Today self-service is an everyday reality of air travel – and for the vast majority of passengers a welcome one.

Ranging from booking to check-in to baggage drop to boarding to border crossing to baggage recovery, the trend is irrevocable and subject to significant growth. This growth goes both for increased use of mature self-service options, such as for check-in, but also for new services such as self-service bagdrop. Emerging technologies, like Near Field Communication (NFC), is also likely to play a role in further boosting passenger self-service.

Why this is happening at an increasing rate is obvious – all key stakeholders stand to gain. To name some examples:

- **For the passenger** – fewer queues and a better travel experience
- **For the airport** – increased number of passengers within the existing airport infrastructure
- **For the airlines** – lower costs per processed passenger
What Areas of Passenger Self-Service are Then Likely to Develop in the near Future?

The area of baggage is one – and definitely a key one - moving forward. According to IATA, 76% of passengers want to be able to do self-tagging, however only 14% of passengers are today offered this service, typically at an airport located kiosk. However, a new option is now becoming available – home printed bagtags – first introduced by Unisys at Billund Airport in Denmark. This has been followed by Alaska Airlines and most recently Iberia Airlines.

However, the convenience of self-tagging for passengers may be totally eliminated if the procedure of disposing the bag at the airport is not equally fast and convenient. In fact, several studies have shown that the number one inhibitor to growing self-service check-in is the passenger’s perception that it takes just as long to drop a bag as it does to queue up for, and then go through, a full manual check-in. Unfortunately this perception is sometimes very close to the truth.

Therefore, and going hand in hand with self-tagging, is the rapid emergence and growth of self-service bagdrop. This is still a relatively new technology with more and more vendors offering solutions on the market. These solutions can roughly be divided into two categories; low cost and low functionality which are retrofitted into existing check-in counters and more sophisticated, but also more expensive, units which replace existing check-in counters. Both categories carry pros and cons and which are chosen can often depend on the type of operations they are meant for. Low end solutions for domestic traffic and low cost carriers and higher end solutions for international and full service carriers - but the borderline is not distinct.

Another area of self-service which is growing, although not as fast as baggage, is self-boarding. IATA states 71% of passengers would prefer to use a self-boarding gate, while 36% of passengers are actually offered self-boarding (8,3% with self-boarding gates).

Other self-service programs that are currently priorities for the aviation community and by IATA, under the Fast Travel program, include document check, flight rebooking and bag recovery.

Moving Forward, What Should the Role of Airport Operators be?

While passenger self-service is certainly highly dependent on the airlines - the airport can play an active role that goes far beyond being a landlord for the premises.

On the lowest level, the airport provides the traditional Common Use infrastructure – typically the traditional CUTE/ CUSS/CUPPS platforms. Many airports see that as the full extent of what they should provide.

However, there are often good reasons for the airport operator to take on a more active role by providing key functionality on top of the platform. This may include Common Use applications, such as for Common (self-service) Bagdrop and Common self-service Boarding. A step further would be for the airport to host a local Departure Control System (DCS).

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What are the Incentives for Airports to take on a more Active, Operational, role?

Clearly, a Common Use environment not only offers an optimized use of expensive airport assets (such as gates and check-in counters) but also, facilitates the entrance of new airline players, e.g. facilities such as check-in counters can be quickly and dynamically re-allocated to a new airline that wishes to begin services from that airport.

By offering efficient common (self-service) bagdrop, including the functionality to interact with multiple airline DCS’; the airport helps the airlines promote self-service check-in – whether web, mobile or kiosk – and avoid airline proprietary solutions. Even though it, in most cases, is unrealistic to aim for a 100% shared bagdrop for all airlines, it is certainly feasible to have a common approach e.g. within each airline alliance. Especially since this is fully in line with the alliances’ objective of offering a transparent service to its passenger.

The same reasoning can be applied for Common Use self-boarding, even though the advantages to the airport operator may not be as significant.

The main advantage with a DCS owned by the airport is that it becomes an airport controlled product, typically offered to smaller carriers as well as low cost and charter carriers. This will allow the airport to, to a large extent, decide on associated self-service offerings (such as home printed bagtags) - translating into a definite potential to increase the level of self-service among passengers departing from the airport.

Granted, the above scenarios will take some airport operators (typically those with a restricted “landlord” approach) into a new domain, i.e. being responsible for what traditionally has been regarded as airline systems. However, in Unisys’ view, the advantages greatly outweigh the risks. First, this approach further promotes the best possible use of scarce resources such as check-in (bagdrop) counters and gates. Second, it assists the airlines in incentivizing passengers to increasingly use off airport check-in, which takes the load off airport resources and improves the passenger flow through the terminal. This can be very important to the airport also from a non-aviation revenue angle. If the passenger arrives at the airport with their boarding pass (and potentially also their bagtag), drops their bag off at an express self-service bagdrop, and is screened...
at an efficient security filter, the dwell time on airside will be maximized. And dwell time is sell time! A more relaxed passenger with extra time before boarding is quite likely to spend more money in the airport shops and on F&B (Food & Beverage). Not surprisingly, studies have confirmed that maximum passenger receptiveness to commercial offers, at the airport, occurs between security screening and flight boarding. It is commonly accepted, in the industry, that retail and F&B will play an increasingly important role in the overall revenue mix for airports. While aviation revenues may stay flat, retail and F&B are projected to increase significantly – in some cases even by 25% per year. This takes us to the third reason for airport controlled self-service – establishing a customer relationship with the passenger. This is less obvious and more difficult, but with a large reward potential. Historically, the passenger has been “owned” by the airline, and this is still very much true today. So how can the airport get closer to its customers – the passengers? The first step is obvious – get to know who the passenger is. However, this is easier said than done. While it is technically possible for the airport to collect passenger data from e.g. check-in transactions, this practice is not legally feasible without the passenger’s consent. To get around this legal requirement, airports may launch programs which passengers can enroll into. Several airports have launched these types of programs with mixed success.

