



Presented by

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Value Chain Visibility & Auto-ID programme



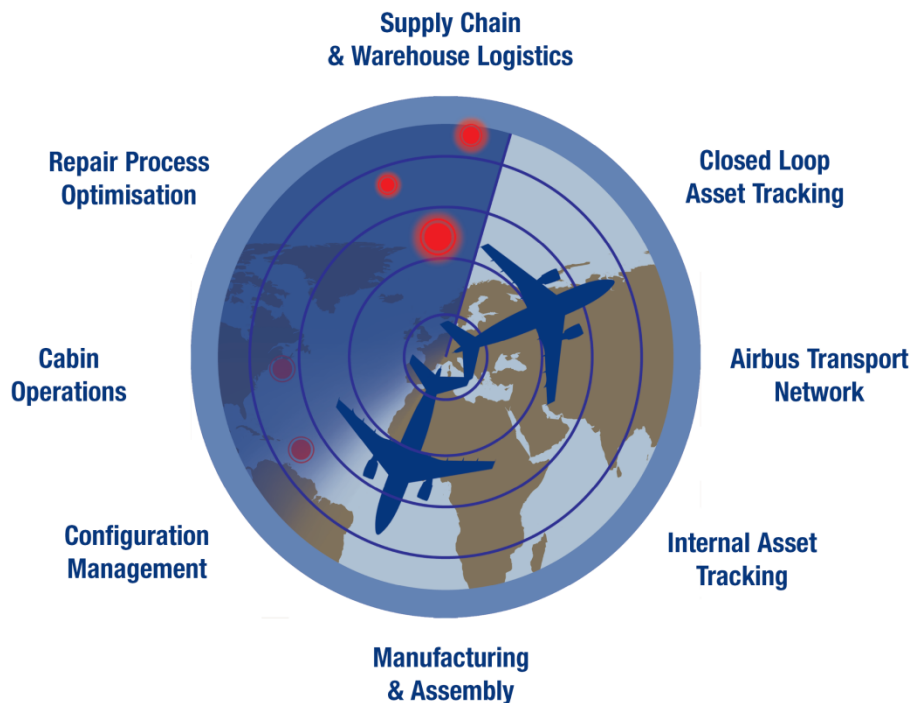
Airbus to support RFID adoption in aerospace maintenance

Salon solutions RFID, Porte de Versailles

26/11/2009

Airbus Vision : business radar

Airbus is using Auto-ID technologies to develop a **BUSINESS RADAR** which provides real-time automated visibility of business operations

