



The use of X-rays to screen passengers for ingested or inserted items is controversial, but could prove highly effective. Tony Kingham examines the technology and weighs up the arguments

TO SCAN OR NOT TO SCAN?

With the global security situation showing no sign of improving in the short to medium-term, the debate around balancing the rights and conveniences of the travelling public against security considerations goes on. Among the myriad of arguments about liquids, shoes and laptops, one of the more controversial questions being debated surrounds the use of full-body scanning in airports, ports and other passenger hubs.

Full body scanning involves using ionizing radiation (or X-rays to you and me) on human beings to determine whether they are carrying illegal substances such as drugs, explosives or weapons, either on their person or more specifically internally by insertion into body cavities or through ingestion. Most people are aware, through coverage in the press and television that drug traffickers regularly use couriers or "mules" to smuggle drugs, either swallowed or inserted, across borders. But what is not so obvious to many of the general public is that the same method can be employed to smuggle explosives, detonators, liquids and any of the component parts necessary either for a ready-made improvised explosive device (IED) or for one which can be assembled on the aircraft or vessel.

Drug mules regularly carry 1kg of drugs or more – easily enough volume to carry enough components for an IED or weapon. Clearly, conventional search measures such as "pat-downs" and metal detectors can be used to determine whether someone is carrying illegal objects or substances, but those objects hidden internally present different problems for the border official. This is where body scanning comes in; while no agencies are advocating the use of this type of technology in an indiscriminate manner or for the mass scanning of the travelling public, it is highly useful when an officer or security official has become suspicious that an individual represents a security threat, or is suspected of criminal trafficking of some sort. This is done by using the existing risk analysis techniques employed



Full body scanning could be a quick and efficient means of spotting ingested contraband

by trained border officials for screening travellers at border crossing points. Having identified a "risk" individual, the official would have one or more of the following three options available to them, depending where they are in the world. One is the full strip search and internal examination. Another is simply waiting for nature to take its course and examining the results, while the third is taking the suspect to hospital for a medical X-ray. While all three can be effective, they are all either time-consuming or invasive. The on-site full body scan offers the official another extremely fast and effective alternative option. There are, however, two main issues that are phasing border agencies over the use of this type of technology. The first issue is one of safety; is it safe to intentionally expose members of the general population to man-made sources of

radiation for security reasons? The first thing to say is that we are all exposed to levels of naturally occurring radiation everyday – what is called background radiation. This comes from two main sources; cosmic radiation from space and terrestrial radiation from the earth itself, including man-made sources. The average dose background radiation for human beings around the world is about 2.4millisievert (mSv) per year. Many of us also routinely and deliberately expose ourselves to higher levels of radiation through X-rays for medical purposes and by other directly relevant activities such as high-altitude airline travel. (For instance, four hours of flying at 39,000ft is the equivalent of three days of background radiation – a dose of 0.02mSv.) We also know that high levels of radiation are dangerous, however. So the question is not really whether it is



safe for human beings to be exposed to radiation, but, how much radiation is safe and how often we can be exposed to that level and remain within safe limits. This has been examined by a number of bodies over the years, but

the most important report from a security perspective is that delivered by the American National Standards Institute (ANSI). This report brought together experts from various US Agencies including the Food and Drug

Administration, the Department of Corrections, the Florida Bureau of Radiation Control, the Treasury and representatives of industry. It concluded that no individual scanned should be exposed to more than 0.25mSv in any 12-month period. It did, however, make special consideration for various vulnerable groups within the population including pregnant women, children and those individuals undergoing radiation treatment for medical reasons. As available scanning systems operate well below this limit, scanning offers a very real technological advantage in combating cross-border terrorism and crime; it would seem irresponsible not to use it. Jan Steven van Wingerden, Managing Director of OD Security which produces the Soter scanner, emphasised the relative efficiency of such systems compared to the alternatives. "The system will pick up any ingested or inserted object within the human body. The scan is performed in less than ten seconds and requires only an hour's training for the operator. With scan doses of only 0.003mSv per scan, an individual could be scanned approximately 250 times per year and still stay within recommended safety limits." The safety of the operator has also been considered, he said. "This is dealt with by proper design and effective screening of the machine; we have been able to reduce operator exposure to nothing." The next question is the ethical one; is it an infringement of a person's privacy to subject them to a full-body scan? The easiest way to address this question is by looking again at the alternative methods already in use around the world to deal with suspected terrorists and traffickers. Firstly, let us take the internal examination; ▶



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Surveillance and primary profiling are used to identify potential security threats before full body scanning would be employed

► there can be little in the world that is more invasive of one's privacy than an internal examination by a complete stranger armed with a rubber glove, a torch, plastic bags and a sense of purpose. Enough said on that one!

The next method is to wait for the suspect to expel the contents of their body by natural means. To have a stranger examining the results left by one's bodily functions is something that none of us would want to experience. It can also be extremely time-consuming, interrupting the passenger's travel arrangements, perhaps leading to missed flights, appointments or holidays and additional expense. It also occupies the officials for a considerable time, thereby taking them away from the front line of passenger screening.

