

「飛航作業風險評估系統」的運用與其展望

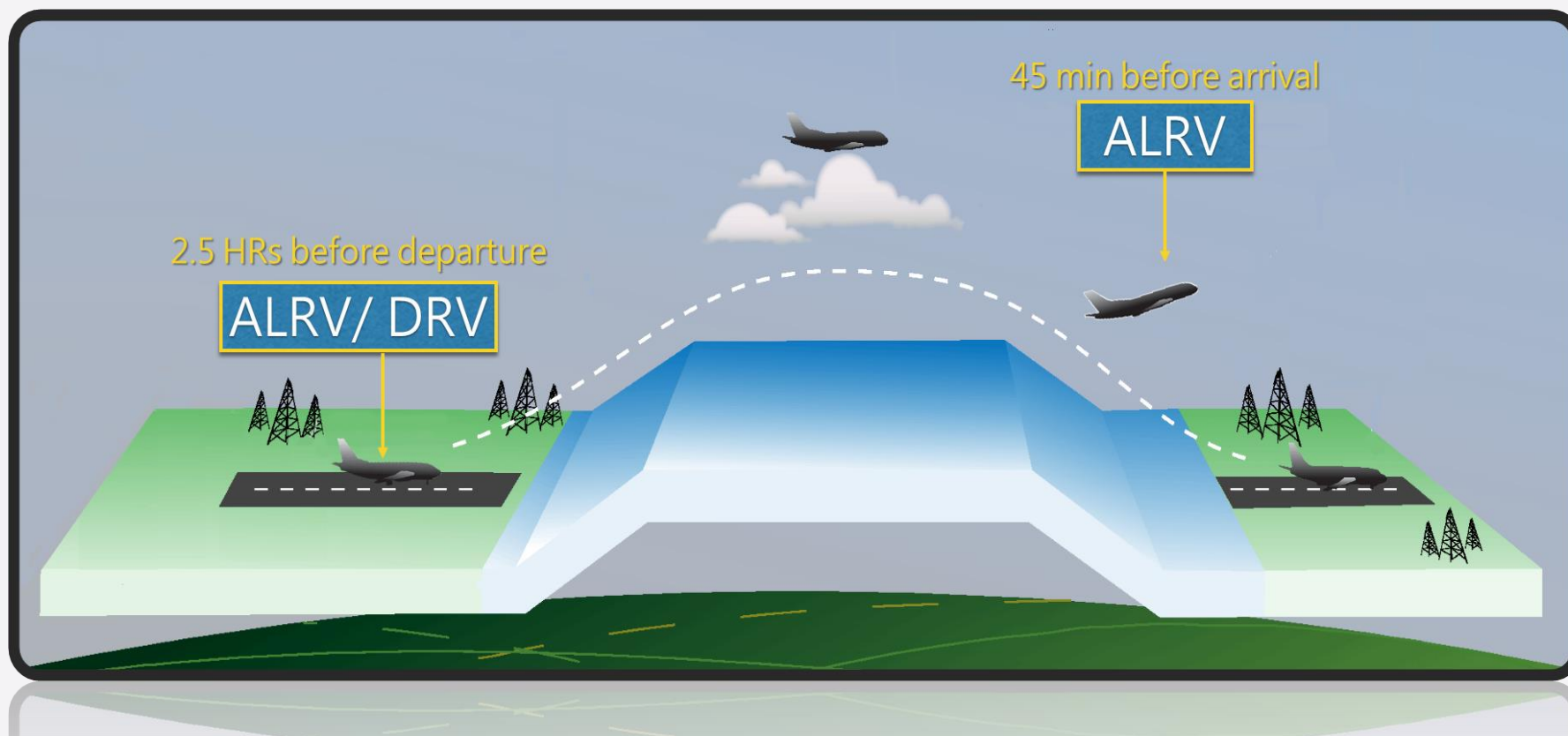
FORAS - A predictive tool of SMS
(Flight Operations Risk Assessment System)

為何我們需要FORAS?

- 安全管理系統的核心要素是危害確認與風險管理，FORAS具備預測風險的功能，極有助於安全風險管理的落實與精進。

什麼是FORAS?

