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CHECKPOINT SECURITY FROM AN OVERALL PERSPECTIVE

In the face of increasing passenger numbers, new regulations and ever evolving threats, airports are constantly challenged to maintain operational efficiency whilst striving to improve security effectiveness. The security checkpoint is a critical point in the passenger journey and the correct strategy here can be pivotal to the broader operation of an airport.

When approaching checkpoint design, installation and maintenance from an overall perspective, consideration is given not only to how the complete system can function smoothly and efficiently, but also how it integrates with the whole kerb to gate experience. Get it right and the result will be high levels of security; a cost effective process; improved on-time performance for airlines; increased passenger satisfaction; and sustainable business growth.

Technical solutions supported by operational analysis should be tailored to meet the specific business and regulatory requirements of each airport. The building blocks (e.g. sensors, baggage handling and management software) may remain constant but there are significant differences in how they can be configured, deployed and operated. Combining the most suitable technical solution with the appropriate processes and fully trained security staff for individual airports delivers both operational and economic benefits.

THREE COMMON GOALS

Despite differences of scale and commercial opportunity, airports typically share three fundamental and interdependent

objectives: effective, compliant security; operational efficiency; and a good passenger experience. They also have underlying challenges in common: physical environment, traveller profiles, passenger peaks and staffing levels.

Solutions developed from an overall perspective are generally supported with a business case which considers operational performance data; cost; and business and regulatory obligations. This enables the use of current performance analysis and future performance modelling to identify efficiencies at task level and assess the effect of changes to staffing, processes and deployed technology.

Solutions that represent the highest level of security standards for today and tomorrow. Always in line with regulatory requirements.

Striving for productivity, increased throughput, reduced costs is a key contributor to optimum operational efficiency.

Reduced queuing times and a streamlined screening for a pleasant, smoother and faster inspection process for the travelling public.

EFFECTIVE SECURITY

Optimum, compliant security for any given airport is a complex balance of various factors such as the deployment of different certified technologies and their detection performance; images per person (IPP); analysis time; false alarm rates; alarm resolution methods; as well as measuring and improving operator performance.

The likely impact of the new equipment standards developed in Europe is particularly topical. Each of the EDS CB C1, C2 and C3 standards will have different implications and suitability and their use will also be subject to specific national authority guidelines. Airports will be able to make the different trade-offs between cost complexity and efficiency to develop the most appropriate, individual solution. For example, EDS CB C3 certified equipment will feature the very latest CT technology and provide a fully automated process which potentially puts an end to the removal of electronic devices and liquids from hand baggage at the security checkpoint. Although airport trials have demonstrated that CT technology can reduce the IPP to between 1.5 and 2.5 depending on the time of year, throughput benefits may not be realised if the CT equipment is operating at a slower belt speed than currently deployed machines.

Operators of conventional X-ray systems take approximately 5-7 seconds to analyse an image. CT technology produces 3D images, which are more complex and analysis may take longer but it does support the option for centralised screening by multiple personnel, which enables higher throughput of images. Operators are based in a remote location and calm environment where decisions can be made without the distractions of a busy checkpoint. Networked images are collected from all security lanes and delivered to the next available operator who chooses to send the tray through to the passenger or automatically divert it to a bag search point.

False alarms trigger additional security measures which can prove extremely disruptive in a busy airport and therefore a low false alarm rate is more important to some operators than others. Where fast throughput is essential, it is important to not only have a high speed belt, but also to ensure that the screening equipment receives a steady flow of trays. Which leads us to operational efficiency...

OPERATIONAL EFFICIENCY

Productivity; increased throughput; reduced costs; and a boost to airport retail revenue are the measures and benefits of optimum operational efficiency. Proficient screening, for instance, increases throughput and reduces the number of required secondary checks; and when further investigation is needed, the system will support a directed search by indicating the exact spot (in the baggage, or on the person) where the image appears suspicious. In turn, staff productivity is increased; and the screening cost per head is reduced. Control of the process can be improved through system networking; effective connectivity; and the use of remote, central screening.