The last method involves taking the passenger away to a medical facility for a full body scan on a medical scanner or X-ray, which may be less intrusive but is far more inconvenient for the passenger and will almost certainly result in a missed flight. For the official, it again means taking them away from front line of passenger

screening for a long period. This is also by far the most expensive option, involving the use of medical equipment, medical staff, transport, the official's time and so on. In the end it still entails having a full body scan, and so is to all intents and purposes a very expensive version of the same thing.

It is true that body scanning reveals the full outline of the human body with the obvious implications for gender and cultural sensitivities. In practical terms, however, it simply means that trained personnel of both genders have to be available to scan men and women separately. This presents no major problem, as officers of both sexes are routinely deployed at airports and ports under current arrangements for existing measures.

The last issue around privacy is that of data capture; in other words, what happens to the scan image after scanning. Scan images of cleared passengers should clearly not be held on any database. This can be dealt with in any number of simple ways, for instance, if not deliberately saved, scans should be automatically deleted. Scan images of suspects, on the other

hand, can be saved as valuable evidence in the event of prosecution.

As with most security issues it is a question of balancing benefit against risk. If it is accepted that the security benefits outweigh the very small health risk and privacy issues, then it is simply a matter of defining the policy and implementing suitable procedures to safeguard the privacy, health and safety of the travelling public and security staff involved. These should include training, maintenance, data protection and health information for the public and operator.

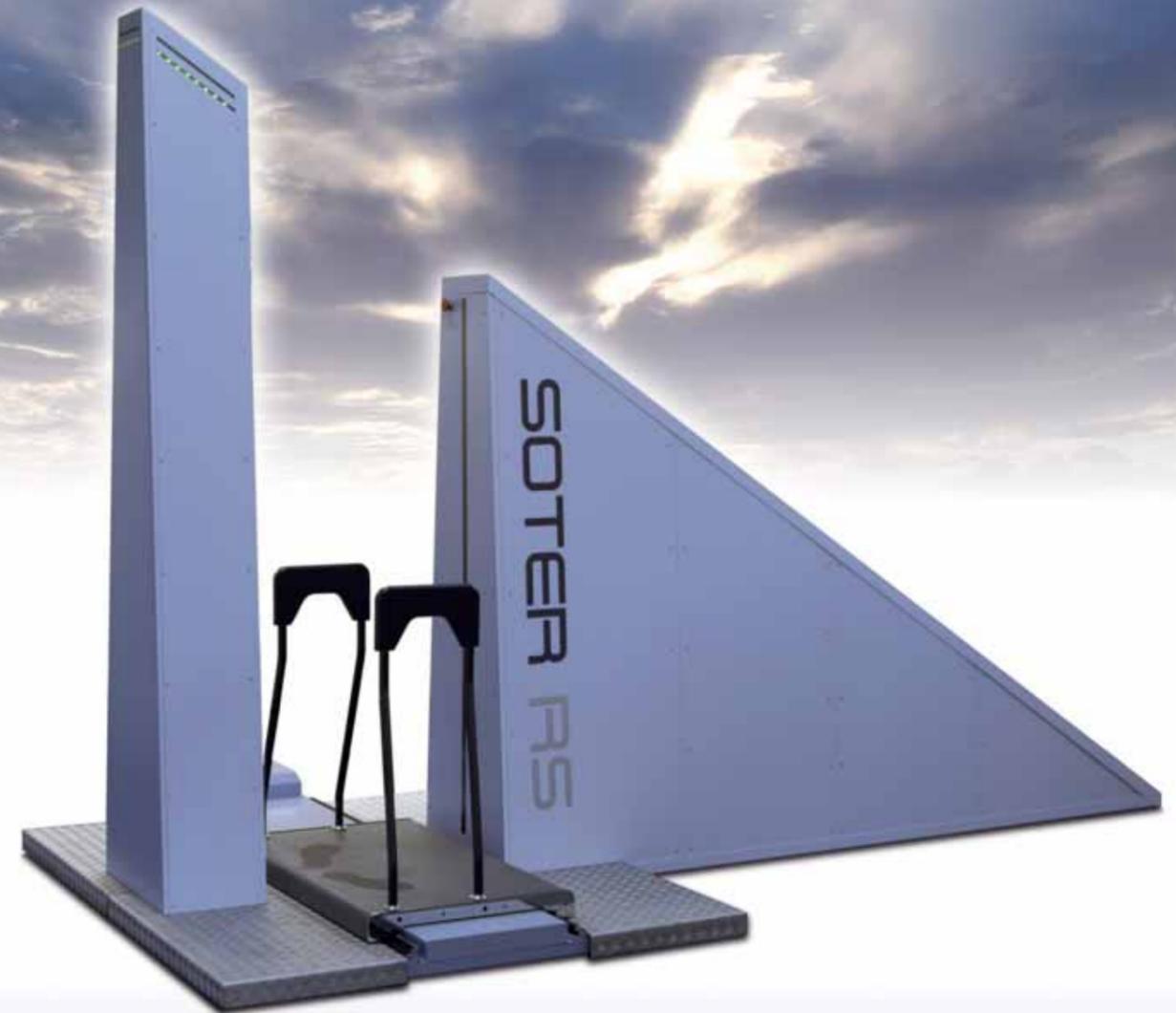
One last point: body scanning should not be made compulsory. But given the nature of the scan and the alternative, which is effectively a choice between the traditional invasive method of examination and a ten-second scan on a machine, I know which I'd chose! **I**

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