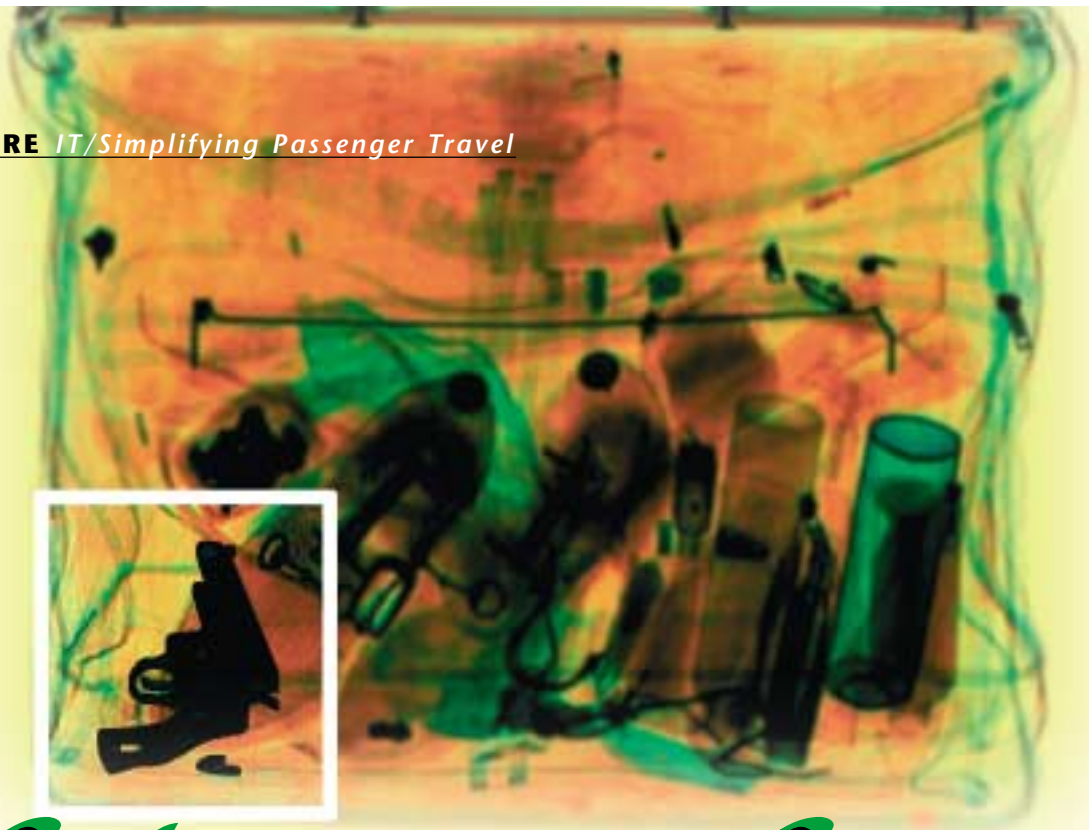


FEATURE IT/Simplifying Passenger Travel

What is the aviation industry doing to ensure that safety procedures don't make air transport more trouble than it's worth? Bernie Baldwin reports.



Safe but swift PASSENGER

Public tolerance is a commodity which was given in abundance to the air transport industry after 11 September 2001, and was arguably topped up during the first anniversary, but it is also something that will not last for ever.

Whatever the action which brings a clampdown in security, if there is no repeat action then a time will come when people just want to go about their business. They will not want to experience long check-in times,

huge queues and lengthy questioning about everything they are carrying.

The air transport industry's collaborative project, the Simplifying Passenger Travel (SPT) programme, is continuing to develop technologies and protocols which will enable increased security without causing frayed tempers at airports.

DEFINING 'SPT'

According to www.simplifying-travel.org, the project's website, the SPT programme "is unique because it brings together all the key parties involved in the passenger's journey with the objective of collectively working to move passengers through airports faster and without hassle, using automation co-operatively".

Put simply,

- passengers want hassle-free travel;
- airlines want to offer better service to their customers;
- airports want better and more efficient use of their facilities;

Right Roving agents can help make checking-in quicker for the passengers. (Photo: Sabre)



- customs and immigration organisations want improved controls and more efficient use of their resources; and
- governments want an efficient transport system and protection of the public.

And, of course, they all want to cut costs.

