Keeping passengers in safe hands

Israel's Ben Gurion leads the way in multilayered airport security

It is fair to say that few airports in the world are more conscious of security than Ben Gurion in Tel Aviv, given the geopolitical situation in the Middle East. Yet there have been no serious terrorist incidents for more than 30 years, leading some observers to rank the airport among the most secure in the world.

Four years ago Ben Gurion moved its passenger facilities to a new terminal building and last year in excess of 11 million passengers passed through its gates.

The Israel Airports Authority (IAA) is the ultimate governing body of the airport, controlling all security and operational activity, working in conjunction with the Israel Security Agency and the National Police.

This alleviates inter-agency conflict, as decisions are made by one indisputable authority that can respond instantly to any threats.

"An event such as 11 September [9/11] cannot be stopped by technology alone," says Nahum Liss, head of the planning control and projects department in the security division at Ben Gurion. "We believe in predicting and identifying the intention of the passenger who may present a threat, so an attack like 9/11 happening in Israel would be extremely unlikely owing to the multilayered system of security".

After the attack on Ben Gurion's passenger terminal in May 1972 by Japanese Red Army terrorists – known as the Koso Okamoto event – in which three of their members killed 24 people and injured 80, it was realised that more attention should be given to the protection of the airport and its perimeter.

In the aftermath of the 11 September attacks, most countries paid particular attention to baggage screening, to the exclusion of protection of the airport itself and the people in it.

Explaining the security concept behind the intricate workings of the security apparatus to *Jane's*, Liss says: "The goal of Ben Gurion's comprehensive programme is to prevent the ability of anyone to present a threat. Compared to other airports which are based mainly on classical police work, we believe in the preventative and proactive

Israel Airports Authority: 1298887

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▌Exterior view of Ben Gurion Airport.

▌Passenger concourse, Ben Gurion Airport. Security at the Israeli hub is based on a multilayered approach.

approach. That means that we build our security measures focusing on prevention and reacting immediately in order to minimize any damage. Every mission starts with the emphasis on the prevention of any possible incident".

The concept is based on a multilayered approach comprising several "security circles", beginning with the entrance to the airport. Visitors arriving by car or as pedestrians can access the facility using only two entrances, each with heavily armed checkpoints.

All incoming traffic is screened by mounted cameras in every lane which capture the licence plate numbers of every car entering the airport using

licence plate recognition technology. The images are transferred instantly to the online data base of the Israel Police and checked against a black list of stolen cars, or vehicles that may have been involved in any terrorist activity. An alarm will be sounded in the event of a match being identified.

Passengers are subject to screening by security personnel at the gates who, based on their professional skills and experience, will decide whether to let a car continue into the airport area. In the event of a decision to check a car it could take more than an hour as the vehicle is checked as a platform for explosives and weapons. In addition, the driver and passengers may be subjected to a body search, and have their luggage screened using detector equipment. In certain cases sniffer dogs will also be used.

In the terminal building the passenger undergoes a characterisation or profiling process during which security staff will check travel documents and ask specific questions relating to the packing of suitcases and where the passenger travelled to the airport from. Based on the passenger's response and behaviour, and the assessment of travel documents,

the security employee will determine the level of threat that the passenger represents.

On completion of the characterisation process, the passenger's luggage is checked in and sent automatically to the HBS baggage screening system. Simultaneously, the security employee will transmit the level of threat to the system which will determine the thoroughness of the check. According to Liss this integration between characterisation and baggage check is unique to Ben Gurion.

Later this year a pilot project will be conducted incorporating automatic detection of explosives into the system.

Liss revealed that in the near future the IAA plans to change to a very advanced process whereby a passenger, on meeting a security employee, will be identified by biometric technologies. From the moment passengers

'The goal of Ben Gurion's programme is to prevent the ability of anyone to present a threat'

check-in, they will be able to be traced until they board the aircraft

The primary strength of the concept lies behind a unified command and control system. Responsibility for the entire security of the airport is under one body, unlike most airports in the US and EU where there can be several bodies responsible for security at one time and very little interaction.

The command and control centre manages everything relating to security in the entire area of the airport. On every shift there is a duty security manager who has the authority to close the airport and prevent an aircraft from taking off or landing in the event of an emergency because timing is critical. All of the security systems are integrated into this command centre.

Liss emphasised that in order to maintain the alert level of this huge array of apparatus and

personnel, constant quality control checks are executed by organising drills and exercises. Every shift sees a few exercises carried out where the employees are tested for their alertness and level of professionalism. Major drills are also carried out where incidents are staged to test readiness.

Innovative technology

"In order to attain your security goals you must have an overall strategy. There must be integration between infrastructure, technology, manpower and regulation, a unified central command and constant quality control," said Liss.

Among the advanced future technologies to be deployed for observation and interception is the Guardium unmanned security vehicle, which has been tested primarily to patrol the perimeter fence that is pre-programmed from the database. Guardium has the ability to move independently and relays any suspicious image to the command centre.

