

出國報告（出國類別：會議）

第23次國際機場協會亞太區營運安全委員會議 一因公出國報告書

服務機關：桃園國際機場股份有限公司

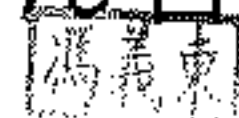
姓名職稱：陳彥任 營運安全處科長

馮義東 營運控制中心值班主任

派赴國家/地區：印度、新加坡

出國期間：107年11月13日至11月17日

報告日期：108年1月10日



提要表

系統識別號：	C10703099																						
相關專案：	無																						
計畫名稱：	出席第 23 次國際機場協會亞太區營運安全委員會議																						
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計畫主辦機關：	桃園國際機場股份有限公司																						
出國人員：	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 15%;">姓名</th> <th style="width: 15%;">服務機關</th> <th style="width: 15%;">服務單位</th> <th style="width: 15%;">職稱</th> <th style="width: 15%;">官職等</th> <th style="width: 25%;">E-MAIL 信箱</th> </tr> </thead> <tbody> <tr> <td>陳彥任</td> <td>桃園國際機場股份有限公司</td> <td>營運安全處</td> <td>資深業務員兼科長</td> <td></td> <td></td> </tr> <tr> <td>馮義東</td> <td>桃園國際機場股份有限公司</td> <td>營運安全處</td> <td>資深事務員兼任值班主任</td> <td></td> <td>聯絡人： judelaw@mail.taoyuan-airport.com</td> </tr> </tbody> </table>					姓名	服務機關	服務單位	職稱	官職等	E-MAIL 信箱	陳彥任	桃園國際機場股份有限公司	營運安全處	資深業務員兼科長			馮義東	桃園國際機場股份有限公司	營運安全處	資深事務員兼任值班主任		聯絡人： judelaw@mail.taoyuan-airport.com
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前往地區：	印度																						
參訪機關：	印度海德拉巴市，新加坡樟宜機場																						
出國類別：	開會																						
出國期間：	民國 107 年 11 月 13 日 至 民國 107 年 11 月 17 日																						
報告日期：	民國 108 年 01 月 14 日																						
關鍵詞：	航空保安，內部威脅，數位安全																						
報告書頁數：	36 頁																						
報告內容摘要：	<p>Airports Council International(ACI) Regional Aviation Security Committee (RASC)亞太區域保安會議，主要將亞太區各機場現狀及未來發展規劃作心得交換，特別是在保安議題上，各機場將所面臨的問題提出，在會議間討論徵詢其他機場的經驗或意見，由不同的角度審視現狀的瓶頸，俾利尋求適當的解決之道，促使機場在營運上更具國際觀。本次除參與亞太區保安會議外，更利用轉機之便參訪了新加坡樟宜機場 AOC，主要係瞭解 AOC 值班平日作業狀況，還有學習 AOC 團隊如何利用系統及軟體協助優化機場營運管理，倘若緊急事件發生應該如何應變及啟動，甚至機場團隊的指揮主導角色該由誰擔任。</p>																						
電子全文檔：																							
附件檔：																							
限閱與否：	否																						
專責人員姓名：	劉婉珍																						
專責人員電話：	03-2733836																						

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壹、目的

本機場於 2015 年開始以保安委員身分參與會議，其目的在於透過國際會議增進同業交流，並保持國際間機場管理高層之友好狀況。

飛航中最根本也最重要的一個元素就是一安全，「保安」並非侷限當地國家法令，由起飛地開始，航空器所能運載之行李內容物、乘客身份的查驗、轉機查驗、再到目的地落地後驗證入關，其流程都是在確保飛航的安全。國際機場協會 (ACI) 的保安會議，就是在偕同各機場促進落實飛安，確保每一位旅客擁有更好的飛行旅程。本次與會蒐集各國機場在營運資訊及發展趨勢，在會中也進行修訂協會之保安文件或工作內容及操作手冊，藉由此舉我們不只能增進國際觀，更得以反思本機場的保安計畫是否有需再修訂或加強之處。

本次出國除與會第 23 次亞太區航空保安委員會外，另有順道參訪新加坡樟宜機場 AOC，參考平日值班作業狀況及人力配置，並學習 AOC 團隊如何利用系統及軟體協助優化機場營運管理，同時請益樟宜機場若遇緊急事件發生應該如何應變及啟動，機場團隊的指揮主導角色該由誰擔任，如何串起溝通及協調的機制。

貳、行程規劃

會議時間及與會人員

(一) 會議時間

日期 行程概述

日期	行程概述
107.11.13	搭機前往印度(會議地點海德拉巴-諾富特酒店)
107.11.14	出席 ACI 亞太區保安會議
107.11.15	出席 ACI 亞太區保安會議
107.11.16	於新加坡樟宜機場轉機順道參訪該機場 (主要參訪 AOC 及相關保安及緊急應變之處理)
107.11.17	離開新加坡樟宜機場搭機回台灣

(二) 與會人員名單

陳彥任 營運安全處 兼任科長

馮義東 營運安全處 兼任值班主任

參、國際機場協會

國際機場協會 Airports Council International 簡稱:ACI 乃全球機場交流貿易組織協會，透過機場間的相互合作，為所有機場獲取共同利益，並協同各國政府和國際組織議定開發標準、政策及建議，且提供資訊、行業知識、諮詢和援助，促進專業的機場管理與運作，其目的宗旨是運用 ACI 之功能和資源，提升世界各地航空業服務水準。截至 2017 年 ACI 擁有 573 名成員，在 174 個國家和地區營運 1751 座機場，佔全球機場交通量總額逾 95%。ACI 在全球共有五大區域 ACI Africa (Casablanca, Morocco) 、ACI Asia-Pacific (Hong Kong, China) 、ACI Europe (Brussels, Belgium) 、ACI Latin America-Caribbean (Panama City, Panama) 、ACI North America (Washington, DC, USA) ，ACI Asia-Pacific 亞太區國際機場協會為其中之一區，亞太國際機場理事會總部設在香港，有 108 個代表成員，在亞太地區和中東地區的 48 個國家/地區營運著 587 個機場，2017 年 ACI 亞太區機場旅運量達 34 億人次、5630 萬噸貨物，由此可見協會之重要性。



肆、保安委員會會議簡介：

區域航空保安委員會(RASC ; Regional Aviation Security Committee , 以下簡稱區域保安會) , 每年召集兩次會議 , 本次會議為第 23 次會議。

區域保安會(RSAC)需派代表至世界保安會(WSSC)開會更新各該區域保安辦理情形 , 會後並回各區域轉達世界保安會的最新決議。

本公司為 ACI 亞太區委員之一 , 係以委員身份出席參加該區域保安會議 , 此次會議於 2018 年 11 月 14 日至 15 日於印度海德拉巴市諾富特酒店召開。茲簡介委員會名單如下：

Item 3: RASC Membership Update

- Chair : Alan Tan (Changi)
- Vice-Chair : Philip Bamber (Doha)
- Ashwani Kaul (Delhi)
- Buti Ahmed Qurwash (Dubai)
- Chi-Ming Huang (Taoyuan)
- Daisuke Komine (Kansai) **New**
- Dominic Yu (Hong Kong)
- Duaiji AlKowari (Bahrain)
- Ehsan Rezasoltani (Iran)
- Emma Boulby (Adelaide)
- Ibrahim Ali Alsaggaf (Saudi Arabia)
- Jonathan Lee (Incheon)
- José Mendes (Yangon) **New**
- Kidong Yun (KAC, Korea)
- Mohamed Rameez (Maldives)
- Raj K Malik (AA India)
- Stephen Goodwin (Brisbane)
- Suksri Luangaram (Thailand)
- Tak Y. Achiwa (Narita)
- Tony Sewell (Perth) **New**
- Zheng Tian (Beijing)

伍、會議議程

Day 1 – Wednesday, 14 November 2018

Morning Session			
09:00 ~ 12:30	1	Opening and Welcome.	
	2	Membership Update.	
	3	Approval of Meeting Agenda	
	4	Approval of Minutes of the 22nd RASC Meeting	
	5	Latest Developments at ICAO.	Discuss <ul style="list-style-type: none"> ● Global & Regional Threats Overview: ● Global Aviation Security Plan (GASeP) ● Amendment 16 to Annex 17 ● ACI's Advocacy to ICAO
	6	Update on ACI's Security Initiatives	<ul style="list-style-type: none"> ● APEX in Security ● Smart Security
	7	Discussion on Security Culture	Security culture
Lunch			
Afternoon Session			
14:00 ~ 17:00	8	Discussion on Future Working Group Topics	
	9	RASC Working Group	<ul style="list-style-type: none"> ● Insider Threat ● Cybersecurity
19:00 ~ 21:00	10	Committee Dinner (Venue: Novotel Hyderabad Airport @ Shamshabad Ballroom.)	

Day 2 – Thursday, 15 November 2018

Morning Session			
8:45	11	Guest Presentation	Mr. Shri Kumar Rajesh Chandra, Director General, Bureau of Civil Aviation Security (BCAS), Government of India will be invited.
~			
12:30	12	Report back from Working Groups	report on the results
	13	Regional Update	
	14	Meeting Conclusions	
	15	Next Meeting and Closing	announce the date and meeting location for the next (24th) RASC meeting
Lunch			
Afternoon Session			
14:30	16	Airport Tour hosted by Rajiv Gandhi Hyderabad International Airport	
16:30			

陸、本次區域保安會議主要內容：

(一)、亞太區威脅因子提示：

2017-2018 年航空業遭受攻擊威脅因子分析

The Improvised Explosive Device (IED)與往年一樣維持在高風險區塊，主因是容易取得且殺傷力大，在恐怖主義或政治左派行動中，常拿來做特定議題的訴求，其目的就是要獲取國際的注意及重視。

Chemical, Biological, and Radiological (CBR)雖然取得不易且在操作上需要專業知識，但近隨著中東地區戰士頻繁又礙於飛行器內對於生化攻擊準備不足、飛行過程中無法完全取得救援，所以本次保安會將 CBR 提升至中等威脅，並請協會機場加強查驗，並提高對核生化物的安檢標準，特別是不明容器所裝填之液體、氣體等。