Before things can be put right in any system, there needs to be an examination to discover what is wrong. The organisations involved in SPT “conducted an extensive survey of their individual members aimed at identifying present shortcomings”. Analysis of more than two hundred responses indicated that almost all of the problem areas identified by the survey could be put into three categories:

- lack of staff and financial resources;
- outdated procedures; and
- lack of clearly defined service standards.

STRONG CONTRIBUTORS

A major strength of the SPT programme is the quality and range of skills within the organisations involved (see box p28) and the fact that they are looking at the passenger’s complete journey, not just focusing on where they have some expertise.



Opposite *Is the gun real or just projected? Threat Image Projection can help to ensure it is spotted.*

Left *Under the newspaper is an obvious threat picked up by millimetre wave imaging. The system can also pick up non-metallic threats.* (Photos: QinetiQ)

PROCESSING

As a company which contributes solutions to many aspects of air transport, it is no surprise to find Sabre as a member of the SPT Interest Group. “We’ve been very active for the past 18 to 24 months,” says the company’s VP airport solutions, Chris Serafin. “A lot of that activity has been in the area of trade-offs between security and customer services. It has been the passenger service function where we have put a considerable amount of our focus.”

As the passenger passes through the airport, there are a number of places – known as touchpoints – where he or she interacts with airline or airport staff or with facilitating technology such as self-service check-in kiosks. “We have been working on, and already have available, solutions to provide to airlines which will ensure that that touchpoints are kept low time-wise,” explains Serafin. “It’s a case of pushing more people through the pipe and we were certainly able to handle the passenger growth which was already occurring before 11 September.”

In fact Serafin notes that the touchpoints on the day of departure don’t have to begin at the airport and,

even before that, touchpoints involved with reservations (via agencies, the internet or directly with the airline) must be taken into account as being part of the end-to-end journey. When it comes to setting off though, one of the first may be remote check-in and then every touchpoint up to walking onto the aircraft must be considered.

“Sabre has between five and ten solutions which are day-of-departure oriented,” Serafin adds. “Giving passengers options is the mission here. One of the key things is to provide service choices.”

SEEING THE FUTURE

Serafin’s colleague, Mark Canton, product manager for passenger handling solutions, says that one of the reasons for Sabre’s involvement in the programme is that it will let the company see what the future will be. “There will be certain things which might be made compulsory for airlines and airports, such as biometrics, and we need to be aware and ready to provide the functionalities,” he explains.

FEATURE *IT/Simplifying Passenger Travel*

"Mark's comment raises one of the big questions at the moment," declares Serafin. "Is there going to be a mandate around biometrics? So far airlines are not the ones who have made the real investments in the roll-out of biometric technology. In fact they are really reluctant to do so until an industry standard specification is put together. Not only that, but there is a lot more in the way of prototyping and pilot tests of biometric capabilities which needs to be done."

One set of tests has involved Sabre working alongside Eyticket to create a biometric solution which is currently being trialled by Virgin Atlantic Airways and British Airways at London Heathrow. "The passengers absolutely love it," reports Canton. "Those who signed up get through so much quicker."

Such trials are still not the norm. Where the airlines have actually been putting their money up to now has been in self-service kiosks and kerb-side check-ins. The opening point about people just wanting to go about their business was illustrated with the fact that the airlines in the US, realising that passengers would not want to do without the facility for too long, decided to re-introduce kerb-side check-ins for domestic travel only a few months after the terrorist atrocities.

Government bodies, particularly in the US, have not put the focus on the passengers yet, according to Serafin. "Their focus has very much been on employees at airports who have access to secure areas," he explains. "For this category of people, you are dealing with thousands as opposed to millions." Obviously if the systems can be developed to an extremely high standard here – with all the introductory 'bugs' removed – then hopefully it will be easier to transfer the technology to cope with the vast numbers of future air travellers.

There is one key point, which Serafin makes, related to the introduction of biometrics and technologies such as smart cards. "Identification," he stresses. "There has to be no doubt that the person getting on board or accessing a secure area is the person that the smart card says it is."

THE AIRPORT ENVIRONMENT

While the research and development of technologies to enable swift processing of passengers continues, there is one element which will play a major role in their effectiveness over which companies such as Sabre have little or no control – the infrastructures of the individual airports.

"All solutions are contingent upon that," says Canton, "and at the moment the ideal infrastructure is probably only in place at around 15-20% of all airports. That doesn't mean to say we cannot work well at the remaining airports, just that we might not get a complete fit immediately."

