have helped airlines reduce passenger check-in and passenger handling costs. Airlines are now finding these have the potential of sales channels for ancillary products.

This is mainly because many failed to see the value of checking themselves in if they then had to go to a manned desk to check in their bags. Passenger attitudes are changing, however, and more are accepting self-service systems.

Self-service kiosks have clearly been accepted the most, being the first level of self-service technology. "While some carriers are now checking in most of their passengers with kiosks, the overall figure for the industry is that about only 25% of passengers are using them. There are of course large regional variations, with a higher volume of kiosk utilisation in the West," says Peterson. "60% of passengers across the entire industry are still using conventional manned check-in desks. Although this means that web and mobile check-in is only being used by 15% of passengers, the percentages for all three types of self-service check-in are growing, while conventional manned check-in is now in decline. The rate of web check-in is now growing faster than kiosk check-in. Mobile check-in is still in its infancy, and could grow to 10% of passengers within a few years."

Delta Air Lines, for example, has set itself the target of achieving an 85% check-in rate using automated check-in channels, while WestJet says 52% of its passengers are now using self-service check-in systems. Moreover, web check-in is currently the most popular method of the three automated check-in channels.

Eggert expects the number of passengers using self-service check-in systems to grow to more than 50% over the next three years. "The main area of growth will be mobile check-in, and many passengers are switching from kiosks to mobile check-in as smartphones and other devices increase in popularity," says Eggert.

Powers adds that while she expects web check-in to account for the largest number of passengers over the next few years, mobile check-in, which currently accounts for a small percentage of passengers, will experience the highest rate of uptake by passengers.

Benefits

"The use of kiosks by airlines was initially a cost-driven consideration," says Powers. The cost reductions possible with kiosks and baggage-drop stations are generated by the need for fewer staff, less equipment and fewer check-in desks.

Besides reduced costs and the ability to sell ancillary products, self-service kiosks are improving passengers' departure experiences by allowing them to process themselves. Self-service check-in devices are also useful tools for customer recognition and gathering customer relationship data.

Having a smaller number of check-in desks is important to airlines, since they pay for the space they occupy in airport terminals.

"The main objective in all self-service technology and devices was to reduce costs, and it was felt that it was possible to save \$7-13 per passenger," says Eggert. "The most efficient airlines have actually only managed to save about \$4 per passenger, but this is still worth having. The overall costs of passenger handling can be as low as \$0.50 per passenger, so there is no point in trying to save more costs. It makes more sense, however, to try to generate more revenue using self-service systems."

Following the initial benefit cost reduction, airlines have discovered spin-off benefits. "One of these is that self-service devices simplify customer experience and thereby improve customer satisfaction," says Powers. "Passengers prefer to process check-in themselves rather than wait in line for someone else to do it for them. This has naturally led to self-service devices being used to upsell ancillary products to passengers. Another factor is that these self-service devices can be used for irregular operations, for example when flights are cancelled and tickets have to be re-issued, when passengers want to change flights, or when tickets are reassigned."

A key benefit for airlines is the improved customer satisfaction that comes from making more efficient use of their time. Another important issue for airlines is customer recognition. Self-service check-in systems are also providing a lot of data on customers' check-in patterns and preferences, which helps airlines drive more efficiency.

For some airlines, the main objective of kiosks and other self-service devices is now to sell ancillary products, and to get a superior level of customer interaction. The most obvious ancillary products include cabin-class upgrades, lounge access, and the reservation of aisle and window seats. "This is particularly important, since the face value of airline tickets now only covers the airline's costs, and ancillary revenues are required to generate a profit margin," says Eggert. "The average ancillary revenues per passenger being generated at check-in are about \$7 in some cases. Taking into consideration the costs that are saved, a return on the investment made in the self-service equipment can be realised in just a few months in the case of most



airlines.

Self-service is also good because the airlines are able to gain a lot of useful information from passengers, which helps in customer relationship management and marketing, as they purchase or reject various ancillary products.

"Regardless of which self-service device is being used, passengers are now expecting a seamless service," says Powers. "This means that airlines will soon have to offer the ability to change tickets or re-arrange flights, purchase all types of ancillary products and check-in with mobile and smartphone devices. The consequence of this is that the capabilities of all devices will have to be kept constant. More mobile and smartphone applications are only just emerging, and these will probably arrive over the next two years."

Peterson adds that while airlines can now offer a lot of ancillary products via their websites, there are still many upselling possibilities. It is not yet possible to put all that much on mobile devices, but the industry is now trying to get the same level of dialogue on them as is available on the internet. These would include products such as insurance, car rental, hotel bookings, and airline products. The problem is that mobile devices, which are linked to airline websites, are a cumbersome device with which to buy ancillary products.

Future technology

As with the future development of mobile devices, there are other self-service technologies in development. These revolve around the latter stages of the passenger handling process, after check-in.

"One new technology we are looking

at is self-boarding airport terminal gates," says Peterson. "Lufthansa already uses these to allow some passengers to pass through the gate themselves, which assists with passenger boarding. The system works by scanning a barcode on the boarding pass or mobile phone, which then opens the gate letting the passenger through. The system clearly needs sensors to detect whether there has been a violation, but there will also need to be agents to supervise the process. This will be another technology that will save airlines money, especially when boarding large aircraft, since the airline will use fewer agents and staff numbers.

"We are also working with Lufthansa to turn the self-boarding gate into a common use platform," continues Peterson. "This way it can be used by different airlines at the same gate during the day. Without this it would have limited appeal.

"In conjunction with this and self-service kiosks, we are also developing a self-bag-drop device," continues Peterson. "The system will work by scanning a passenger's boarding pass after they have checked themselves in, and will weigh their bags and print a baggage tag. The passenger will be required to put the tags on the bags on himself. We are currently experimenting with several types of bag tags. One further technology we are developing is the automatic reading of travel documents, such as passports and visas. If this is developed it will then be possible to have automatic security checks, further reducing the need for staff." **AC**

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