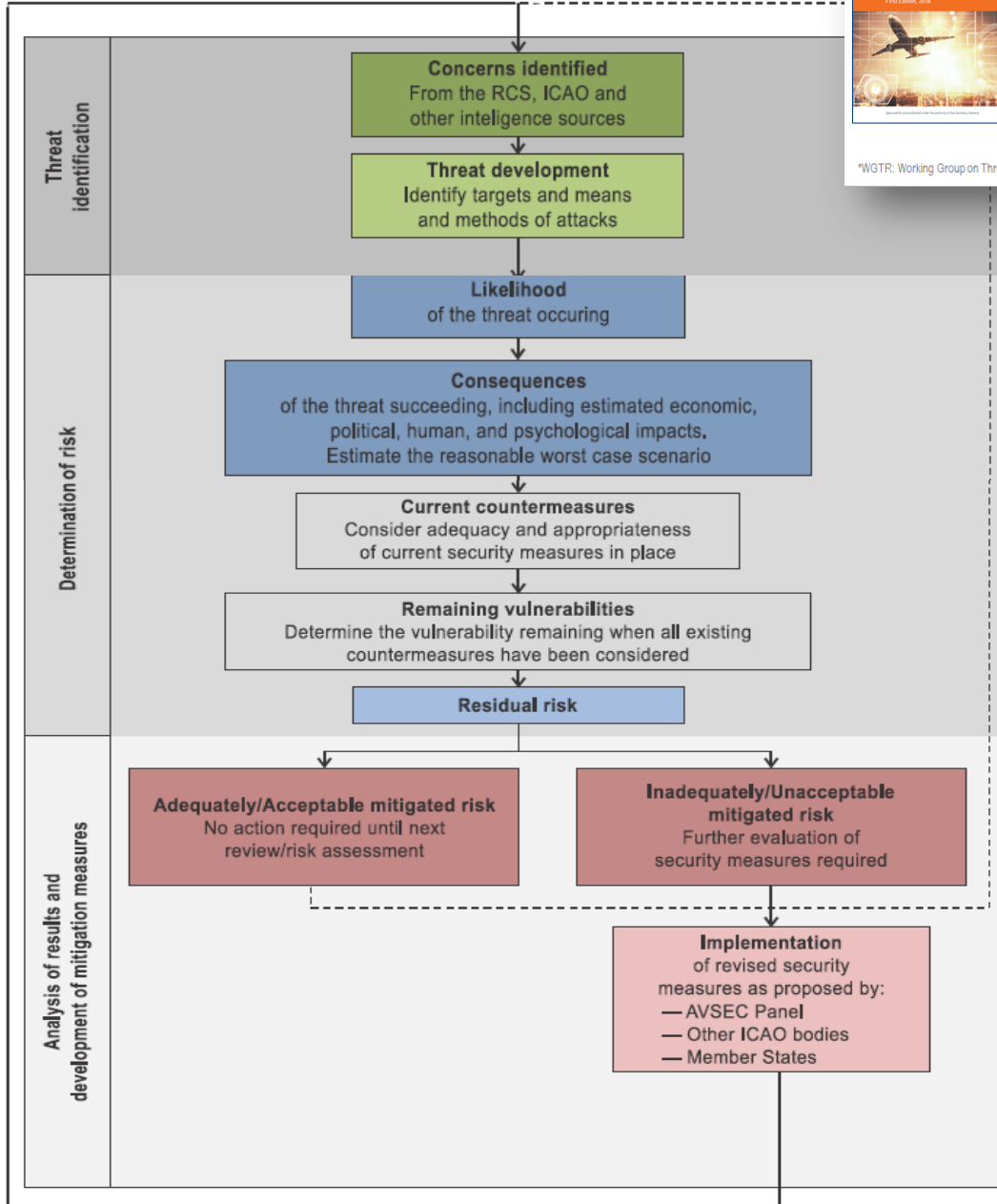


Threat Type	2017 (6 th ed.)	2018 (7 th ed.)	Change
Person-delivered IED (on the body or in cabin baggage)	High	High	→
Landside Attacks	Medium High	Medium High	→
MANPADS (in conflict or proliferation zone)	Medium High	Medium High	→
IED in cargo	Medium High	Medium High	→
IED in hold baggage	Medium	Medium	→
Vehicle-borne IED	Medium	Medium	→
Aircraft used as a weapon	Medium	Medium	→
Conventional hi-jack	Medium	Medium	→
Chemical, biological, and radiological threats	Low	Medium	↑
IED in services (catering, in-flight supplies, etc.)	Medium-Low	Medium-Low	→
Attack using RPAS (on aviation targets)	Medium-Low	Medium-Low	→
MANPADS (non-conflict or proliferation zone)	Medium-Low	Medium-Low	→
Cyber attacks	Low	Low	→

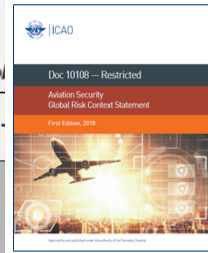
有關 ICAO 的威脅風險評估的方式及程序步驟

A-2

Aviation Security Glo



ICAO Risk Context Statement



- Updated regularly by WGTR* of AVSEC Panel
- Provide global risk picture
- Standard Methodology for Risk Assessment
- 1st edition in 2011
- 7th edition in 2018 (latest)

*WGTR: Working Group on Threat and Risk

(二)、ICAO Update：

全球航空保安計畫(Global Aviation Security Plan)

GASeP 計畫產生之背景：

航空運輸產業在世界經濟體扮演一相當重要的角色，預計到 2030 年，每年國際航空客運量將從現今的 33 億人次增加到 60 億人次，而空運貨物也將從 5000 萬噸增加到 1.25 億噸，未來空中交通將大幅增加，因應如此國際、區域和國家層面建立制度與框架，確保航空產業達到有效的管理且穩定的成長。固然可見，航空產業乃是許多國家經濟進步和發展的關鍵推動因素。因此聯合國（UN）安理會第 2309 號決議強調：顧及現今的威脅和風險環境，航空保安乃是各國和全球國際社會的最高優先事項，又在 2016 年 9 月通過的航空保安（UNSCR 2309）呼籲國際民航組織，各國及其他之利害關係人，都應遵守其與航空保安有關的條約義務和國際責任，及國際民航組織大會第 A39-18 號決議。ICAO 為了提高全球航空安全，且有效持續的改進航空保安相關措施，於是推展了 GASeP。

GASeP 以五項要素為整體計畫之主要發展目標：

- a) 提高風險意識和響應。
- b) 發展安全文化和人的能力。
- c) 改善技術資源並促進創新。
- d) 加強監督和質量保證。
- e) 加強合作和支持。

因此 GASeP 取代了國際民航組織(ICAO)的綜合航空保安策略（ICASS），藉由國際商定之優先行動及目標，彌足各國及相關航空領域的行業在航空保安上的指導需求。依據 GASeP 制定內容要求：全球、區域和國家各級，以及行業和所有利害關係人，應提高 17 號附約的實施水準，而該計畫也須因應時事需要而進行定期審查和調整。

亞太區保安委員會會議給予 ICAO 對於 GASeP 的回應

經委員會多次討論，仍然對於 ICAO 所推行的 GASeP 有所質疑，多數會員認為該計畫只談論“為什麼要實行”，但卻在實行細節及執行程序上沒有可依循的內容，且在各項計畫方針缺少效益評估分析，委員會將摘整各委員的意見進行反映。



(三)、有關 ICAO Annex 17 修訂部份

本次委員會依據第 16 次 ICAO 修訂 Annex 17 之相關條文作回朔，並依生效後的內容進行宣告。

Security Information Sharing (New 3.1.3 bis)

- States to share information to airports for risk assessment.

Explosives Detection (New 4.4.1bis)

- Capable to detect explosives and explosive devices for pax and cabin baggage (unpredictable, if not continuous).

Supply Chain Security (Amended 4.6.6 & 4.6.7)

- Secure supply chain as an option for screening merchandise/supplies.

Cyber-security (New 3.1.3 bis)

- Identify critical ICT systems and data, and implement measures to protect them.

Incident Reporting (New 5.1.6)

- Define a process for reporting security incidents.

委員會討論認為，因地區機場所面臨的威脅風險程度不同，所以保安上所要面臨的挑戰也會有所差異，既然這些基準並非完全一致，所以在保安執行重點也會有所不同(雖然在國際上相關的保安指導文件，所要求的結果都是一致的—飛航安全)，因此對於各機場的實施要點，仍須符合該區所面臨的情勢而定。

未來在第 17 次修訂 Annex 17 內容，將針對 4.2.6 進行修訂，而其他有關內部威脅等相關議題，都將在未來作為溝通反映的主要內容，如下圖所示：

Proposed amended Standard in Amendment 17 (4.2.6)

.....shall ensure that **persons other than passengers**, together with items carried, **are screened** prior to entry into a security restricted area.

Recent Amendments to Annex 17

Amendment	Applicable Date	New Standards
14	Nov 2014	<ul style="list-style-type: none"> • Cargo and Mail Screening
15	Aug 2017	<ul style="list-style-type: none"> • Landside Security • MANPADS • Threat Assessment
16	Nov 2018	<ul style="list-style-type: none"> • Security Information Sharing • Explosive Detection • Supply Chain Security • Cybersecurity • Incident Reporting
17	End of 2020?	<ul style="list-style-type: none"> • Insider threat

(四)、2018 年國際機場協會(ACI)在國際民航組織(ICAO)主要

提倡的四項討論議題：

- 機場供應鏈的安檢
- 禁止攜帶的限運物品
- 內部威脅議題
- 邊境的安全及航空保安

ACI World Advocacy to ICAO in 2018

Airport Supplies

- Effective known supplier process
- More effective than screening. Not practical to screen all supplies

Prohibited Item List (PIL)

- PIL should be risk-based. But very outdated now
- Should develop review mechanism
- Hard to remove items. Can consider de-escalate the risk of some items

Insider Threat

- Outcome-focus approach

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ACI World Advocacy to ICAO in 2018

Boarder Security and Aviation Security

- Airport is platform to conduct
 - acts of unlawful interference
 - crime
 - trafficking (wildlife or human)
- Duplicated efforts by multiple agencies
- Paper is to promote multi-agency partnership
 - Customs
 - law enforcement
 - Immigration
 - Security

- 2019 年將持續關注更有效率的達到保安要求

What to Advocate to ICAO (regional) Next Year?

