



A silent revolution has been taking place in the airline and airport industry over the past few years, helping to improve levels of security and efficiency in various operations. The key has been the introduction of state-of-the-art imaging technology that has transformed the capabilities and potential uses of hand-held data-capture devices. As a result, portable imagers are now used for a wide range of applications.

One company that is at the forefront of developments in the automated data collection sector is Honeywell Scanning and Mobility (formerly Hand Held Products). Its EMEA sales director is Jan Douma: "Hand-held devices have had a great effect on the efficiency of airports and airlines in the past five years. One of the most important changes that has taken place has been the development of new baggage management and tracking systems that are faster, more reliable and more accurate."

In many countries the installation of these systems has been spearheaded by SITA Airport Services, a division of SITA Information Networking Computing. SITA is the world's leading supplier of applications, communications and IT infrastructure to the air transport sector. The company's INC division focuses on the complete integration of technology systems at airports. These include state-of-the-art solutions for passenger and baggage processing, departure and arrival control, terminal management, and multi-media display systems.

CHOOSING THE TECHNOLOGY About four years ago the airline clubs at several UK airports issued a competitive tender for a new baggage management and tracking system to replace their outdated reconciliation systems. SITA Airport Services developed a comprehensive proposal for the whole system, including maintenance and ongoing support. This incorporated Dolphin mobile computers from Honeywell Scanning and Mobility, (which at that time was still called Hand Held Products).

ALL HANDS ON CHECK

STATE-OF-THE-ART IMAGING TECHNOLOGY HAS LED TO HAND-HELD DATA-CAPTURE DEVICES BEING USED FOR A WIDE RANGE OF APPLICATIONS

The Dolphins formed the key solution in terms of meeting the airports' requirements for effective hand-held terminals. However any devices (including their communications protocols) that are used by the airports or airlines have to be certified by SITA. The first hand-held imager to achieve certification was the Dolphin 7300RF, a compact but sturdy mobile computer that combines high levels of performance with low power consumption.

The Honeywell Dolphin 7300RF was an ideal choice for the new airport applications as it is not only a light but also a very rugged unit, and is built to withstand heavy use in a harsh environment. SITA also certified the Dolphin 9500 and its sister product, the Dolphin 9550, which has an integrated pistol grip.

All three Dolphins are powered by Honeywell's Adaptus technology, which was heralded as 'the world's most advanced imaging technology' when it first appeared. It has since become an industry standard that has set new levels of performance, accuracy and value.

THE SYSTEM One of the key people involved in the baggage management and reconciliation project was SITA Airport Services' solution design manager, Phil Crowder-Johnson. He said: "One of the drivers for the new system was the replacement of the wireless terminals. The airports wanted a new type of unit that would be much more robust in an industrial environment than the previous one. Other important criteria included ergonomics and operability. The terminals needed to be easy to store and easy to use."

SITA was chosen to install the new system at four airports - starting at Birmingham in September 2004, followed by Aberdeen and Edinburgh and then London Gatwick in April 2005. Similar systems have since been installed at Manchester Airport and Heathrow's Terminal Five.

The baggage management system enables any item to be tracked throughout the

About 12 years ago the UK Department of Transport brought in a mandate at five airports requiring airlines to carry out automated reconciliation of baggage

whole handling process. When a passenger checks in, a label with a printed barcode is attached to each piece of baggage. The barcode holds a wealth of information, such as the flight number, destination, departure date and type of baggage.

Crowder-Johnson continued: "One of the main drivers behind this new system was security. About 12 years ago the UK Department of Transport brought in a mandate at five airports requiring airlines to carry out automated reconciliation of baggage; they had to confirm that the passenger had also boarded. Each bag goes to a sorting area and is loaded onto a ULD. The bags are scanned by the loaders before being put onto carts.

"With the new system there are three main components - management, reconciliation and tracking. The Honeywell Dolphin shows if the baggage is being loaded onto the right trolley or ULD to ensure that it's put on the right flight at the right date and time. Sometimes the Dolphin can even be used to segregate baggage according to the passenger flight class. If baggage is due to go on an onward flight, the terminals can be used to group bags and put them into the correct transfer bins.