Achieving higher levels of operational efficiency requires a review of the existing lane design and components; the process used to gain optimal performance; and also the people operating the checkpoint - a well-managed and motivated team is essential.
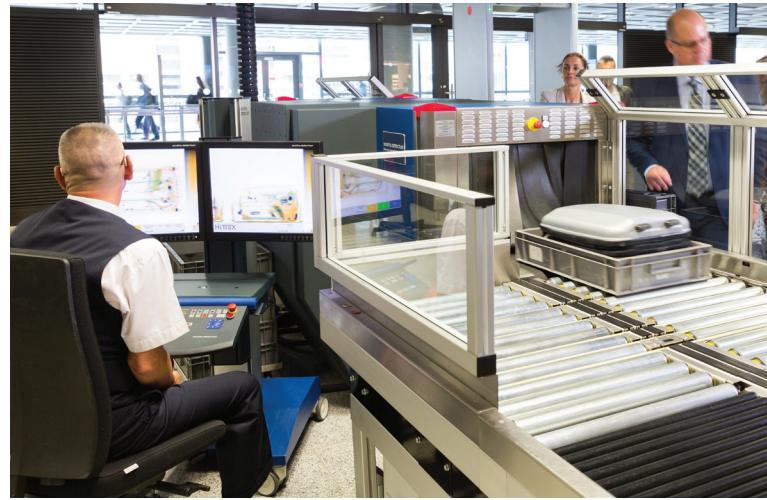
In a conventional lane, the loader is positioned to ensure bags are separated on entry to the X-ray equipment but technology has transformed this role by automating the spacing between trays. Now, the loader is much more focused on getting passengers ready and supporting them through the divestment process. New designs provide the facility for several people simultaneously to prepare and feed their trays into the lane; and also space to reorganise themselves and their belongings at the other end of the checkpoint. These developments make customer service even more important as people need to understand exactly what to do: the result is less time spent at the checkpoint and a better passenger experience. Automatic tray return also helps streamline the process.

A faster, simpler screening process with shorter queues and fewer trays is sure to please the travelling public and happy relaxed passengers moving quickly through the checkpoints have more time and are more likely to spend money airside – according to an ACI Research Report, when passengers perceive an improvement in the quality of service experience, it results in a more than proportional growth of the airport's non-aeronautical revenue (NAR).*

A GOOD PASSENGER EXPERIENCE

Larger airports focus on reducing costs by increasing operational efficiency; and building revenue by improving the passenger experience. A short time in security means most of the time spent in the airport is free time, providing excellent potential to grow retail business. Those airports with fewer retail opportunities still share similar objectives and challenges in terms of efficiency and customer service.

The security checkpoint is an essential but often frustrating stage for the travelling public – improving things here can have a very positive impact on how passengers view the total airport experience. Queuing times, the nature of the screening process itself and interaction with staff are all key factors.

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Queuing is affected by a combination of lane throughput speed and the capacity of the screening point in relation to the number of passengers. In order to achieve an acceptable queue time, the checkpoint should be able to handle volumes which exceed predicted peak levels. The capabilities of the checkpoint and the potential throughput can be demonstrated through modelling – which in turn can help avoid queues during busy periods by supporting the opening of lanes and allocation of screening staff.

Although the checkpoint is a key stage in the journey through the airport, the passenger experience does, of course, extend to other process points such as check-in, immigration and boarding gates.

It is now possible to measure the performance of each of these areas to better inform decisions on capacity.

THE OVERALL APPROACH IN ACTION

Some forward-thinking airports have already taken the overall view in re-designing their checkpoints. In Amsterdam, for example, the Schiphol Security Experience combines efficiency with meticulous security measures and passenger experience to deliver security as a service.

With up to three passengers preparing at the same time, the queue moves faster and using identification chips, operators quickly pinpoint which trays need a closer look. If a manual check is required, the tray is automatically sent to a separate belt, which remains visible to the owner. Once cleared, there is a dedicated area for passengers to sort out clothing and bags. Consequently, the process is calmer and more streamlined.

As part of a new terminal extension, Bristol Airport in the UK has significantly enlarged its security search area in order to deliver a faster, more efficient service for departing passengers - and completely transform the checkpoint security process. The facilities include 10 checkpoint lanes plus two dedicated Fast Track zones as well as a preparation area for people to get their belongings ready for screening. An automated tray return system with extended conveyor belts provides smooth progress through metal detectors, X-rays and security scanners as required. The blend of design, space management and new technology aims to deliver an industry-leading passenger experience.

AND FOR THE FUTURE...

Future objectives do, of course, focus on creating an environment where everyone is checked and screened quickly with minimum inconvenience and within a process which operates at optimum efficiency. Development and testing of the next generation of systems is already underway with risk based security at the centre of emerging concepts.

Using screening technologies which focus on aviation's primary threats combined with risk assessment of passengers and their travel characteristics, the checkpoint becomes more flexible. Behavioural analysis is already regularly used to identify people of particular concern. Biometric identifiers may also become much more widely deployed.

The vision behind the Smart Security programme (joint IATA and ACI initiative) is a continuous journey from kerb to airside; where passengers proceed through security with minimal inconvenience; security resources are allocated based on risk; and airport facilities can be optimised. This could, in theory, lead to a document-free environment where passengers are recognised as they enter the airport and receive their individual flight information automatically on arrival.

With risk based concepts, technologies and processes advancing at such an impressive rate, we can begin to look forward to a radical transformation in air travel.

*Source: Does passenger satisfaction increase airport non-aeronautical revenues? Airports International Council 2016 Research Report.