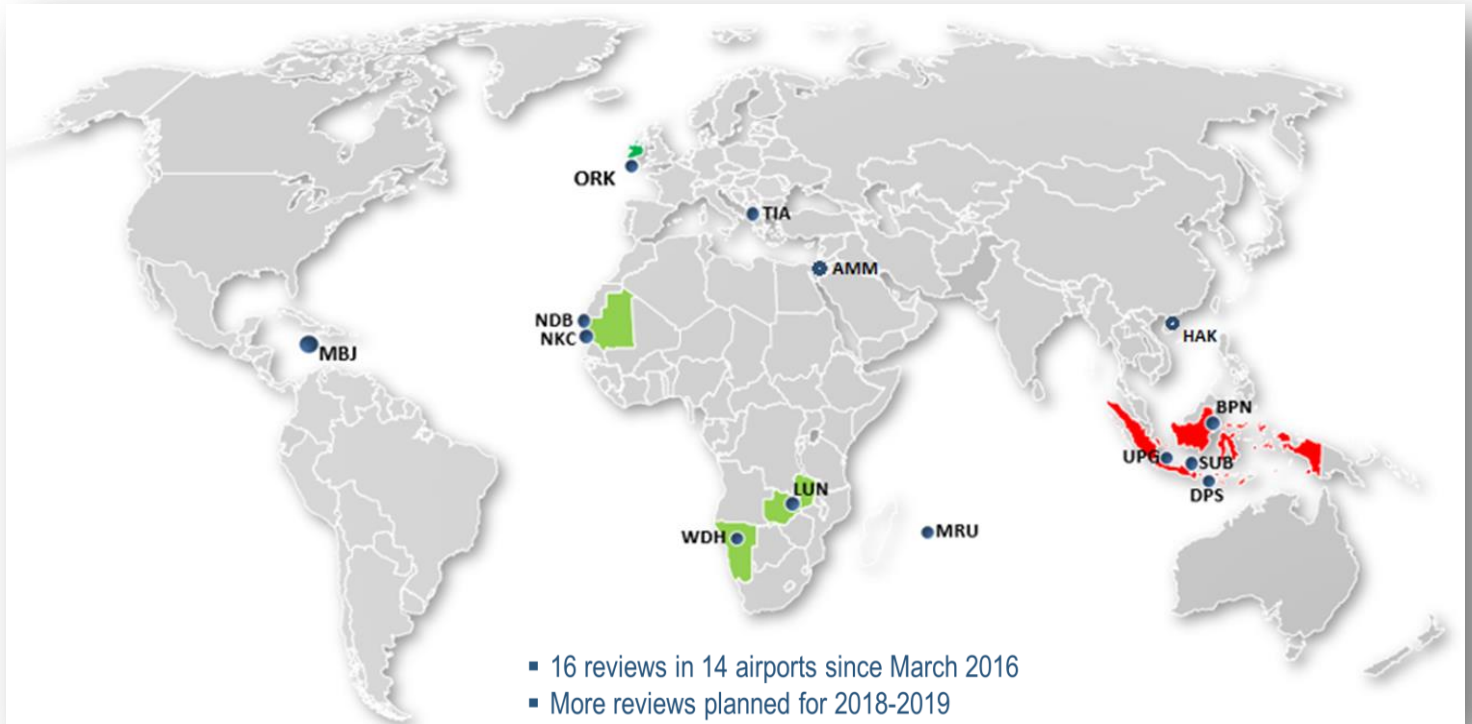
Next year (2019)

- Effective and efficient approach to security
 - Risk-based
 - Outcome focus
 - Balance of cost and benefits

(五)、ACI 提倡 APEX in Security 及 Smart Security

為促使旅客能擁有更好的機場體驗，國際機場協會(ACI)仍持續推行 APEX in Security 及 Smart Security。

APEX 實施情況：

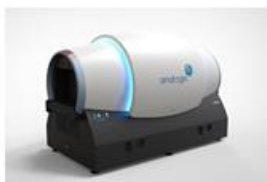


Smart Security 短期仍著重於設備的改善，而長期發展著重整體環境營造，著重由人因來優化整體建築設計提升機場品質。

Short-term Focuses on Implementation

Pax & Cabin Baggage Screening Technology

- Body Scanner
- Computed Tomography (CT) Scanner



Long-term Focuses on Future Concept

Human Factor & Risk-based Differentiated Screening



- Differentiation of high or low risk passengers
- Dynamic staffing models
- Passenger behavior detection

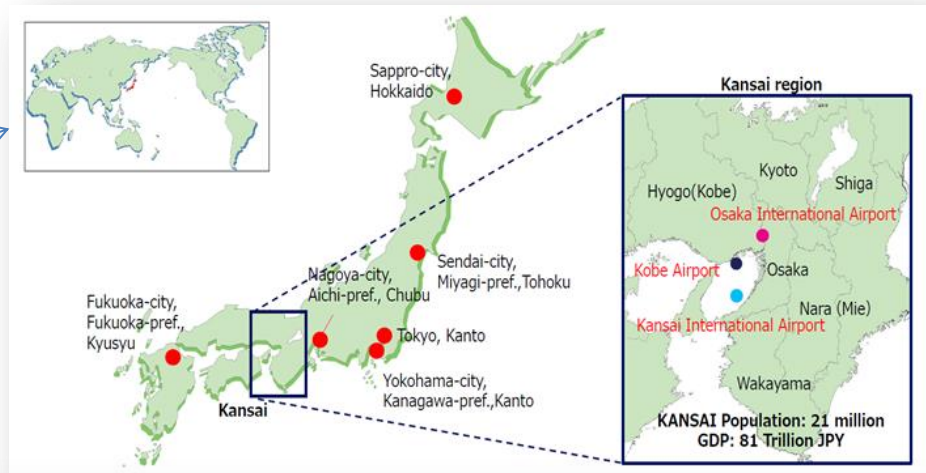
(六)、RASC 工作小組討論

本次會議仍延續第 22 次保安會議中修訂的指導文件(Insider Threat、Cyber-security)進行討論。

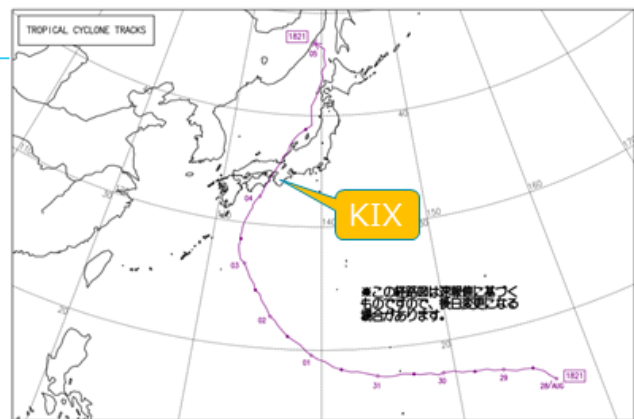
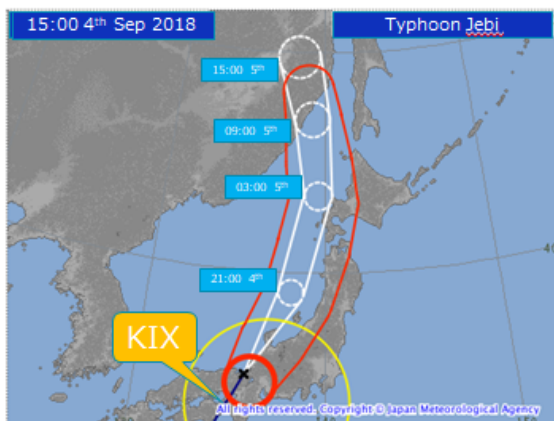
(七)、亞太區保安委員機場近況分享(以關西國際機場為例)

因桃園國際機場也同位於海島型地區，所以針對委員會更新機場近況的案例中，特別摘整關西機場面臨風災後重建與復原之經驗，以作為本機場因應風災及整備復原的參考。

關西機場地理位置及颱風路徑



The track of Typhoon Jebi

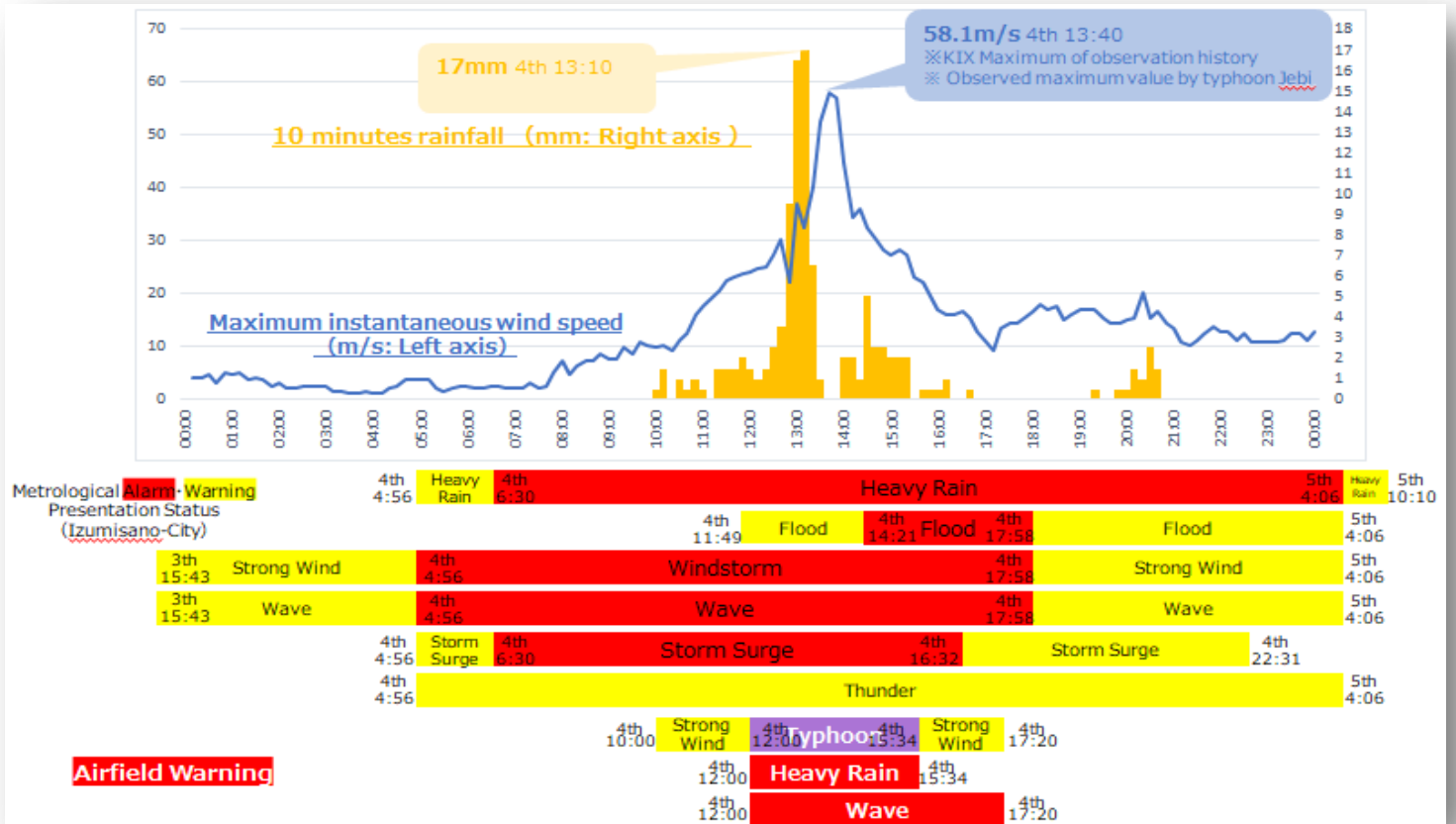


【Landing in a very strong force for the first time in 25 years】
Typhoon Jebi occurred on 9:00 August 28 near Minami-Torishima. While developing it proceeded to the west and became a "furious" force temporarily near the Mariana Islands. Changing course gradually to the north to go north of Japan, landed on the Japanese archipelago while maintaining the "very strong" power around noon on September 4. It was the first time in 25 years that we landed with a "very strong" force. It weakened to "strong" power at 3 pm, passed to the Sea of Japan at 4 pm, changed to temperate low pressure at 9 am on 5th.

【Recordative Storm Surge Observed】
As the typhoon approached, the tide rose sharply and there was a record high tide. In Osaka, a value (329 cm) instantaneously exceeding the past highest tide level was observed.

