

Performance Seminar

# Airbus Electronic Flight Bag (EFB)

Role of a performance engineer in the EFB administration process

Presented by

Eric VAN RUYSKENSVELDE / Flight Operations Support Director

# Content

- Introduction: Airbus EFB solutions
- Types of EFB administrator and their role
- Summary: Overall administration process

# Content

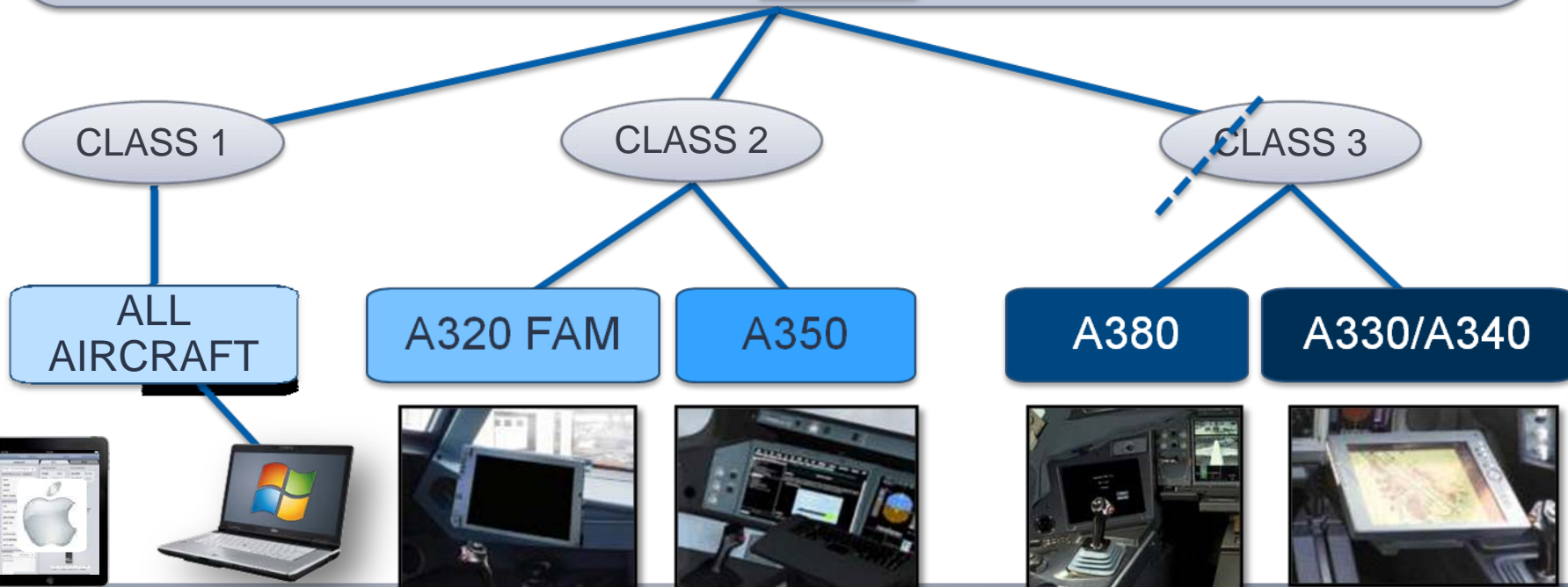
➤ **Introduction: Airbus EFB solutions**

➤ Types of EFB administrator and their role

➤ Summary: Overall administration process

# Airbus EFB – Software Suite vs. Hardware

## FlySmart with AIRBUS



# Airbus EFB – Class 1 Hardware

- All Airbus aircraft
- Non-critical flight phases
- Variety of hardware

International regulations for EFB, hardware included:

JAA TGL36

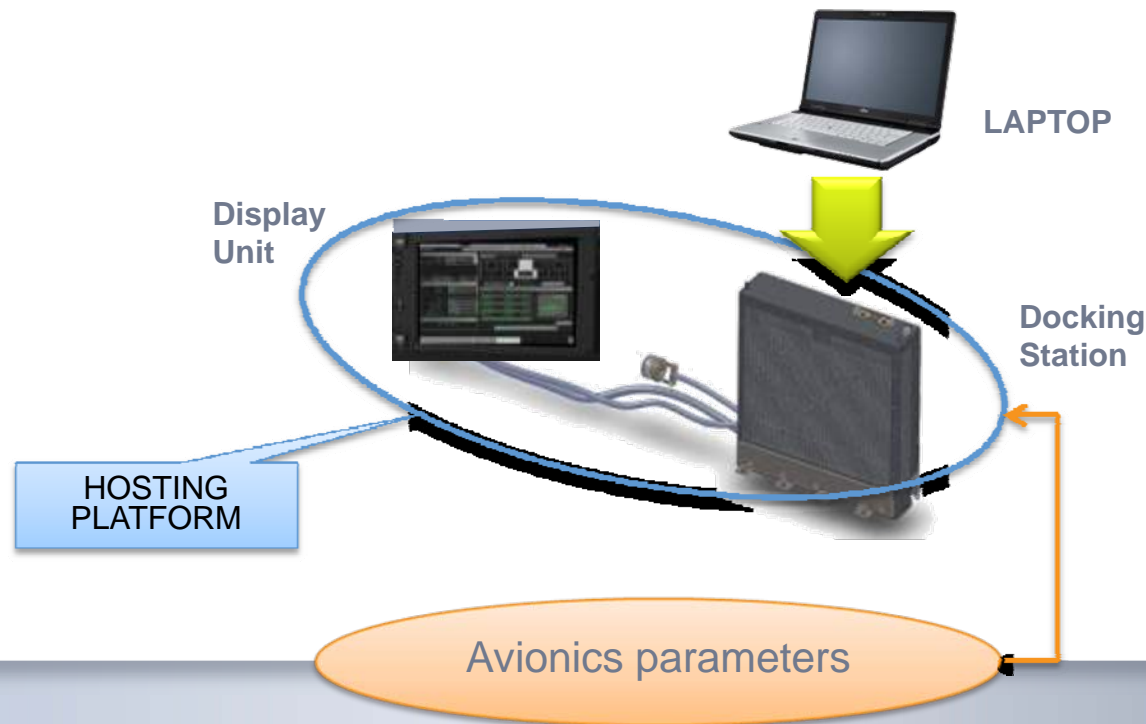
FAA AC120-76B



# Airbus EFB - Class 2 Hardware

A320 Family

- Solution for all flight phases
- Fully integrated
- Certified and available for forwardfit and retrofit since May 2012



# Airbus EFB - Class 3 Hardware

- Solution for all flight phases
  - Keyboard stowed during critical phases
- Fully integrated
- Already certified



F/O display



F/O processing unit



CAPT display



CAPT processing unit



Side mounted display units (end 2012)  
for retrofit only



Avionics parameters



# Airbus EFB - Class 3 A380 hardware

- Solution for all flight phases
  - Keyboard stowed during critical phases
- Fully integrated in the cockpit
- Accepted by EASA & FAA



F/O OIT



F/O LAPTOP



CPT LAPTOP



BACKUP LAPTOP

Avionics parameters



CPT OIT

VIEW OFFSIDE



# Content

➤ Introduction: Airbus EFB solutions

➤ **Types of EFB administrator and their role**

➤ Summary: Overall administration process

# Types of EFB administrator

- The implementation of EFB system:
  - Is a major improvement in operations
  - Has a strong impact on Aircraft operations, cockpit procedures and tasks
  - Requires an adequate ground process for customization and updates of the system.
- This ground process involve different types of ‘administrator’
  - **Flight ops Administrator** (or Domain Administrator)
  - **EFB system Administrator** (a new role to define)

**Most of them already exist in your organization!!**

# With paper: Flight ops / Domain administrators

- Performance / W&B

Tool: Performance Engineers Program (PEP)