If local installations are difficult because of the infrastructure, Sabre is still able to support airports by using its eMergo application-service-provider-type delivery via the internet. "We actually prefer this as we can provide updates more easily," Canton remarks. "For example, if you add in a biometric component, it's just another data centre, which makes it easy to attach to the eMergo central database or other offsite database."

While being part of the SPT Interest Group does enable Sabre to see what's coming, Serafin and Canton are both certain that their company's role is to be proactive to the potential requirements and be one of the drivers of technology.

COMMERCIAL BIOMETRIC

The use of biometrics involving smart cards has already begun at Amsterdam Schiphol Airport. Privium is the membership subscription-based customer service programme there which uses iris recognition to enable "quick and secure border passage".

When passing through border controls at Schiphol, Privium members have their iris geometry checked against that of their iris photograph which is encoded on the chip of the smart card.

Membership is now available at two levels, Privium Basic and Privium Plus. The former simply entitles the member to use iris recognition for swift border passage, while the latter adds in priority parking and – depending on the airline – priority check-in at a dedicated Privium desk. The annual subscription fees will be €99 and €119 respectively.

THOROUGH SCREENING

Millimetre waves are a phenomenon in plentiful supply within the earth's atmosphere. And while they reflect from the human body and other solid materials, it is fortunate – for surveillance purposes – that clothing material such as cotton is non-reflective.

QinetiQ, formerly the UK's Defence Evaluation & Research Agency, has used millimetre wave imaging (MMWI) to develop a passenger screening portal which it believes will speed the throughput of passengers while simultaneously raising the level of security. The imaging system incorporated in the portal can detect weapons and explosives concealed under a person's clothing or in their baggage by providing security screeners with a real-time moving image.

With the human body reflecting 30% of the naturally occurring radiation around it, the scanner can detect a person's actual body shape beneath their clothes. So any attempt to conceal an item under clothing can be foiled.

The screening portal recently completed the first phase of its public assessment trials at London Gatwick



Above Fingerprinting is just one biometric the aviation industry can use. (Photo: Sabre)



Below Keeping passengers informed also smooths the journey. (Photo: Sabre)

North Terminal. The collected data is still being analysed but, according to Kevin Murphy, QinetiQ's product manager for the MMWI, the initial passenger reactions to the new technology have been extremely favourable.

Over 400 passengers at Gatwick, who had already activated a conventional metal detector, were asked to participate in the trial of the portal. They were initially asked to step into the portal to be screened and then underwent a conventional "pat-down" search, so that normal security procedures were also observed. Over 95% of people were happy to participate in the trial and almost all preferred the far less invasive MMWI option.

The second phase of the screening portal's assessment was carried out at QinetiQ's own Farnborough facilities. "We received an incredibly high response rate from volunteers willing to take part in the trials," adds Murphy.

While the initial phases of the trial simply required people to step into the portal, a certain amount of realism was added to the Farnborough trials by randomly selected volunteers being asked to carry one or

image of them. Of the 400+ volunteers screened, 326 marked on their questionnaires that they agreed or strongly agreed that it would not embarrass them.

WHO SCREENS THE SCREENERS?

While new technologies to increase security levels and passenger throughput continue to be developed, one factor which remains is that most of the screening is done by humans.

Current security systems are only as good as the operators who use them. With the increased threat of terrorist attacks, and with the number of airline passengers also



