



MORPHO

How new technologies can secure and increase MRO' efficiency

AERO MONTREAL / Doing MRO in Canada / April 28th 2016



WHO AM I ?

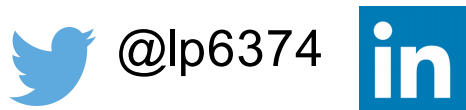
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VP Digital Security , SAFRAN (Morpho)

Spent more than 15 years in both Aerospace maintenance & Industrial Cybersecurity

Former Air Force Officer

Involved in various Cybersecurity Panels and Working Groups for Aviation ecosystem (EU, ATA...)



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SAFRAN

AN INTERNATIONAL HIGH TECHNOLOGY GROUP

KEY ANNUAL FIGURES

Workforce  **70,000+** employees


in more than **60** countries 


Revenue  **17.4** billion

R&D Investment equal to nearly **12%** of revenue 

Recurring operating income  **€2.4** billion

R&D calls **21%** of the Group' workforce 

Net income group share  **€1.5** billion

More than **900** patents filed 



Figures as of December 31, 2015

MORPHO - A GLOBAL LEADER IN IDENTITY AND SECURITY

KEY ANNUAL FIGURES

Workforce
8,700+



in **57**
countries



Revenue
€ 1.9
billion

R&D
investment
equal to
nearly **7%**
of revenue



A global
presence

78 entities
worldwide

#1 worldwide in biometric
identity solutions



(fingerprint, iris and face)