Role:



**SITA**  
The sky is not the limit

Lufthansa Systems

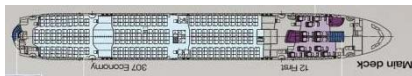
**JEPPESSEN**



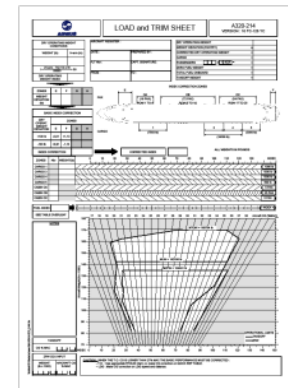
Flight Operations  
Performance  
Engineer



FLIGHT DATA				PERFORMANCE DATA				02L			
Q302 03/12/13 18:00				REVISION 10 PT 1000				DRY			
Aircraft: CDF				Revision: 10				Date: 12/13			
Aircraft: CDF				Revision: 10				Date: 12/13			
Alt	CON 3				CON FULL						
	TOURNOIS	WAT	WAT	WAT	TOURNOIS	WAT	WAT	WAT			
1	1000	1000	1000	1000	1000	1000	1000	1000			
2	1000	1000	1000	1000	1000	1000	1000	1000			
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Flight Operations  
Weight & Balance  
Engineer



# With paper: Flight ops / Domain administrators

## • Documentation

Tool: Flight Ops Documentation Manager (FODM) or ADOC

Role: Documentation authoring and customization



XML



Flight Operations  
Documentation  
Author



 <b>A318/A319/A320/A321</b> FLIGHT CREW OPERATING MANUAL	<b>PROCEDURES</b> <b>NORMAL PROCEDURES</b> STANDARD OPERATING PROCEDURES - PRELIMINARY COCKPIT PREPARATION
	<b>BEFORE WALK-AROUND</b>
	Applicable to: ALL

**COCKPIT LIGHTS**

- \* COCKPIT LIGHTS.....AS RQRD
- Set OVHD INTEG LT knob, STBY COMPASS sw, DOME sw, ANN LT sw as required.
- Set FLOOD LT, and INTEG LT as required.

DOME light should be on because it is the only lighting source in the EMER ELEC configuration. The DIM position is recommended for takeoff.

**ECIL**

FLAPS.....CHECK POSITION

Check the upper ECAM display to confirm that the FLAPS position agrees with the handle position.

- \* SPEEDBRAKE lever.....CHECK RETRACTED and DISARMED

**WARNING** If flight control surface positions do not agree with the control handle positions, check with the maintenance crew before applying hydraulic power.

**\* PARKING BRAKE**

- \* PRK BRK handle.....ON
- \* ACCU PRESS indicator & BRAKES PRESS indicator.....CHECK
- Check for normal indications.
- The ACCU PRESS indication must be in the green band. If required use the electric pump on yellow hydraulic system to recharge the brake accumulator.

**WARNING** Yellow and green hydraulic systems are pressurized from yellow electric pump. Get ground crew clearance before using the electric pump.

**PROBE/WINDOW HEAT**

PROBE/WINDOW HEAT pb.....CHECK AUTO

# Flight ops / Domain administrators

- Various domains of expertise:

## Flight Operations domains:

- Performance
  - Documentation : FCOM, MEL, FM/CDL, CCOM, FCTM
  - Mission/Dispatch:
    - Electronic Flight Folder (EFF),
    - Navigation charts
- Are basically in charge of definition, customization and validation of operational content before delivery to end users
  - This task is the same for all types of operations (paper, ACARS or EFB )
  - The tools used for this task may change depending on the format of Operational Documentation (paper or EFB)

# With EFB: Flight ops / Domain administrators

## • EFB Performance Administrator:

Tool: Performance Applications Administration tool (PA Admin)

Role:

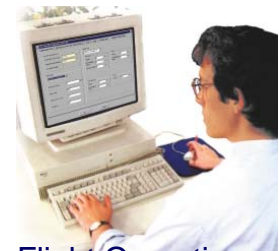
- **Customize data:**
  - Airports Data



```
Airport;
Name=Beijing;
State=China, Pr Of;
City=BEIJING;
ICAO=ZBAA;
IATA=PEK;
Latitude=40042400N;
Longitude=116354200E;
Elevation=35.052;
MagneticVariation=000000E;
Comments=;
LastUpdate=20000828;
Runway;
MagneticHeading=179;
MagneticHeadingDate=0;
Strength=499999;
MaxLength=3200;
```



**SITA**  
The sky is not the limit



**Flight Operations  
Performance  
Administrator**

**Lufthansa Systems**

**Administrato** Select a data source

**JEPPESEN** DATABASE VERSION APDataLG0.4.2

☐ Airport Manager

Define data filter

TORA MIN (m)	1500	TODA MIN (m)	1500	ASDA MIN (m)	1500
LDA MIN (m)	1000	WIDTH MIN (m)	45	ELVTN MAX (ft)	15000
L1 (m)	90	L2 (m)	900	L3 (m)	6500
GO AROUND HEIGHT (ft):	MIN	0	MAX	10000	
GO AROUND GRADIENT (%):	MIN	2.10	MAX	8.00	
GLIDE SLOPE (*):	MIN	-3.50	MAX	-2.50	

DEFAULT VALUES IMPORT CANCEL

ADMIN SETTINGS DATABASE MANAGEMENT CLOSE



- EFB Performance Administrator::

### Role:

- Airports Data

- Aircraft fleet (MSNs)
- Aircraft weights/weight variants
- Line-up distances
- Performance degradation
- Runway conditions and crosswind limitations
- Etc.

[illegible]

# With EFB: Flight ops / Domain administrators

## • EFB Performance Administrator:

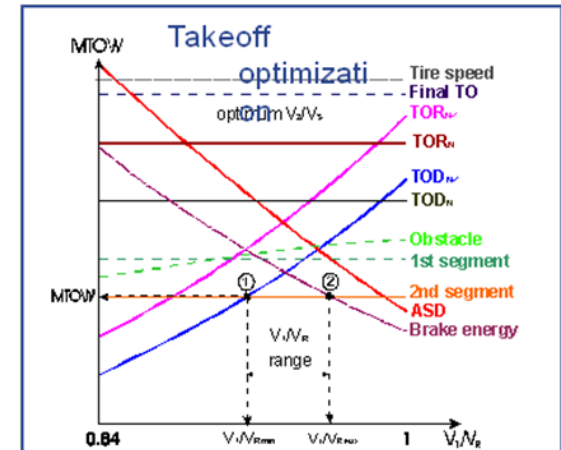
Tool: Performance Applications Administration tool (PA Admin)

Role:

### • Customize data:

- Airports Data
- Airline Fleet Performance Data
- Airline Policy. Example:

- V1 type:
  - V1 minimum
  - V1 mean
  - V1 max
  - V1 range



V1 TYPE: ☐ V1 min ☐ V1 max ☒ V1 mean ☐ V1 min-V1 max

- Default aircraft configuration for takeoff

Standard values definition

A320-233 (AE233C01)

CONF:

Air Conditioning:

Thrust Option:

EO ACC HEIGHT:

# With EFB: Flight ops / Domain administrators

- EFB Performance Administrator:

Tool: Performance Applications Administration tool (PA Admin)

Role:

- **Customize data:**

- Airports Data
- Airline Fleet Performance Data
- Airline Policy

- **Check for updates** of aircraft or airport data

- **Validate each updated customization** on representative test platform:

- for consistency with airline policy and manuals
- for completeness and correctness

# With EFB: Flight ops / Domain administrators

- Weight and Balance Domain Administrator:

Tool: Performance Applications Administration tool (PA Admin)

Role:

- Customize data:**

- Airline Fleet Weight & Balance Data

- Import of aircraft characteristics
    - Definition of W&B data for crew codes/catering/miscellaneous items/cabin and cargo compartments/fuel and MEL items



Flight Operations  
Weight & Balance  
Administrator

Cabin Zone	Deck	Average H-arm [m]	Capacity	First Row	Last Row	Class	Default Distribution
OA	Main	11.463	36	1	6	B	FWD
OB	Main	18.381	60	7	16	Y	FWD
OC	Main	26.535	60	17	26	Y	FWD

# With EFB: Flight ops / Domain administrators

- Weight and Balance Domain Administrator:

Tool: Performance Applications Administration tool (PA Admin)

Role:

- Customize data:**

- Airline Fleet Weight & Balance Data
- Airline Policy

- Interface customization. Example:

- Aircraft configurations:
  - Crew/catering codes
- Activation of LMC function

L.M.C. (Last Minutes Changes)	<input checked="" type="radio"/> Enabled	<input type="radio"/> Disabled
-------------------------------	--	--------------------------------

- Aircraft service type. Example:

- Pax type and weight
- Cargo type and weight

CONFIGURATION <F3>

CONFIG: Standard (STD)

ENTRY MODE: DETAILED (STD)

CREW: 2/4 (STD)  
3/5

LMC <F2> FUEL DISTR <Alt F2>

	OA 1-10	OB 11-19	OC 20-28	TOTAL
PAX				0
CARGO kg	CP1	CP3	CP4	CP5
				TOTAL 0

Pax Weight

Pax Type	Pax Weight [kg]
MALE	84.0
FEMALE	75.0
CHILD	35.0
INFANT	15.0

INFANT 15.0

ADD UPDATE DEL

# With EFB: Flight ops / Domain administrators

- Weight and Balance Domain Administrator:

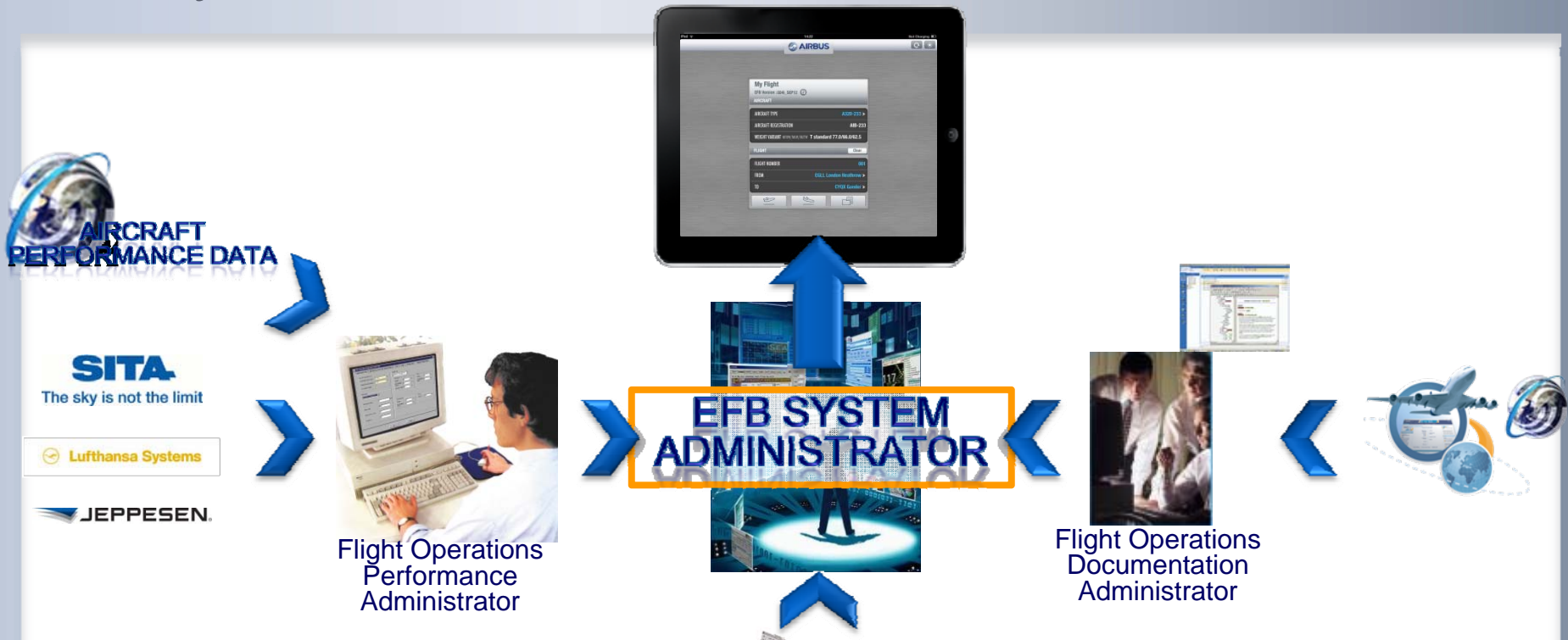
Tool: Performance Applications Administration tool (PA Admin)