Another innovative technology is a surveillance and observation system that is used to prevent any

Behaviour pattern recognition techniques help to identity suspects

Israeli company Suspect Detection Systems Ltd (SDS), based in Tel Aviv, has developed a system called Cogito 1002 for identifying hostile intent by behaviour pattern analysis.

Shabtai Shoval, chief executive officer of SDS, developed the system with former Israeli intelligence officials, polygraph experts and computer-science academics.

Cogito is an automated interrogation system which enables the rapid investigation of individuals to determine who may represent a threat, with the assumption that all criminal behaviour has a common factor: fear of being caught.

On the basis of this assumption, SDS developed a system in which a machine is programmed to detect hostile intent on the basis of a subject's biometric responses.

With a fixed installation of Cogito, a passenger enters an oval booth, swipes their passport, dons a set of headphones, and places a hand inside a sensor that monitors biometric responses (blood pressure, heart rate/pulse, and sweat levels) answering 15-20 questions on a touchscreen.

Factors such as the subject's gender, age and nationality determine which questions are asked. The process takes approximately five minutes; suspects identified on the basis of behaviour are sent for more thorough questioning by security personnel. SDS has also developed a mobile variant of Cogito.

Since the start of a pilot scheme in the US at Knoxville McGhee Tyson Airport in Tennessee, several improvements have been carried out including software for 160 languages and remote operation of the unit from the US to units in other countries.

■ In its stationary configuration, passengers using the Cogito behaviour pattern recognition system enter an oval booth.

■ The subject puts on a pair of headphones and places a hand inside a sensor that monitors biometric responses (pictured is a mobile variant of Cogito).

▮ Vehicles entering Ben Gurion Airport must first pass through a vehicle checkpoint.

Israel Airports Authority: 1298886

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▮ Passenger security checkpoint, Ben Gurion Airport.

attempt to get close to the airport's perimeter fences. One of the components of this system are long-range day/night cameras integrated with alarms from the intrusion sensors. Information about suspicious figures will be relayed online to the command and control centre. Computerised simulations are carried out in order to evaluate potential attacks as well as to evaluate and enhance the security program.

Liss points out: "Ben Gurion Airport has been placed among the leading airports in the world reaching first place in the Mediterranean region, and second place in the world in medium size airports for the second year in a row. Those ACI Awards were granted for high standards of passenger services on one hand and high level of security on the other. This emphasises the fact that a high level of security can be maintained with a high level of passenger service."

Lessons to be learned

What can other airports in the world learn from the way Ben Gurion manages airport security?

Rafi Ron, chief executive officer of United States-based New Age Security Solutions (NASS – a subsidiary of Swissport International), previously served as director of security at Ben Gurion from 1997-2001.

He tells *Jane's* that airports in the US suffer from several shortcomings: lack of perimeter protection; no unified command; too much attention to
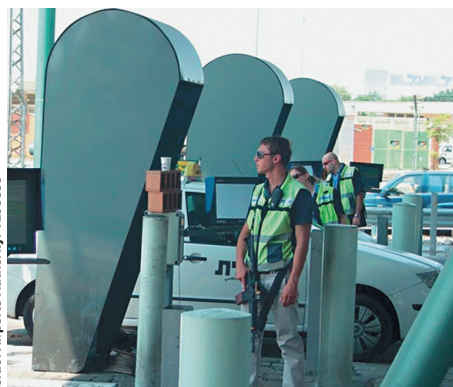
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▮ Armed security guards at a vehicle checkpoint outside Ben Gurion Airport. Visitors can access the facility using only two entrances, each with heavily armed checkpoints.

baggage screening rather than focusing on people; and no single security programme.

Ron points out the main weakness of technology as a sole means of combating terrorism. "Technology can only do what we tell it to do. We are limited in being able to give instructions to a machine. The machine can only detect things and nothing else."

Immediately after the 11 September attack, Ron was hired by Massport (Massachusetts Port Authority) to mastermind the security turnaround at Boston's Logan Airport, an achievement that was widely recognised by the Federal Government and the aviation industry.

Since then, his company has worked with otherairports including Bangkok, Glasgow, Houston, London Heathrow, Miami and San Francisco.

Since NASS began working with Boston Logan, a more advanced security system has been installed which is more comprehensive than other airports in the US.

Passengers are scrutinised as the main source of threat using Behaviour Pattern Recognition (BPR), a variation of the version used at Ben Gurion. Logan has also adopted Ben Gurion's system of multi-layered security, including random vehicle checks on routes approaching the airport.

BPR was introduced to Boston Logan about seven years ago. "We created this programme based on observing behaviour and detecting suspicious behaviour. It helps the user of the programme to identify a threat at an early stage," says Ron.

The programme uses primarily security personnel and law enforcement officers as the backbone, but also includes other airport employees at different levels of training with the idea that they are looking for passengers displaying irregular behaviour.

Ron says that they know the patterns better than the police. "The janitor of the restrooms knows what normal behaviour in rest rooms is more than anyone else. This is part of the whole concept."

Joe Charlaff ▮