- FORAS是一種方法論，用以作為飛航作業中危害確認與風險管理的工具，以滿足執行安全管理系統中積極主動與前瞻預測的目標。



- ❑ 系統會擷取航班的飛航組員、天氣預報、NOTAM與MEL資料，去計算離場風險值與進場落地風險值。
- ❑ FORAS是決策支援工具。



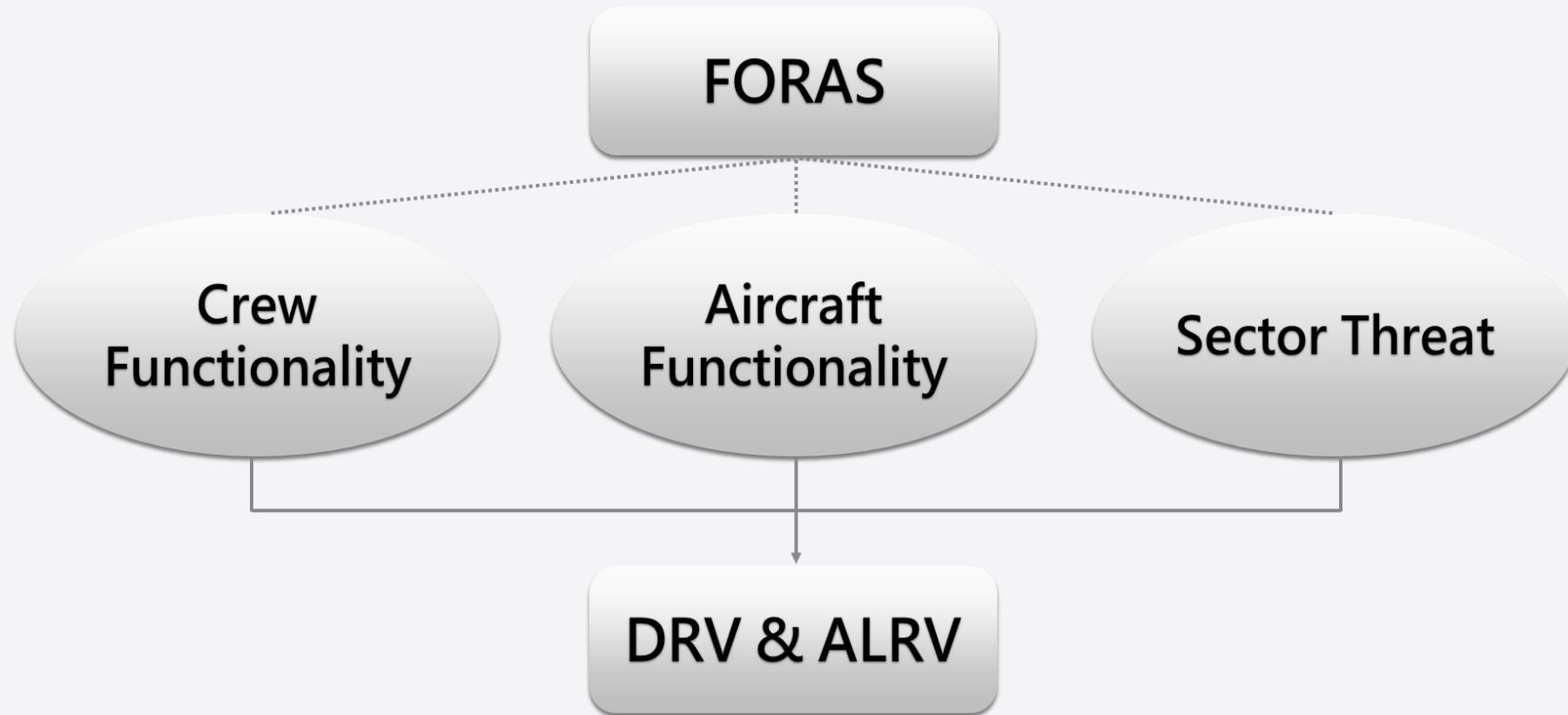
系統運作

- 系統會在相對應航班離場前2.5小時，自動產生兩個量化的風險值：離場風險值(DRV)與進場落地風險值(ALRV)。
- 風險等級分類：
- 一旦較高的風險值達到黃燈或紅燈時，關鍵參數指標將會被系統產生，且對應的安全提示就會提供給組員作為參考，以提高組員的警覺性。