MARKETS

CIVIL ID



COMMERCIAL ID



PUBLIC SECURITY



Figures as of December 31, 2015

DIGITAL TRANSFORMATION: ISSUES AT STAKE

Commercial
excellence

Operational
excellence & cost
reduction

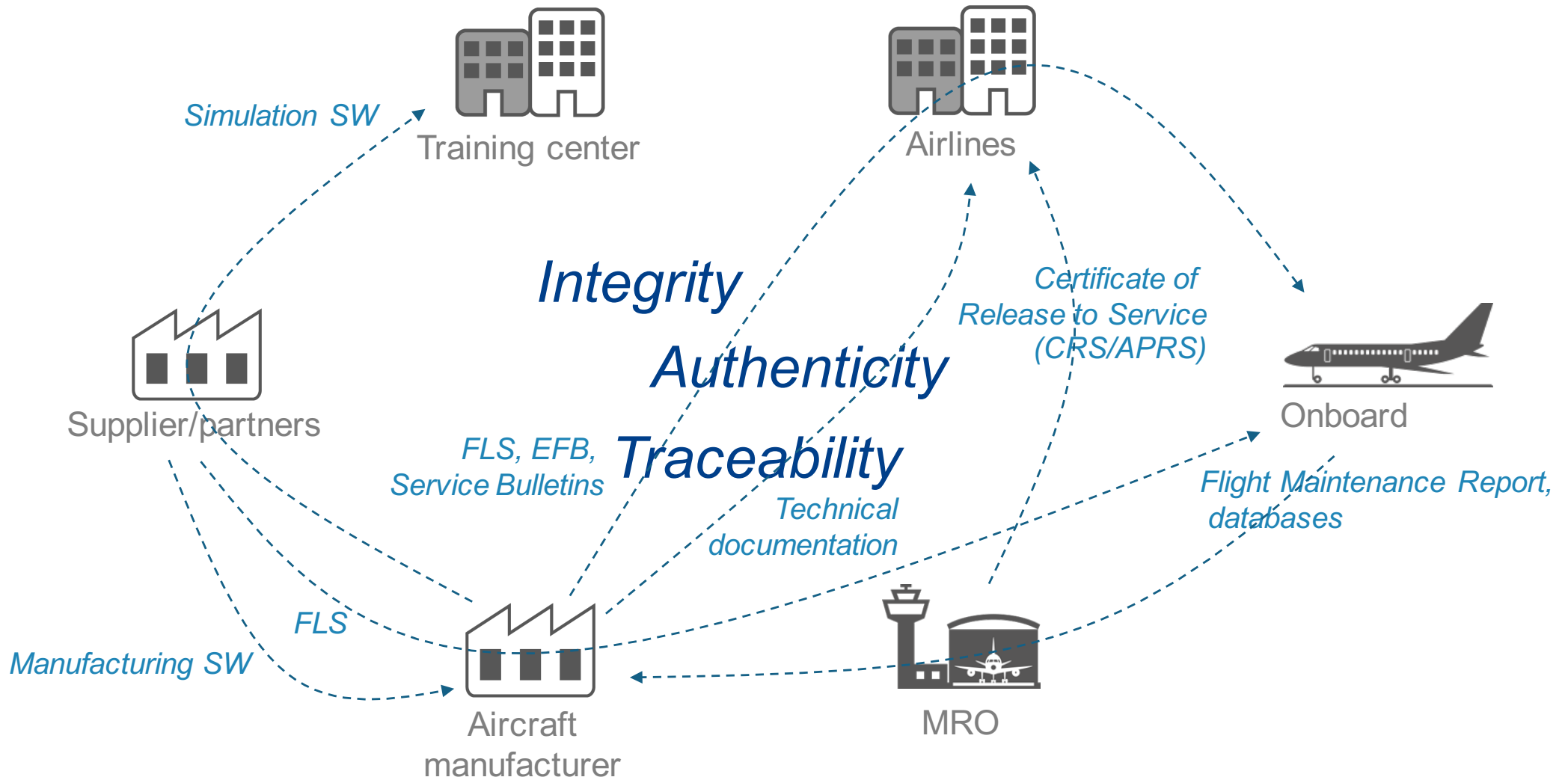
New business
creation

Leverage your « data »

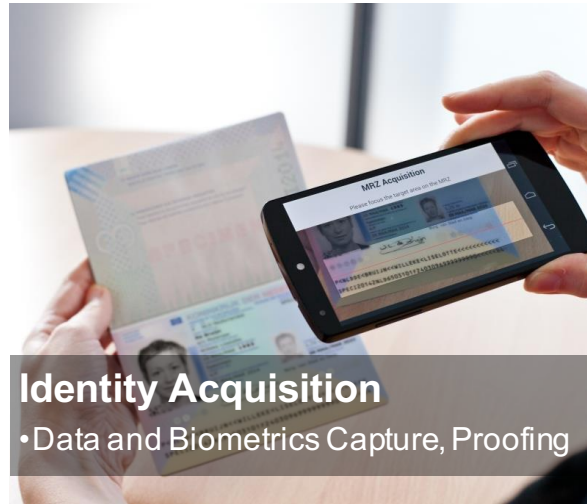
Make your business « Digital Ready »