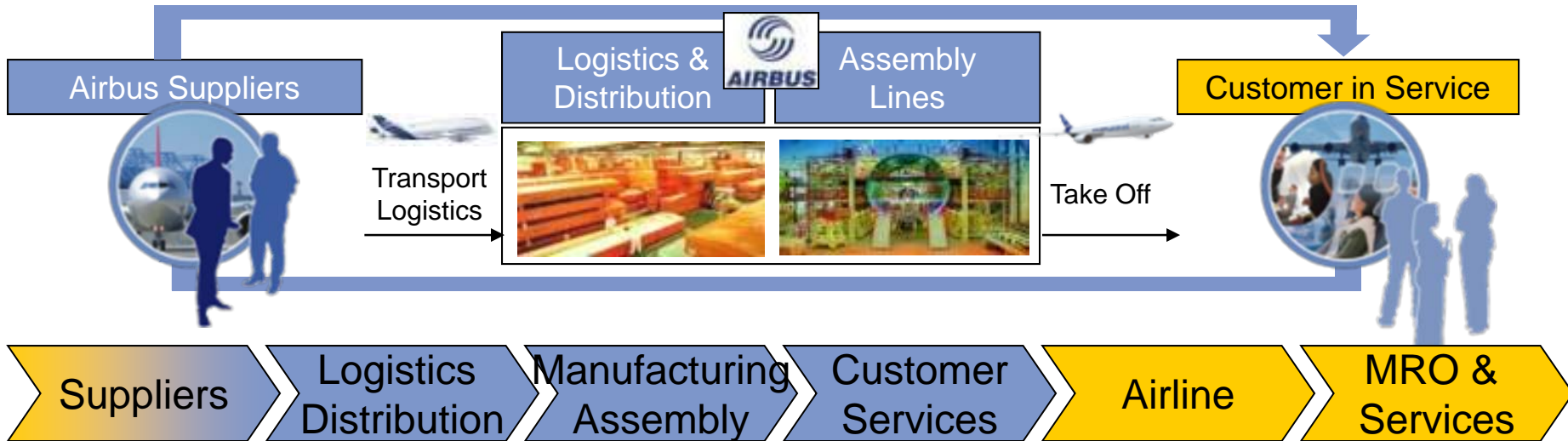


REAL TIME INFORMATION

- ▶ *Where are the parts that I need?*
- ▶ *Where are my process violations?*
- ▶ *What is my process performance?*
- ▶ *How much inventory am I holding?*
- ▶ *Performance compared to targets?*

VALUE CHAIN VISIBILITY

Two categories of Visibility



NON-FLYABLE VISIBILITY



Warehouse Logistics and Inventory Management



Generic Asset Tracking (Containers, Spares, Tools, Jigs)