【Recordative Storm Observed】
The maximum instantaneous wind speed at Kansai International Airport was 58.1 meters (1:38 pm), which was the number one record in the observations since 2009, and it has updated the record for the first place in history. Also in Osaka city 47.4 meters (2:03 PM) was observed. It was the first time in half a century to observe over 45 meters. The roof of the building was blown off, the truck rolled over, the crane on the construction site broke, and so forth, there were serious damage in various places. Large scale blackouts also occurred.

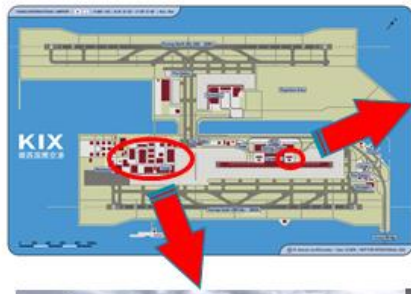
下圖為燕子颱風在關西機場影的氣候紀錄圖，其中記錄了風勢及雨勢劇烈影響之分布時段



風災後空拍圖



風災後受影響之區域



9月4日因油輪撞擊陸橋造成主要聯外道路嚴重損害

4th September



Tanker collision site

Tanker "Houn-maru" (89 m in total length, 2591 tons), which had been berthing off Kansai Airport offshore, was blown down by the wind of Typhoon Jebi and collided with the bridge. As the bridges were damaged and the road shifted, the Kansai Airport and the land were temporarily unable to come and go. Eleven crew members of the ship were safe.

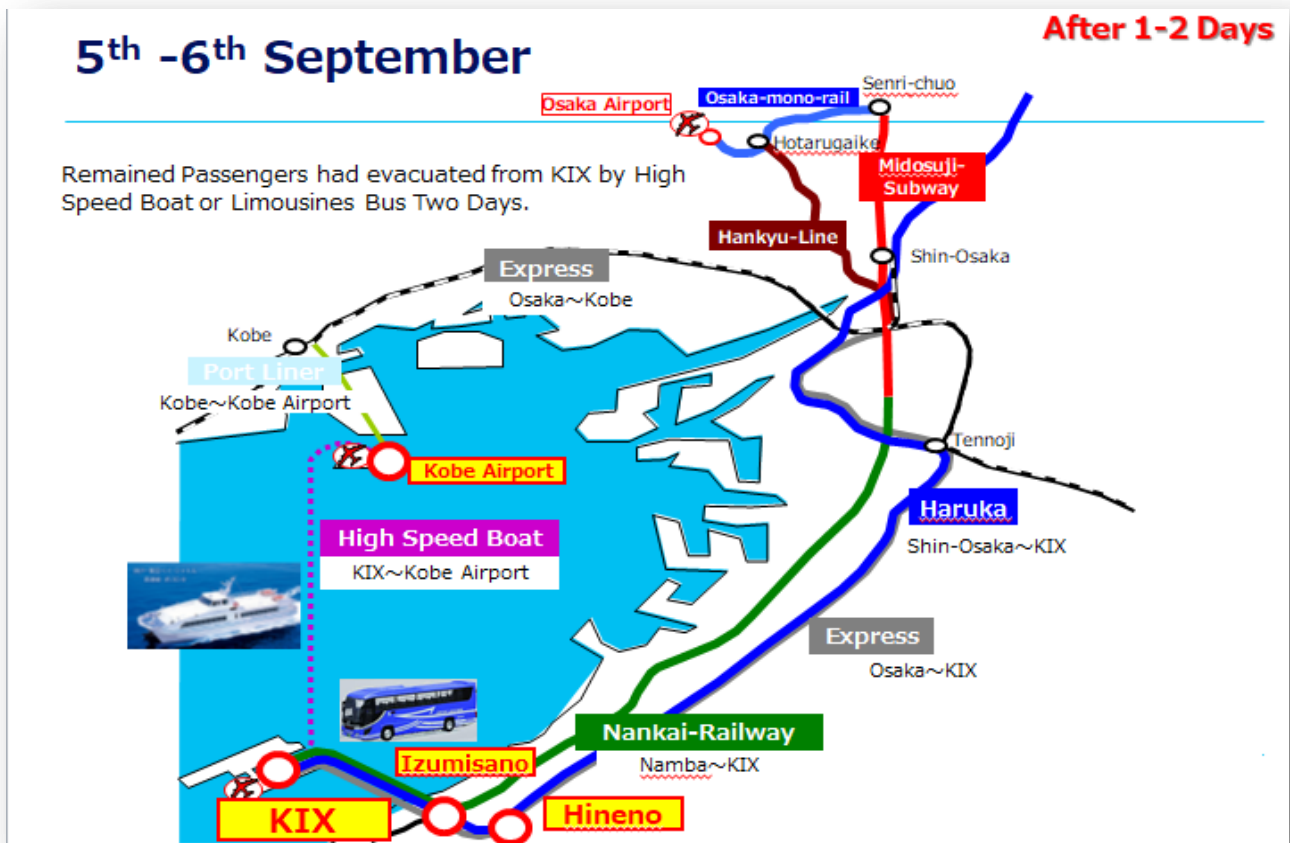


一邊進行搶救一邊進行物資發放並開始安頓旅客

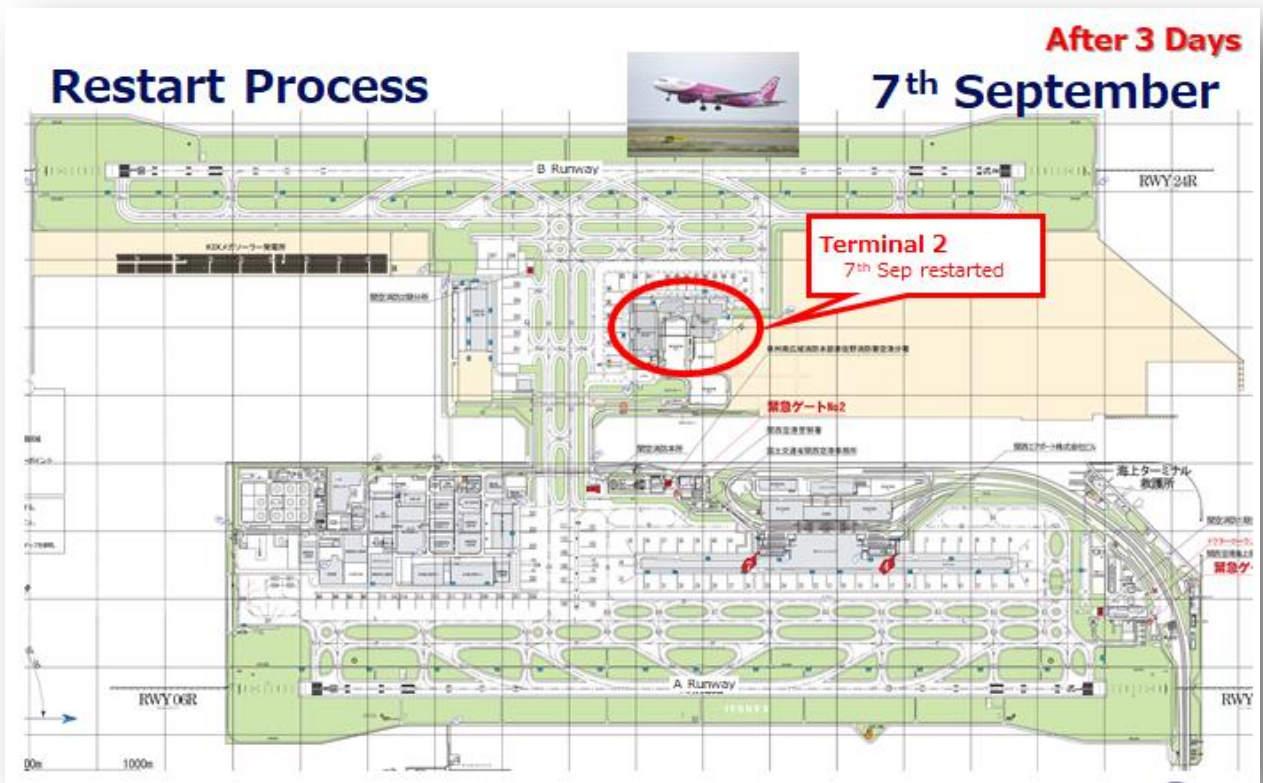


計畫疏散旅客

利用快艇及大巴士疏散至鄰近機場，讓原受困於關西機場的旅客，可以再藉由其他機場轉乘至目的地，於是航空集團日本航空（JAL）與全日本空輸（ANA），協助讓旅客自伊丹機場或是神戶機場搭乘國內線班機，前往羽田機場、成田機場或是福岡機場，再轉搭國際線出國。



針對受損較輕的地區且重要營運的核心區域進行復原重啟



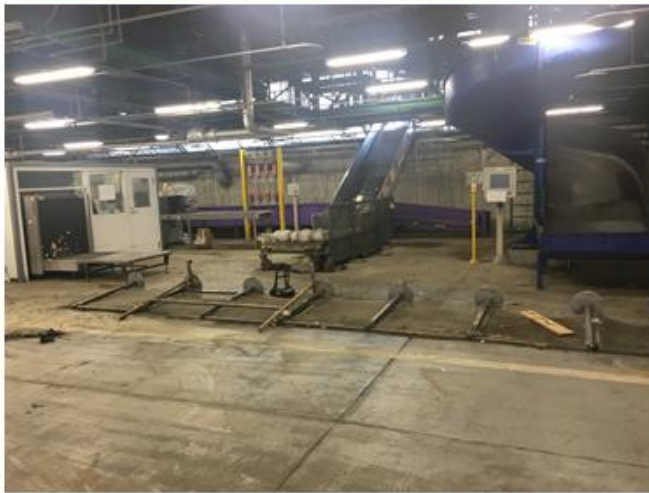
整復陸路通

橋墩、鐵道橋與北側橋身並沒有受到損害，因此立即將受損的橋身移除後，鐵道橋的部分便開始進行復舊



對於鄰近機場調度安檢設備協助復原的營運

Restart Process

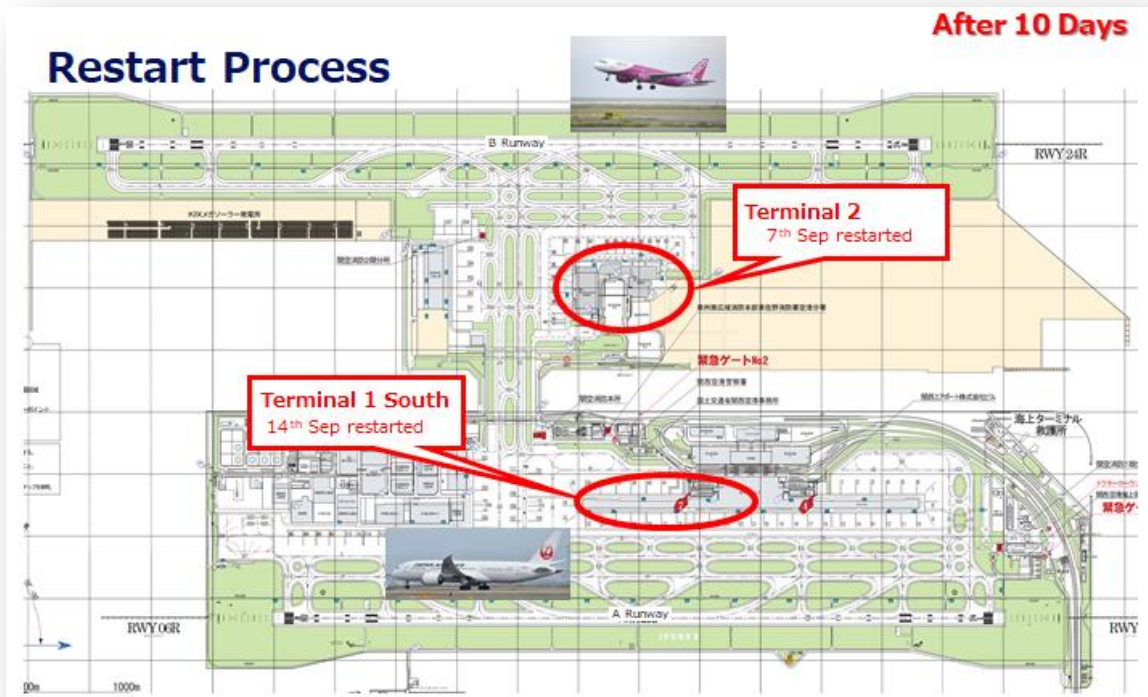


We needed to prepare other X-ray machines for reject baggage.