- 飛航組員可在飛行前藉由iPad透過網路檢視FORAS最新的產出結果。
- 系統也會在航班抵達前的45分鐘，再次計算進場與落地風險值，以作為相對航班的風險值比較與趨勢分析。



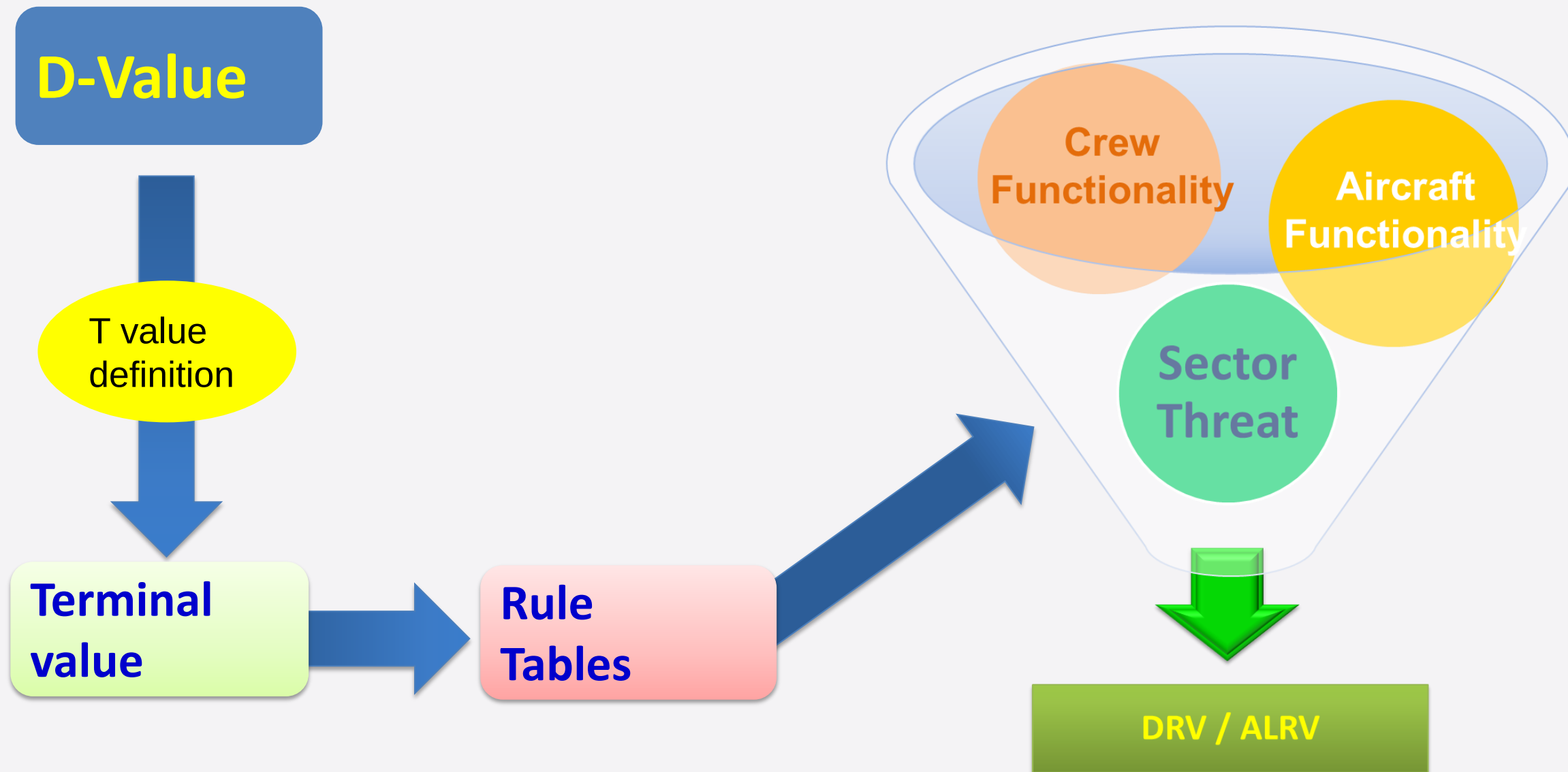
系統介紹



DRV: Departure Risk Value

ALRV: Approach & Landing Risk Value

模組結構



FORAS 能提供的協助

FORAS

Flight Operations Risk Assessment System

Welcome, William Yeh

Flight Status

INTERFLIGHT REPORT

Flight Type: Regional Dep. Time (TPE): 2016/07/25 - 2016/07/25 Flight Number:

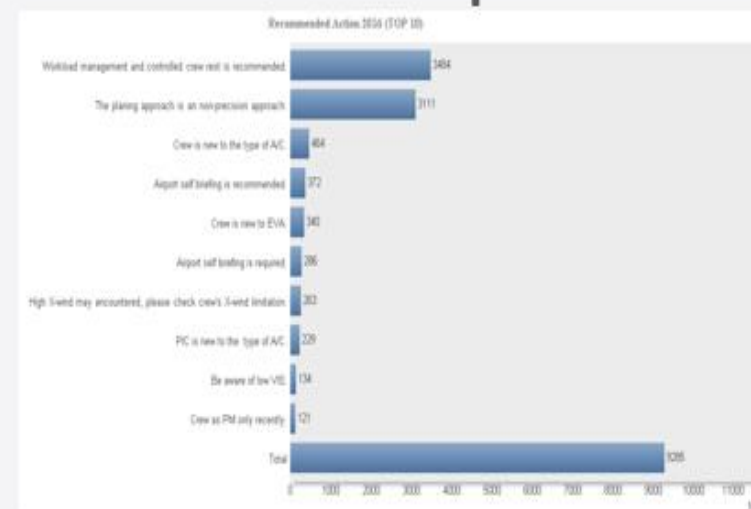
Normal Caution Stop No abnormality Abnormality Abnormality Abnormality

DEP	ARR	Dep. Time (TPE)	FL No.	DEP AP	ARR AP	Fuel	AC No.	Region	DRY	ALRY	Av. TIME (TPE)	Remark	
Normal	Normal	2016/07/25 21:40	BR101	TPE	BRN	A320	B16307	SEA	1,000	1,000	1,000	2016/07/25 02:20	☐
Normal	Normal	2016/07/25 21:50	BR107	TPE	HKG	A321	B16226	CHN	1,000	1,000	1,000	2016/07/25 23:35	☐