AVIATION ECOSYSTEM

Some mission critical data flows

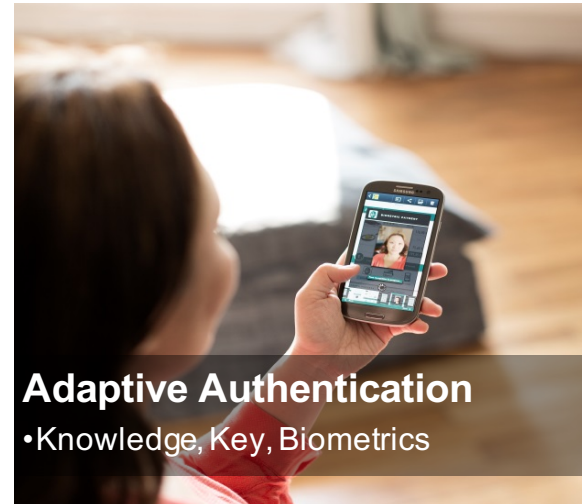


MORPHO DIGITAL SOLUTIONS



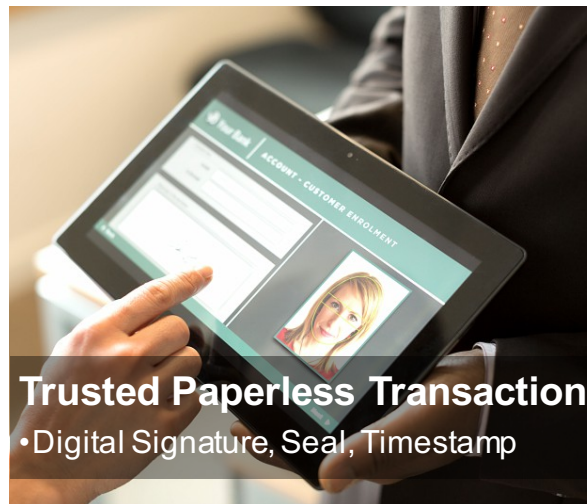
Identity Acquisition

- Data and Biometrics Capture, Proofing



Adaptive Authentication

- Knowledge, Key, Biometrics



Trusted Paperless Transaction

- Digital Signature, Seal, Timestamp



Traceability & Legal Archiving

- Compliance, Evidence Perpetuation

SOFTWARE SUPPLY CHAIN SECURITY

USE CASES



Field loadable software

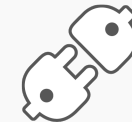
Engine and other technical parameters

Simulation software

Computer numerical control files



Data origin must be verified



Software validation may be **online or offline**



Data integrity can be compromised on untrusted channels



Data can be transmitted on **physical medium or online**



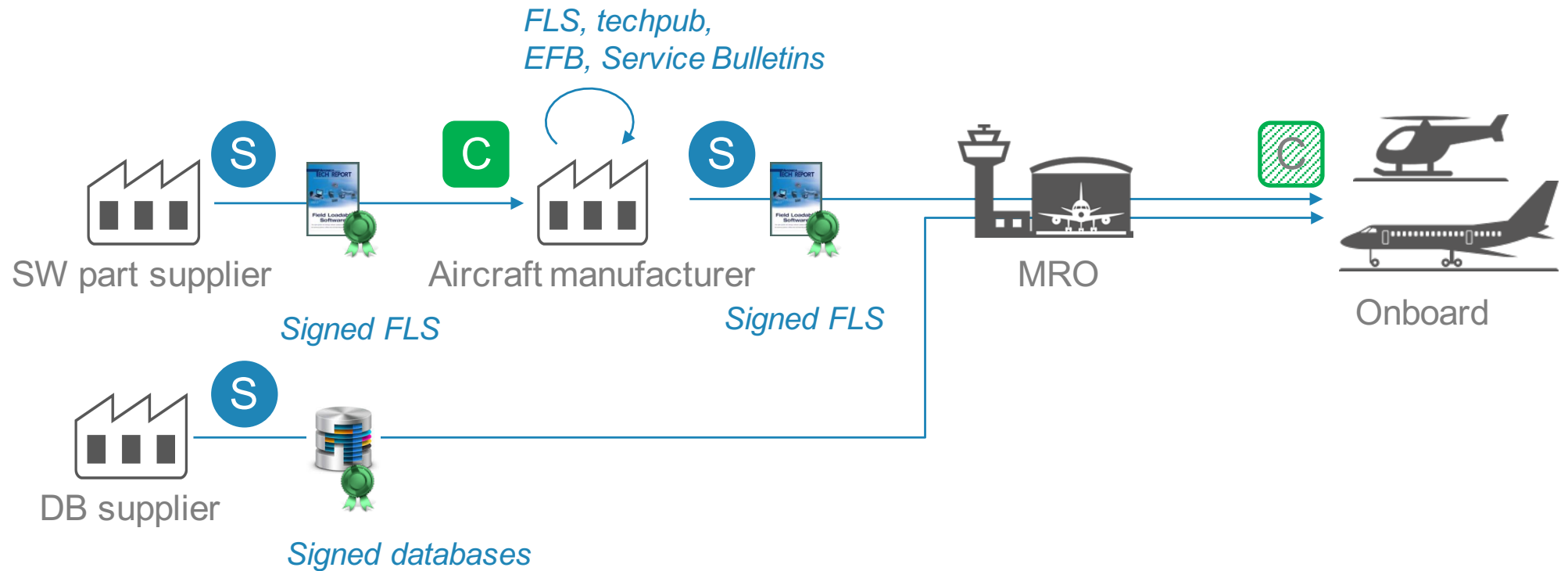
Strong regulatory and corporate specific rules



The solution must be integrated in **existing business processes and tools**

SOFTWARE SUPPLY CHAIN SECURITY

GROUND TO ONBOARD



S sign **C** check

FLIGHT REPORTS AND MAINTENANCE DATA SECURITY

USE CASES



Mission reports

Flight data retrieval



Data origin must be verified



Software signature may be **online or offline**



Data integrity can be compromised on untrusted channels



Data can be transmitted on **physical medium or online**



Strong regulatory and corporate specific rules



The solution must be integrated in **existing business processes and tools**

DIGITAL MRO SECURITY

USE CASES



Paperless
work orders
signature

APRS
signature

Aircraft
records
archiving/
traceability



Switching paperless and
maintaining **regulatory
compliance**
(ATA Spec 42)



Technician, customer and
regulator
acceptability



Maintenance operations
accountability



Offline mode requested for
the technician

USE CASE: MRO & Paperless maintenance report

Work orders signature by technicians on tablets, EASA/APRS signature by controllers on PC, electronic sealed attestations for customers, long term archival of the aircraft digital records



Ground immobilization
**reduced from 3 days
to 1** – for several
thousands of aircraft
records a year



Human factor **risk
reduction**



Non repudiation of the
controller signature



Cost optimization



CONCLUSION

Future of MRO activities will go with Digital

Digital is compatible with Regulations compliancy

Digital would bring more security (integrity, traceability and secure archiving)

KEY MISSIONS, KEY TECHNOLOGIES, KEY TALENTS