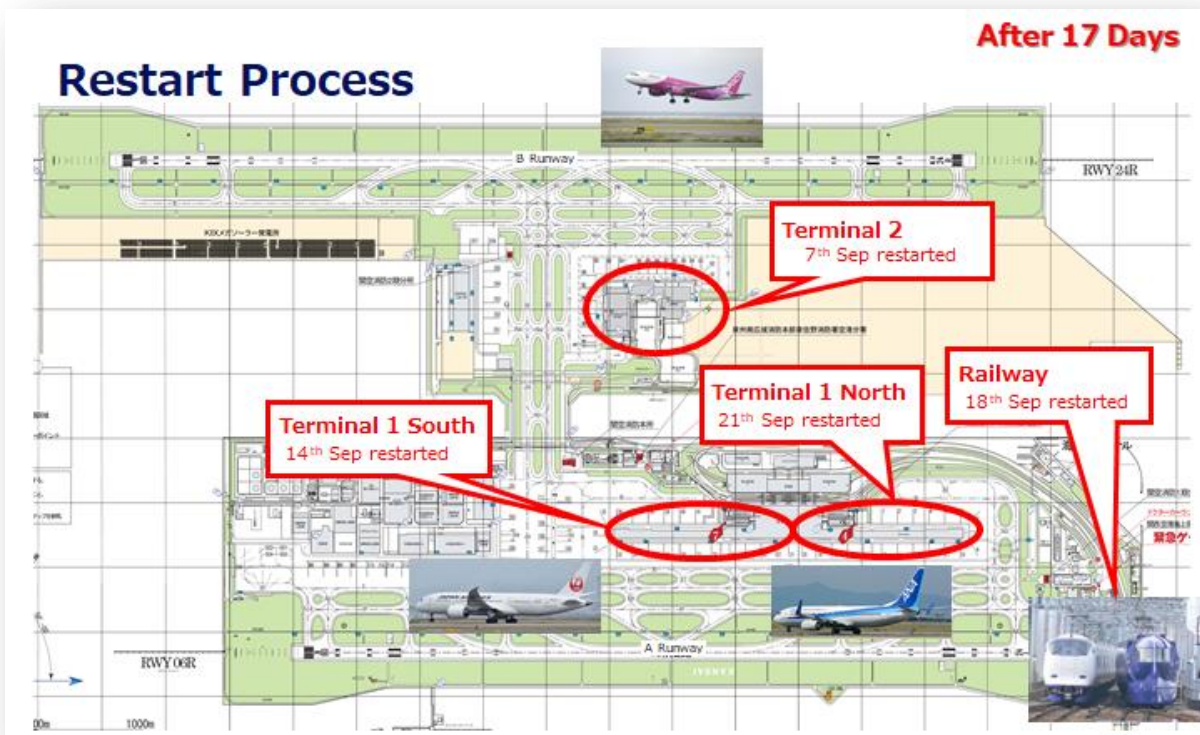
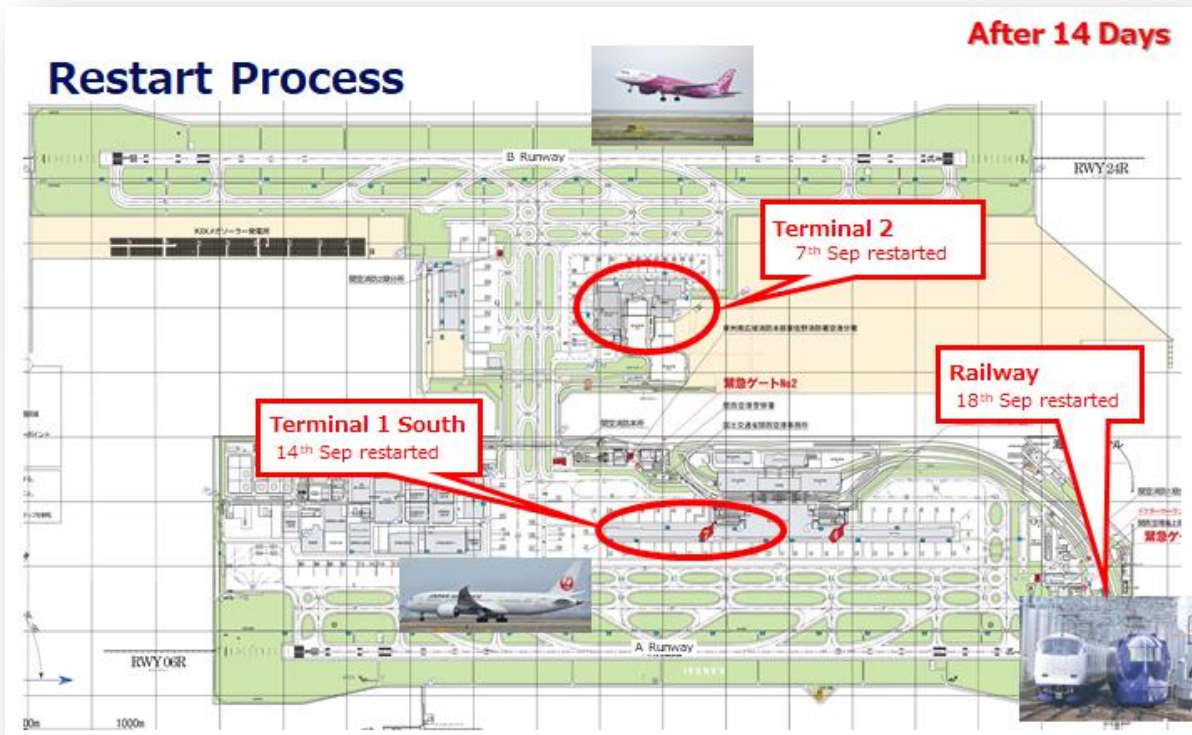


後續相繼修復之區域

第二人工島大部分設備完好，因此經過修復與清理，9月7日宣布恢復第二跑道重新開放，第二航廈恢復了部分國內線班機；9月8日部分國際線航班也恢復。



後續相繼修復之區域



整體復原在 17 天後已完成 9 成，後續設備及零星修繕持續進行，為提供更良好的服務品質，仍需機場各單位一起努力。

(八)、會後討論

藉由本次會議各國於會後提出目前機場所面臨的保安議題

桃園國際機場是出入境分流設計的機場，進機場時旅客在 2 樓層入境由 1 樓入關，出境時由 3 樓出境再由 3 樓長廊到各候機室準備搭機離開。轉機安檢設計在入境長廊的 2 樓接近主體航廈附近，需要轉機的旅客必須經由轉機安檢再上至 3 樓，有時因轉機人流龐大，常發生入境旅客不慎跟錯群眾而誤入轉機安檢，順勢跟著轉機旅客一起到出境層，導致入境旅客在出境層的問題(入出境混雜)，甚至移民署擔心恐有人蛇集團或犯罪組織，利用此漏洞進行不法行為(如護照交換或行竊等犯罪行為)。



各委員提出自身經驗

- 關西機場入、出境同樣採分流制，在轉機安檢處會有保安檢查人員協助確認是否有登機證。
- 香港機場旅客隨著指引進入轉機通道後，會檢查旅客的登機證，並再次安檢的隨身行李。(香港機場利用色彩來協助突顯指標之引導目的性)。



- 樟宜機場因 1、2、3 航廈設計採分散式安檢，且安檢線上的搜身檢查、X 光機檢查也是由策安保全負責，所以即便是轉機，在候機室前都會透過這樣的檢查來確保旅客身分。

鑒於各國機場對轉機安檢的重視，我們或許有必要增派人員，進行轉機旅客的身分查驗提升保安品質。

柒、新加坡樟宜機場 AOC 參訪

本次利用參與亞太區保安會議回程轉機之便，順道造訪新加坡樟宜機場 AOC，過去因參與類似性質的會議，已建立與其他機場高層的友好情誼，此次造訪係由樟宜機場保安陳副總協助得以順利完成。

新加坡樟宜機場集團(Changi Airport Group, CAG)簡介

新加坡樟宜機場於 2009 年 7 月 1 日進行了公司化，隨後於 2009 年 6 月 16 日和新加坡民航局（CAAS）的重組成立了樟宜機場集團（Changi Airport Group, CAG）而 CAAS 在組織中保留其原有功能，作為航空監管的角色，CAG 主要負責機場營運和管理，航空樞紐開發，商業活動和緊急應變等功能。整體組織再透過 CAG 其他子公司，集團投資和管理外國機場，以擴大複製樟宜機場成功經驗為重要之商業模式。

突發事件的分級

Classification of Incidents	
Level 1 National Crisis	• Crisis incident that poses grave implications to national security, economy, social, diplomatic or political stability
Level 2 Major Incident	• Crisis situation at the airport that involves the major loss of life, injury or service disruption that impact large portion of public
Level 3 Incident	• An airport incident which has the potential to result in injury or minor loss of life ; or a service disruption within a short time frame
Level 4 Minor Incident	• An airport incident which can be routinely responded to with Standard Operating Procedure (SOP)