Normal	Normal	2016/07/25 21:45	BR110	HKG	TPE	A321	B16212	TIM	1,000	1,000	1,000	2016/07/25 23:38	☐
Normal	Normal	2016/07/25 21:10	BR178	KIX	TPE	A321	B16216	TIM	1,000	1,000	1,000	2016/07/25 00:10	☐
Normal	Normal	2016/07/25 21:05	BR191	TNA	TPE	A321	B16222	TIM	2,381	1,333	1,333	2016/07/25 23:48	☐
Normal	Normal	2016/07/25 20:55	BR188	HKG	TPE	A320	B16306	TIM	1,000	1,000	1,000	2016/07/25 22:48	☐
Normal	Normal	2016/07/25 20:30	BR201	TPE	MNL	A321	B16219	SEA	1,000	1,000	1,300	2016/07/25 02:58	☐

每日運行航班的
作業風險監控



航班安全提示行動化



趨勢分析以改善
運航作業

FORAS推廣計畫

- FORAS 已完成套裝軟體(package)之開發
 - FORAS計畫以非商業管道的方式來推廣，將透過世界飛安基金會為平台，讓航空公司依照其機隊的規模大小，提撥一定金額到FORAS基金後，取得FORAS系統。
 - 這筆基金將用來建立FORAS獎學金與FORAS獎項，用以推展系統未來的開發與相關航空風險研究專案。
 - FORAS基金經將委託FORAS委員會管理。