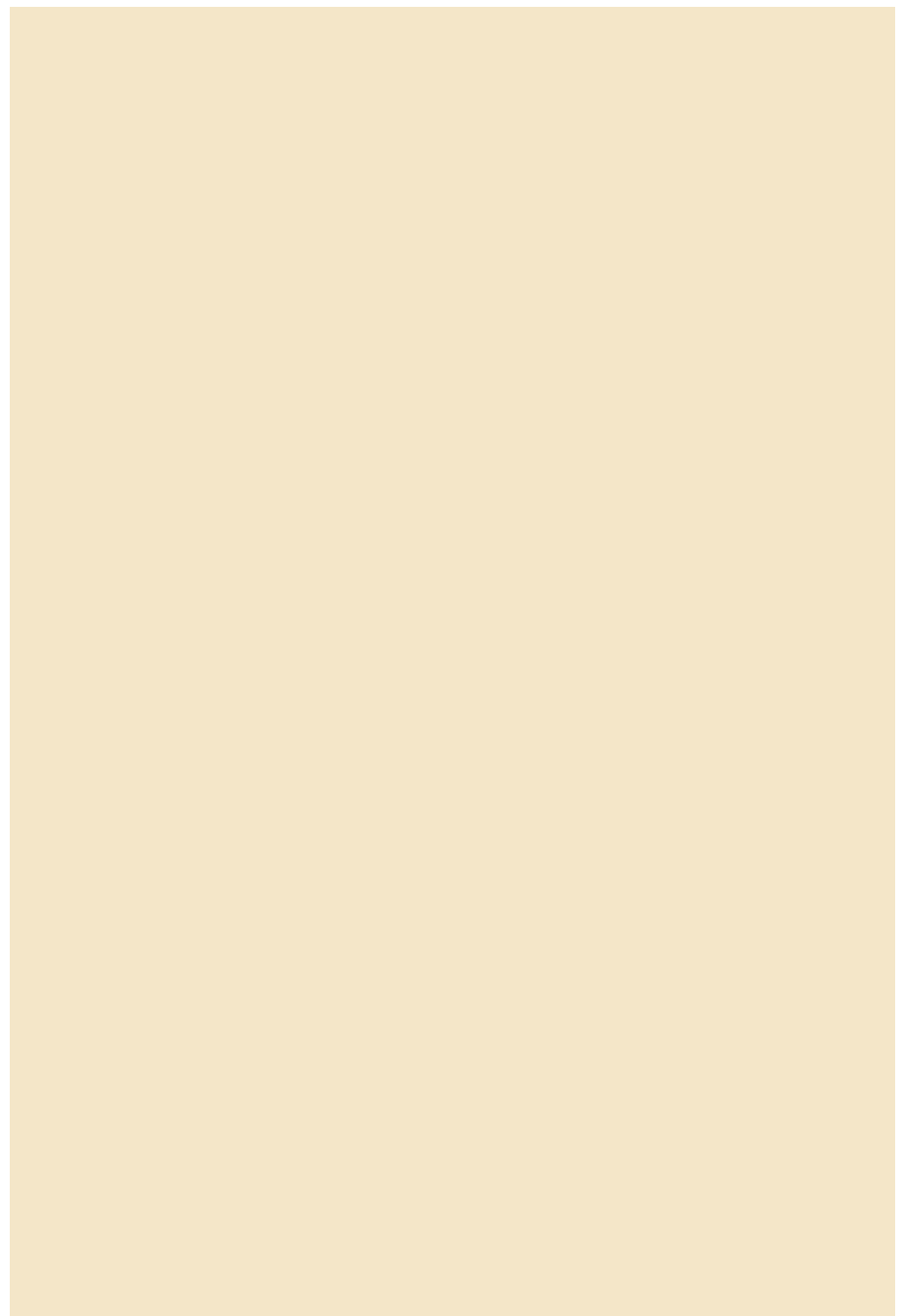
Left Many regular flyers already have experience in the use of self-service check-in kiosks. (Photo: Sabre)

more threat items, made from a variety of materials, concealed on their person. This was to help screeners learn to distinguish between the many legitimate items (wallets, mobile phones, passports and so on) that people carry through airports and the obviously prohibited ones.

An additional benefit of the MMWI portal over metal detectors is that it can see more than metals. Plastic explosives, ceramic weapons and more are all detectable by MMWI. "That does not mean the end of the conventional metal detector," Murphy stresses. "I think that will remain, with the MMWI acting as a second level of security."

Once the product is fully developed, Murphy expects it to take around 2-3 m² in floor space and cost between \$100,000 and \$200,000 – a price comparable with current X-ray systems "but providing a better solution for passenger throughput".

One of the controversial elements of the MMWI system is the image produced which shows body shape very clearly. In the Gatwick trial, volunteers were shown an example image and asked if they would be embarrassed by the screeners seeing such an



“Screeners often never see guns, knives or improvised explosive devices throughout their careers, but Threat Image Projection gives them more of a chance to recognise one when it comes along.”

Andrew McClumpha, QinetiQ

SPT Board Members

Air Transport Association of America (ATA)	www.airlines.org
Air Transport Users Council (AUC)	www.auc.org.uk
Airports Council International (ACI)	www.airports.org
Arab Air Carriers Organisation (AACO)	
Arinc	www.arinc.com
IATA Control Authorities Working Group	www.iata.org
International Air Transport Association (IATA)	www.iata.org
International Biometric Industry Association (IBIA)	www.ibia.org
International Civil Aviation Organisation (ICAO)	www.icao.org
Société Internationale de Télécommunications Aéronautiques (SITA)	www.sita.int/
Universal Federation of Travel Agents Associations (UFTAA)	www.uftaa.com
World Customs Organisation (WCO)	www.wcoomd.org

continuing to increase, the need for the highest standards among screening personnel is vital.