第 1 級危機 危機已涉及國家安全、經濟、外交或政局穩定。

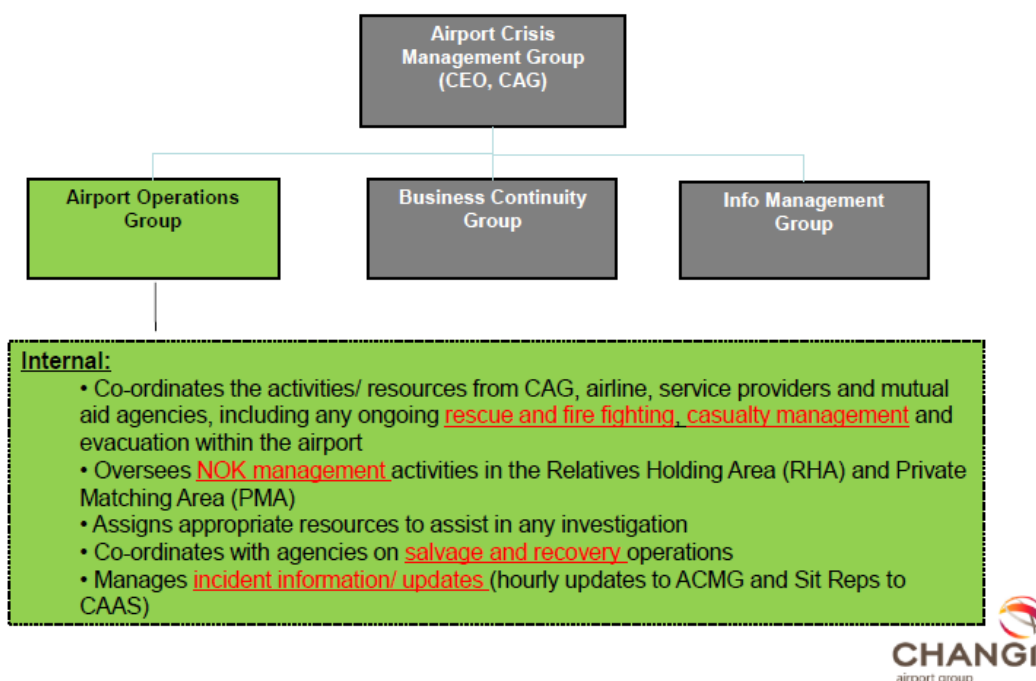
第 2 級事故 事故造成人員大量傷亡，或造成機場大範圍中斷營運服務。

第 3 級事故 事故可能造成少數人員傷亡，或造成機場局部、短期中斷營運服務。

第 4 級事故 一般例行性事件，處理程序上依照標準作業流程排除事故。

危機處理的團隊架構

Crisis Management Framework



緊急應變團隊 危機管理團隊 (ACMG)

當發生國家級危機和重大事故時，樟宜機場將立即成立機場危機管理團隊

(Airport Crisis Management Group, ACMG)，由樟宜機場集團執行長 (CEO) 擔任主席，組織依照功能特性分別為：機場營運團隊 (Airport Operation Group, AOG)、商業延續團隊 (Business Continuity Group, BCG)、資訊管理團隊 (Info Management Group, IMG) 三個任務編組。

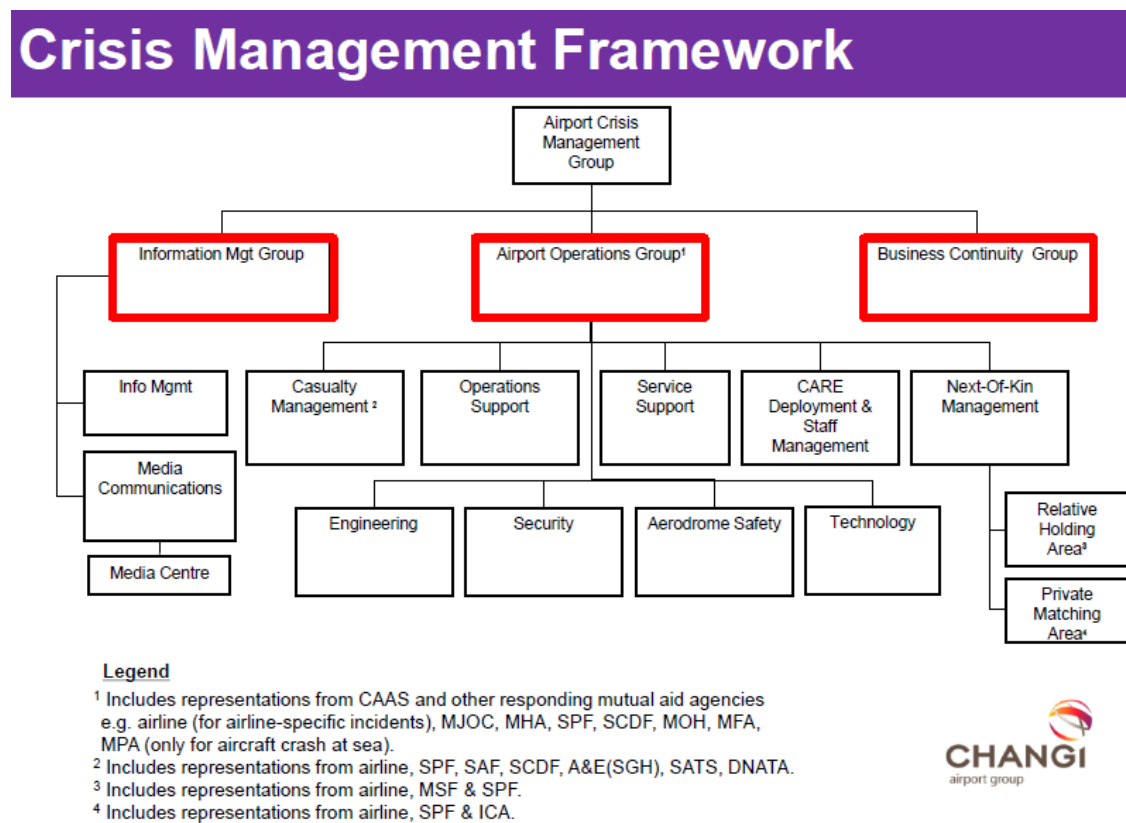
危機管理團隊 (ACMG) 成立後，新加坡民航局 (CAAS) 亦同步成立局屬危機管理團隊 (CAAS Crisis Management Group)，轄下營運團隊 (CAAS Operation Group)、服務支援團隊 (CAAS Service Support Group)、技術及調查團隊 (CAAS Technical & Investigation Group)、資訊管理團隊 (CAAS Info Management Group)。

機場營運團隊 (AOG) 由機場營運管理 (Airport Operation Management) 資深副總及機場營運計畫與空側 (Airport Operation Planning & Airside) 資深副總領軍，

負責災害搶救、善後、營運復原及事故調查之協助等，除機場集團相關人員、支援消防單位、CIQS 等單位外，航空公司與各相關地勤業者，以及所有與機場營運有關者均為團隊成員，接受指揮調度及協調。

商業持續營運團隊（Business Continuity Group,BCG）職責為在緊急應變機制運作期間，維持不受緊急應變影響之營運作業和設施維持正常運作，以減少事故對機場營運之衝擊。

資訊管理團隊（Info Management Group,IMG）職責為整理並提供有用且簡明易懂之各項災情及善後資訊給執行長（CEO）及媒體，並將輿情即時回報，其資訊彙整能力及與媒體之溝通能力，將是運作成敗之關鍵，若運作不善，將影響輿論對機場集團及主管機關之觀感。



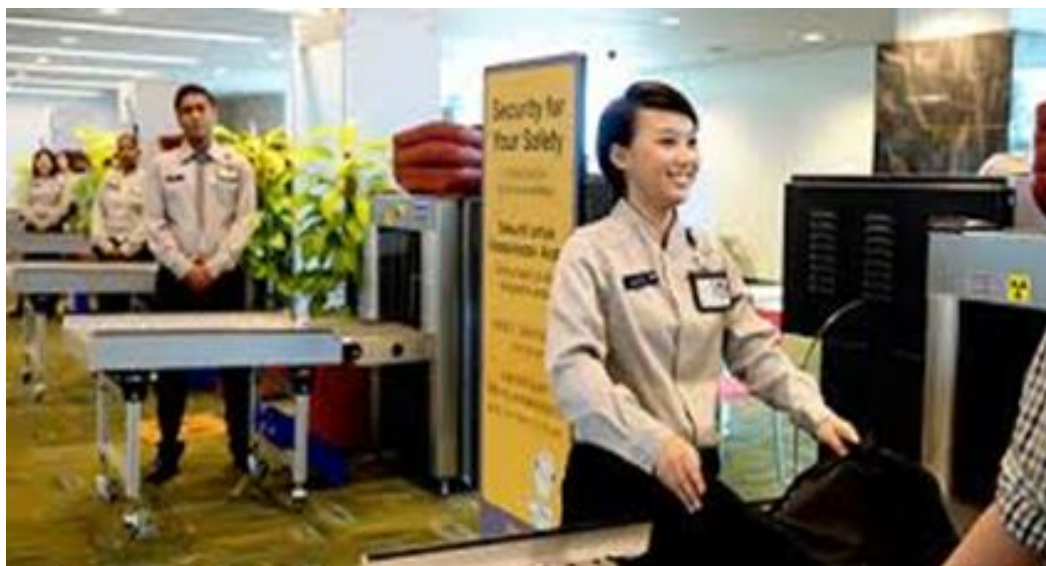
AOC 作業交流

機場保安業務

樟宜機場主要由 AOC 負責日常營運狀況，而陸側安全係由策安保全協助管理，主要職責在於旅客的安檢還有搜身檢查，輔警著深藍色制服、有配槍，也是保全公司招聘，工作職權負責安全巡邏，還有掌控保安動態。



身著卡及色制服的是安檢保全人員，負責搜身檢查，還有各管制口的檢查。

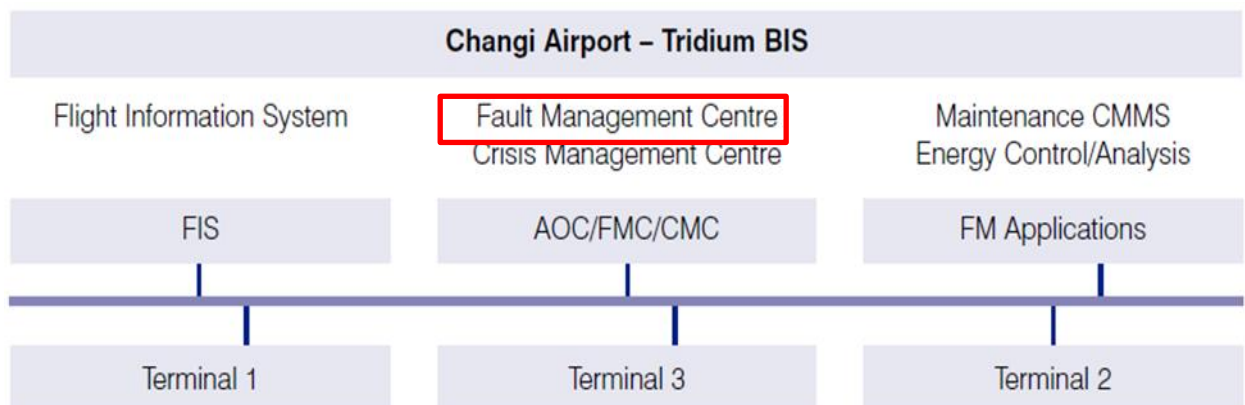


機場主要陸側安全權責，還是由各單位依不同功能屬性來進行權責區分。機場內的執勤警察雖然人數較少，但在法律維護上，擁有較高的權力，

輔警乃是協助執行部分的司法權，在危急時刻是可以使用槍械。

而在管理上，機場單位僅就合約部分進行監督及要求，實質管理還是委由專業保全公司執行，這樣的專業服務是以簽訂 5+5 年合約進行，相對的機場在管理上減低不少人事成本。保全值班方式多採 12 小時制輪值班，而樟宜機場 AOC 管理人員值班較有彈性，通常值班 8 或 9 個小時。