軟體交付過程

航空公司確認有意願
加入

簽署系統轉移合約

提撥到FORAS基金

訓練與系統安裝
(模組建立)

試運行與模組有效性
確認

系統上線

系統維護支援與系統
升級



FORAS Package



2017 FORAS 研討會

11月29~30日, EVA AIR

FLIGHT SAFETY FOUNDATION

2017 FORAS WORKSHOP

29-30 Nov 2017, Taoyuan City, Taiwan

A workshop to introduce a predictive tool of hazard identification and risk management on flight operations

Nov 29, 2017 - Wednesday

Time	Subject	Speaker	Venue
08:30 ~ 09:00	Registration		1104 Conference Room
09:00 ~ 09:30	Opening Address	Denny Ho, EVA AIR Frank Jackman, Flight Safety Foundation	Room, 1115 2 nd Training Building EVA AIR
09:30 ~ 10:30	Session 1 : What is FORAS & Why we need it? The Introduction of Development Background of FORAS	William Yeh, EVA AIR	
10:30 ~ 11:00	Refreshment		
11:00 ~ 12:00	Session 2 : How it works? System Functionality of FORAS	Huan-yih Shyu, PhD, Tamkang Univ.	
12:00 ~ 12:30	Lunch		Dento Café
12:30 ~ 14:00	Tour to EVA Safety Gallery		EVA Safety Gallery
14:00 ~ 15:00	Session 3 : How it works? FORAS Model Building	Chi-shin Cheng, PhD, Tamkang Univ.	
15:00 ~ 15:30	Refreshment		
15:30 ~ 16:15	Session 4 : How it works? The Acquisition & Calculation of T-Value	Chi-shin Cheng, PhD, Tamkang Univ.	
16:15 ~ 17:00	Session 5 : How to use it? (a) Case Study & Model Application (b) FORAS iPed Solution	Chi-shin Cheng, PhD, Tamkang Univ. Jackie Chu, SYSTEX Corp.	

Nov 30, 2017 - Thursday

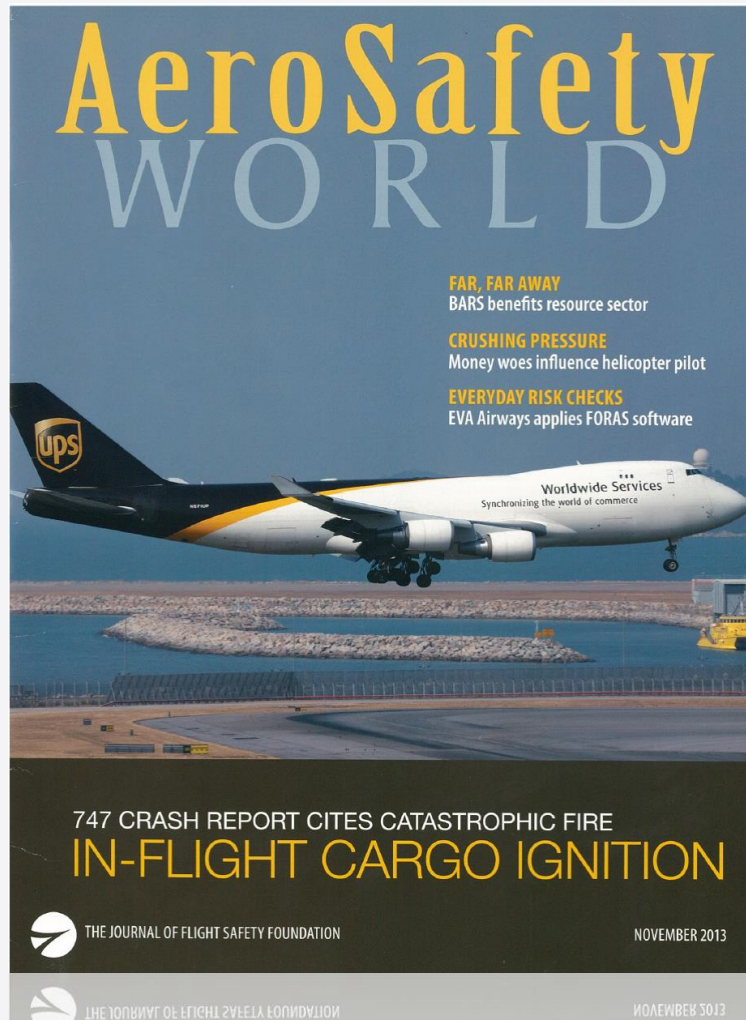
Time	Subject	Speaker	Venue
09:00 ~ 10:00	Session 6 : How to set it up? System Requirements Installation & APP Application	Frank Kao, EVA AIR	1104 Conference Room, 1115 2 nd Training Building EVA AIR
10:00 ~ 10:45	Session 7 : The delivery process Training & Technical Support	Jenny Tseng, EVA AIR	
10:45 ~ 11:05	Refreshment		
11:05 ~ 11:35	Session 8 : How to have it? Agreement, Contribution & Annual Maintenance Fee	Brett Eastham, Flight Safety Foundation	
11:35 ~ 12:00	Q & A		
12:00 ~ 12:30	Closing Remarks	Denny Ho, EVA AIR Frank Jackman, Flight Safety Foundation	
12:30 ~ 12:50	Lunch		Dento Café
12:50 ~ 13:00	Tour of facilities		
13:00 ~ 13:30	Dinner Host by EVA Air		

