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R&D:
research and development or research and deployment?

by Philip Baum

Have you been to any one of the recent plethora of aviation security-related exhibitions and trade shows? If so, you will have had an opportunity to examine many of the latest technological advances that could enhance the effectiveness of the checkpoint, perimeter or terminal security operations at the world's air terminals.

Have you been to any one of the world's major international airports recently? If so, there is a noticeable absence of many of the technologies that we have seen at trade shows, especially when it comes to checkpoint security operations. Furthermore, the likelihood is that, if you have noticed new technologies actually in situ, the deployment will be a trial rather than a permanent deployment.

The passenger screening checkpoint is widely considered as being central to our efforts at safeguarding civil aviation from a terrorist attack. Personally, I consider this a flawed approach and believe that far greater attention, and associated regulation, ought to be given to safeguarding airport perimeters, terminals, airfields and their access points, from those with airport ID cards who are of questionable character.

The checkpoint of 2009 bears a close resemblance to that of forty years ago and one must ask why functional progress has been so limited? Airports are certainly keen to embrace technologies that can facilitate passenger flow through the airport terminals. As a result, immigration controls have become increasingly automated with biometric solutions now commonplace. Meanwhile, airlines are using online check-in and self service kiosks to limit the time passengers spend registering for flights once they have arrived at the terminal. So, it begs the question, why are security checks more

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arduous nowadays when everything else has become far easier?

The simple answer is that the threat to aviation in 2009 far exceeds that of the late 60s. Our paranoia over suicidal pilots and saboteurs equipped with liquids, aerosols and gels, somehow justifies the hurdles passengers have to overcome in order to make it to the duty free shops airside. However, the reality is that most of the technologies we deploy cannot identify the threats we are concerned about. So, why are we not utilising the advanced technologies that can?

The answers cited most frequently are cost, throughput rate and size of footprint. Millimetre wave imaging systems cost more than ten times the cost of a top of the range archway metal detector, are considerably slower and take up far more space; one can say the same about CT systems in comparison with X-ray machines. Explosive trace detection systems are available at most checkpoints, yet their usage is only for baggage and is usually secondary to that of X-ray, even though we are supposedly more concerned about explosives than firearms, grenades and bladed weapons.

There is, however, another factor preventing the deployment of the latest technological offerings – the passengers themselves. There is little chance of our dispensing with technologies that, despite their limitations, the travelling public actually expects and even wants to encounter at the checkpoint and, should they be absent, would complain about. I'm all for deterrent and perhaps we should be positive about the fact that the general public have such faith in our approach. That would be reasonable were it not also true that the modern terrorist is familiar with the capabilities and limitations of the technologies we utilise, so I question to what extent they deter.

For now, it would seem we are resigned to add-on technologies to the standard equipment deployed as and when they prove their effectiveness in detecting the latest threat substance. Some of the more futuristic solutions, such as layered voice analysis, gait analysis, brain fingerprinting, and facial hotspot identification, which focus

on passenger intent, will only be considered as being supplementary to the existing process once they reach the age of maturity.

It is a brave manufacturer that invests in the lengthy research and development process necessary for a new technological concept when the chances of seeing the solution ever deployed are so limited. One hopes that it will be the regulators vision of the checkpoint of the future that will encourage the industry to continue their investment in the seemingly never-never and that they will be willing to deploy their vision once it becomes a realistic proposition.

The ideal checkpoint is likely to be one that integrates a host of detection capabilities – from explosives (in all their forms) to metals, from weapons (made of whatever substance) to chemical and biological agents, and from narcotics to intent – into a single system that will screen people on the move, perhaps without their knowledge. In an age where we can condense hundreds of applications into a single palm-sized personal organiser, one would hope

that an integrated checkpoint is more than a pipe dream.

Conferences that address aviation security focus, arguably excessively, on the passenger and cargo screening processes, whilst the really innovative solutions on offer in the, often adjoining, exhibition floor tend to relate to airport access control and surveillance. Away from the checkpoint, airport security of 2009 is significantly different to that of forty years ago. Intelligent CCTV, biometric identifiers imbedded into smart cards, crash-proof bollards, scale-proof fencing, sophisticated perimeter intrusion detection systems and state-of-the-art communication tools have all enhanced our airside operations. Granted the advances made in this area, it is all the more surprising that the development of the screening checkpoint has been so slow.

There are ideas aplenty, but we need to see them utilised. Regulators maintain that the deterrent factor is a fundamental part of the screening process; if this is so, then we need not await certification (of detection capability rather than the necessary

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health and safety requirements) to see some of the more innovative products placed in an operational environment. Deployment will make the screening process less predictable and, providing the basic screening process is maintained, will encourage the research and development that will, one day, result in the integrated screening product we wish to see deployed. ■