Global Transport Network



As-Built Configuration Management and Attestation



Tool Loans and Consignment Stock

FLYABLE VISIBILITY



As-Flying Configuration Management Processes



Optimized Maintenance Process



Component repair operations



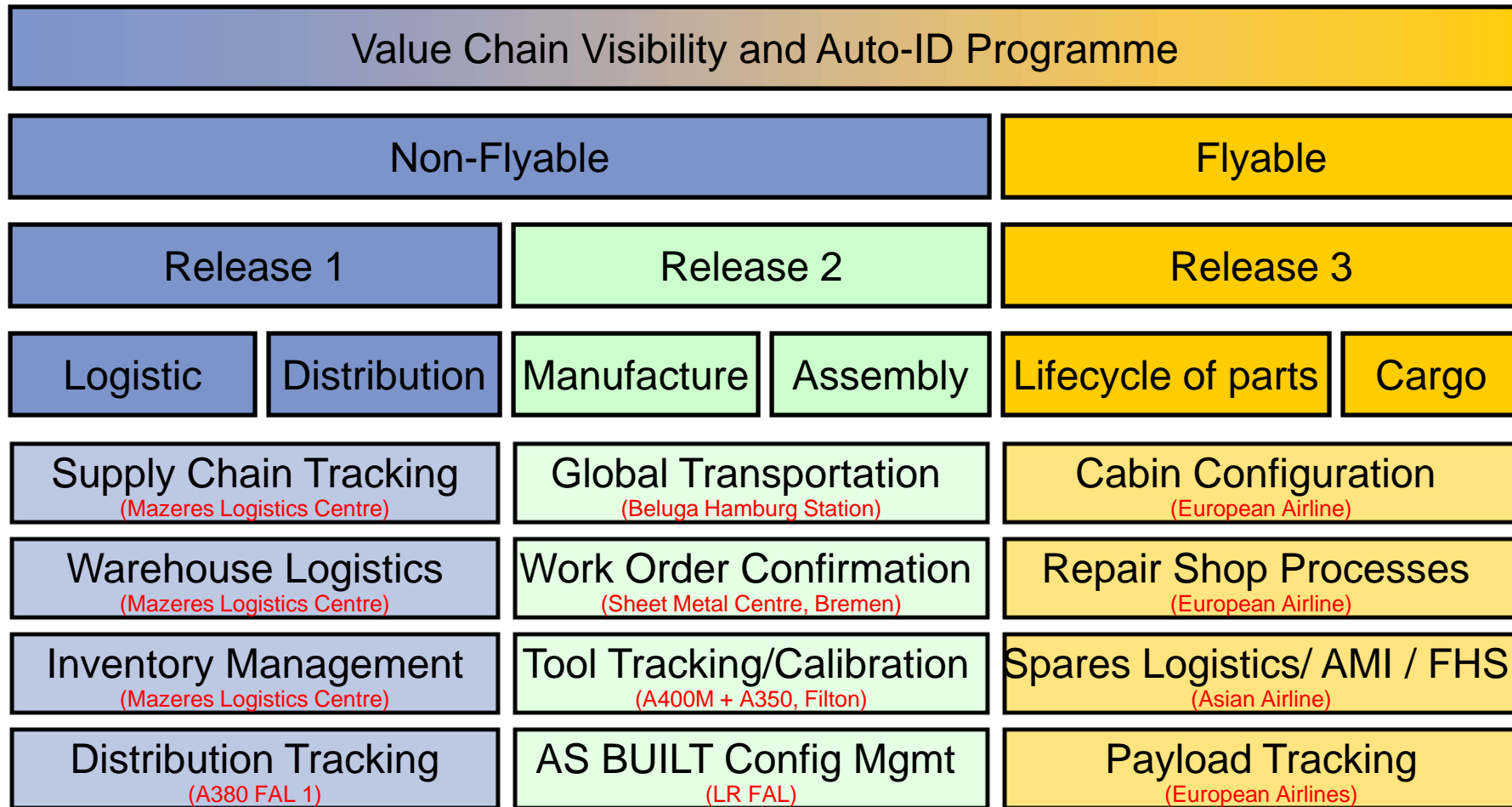
Spare parts logistics



Cargo/catering operation

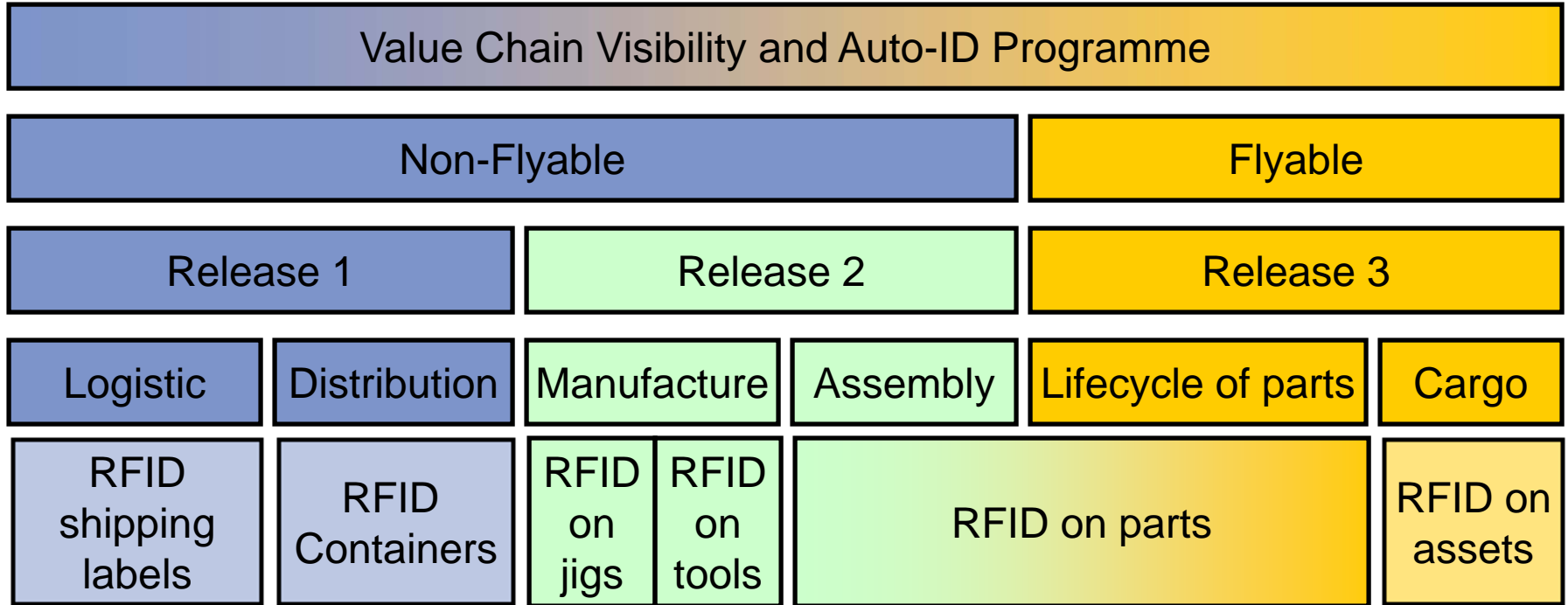
DIFFERENT TYPES OF RFID

Providing More Efficient Total Lifecycle Traceability



DIFFERENT TYPES OF RFID

Providing More Efficient Total Lifecycle Traceability

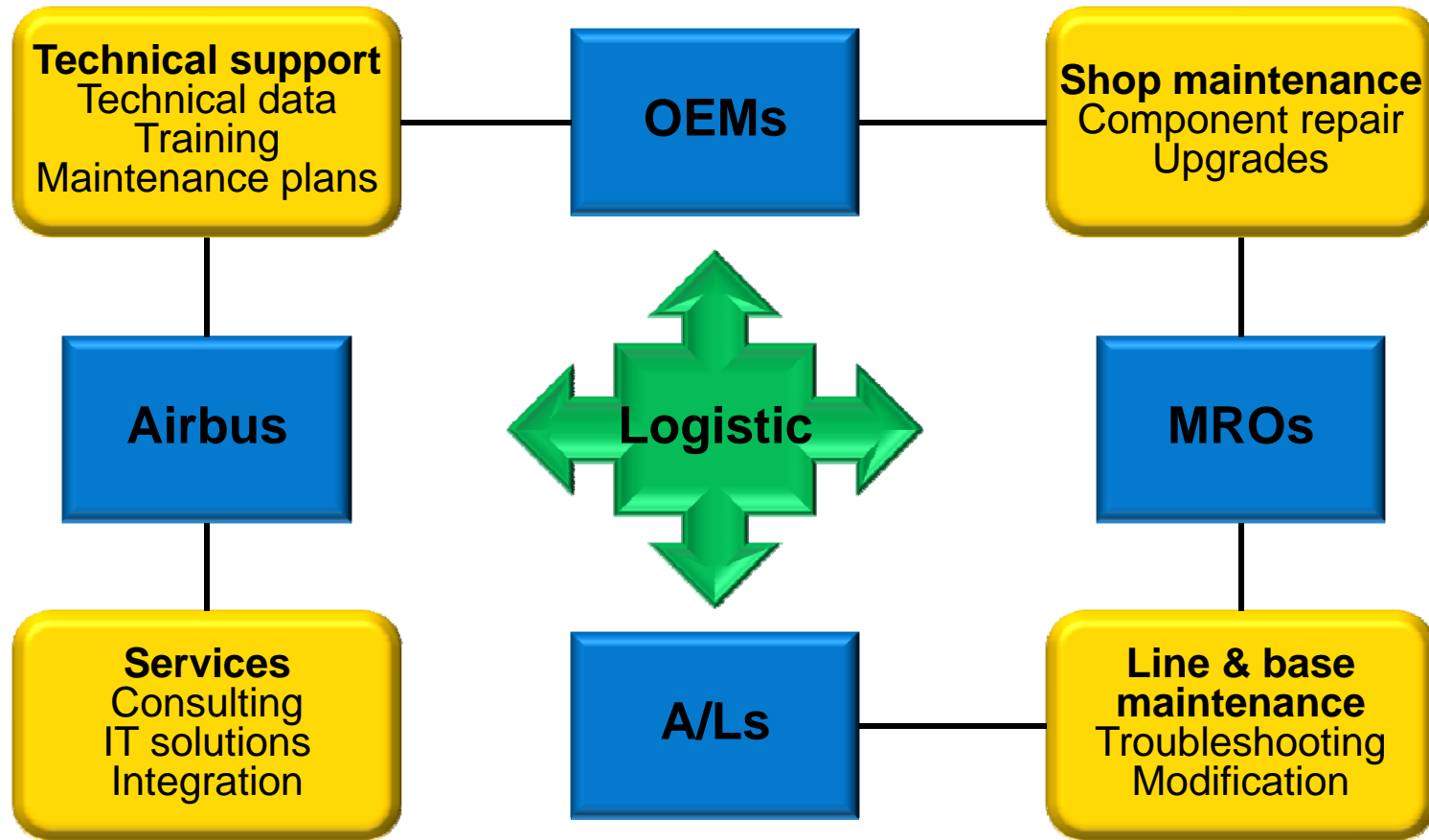


There is no one size fits all solution

Different RFID & bar code enablers are used for different processes

Maintenance activities overview

Main RFID opportunities



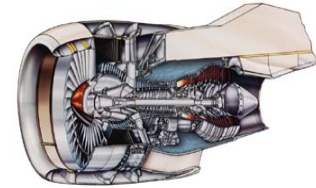
Main RFID opportunities:
Fragmented logistics and operations
Technical data exchange current using papers

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Use cases studies

With three partner airlines

- **Four opportunity study projects**
 - ▶ Engine repair shop parts tracking
 - High quantity of parts in a limited space
 - ▶ Life-vest tracking in maintenance operation
 - Regular check of presence & date
 - ▶ Seats configuration tracking (line & base maintenance)
 - Data capture & proximity stock management
 - ▶ Spare parts logistics process
 - Repair loop logistic



Average to high levels of benefits (up to multi-millions €/year)
All return on investment within the year

Maintenance integration role

Challenges overview

Airbus's Total Support Package principles

- ▶ Power by the hour contracts including maintenance & logistic
- ▶ Tailored to the airlines make or buy policy
- ▶ Allows airlines to link cost & revenue

Airbus situation and needs as an integrator

- ▶ Not involved in most of the operations
- ▶ Needs to have full process visibility
- ▶ Requires IT tools to provide KPIs and dashboards

RFID & middleware solutions is an option

- ▶ Independent from logistic and transport provider
- ▶ Enabling benefits in maintenance operations



Maintenance integration role

Technical enablers

Logistic tag

- ▶ Despatch label tag
- ▶ UHF, 96 bits reference code
- ▶ Data format either proprietary or standard

Readers on site

- ▶ Fixed portals in key locations
- ▶ In Airbus + partners premises
- ▶ Extended enterprise situation

Software solutions

- ▶ Middleware & edge-ware layers
- ▶ A lot of potential for integration (e.g. web services, baapi)
- ▶ Great reporting capabilities