Roughly speaking they range from strictly commercial loyalty schemes (e.g. earning points for purchases) to “full service”, often chargeable, programs, including automated self-service border crossing, fast lane security, lounge access, prioritized parking and check-in, etc. These types of programs are typically for a smaller group of elite travelers. But they may still have a significant positive impact for the airport, particularly if a relatively small group of passengers make a larger percentage of all trips.

In many cases, the recommended approach is to start with a free loyalty scheme which entitles the passenger to (initially or in later phase) upgrade to a full Registered Passenger Program.

Whichever program design chosen, self-service interaction with the passenger has a large potential in this context and there are several possible passenger touch points, depending on the level of operational involvement the airport has chosen to take.

Here are a few example scenarios. CUSS kiosks are, as per the IATA specification, not limited to pure check-in transactions, but can also be used for retail offerings based on reading an airport loyalty card. An obvious trade-off of this scenario is to not compromise the speed of processing each passenger at the kiosk. Alternative, or complementary, approaches are to have kiosks dedicated to airport loyalty card offerings and/or to utilize smartphone apps and social media (according to IATA, 60% of passengers would like...
to interact with their airline through social media during their journey). If these customer touchpoint channels are integrated with a sophisticated loyalty system, the airport can now start doing one-to-one marketing based on passenger preferences and/or earlier purchasing patterns. To take this scenario even further, by offering an attractive loyalty website, the airport can extend passenger interaction beyond the airport premises. All of these scenarios expand greatly the traditional role of an airport.

**What does the Future Hold?**

Several new and emerging technologies, although not fully in place yet, may play key roles moving into the future. Two such technologies worth mentioning in the context of passenger self-service are biometrics and NFC (Near Field Communication).

Today there are established ICAO standards regarding which biometrics to include in e-passports, the primary one being facial recognition, followed by fingerprint and iris recognition. The large growth of passengers with e-passports has led to several implementations of self-service border crossing – a positive trend which will no doubt accelerate. However, aside from border crossing and to some extent security related implementations such as staff access control and verification of passenger identity at boarding, we have not really seen the use of biometrics take off at airports. This in spite of the fact that biometrics holds great promise for positive identification of passengers which could be used for many purposes – not in the least commercial offerings tied in with a stored passenger profile. There are several reasons for this lack of widespread adoption including immature and yet expensive technology, lack of a clear business case, and regulatory issues related to storing biometrics. Nevertheless, it is most likely just a question of time before the usage of biometrics, in several areas, really takes off. One metric pointing to this is “86% [of the passengers asked] want either to use biometrics/e-passport as their token [to travel] or to get their boarding pass off airport”, according to a recent passenger study by IATA.

For some years, NFC has been in use in Asia. In Japan, NFC penetration is so high that nearly all phones are sold with an embedded NFC chip. The technology has also been successfully applied in connection with passenger self-service (e.g. All Nippon Airlines use NFC to minimize passenger processing time at Tokyo-Haneda Airport to compete with the Shinkansen fast speed train). It is further estimated that 300 million cell phones equipped with NFC will be sold in 2013 (e.g. all Samsung phones now includes an NFC chip). So why would this technology add anything beyond the current, well-established standard for 2D barcode (PDF 417)? First, the chip works at a distance so it is not necessary to place it on a reader, e.g. during self-boarding. Second, the chip is bi-directional so it has broader use case potential within an airport e.g. passengers can receive commercial coupon offerings upon entering a shop or restaurant at the airport, and can pay directly from their NFC-enabled smartphone.

It is also worth noting that a passenger requires a charged smartphone to access the 2D barcode, whereas he/she does not with a NFC chip as they can be powered by the NFC reader.
Under the Fast Travel program, IATA is currently focusing on a few distinct usage scenarios for NFC technology. These include passenger receiving a token at check-in, reading token at boarding and paying, e.g. for excess baggage or ancillary services.

For us that have been in the industry for many years, these are definitely exciting times and the goals for the future are set high. For example, the current IATA Fast Travel program goal is to offer 80% of all passengers a secure fast travel experience, including a complete suite of self-service offerings, by 2020\textsuperscript{vii}. This has been translated into two distinct objectives; “10 minutes to duty free” – i.e. from airport curbside to airside, and “30 minutes to taxi” – i.e. from deboarding to airport curbside. To realize these objectives takes close cooperation between all key airport stakeholders involved, and new attractive, as well as efficient, self-service offerings to the passengers are bound to play a key role.

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