"When the bags are being loaded into the hold, if someone doesn't turn up, the ground handlers have to identify which bags belong to that passenger and offload them as quickly as possible so that the plane can depart. With our automated system they can enter the passenger's name and instantly see how many bags they had, where they were loaded, and at what time. If they haven't been loaded, it shows which bin or trolley they are in. It even gives the

handlers a good idea of their approximate position within the bin.

"There may be 400 or 500 bags on a flight, so if the ground handler can identify the location of specific items very quickly it will reduce the number of departure delays. The Dolphins make a real difference to the speed and efficiency of the process."

If a stray bag is found somewhere (for instance it may have fallen off a baggage cart onto the tarmac), a Dolphin can be used to scan it. This will tell the user who it belongs to, which flight they are supposed to be on, where the flight is and its departure time. SITA's solution can also link in with the global baggage tracking system, which traces the history of each bag.

Following the installation of the systems, Crowder-Johnson said: "The new system is working very well" so far. The ground handlers are very happy with the new Dolphins and report that they are a lot better than the previous units. They are used inside and outside, in all weather.

"We were very happy with the service we received from Honeywell throughout this project. For the UK sites we decided to use one of Honeywell's partners, UniQue ID, for the maintenance and servicing of the units. We will be moving over to using devices from Honeywell more and more in the future. We're already working on a number of contracts for other sites where we hope to roll out a similar system, using more Dolphins."

Since the installation of the initial systems, UniQue ID has partnered with Honeywell Scanning and Mobility on a number of proposals. It now provides all the maintenance, support and hardware for



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the major airport sites in the UK, including Gatwick and Heathrow's Terminal Five. Honeywell's Dolphins are also being used at Schiphol Airport and at various other European airports, including Paris, Helsinki and Dusseldorf.

OTHER APPLICATIONS Hand-held data-capture devices are not only used in baggage management and reconciliation, but in various other airport and airline applications. For instance IATA has planned many process changes with the aim of boosting efficiency and reducing costs, as part of its global Simplifying the Business initiative.

One of these initiatives is the barcoded boarding pass (BCBP). This improves efficiency and lowers costs by providing hassle-free remote check-in, replacing magnetic stripes on boarding passes with 2D barcodes, and because only one boarding pass is needed for multi-segment flights. The resulting cost savings for global airlines is estimated at US\$800 million a year. The use of boarding passes that have magnetic stripes will decrease until 2010, by which time 2D barcoded boarding passes will be used in all airports and airlines worldwide.

Another exciting development is mobile ticketing, which is designed to make the whole boarding process even easier. In this application an 'electronic boarding pass' with a 2D barcode is sent direct to the passenger's mobile phone. Scanners that use the latest technology (such as Adaptus) can read the encoded information from the passenger's mobile handset at the boarding gate. Because the results of these scans are produced in real time, this technology will

also enable airline operators to track the movement of passengers through the terminal and departure gate.

Finally, mobile computers are also being used by airport parking companies to speed up the customer check-in process and improve the handling of their vehicles. The use of barcodes boosts the accuracy and speed of data collection relating to every customer's car. Combined with specialist software, this has increased the throughput of customers at some airport car parks by a factor of eight at busy times, reducing queues and enhancing customer satisfaction.

THE FUTURE New data-capture technology is constantly being developed and promises still further benefits to the airport and airline industry in the future. For instance Honeywell recently announced the new Dolphin 9900, which will supersede some of the older devices and offers even higher performance levels. It incorporates an innovative power-management system that ensures long battery life, so airport staff will be able to work all day without needing to recharge the units.

Honeywell's Douma concludes: "Over the past few years, hand-held imagers and mobile computers have had a tremendous and positive effect on the efficiency of applications such as baggage management. As long as processes such as baggage reconciliation continue to be a major element of airport operations, the need for imagers will continue. They play a major role in airport safety and in helping to make the whole customer experience more enjoyable."