



Technology is fundamental to the provision of an effective security system. As those we aim to guard ourselves from go increasingly hi-tech, so must we respond in kind; ideally we should be ahead of their game. Having technological capability is one thing, using it in the right manner something altogether different. Philip Baum asks some of the industry's leading lights in the area of technological development and solution provision their views as to how we ought to strike the correct balance between technology and human factors, how technology can respond to the threats of the future and how we can improve our current system using available solutions.

Q: With respect to aviation security, to what extent do you feel that we have found the correct balance between technology and human factors?

Andy Blackwell, Head of Aviation Security, Virgin Atlantic:



Historically the industry has been heavily focused on technological solutions but it is increasingly acknowledged that human factors play a key role in helping to ensure the integrity of aviation security. Whether it be Behavioural Detection deployed to support more conventional security methods, or the development of positive security 'cultures' within organisations, the more holistic and flexible a security programme is then the greater the chance of it being robust. We need to be as innovative in our approach to security as those seeking to harm aviation and this involves considering technology, human factors and other forms of detection, disruption and deterrent. The more we understand about the methods terrorists use to attack their targets, the greater the opportunity we have of adapting our security defences and getting the balance right. This is a dynamic process requiring industry and government stakeholders working in partnership to create appropriate solutions.

Uwe Karl, Head of Airport Solutions, Siemens:



Effective airport security is about striking the right balance between the human element and the contribution to be made by technology. A good example is CCTV where research has shown that after approximately 12 minutes of continuous viewing of two or more monitors, operators can miss up to 45% of scene activity. By employing intelligent software algorithms, potential security threats can be automatically detected and the operator's attention therefore focused on when and where it is needed. Similarly, in emergency situations Command and Control systems can provide personnel with specific instructions to follow, an invaluable asset in ensuring a swift and consistent response which has been thought through outside the stresses of the actual emergency itself. In some instances, complete automation of a process can be achieved, but in the majority it is about recognising the limitations of the human senses and how technology can supplement and, importantly, enhance them.

Georgina Graham, Airports Council International:

Recently I decided to bake a cake! A rare event for me, but nonetheless I was excited about the outcome, wondering what would perfectly complement my Victoria Sponge! My mind was wondering so much that I forgot to add the sugar. The cake still looked like a cake, but until I tasted it, I didn't realise my error. In aviation security terms, the right ingredients are also needed in order to reach the best possible outcomes in terms of detection and deterrence and overall prevention of acts of unlawful interference. Technology, whilst extremely valuable

is not a panacea to all ills. Human factors are considerably important, and I am not convinced that we yet have the correct balance between these two approaches. The aviation security cake needs the right amount of data/intelligence plus detection using technology with more than a dash of human intervention to ensure the safety and security of the air transport system.

Adan Morik, Sales & Marketing Director, I-SEC International Security B.V.:



Companies in today's aviation security industry are presented with increasingly efficient technology resources. For example, screening machines at security checkpoints are becoming more efficient than ever, and there are profiling systems available which are based solely on computer analysis. However, there is one major shortcoming to the efficiency of these technologies: the lack of human interaction. Most screening machines can only detect explosives. Likewise, the latest computer-based profiling systems cannot analyse human behaviour, look into a person's eyes, read their body language, or examine their attitude - they cannot detect intention. In today's threat environment, security providers are becoming increasingly aware of the limitations of these technology resources. Much more needs to be done in terms of further enhancing security systems through the smart integration of technology and human factors. For profiling systems, one way to increase efficiency could be to utilise computer analysis and behavioural observation techniques in order to differentiate passengers based on their profile data. Using this information, security agents would be able to focus their attention on the passengers identified as "high-risk". In the end, no matter how advanced technology resources become, security companies must thrive to create security systems that are the best of both worlds.

Mike Horne, Managing Director, AD Aerospace Ltd.:



Both technology and human factors have a part to play, and the correct use of technology is to enhance and assist with decisions made by people. At AD Aerospace, specialising in security aboard commercial aircraft, we are well aware of the human factors involved, and provide intelligent video camera systems which are used as an everyday tool by the flight crew in their efforts to maintain safety and security in the passenger cabin. Specifically, technology can assist by allowing the flight crew to recognise the cabin crew before allowing them access to the flight deck. The worrying thing to me as a frequent passenger is that on too many aircraft, security is maintained purely by human factors such as "secret knocks" and the use of the interphone and I would like to see the use of technology being universally adopted across the world.

Q: How do you envisage security technology better responding to future threats rather than those of yesteryear?

Clive Beattie, CEO, ThruVision Systems:



Terrorists today are well prepared and well financed, nimble, innovative and ruthless whereas those charged with protecting our safety face challenges – regulations are slow to change, new technologies slow to be adopted. Financial constraints have led to a focus on yesterday's technologies and operations, deploying known technologies at known checkpoints, allowing "hostile reconnaissance" to find ways through or around these checkpoints. We have ceded the advantage to those intent on causing harm. New technologies must look to reclaim this advantage, putting the terrorist on the back foot whilst gaining public acceptance. ThruVision Systems seeks to do this by designing solutions that are safe and non-intrusive but facilitate integrated, covert and mobile operation across multiple layers of security. Governments and security operators must support such new technologies and approaches, ensuring they are brought into use quickly and thereby continue to evolve, proactively not reactively countering the future threats we will face.

Don Zimmerman, Vice President, Innovative Concepts International:



The latest developments in security technology have taken a proactive approach to the new threats in the world. In the past, old-fashioned reactive responses to threats garnered more publicity as they attempted to solve a known issue; however the fact remained that the implementation did not occur until it was forced into place by a significant event. As future threats increase and security remains essential to maintaining the open borders that have been created throughout the world, the need to implement proactive cost effective technology will continue to be of increasing importance. Any technology that can also incorporate sustainable designs and green products will continue to have added significance.

Q: How can the the current airport security checkpoint be improved upon in terms of passenger facilitation, detection capability and security best practice?

Sidney Chau, Executive Director, Aviation Security Company Ltd. (AVSECO):



Overall, the current airport security check point lacks the flair for defence in depth (Deter, Detect, Delay and Response) and is conducted in isolation. To be more effective the security process needs to be integrated with intelligence analysis of personal data collected during the course of ticket purchase. This process, in conjunction with the methods of "profiling" and "Behaviour Pattern Recognition", will enable security staff to identify high-risk passengers from normal passengers. Low-risk passengers requiring minimal security checks could be fast-tracked leaving security resources available to concentrate on passengers who pose a more realistic threat to aircraft/ airport security and improving the whole security process for the majority of passengers who pose no real threat. In order to enhance the efficiency of screeners at check points, in terms of both security standards and passenger facilitation, a number of factors need to be considered. They include whether there is sufficient space at checkpoints; the processes; the system and technology used in support of the security process; as well as a host of human factors and management skills that should be applied to motivate the security personnel.

Chris Grey, Managing Director, Quadratica UK Ltd.:



Airport Security is only as good as the personnel who implement it. This means that each and every member of staff who interact with passengers and/or are responsible in any way for their security must be well motivated. The best way to achieve this is to recognise them as professionals who are well trained and rewarded appropriately for the role they undertake. Organisations need therefore to undertake two simple steps; increase training and ensure that the standards they set are both comprehensive and consistent. In support of this, governments around the world need to encourage these steps by ensuring that all airports adopt identical practices in the processing of passengers and goods through their country's borders. This can be easily achieved by the creation of an international certificate of competence.

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Some of the companies that are aiming to whet our tastebuds with creative, innovative and effective solutions are featured on the pages that follow – might they be the industry leaders?