Role:

- **Customize data** using PA Admin. This includes:
  - Airline Fleet Weight & Balance Data
  - Airline Policy
- **Check for updates** of aircraft data
- **Validate each updated customization** on representative test platform:
  - for consistency with airline policy and manuals
  - for completeness and correctness



# EFB system Administrator



The EFB Flight Ops / Domain Administrators do not directly send their data package on-board the aircraft!!!

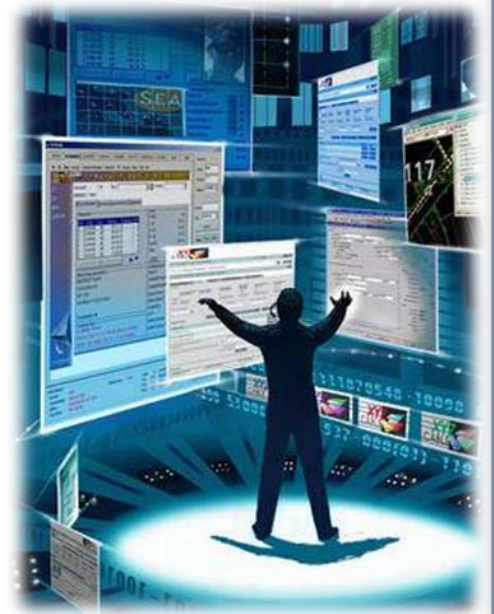
There is a need for one person that administrates the overall EFB system: the EFB System Administrator

Administrator

# EFB system Administrator

- **One single person nominated by the airline:**  
(as per CAAC AC-121-FS-2009-31)
  - Responsible for EFB administration
  - Main contact point between operators and EFB supplier.
- The **main responsibility** is to ensure:
  - Safe and proper operation of the EFB,
  - Any hardware meets the relevant specification
  - Any unauthorized application is not installed
  - The applications and data package are current.

EFB configuration  
Aircraft data accuracy and consistency  
Data distribution to fleet and end-users