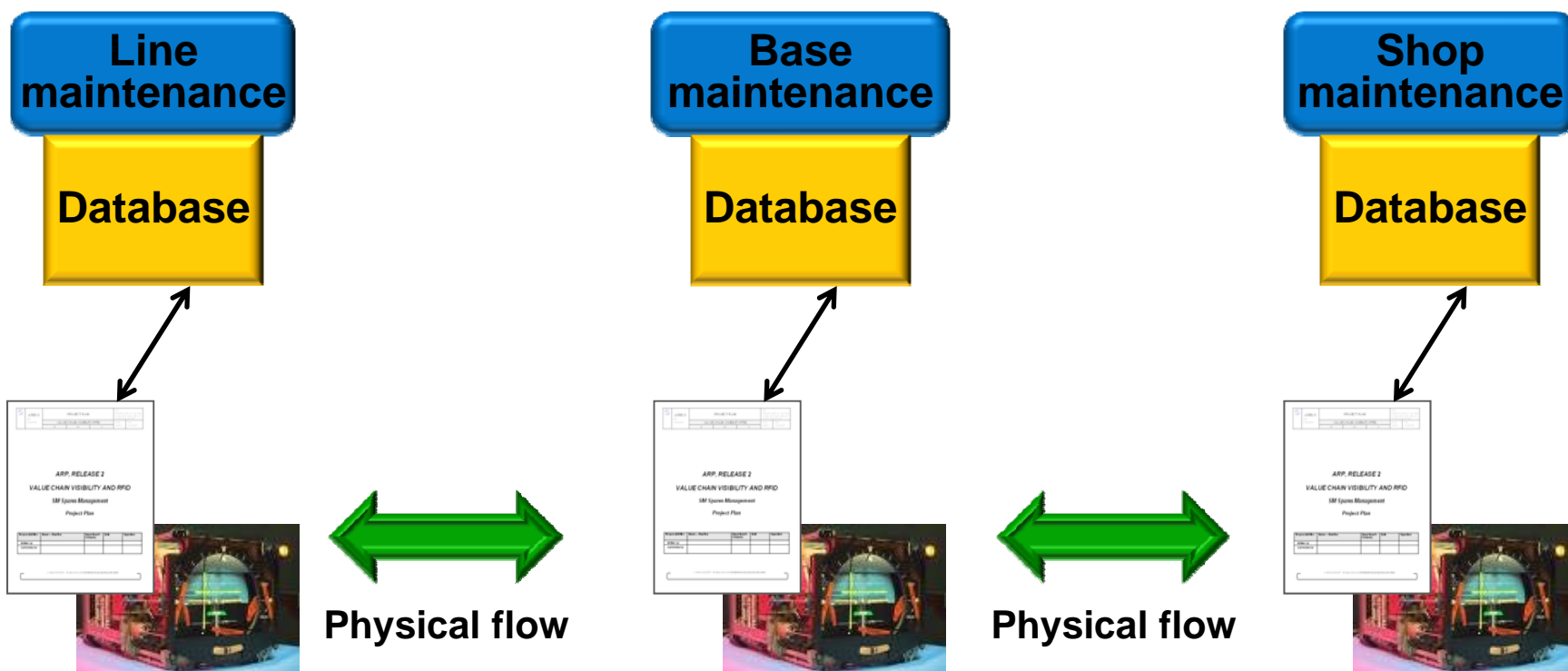


Maintenance operations role

Challenges overview

Information flows are currently supported by paper !

- ▶ High airworthiness authorities requirements
- ▶ Business impact on operations profitability
- ▶ Databases integration is not economically viable today



High-memory tags

- ▶ Permanently attached to an aircraft part
- ▶ UHF or CMB, low memory or more than 4kBytes memory
- ▶ Data format according to ATA Spec 2000 format
 - Parts identification + maintenance history



Mobile & table readers

- ▶ Depending on local processes



Software solutions

- ▶ Flexible and ready for integration in various system
- ▶ Databases links at company level



A350 XWB will be the first aircraft ever to have RFID on parts

Standardization landscape

Technology level

- ▶ The objective is to align with ISO standards
- ▶ Nowadays for 18000-6c air interface protocol and MB01
- ▶ Long term for MB11, currently under ATA Spec 2000



Organisation
internationale de
normalisation

Aerospace level

- ▶ Data format according to ATA Spec 2000
 - Business data
 - Data format to join ISO when available
- ▶ Performance & environment according to SAE AS5678



SAE *International*

Airbus level

- ▶ A350 programme specification available to all suppliers



- **Airbus is committed to the deployment of Auto – ID technologies for maintenance application**
- **Airbus has today the only integrated RFID team in the aerospace industry**
 - ▶ Business analysis
 - ▶ Solution development
 - ▶ Solution deployment & operation
 - ▶ Project management
 - ▶ Flyable & Non-flyable
- **It will help customers reduce their costs significantly**



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