機場硬體設施設備維修及清潔管理



機場例行維護由 Fault Management Center(FMC)負責管理，現今科技發達 AOC 早就將所有硬體設施維護管理交由 FMC 來處理，透過平板及手機許多資料可以即時傳遞，例如：哪裡燈泡壞、多久要換好、哪些人應該去處理。透過即時的訊息傳遞可增進工作效率，訊息公開透明且可以統計，統計的數據可應用於管理，建立關鍵績效指標(KPI)，將事件拆成許多可評估的單元，根據數據統計檢視每一單元的合理時間，甚至在程序上可進行優化，把瑣碎或不必要的步驟省略，進而提升整體服務效能。

通報端是開放的，每個人都可以去下載 APP 軟體來進行通報，上線前必須先註冊，為了就是確認訊息的正確性，另一方面則是可回饋通報者，依照通報的事件重要性甚至還會給予獎金。FMC 管理的好處是 AOC 可專注在營運上的管理，主要負責機場整體的營運正常，FMC 可專責於維護修繕及清潔，利用量化的方式協助提升管理效率。

機場通行證核發管理

樟宜機場通行證依申請的目的性不同，有 2 到 3 年的時效，基本文件審查由策安保安負責，審查申請對象是否為機場黑名單，是否有不良犯罪紀錄或警方給予特殊需注意的對象名單，第二階段的背景查核因有關個資隱密性則是由警方負責。通行證管制嚴格，不僅只拍照還需採集生物特徵指紋，每張證卡也因使用目的性給予不同的權限，機場內還有行動式通行證讀卡機可機動查核。另外，施工廠商攜帶工具進管制區必須先上網登錄申請，每一個工具都要拍照，然後帶進來的工具必須要跟申請的是同一物件，他們還會給一組貼條貼在工具上，利用掃描，很快地可以查核是否與申請的工具相同，很多管理上的問題已經交由資訊來協助，所以在管理上的效率及品質可提升不少。



證卡標示說明

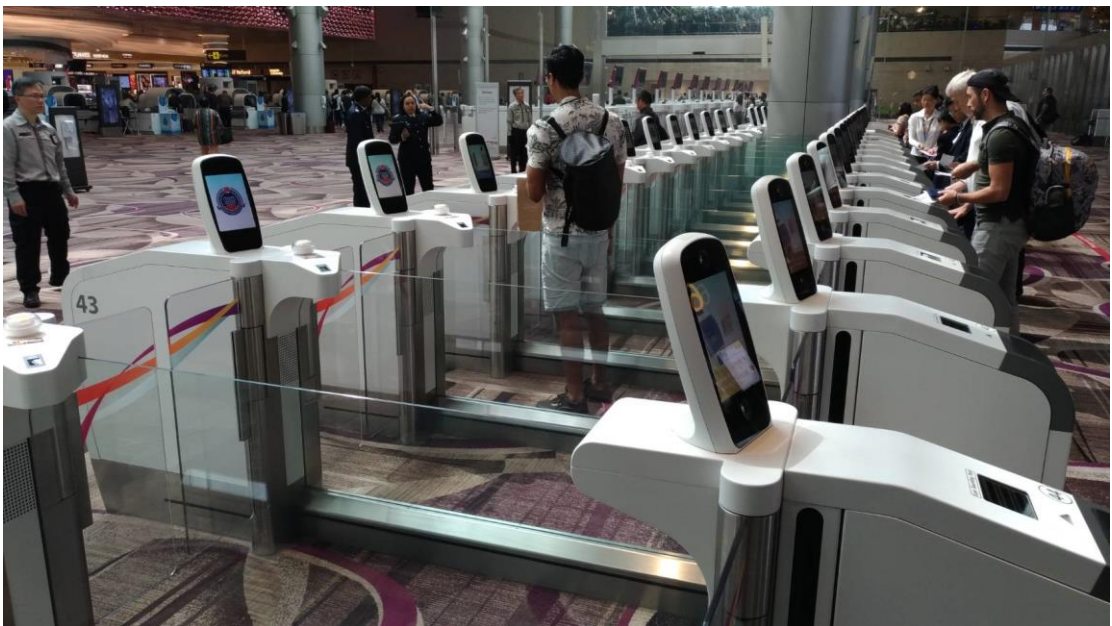


臨時通行證有紙本資料及晶片資料

補充資料一—第四航廈參訪



T4 的設計採集中式安檢，從進機場的報到櫃台設計延伸到安檢、證照查驗，其動線或視覺設計都隱含導引的概念，報到櫃檯是斜的非筆直向延伸，而是採取約 30 度角的排列，用意就是將出境動線導引向查驗區。

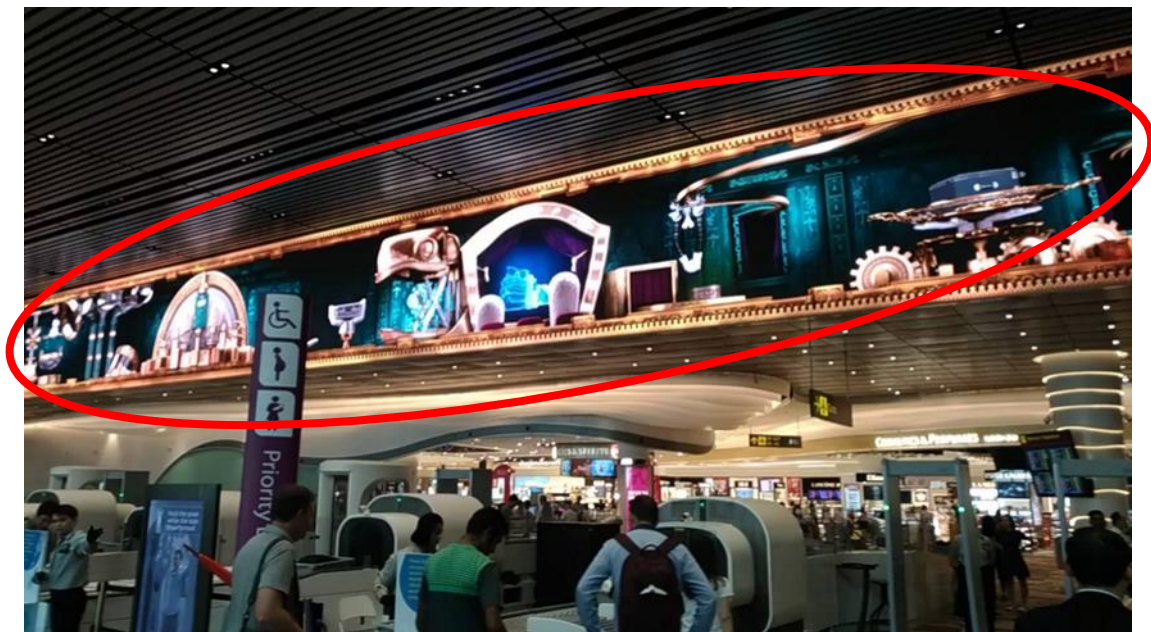


證照查驗採用大量 E 化系統，除一般查驗外，更可結合自動報到行李託運系統，將旅客資訊包裹化(人臉辨識+出境航班資料+行李查驗掃描結果)，這樣的資訊傳達到查驗端，只要查驗端一有資訊錯誤就不會放行，這除了提升自動化的便利性也減低人力成本，更大幅降低保安上的風險。

T4 採全線電腦斷層掃描(Computed Tomography)



以電腦斷層顯像輔助安檢，速度不會比傳統 X 光機掃描來得快，但透過良好的動線設計，還有 3D 動畫牆面及音樂撥放，協助緩和排隊旅客的焦躁情緒。



3D 動畫牆面撥放是以魔法奇幻的感覺呈現，流暢影像及豐富的色彩帶給出境旅客愉悅的心情，打破過去一般旅客對安檢檢查的嚴肅的傳統印象。

捌、心得與建議

心得：

本次參加亞太區保安會議獲得許多新的資訊，特別是在保安計畫的擬定，參與保安議題的研討不僅可增進國際觀，更可了解在各機場條件背景不同的情況下如何增進保安工作，把保安條文和技術文件真正轉諸於行動。更重要的是藉由本次會議將轉機安檢身分查核問題提出，透過其他機場經驗，尋求符合本機場條件的做法。

而在參訪新加坡樟宜機場 AOC 進行工作經驗交流，這對於本機場 OCC 而言是非常有幫助的事，因為目前 OCC 多是由營安處同仁與保全執行值班勤務，整體狀況與樟宜相似，但樟宜利用許多的資訊整合，讓管理維運有條不紊，印象深刻的是 FMC 的整體機制，全透過手機及平板迅速通報，並利用 KPI 來協助有效率地完成很多事，這的確值得我們學習。

建議事項：

(一)、轉機安檢身分驗證問題確實需要解決，惟航警單位認為勤務工作不包含身分查驗，又移民署擔心人蛇安危，故在此建議可以保全人力來協助轉機旅客的身分驗證問題，其因在旅客轉機過程只須查驗該旅客是否具有有效之登機證，並核對護照照片是否相符，這樣除有效降低人出境混流問題，也可提升機場服務。

(二)、OCC 平時營運常接獲維修及清潔的通報，在紀錄上仍以值班同仁電腦 key in 紀錄，資訊無法串流及分享，建議參考樟宜機場作法，利用資訊系統協助管理，通報時就主動匯入系統端，透過系統分配給相關權責單位，再利用關鍵績效指標協助管理。

最後，機場不僅是國家大門，它更服務了千萬以上的旅客，期盼我們用更專業且有效率的方式來管理機場，營造良好環境提升旅客機場體驗。

玖、附會相關簡報(其他委員提供)：



Standoff detection equipment trials 2017-2018

- Deployment of a first series production unit in August 2017.
- Assessment and categorization of false alarms and challenges in an airport environment.
- Functional tests with simulants representing profiled threat objects was performed in September 2017, repeated regularly in cases of major functional upgrades.
- Explosives tests with Gov. Agencies in (2017-18.)
- Development of an Operational Concept and respective training package
- Security personnel training involving behavioral profiling, PBIED threat specifics & equipment operation
- Performance of the first operational trial April 2018

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Summary of 2018 activities:

- Standoff detection equipment trials
- ECAC C2 detection upgrade trials
- ETD trials (Operations support & fleet renewal)
- Smart Airport PoC – HIA IT's facilitation project

Upcoming project steps in 2019

- Security Scanner trials & deployment
- Integrated lane & CT trial packages

Operationalizing the equipment

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Standoff detection equipment trials outcomes