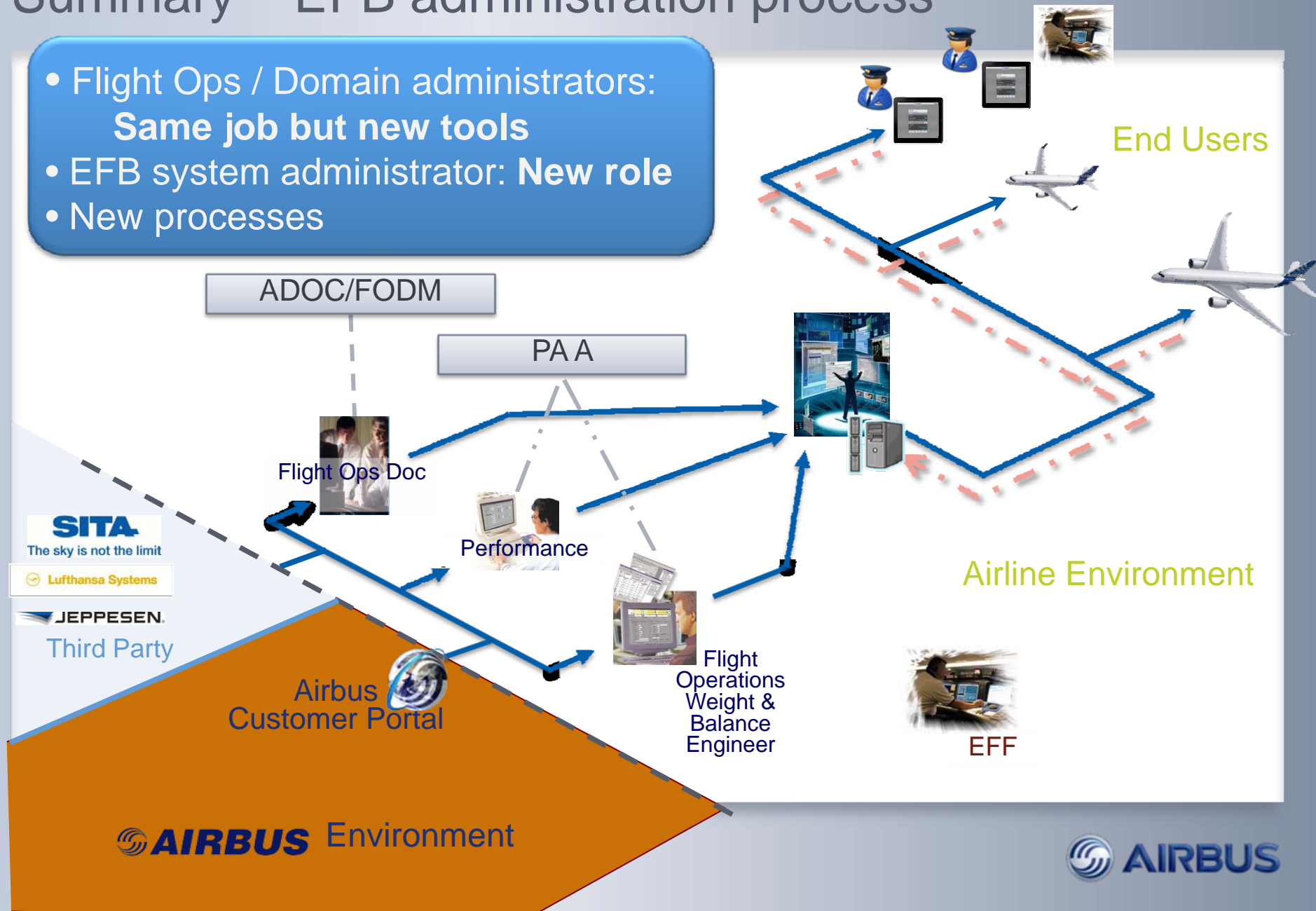


# Content

- Introduction: Airbus EFB solutions
- Types of EFB administrator and their role
- **Summary: Overall administration process**

# Summary – EFB administration process

- Flight Ops / Domain administrators: **Same job but new tools**
- EFB system administrator: **New role**
- New processes