Organized by Flight Safety Foundation and EVA AIR



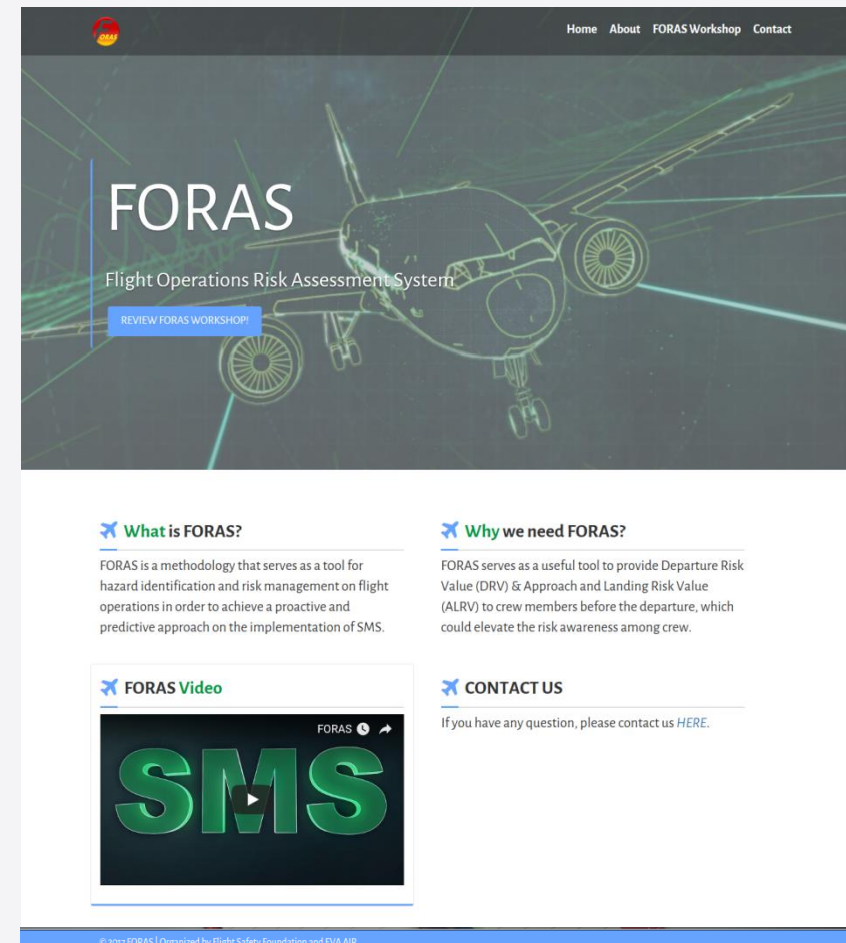
FORAS 參考資料

▣ Aero Safety Word, NOV. 2013



▣ FORAS 網站

■ <http://foras.com.tw/>



感謝您