Working with the UK's Department for Transport (DfT), QinetiQ has been looking to improve the effectiveness of these operatives. By improving the selection process for baggage screeners, the initial and refresher training they receive, and ways of monitoring and enhancing their operational performance, effectiveness can be improved.

Security screeners have to work in a time-pressured, high-workload environment where they continually make decisions about the content of passenger baggage. To help them maintain a high level of vigilance, QinetiQ has developed a technique known as threat image projection (TIP).

The TIP system introduces fictional but realistic images of threats – guns, knives and IEDs (improvised explosive devices) – onto X-ray images of regular passenger bags. It is the screener's job to pick up such TIP images; the screener, of course, has no idea if the image is real or projected.

Andrew McClumpha, technical manager of QinetiQ's Centre for Human Sciences, says that the studies suggest that the technology helps to improve screener motivation, vigilance and performance. "Screeners often never see one of the those three threats throughout their careers, but this system gives them more of a chance to recognise one when it comes along."

If a threat image comes up on the screen, the screener must question it. If it is a projection, then the system records the 'pick-up' and screening continues. If a TIP image is missed, the system will ask the screener to re-check the item and the 'miss' is also recorded. The record of the screener's performance gives his or her supervisor vital feedback and, depending on whether or not they have done well, will lead to appropriate action in terms of reward or extra training.

TIP is now a core component of the UK's screening methodology, in use at more than 20 UK airports. McClumpha states that DfT standards are applied at all UK airports. In the US, the new Transportation Security

SPT Interest Group

Aéroports de Paris (AdP)	www.adp.fr
Air France	www.airfrance.fr
AiT	www.ait.ca
All Nippon Airways (ANA)	
Ama Tech	www.amatechusa.com
Amsterdam Airport Schiphol	www.schiphol.nl
Arinc	www.arinc.com
Australian Customs Service (ACS)	www.customs.gov.au
Australian Department of Immigration and Multicultural and Indigenous Affairs (DIMIA)	
BAA	www.baa.co.uk
British Airways	www.british-airways.com
Canada Customs and Revenue Agency	
Canadian Bank Note Company	www.cbnco.com
Citizenship and Immigration Canada (CIC)	
Delta Air Lines	www.delta.com
Dynjab Technologies	www.dynjab.com.au
EDS	www.atraxis.com
Eyicket Corporation	www.eyicket.com
Federal Aviation Administration (FAA)	www.faa.gov
Fraport	www.frankfurt-airport.de
IER	www.ier.fr
Imaging Automation	www.imagingauto.com
Immigration and Naturalisation Service (INS) Netherlands	
Iridian Technologies	www.iridiantech.com
Japan Air Lines	www.jal.co.jp
KLM Systems Services	www.systemsservices.klm.com
LDC (Laser Data Command)	www.ldcinc.com
Lufthansa Consulting	www.lhconsulting.com
Narita Airport Authority	
New Zealand Customs Service	
New Zealand Immigration Service	
New Zealand Ministry of Agriculture and Forestry (MAF)	www.maf.govt.nz
New Zealand Passport Office	
NTT Data Corporation	
Port Authority of New York & New Jersey	www.panynj.gov
Qantas Airways	www.qantas.com.au
Recognition Systems	www.recogsys.com
Sabre	www.sabre.com
Sagem	www.sagem.com
Singapore Changi Airport (CAAS)	
SITA	www.sita.int/
UK Immigration Service	
Unique Flughafen Zürich	www.uniqueairport.com
UNISYS Corporation	www.unisys.com
United Airlines	www.ual.com
United States Immigration and Naturalization Service (US INS)	
US Customs Service	
Virgin Atlantic Airways	www.fly-virgin.com
Visa International	www.visa.com
Visionics Corporation	
ZN Vision Technologies	www.zn-ag.com

Administration is taking over the regulatory role, and McClumpha believes that both bodies have played a vital role in the development of TIP.

QinetiQ, meanwhile, is planning to become a member of the SPT Interest Group. †