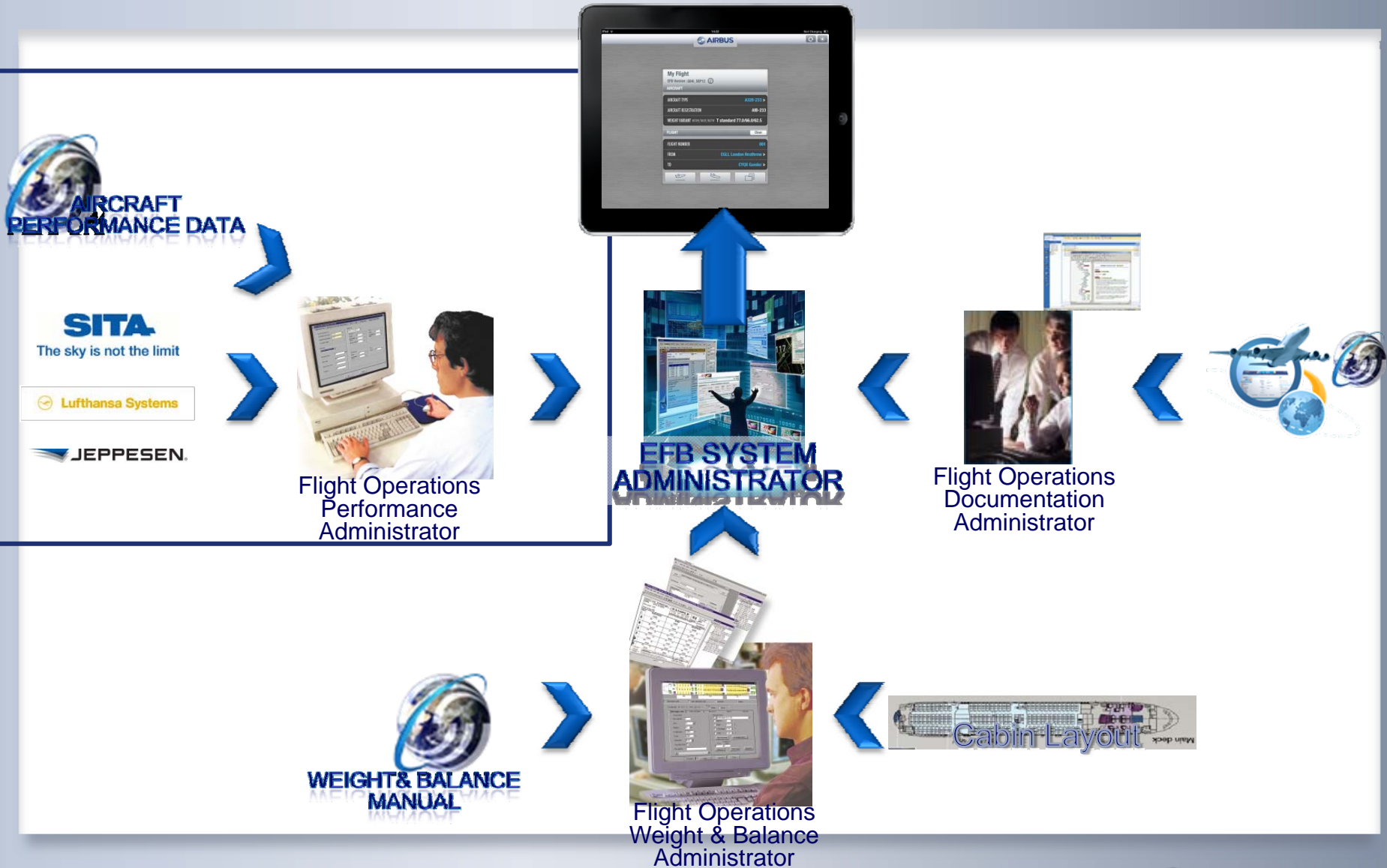
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- **Role of the EFB Performance/W&B administrators**
- Role of the EFB system administrator
- Summary: Overall administration process



# Role of the EFB Performance Administrator



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# Role of the EFB System Administrator



# EFB System Administrators

- The EFB System Administrator
  - **Recieves the data** from the various Domain administrators.
  - Manages the **EFB configuration**
  - Checks and Validates the **consistency of** all EFB modules **updates**
  - Ensures **Aircraft data accuracy**
  - Manages the **airline fleet**
  - **Dispatches the updates** of data to the end users or to the aircraft.

