
Biometrics – The Future of Airport Security

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The delicate balancing act of strengthening airport security without compromising operational efficiency is getting a major boost from biometric technology. In fact, biometrics ticks both boxes because, as well as enhancing security, it also improves efficiency by streamlining border control processing, alleviating bottlenecks, and reducing the length of security queues.

Legitimate passengers with biometric verification in their passports and/or visas can use self-scanning, electronic passports to pass smoothly through airport electronic gates, leaving border security personnel to concentrate on the manual screening of other travellers. The result is reduced pressure on both airline and airport resources – and less frustration for passengers.

When used in conjunction with other forms of risk management such as biographical data screening, biometric systems provide a powerful defence against threats of terrorism, smuggling, illegal immigration, and other criminal activities that are possible with the use of forged documents and stolen identities. As well as using biometrics to screen passengers, the technology can also be used to confirm employee identification, and permit access to sensitive airport facilities.

International backing for biometric technology

So how does it work? Biometric technology uses a person's unique physiological characteristics – for example, the face, iris, retina, fingerprints, hand geometry, voice or handwriting – to verify his or her identity – in short, to confirm that someone is precisely who they claim to

be. Computer technology is used to authenticate identity by matching the characteristics of individuals in real time against their stored records.

ICAO (International Civil Aviation Association) recommends facial recognition as the 'globally interoperable biometric technology for machine-assisted identity confirmation', while acknowledging that some authorities may supplement this with fingerprint and iris recognition.

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IATA is encouraging implementation of biometrics at airports around the world through its Simplifying Passenger Travel (SPT) initiative which aims to make 'simplified and secure passenger processing' a reality. The SPT programme is in the process of combining with IATA's Simplifying the Business (StB) to form a new group in 2010.

Earlier this year, ARINC provided Cairo Airport's Terminal 3 with Egypt's first custom Biometric Immigration Gate (BIG) system. This will streamline border control processing at a facility that, as the home of 27 airlines carrying 11,000 passengers every day on some 200 scheduled flights, is designed to handle up to 14 million passengers a year.

Compatibility and flexibility are crucial

It is crucial that biometric software, like all technological developments, is designed to be compatible with legacy systems, if costs and disruption are to be minimised for those incorporating the new technology.

ARINC, with its long history of successful systems integration, recognises the need for flexibility to accommodate the varying requirements of different border regimes, as well as ensuring that biometric systems integrate with existing airline and airport processes – which is why its fully-integrated Identity Management System (IdMS) offers a robust solution designed to be applicable in many critical settings.

IdMS can collect, verify, and maintain biometric and biographical information as well as supporting all phases of the identity management lifecycle, from pre-enrollment and enrollment to verification and risk assessment. These can be deployed as individual modules or as a complete system and customised to meet particular industry or government requirements.

How the biometric process works

The biometric process starts with enrolment – the collection, encryption and storage of the data. This is followed by verification which compares incoming biometric data – presented on a smart card or 'live' in real time – with data held on file. IdMS can also provide the software required to interface with both a document authenticator and a smart-card burner.

IdMS uses a client/server architecture to perform the pre-enrollment, enrolment, and verification functions. The server houses the 'rules' governing the client system operation, acts

as the central repository for the identity data, and performs the risk assessment functions.

Users can pre-enroll via the web, or a dedicated kiosk at the airport. This involves the collection of biographic information so that risk assessment and background checks can be initiated prior to enrollment.

At airports, travellers can enroll at a Registered Traveler enrolment centre to verify identity documents and have their biometric information collected.

Enrolment and pre-enrolment data can be submitted to the government security agency for background checks, and the passenger is registered once the vetting has been successfully completed.

ARINC supports token-based verification which uses smart cards, 2D barcodes, or other devices containing the biometric data collected during enrolment. This data is compared with the person's biometric data collected at the verification location – usually a kiosk with a nearby attendant. ARINC also supports token-less identification, which uses only biometric input that is compared with data on file.

The end result is that high volumes of passengers can be processed more quickly and efficiently, enhancing the customer experience. Expanding the self-service facility helps drive down operating costs, since fewer officials are needed to man border controls – and governments have more control over who goes in and out of the country.

ARINC is currently working towards combining the core Identity Management and Biometric technology of IdMS, its expertise in networks and APIS, and its vast aviation industry experience into a new integrated solutions platform called Integrated Border Information and Control Systems (IBICS). This will be a total, turnkey offering that will enable governments and other stakeholders to apply a comprehensive, standards-based solution to border management.

ARINC's successful involvement in official trials

Currently celebrating 80 years of devising innovative products and services for the aviation sector, ARINC prides itself on having the skills and capability to resolve any technology problem. As a master systems integrator, the company provides hardware, software, and networking solutions that will unite effortlessly with existing IT systems.

ARINC's dedicated team of biometric and border security experts has been involved in a number of official trials and evaluations, including SAFPAS (Strategic Alliance for Passenger Airline Safety) which was funded by US Congress to evaluate off-airport check-in, including biometric details, as well as an off-terminal process at San Francisco Airport that involved using biometrics to match passengers with their baggage.

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Of course, technological advances tend to attract 'invasion of privacy' accusations, but trials of biometric systems have been well-received, with passengers recognising the benefits. Apart from the convenience they know that if their travel documents are stolen or duplicated, biometric technology makes it is virtually impossible for the thief to claim their identity. It should be pointed out, too, that ARINC's biometric technology does not store the actual image of the

physiological feature measured, but instead converts the dimensions into an encrypted, tamper-proof, biometric file.

Biometrics – not 'if' but 'when'

New technology like biometrics, and new approaches to managing risk are all aimed at making air travel an enjoyable experience for the law-abiding majority while apprehending those less well-intentioned passengers.

An integrated border management solution is the only way to maintain the necessary levels of security. While advance passenger information such as APIS and PNR can help identify possible threats in advance, biometrics is the undisputed identity clincher. Better still, it provides a strong deterrent to potential wrong-doers.

As passenger numbers continue to rise, and the pressure to process large volumes of people as quickly and securely as possible grows, the use of biometrics to enhance aviation security is a no-brainer. For airports and airlines, it's not so much a question of 'if' but 'when'. And the answer is surely: the sooner the better.

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