Passive test results (2017)	
False alarm rate	~2%
Functional test results (simulants)	
Probability of Detection:	>80% (AVG)
Persons not screened (but alarmed):	~2%
Throughput:	>8000 p/h
(Explosive test results are classified)	
Operational trial results (2018) (11k persons, 3k trolleys)	
Total alarm rate:	5.32%
False alarm rate:	1.20%
Out of conops alarm rate:	3.97%
Physical inspection of persons:	1%

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Evaluation of deployment options

- Deployment is planned in bidirectional configuration
- Different deployment concepts are considered for low, medium and high threat level operations
- An initial batch of equipment is foreseen for installations in 2019
- Deployment options were evaluated against:
 - Impact on airport operations
 - Technical challenges caused by the location
 - Aesthetics
 - Integration with systems and processes
 - Impact on effectiveness of operator response
 - Level of additional development required

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Project scope for implementation

- Design & implementation of the required site modifications for the preferred physical installation arrangements of the system.
- Extension of system capabilities related to both detection areas and threat materials. Deployment with bidirectional capability.
- General functionalities further developed on Operator's GUI
- Definition of system integration requirements within HIA's Security Operation Control System
- Addition of system operational & alarm reporting functions
- Integration of standoff sensors to become integral parts of the open architecture surveillance / PSIM platform

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Landside concept development

- **Landside Security Program:**
- Detailed development of all operational scenarios to include :
 - Three different threat levels
 - Redesign of procedures, roles & responsibilities of all stakeholders in landside operation
 - Profiling technique & training development for landside security staff
 - Physical security solutions (including VBED threat)
 - Different operational arrangements & restrictions of the landside areas
- Cross-stakeholder landside deployment & communication strategy review
- Additional technology developments related to public landside areas:
 - Video Analytics, coverage review
 - Watch lists, identification by facial recognition (State project)
- **Supreme Committee for Delivery & Legacy:** (State advisor to the security operations of the 2022 FIFA world Cup) To align planning processes, share concepts and technical equipment assessment outcomes.

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ECAC C2 Standard Detection upgrade trials – Associated projects

- Additional explosive tests to compare original and C2 algorithm to advise potential security benefits.
- More complex images require the update of the screener training program, but might help to upskill and pre-evaluate screeners for C3. Both OTJ and offline training tools' upgrade is foreseen.
- PEDs (and other new threats) require the renewal of the available TIP image libraries. Current assets support performance monitoring of common prohibited items' and more conventional IEDs' detection.
- An assessment project is considered to gather more information about:
 - operator performance related to different bag complexity levels
 - challenges for operators in decision making
 - passenger / packing profiles

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Smart Airport PoC – HIA IT's facilitation project

HIA IT Launched a Single-token PoC in our departure process to demonstrate automated solution, incorporating 5 touchpoints through the process:

- Self-Service kiosk, providing biometric enrolment and creation of token
- Automated bag drop off utilizing the token as an option
- Automated pre-immigration gate for access control utilizing the token
- Automated boarding gate utilizing the token

An additional function is being developed, allowing pre-enrolment using the smart phone of the customer. Different enrolment options are being evaluated:

- Linking the token with the E-Passport data and biometrics captured by the passenger
- Linking the token with biometrics captured by the passenger and passport photo

PoC limitations:

- Only staff are allowed to participate in this initial trial run
- The majority of the population attending the departure process has no Electronic Passport

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ETD trials

- HIA operates a fleet of 140 ETD units, 90 utilized by our team with an average sample rate of /day. The fleet reached 50% of its service life.
- Due to capacity growth, additional 30 units were requested for procurement.
- From a strategy standpoint, the new equipment might be considered for fleet replacement in medium term.
- Specifications for future integration have been made integral part of the technical evaluation requirements, in line with the definitions already formulated for HIA's vision of new generation, integrated passenger screening checkpoints:
 - The equipment must be supported with centralized status monitoring and reporting function.
 - The vendor shall declare if integration is/will be available in proprietary or 3 party system
 - Integration of the ETD is required in a later stage where scan results are linked to baggage / tray at the screening process

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Security scanner trials & deployment - 2019

QPS-201 trial for short term deployment

- Equipment availability and other projects delayed the trial with ~6 months.
- KPI's have been set on grounds of current operations and QPS-200 trial benchmarks
- In Jan. 2019, trials to provide QPS-201 KPI's with the conops arrangements of:
 - QPS + WTMD integrated
 - QPS + WTMD + Shoe scanner
 - QPS + Shoe scanner
 - QPS
- The trial has to proof suitability without changing lane arrangements
- Applicable conops to be selected by the Regulator.
- Negotiations to launch following formal approvals in Q2 2019.

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Integrated lane & CT trial packages

HIA has been in discussion with two providers to form complete packages for implementation in Q1-Q2 2019, each sharing the same content:

- Modification / installation of 2 CIP lanes in secondary screening.
- Modification of 2 existing CIP lanes.
- Installation of a high-capacity, integrated lane, connected to the CIP lanes, equipped with C3 standard CBS equipment.

The functional requirements of the systems has been identified to demonstrate:

- Integration is available from checkpoint management and CIP perspective for screening lanes operated with different conops and automation levels.
- The systems are capable of operating with heterogeneous scanner fleet.
- All components of the screening lanes, including the passenger screening equipment are connected, allowing for data sharing.
- The lanes utilizing existing scanners provide better operational KPI's and integrity of the screening process.
- Advanced solutions are provided for operator performance monitoring.
- Training for the C3 conops is provided within or offline the system.

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Thank you



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Risk-based screening

- The vendors are required to provide effective methods for the identification of the passenger at the beginning of the process. (primary screening lanes)
 - The CIP lanes in departure are currently planned to connect to the single-token PoC infrastructure.
 - Alternative solution is looked for the transfer CIP lanes.
- Risk profile definitions to be agreed with IT stakeholders.
- Connection with the Immigration database is not planned.
- KPI's to be set to demonstrate clear operational benefits in terms of capacity, processing time and rejection rates.
- Vendors need to provide effective measurement tools and methodology for the assessment of screening performance

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Insider Threats For Airports Security

Messe Frankfurt

GACA

Predict to Protect

By : Adnan S. Alghamdi

Contents

- 1 INTRODUCTION
- 2 Who are the insiders?
- 3 Why they may represent a serious threat?
- 4 How to predict the insider threats?
- 5 What is the TSP Program?
- 6 What are the TSP Benefits?
- 7 DISCUSSIONS

1 INTRODUCTION

- When the majority hear the "Insider Threat" their mind jump to the severe security breach such as (hijack, explosives attack or terrorist attack)
- Insider threat actually includes all the illegal acts starting from passing illegal extra weight ending with fatal criminal acts.
- Logically, we must read a 'small' violation by airport staff as an evil seed , that can grow to be a huge crime some day.
- The global resources do not offer standard practical procedures that aid in mitigating the consequences of insider threats.

2 Who are the insiders?

Insider threat definition

An Insider Threat is a malicious threat to aviation facilities or operations that comes from authorized staff within the facility, such as employees, contractors or business associates, who have inside information concerning the airport security practices.

3 Why they may represent a serious threats?

Insider threat factors

- Accessibility:** They have access authority to the operation area and other sensitive facilities
- Intrusion:** They can (regularly) observe the security procedures and spot the gaps and failures
- Sympathy:** They can establish good connections with the security staff which may cause over trust.
- Diversity:** Their affiliation to many entities complicate tracking or verification of their status

3 Why they may represent a serious threats?

Sorting the airport staff according to the risk they may represent.

- 1 Security staff , Directors , Officials
- 2 Trash & Goods Trucks Operators, ATC Staff, New staff
- 3 Firemen , Medical staff , MRO Facilities Staff
- 4 GS Staff , Airside staff, Airside Contractors & visitors
- 5 Landside Workers , Landside Contractors , Temporary visitors

3 Why they may represent a serious threats?

Factors that stimulate criminal behavior

- 1 Political/Radical Affiliation, Financial Deficiency
- 2 Abuse in the Workplace, Blackmail and Threats
- 3 Suspicious relationships, Lack of Security, Corruption
- 4 Lack of Supervision, Psychological illness
- 5 Alcohol, Drugs Addiction

3 Why they may represent a serious threats?

Disastrous Combination

- 1 Security staff , Directors , Officials
- 2 Trash & Goods Trucks Operators, ATC Staff, New staff
- 3 Firemen , Medical staff , MRO Facilities Staff
- 4 GS Staff , Airside staff, Airside Contractors & visitors
- 5 Landside Workers , Landside Contractors , Temporary visitors

- 1 Political/Radical Affiliation, Financial Deficiency
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- 3 Suspicious Relationship , Lack of Security, Corruption
- 4 Lack of Supervision , Psychological Illness
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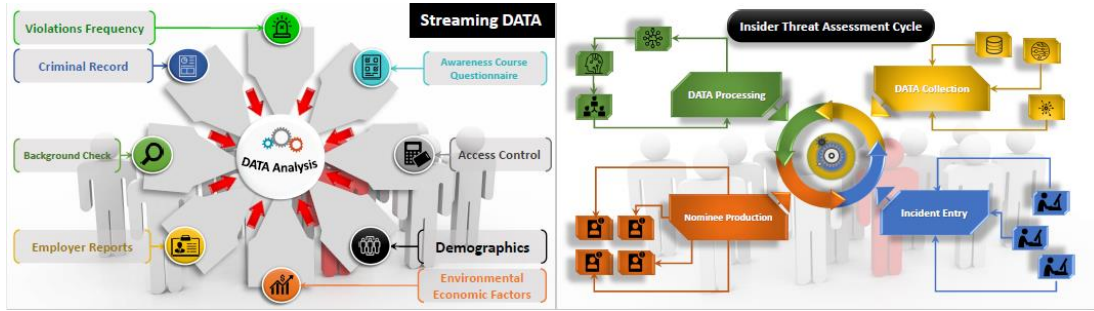
4 How to predict the insider threats?

- 1 Establish a continuous investigation program
- 2 Categorize the airport staff to a colored list
- 3 Use all available data to evaluate the staff
- 4 Ensure the performance of evaluation on regular basis

4 How to predict the insider threats?

Security Squad

- They conduct unannounced security inspection.
- They are independent from the regular security operation.
- Full authority to access any facility in the airport.
- They should carry all equipment , tools and K9s to conduct full security search



5 What is the TSP Program. ?



Trusted Staff Program



Produce a white list out of the extracted DATA according to disciplined criteria , those staff has extraordinary privileges regarding the accessibility to the restricted zones.

- Fast track access
- Longer pass validity
- Special treatment

6 What are the TSP Benefits. ?

- 1 TSP Encourage the Airport staff to keep their records perfect and clean.
- 2 Concentrate the staff searching process on less number of the airport staff (ensure the security quality).
- 3 Facilitate and expedite access of required groups of staff (ATC Staff , Security , Law Enforcement.. etc.)
- 4 Positively influence the security and operation by expediting the staff access in a secure environment.

