Airbus Defence and Space delivers a wide range of products & services to their customers through the Operations perimeter. In these highly heterogeneous facilities the use of digital technologies offers great opportunities to improve working conditions, efficiency and flexibility. Specifically the use of IoT based applications can help to e.g. gather data, facilitate decision making and improve production quality. Special attention is required for the secure and compliant application given the special business background.
Content/Overview

(I)IoT – (Industrial) Internet of things

1. Introduction with diverse DS Operations Landscape in terms of sites/products/systems
2. Innovation Strategy with planned IoT activities
3. IoT enabled use cases
4. Security aspects & Summary
One Prime Operations

Central functions inside Operations

Quality and
Procurement, Supply Chain & Logistics
together with

Manufacturing
delivering products and services in four areas

FALs
Final Assembly Lines for A400M, Eurofighter, MRTT, LTA

MRO
Maintenance Repair and Overhaul for Spanish and German air forces

Plants
Component manufacturing and assembly for Airbus Commercial and Defence & Space, Ariane, Boeing, Dassault

Space
Satellite structure and payload manufacturing, ENS & Telco satellite assembly, integration and testing

~9500 FTEs
12 industrial sites
DEFENCE AND SPACE

Operations Plants positioning

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Farnborough
- Satellite MAIT
- CoC RF Payloads & Active Antennas

Newport
- Space Electronics

Elancourt
- Space Electronics

Toulouse
- Satellite MAIT France
- FAL Constellations
- CoC Environmental Tests

Tres Cantons
- Space Electronics

Getafe
- FAL and Services Derivates
- FAL and Services Center Combat A/C Spain
- Satellite MAIT Spain
- CoC Launchers Structures

Seville
- FAL A400M
- FAL and Services Center Transport LTA
- Pre-FAL & Launch Factory MIA and UAS
- CoC & Launch Factory Electrical

Bremen
- Launch Factory Orbital
- Pre-FAL A400M

Warsaw
- Launch Factory Orbital
- "Best-Value" production
- Services Center Poland

Maching
- FAL and Services Center MIA & UAS Germany

Ottobrunn
- CoC Optical Payloads & Solar Arrays (TS)

Ulm
- Connected Intelligence

Friedrichshafen
- Satellite MAIT Germany
- CoC Radar & Optical Payloads

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Stevenage
- Satellite MAIT Uk
- CoC Structure Assembly & Propulsion

Portsmouth
- Connected Intelligence

FAL and Services Center Combat A/C Spain

Satellite MAIT Spain

CoC

Launchers Structures

Toulouse
- Satellite MAIT France
- FAL Constellations
- CoC Environmental Tests

Seville
- FAL A400M
- FAL and Services Center Transport LTA
- Pre-FAL & Launch Factory MIA and UAS
- CoC & Launch Factory Electrical

FAL and Services Center

Transport LTA

FAL A400M

Satellite MAIT Spain

CoC Composites

CoC Nacelles and Automated Assembly

Launch Factory SPF and SMHF
Strategy for transformation and IoT application

Stage A
- Creating the Foundation
- Responsive Factory
  - Connectivity
  - Real time information
  - Algorithm planning
  - IoT gathers data

Stage B
- Keep up with State of the Art
- Predictive Factory
  - Forecast
  - Simulations/Scenarios
  - Rule-based
  - IoT communication centralized

Stage C
- Build Factory of the Future
- Intelligent Factory
  - Autonomous Systems
  - Self-learning algorithms
  - Digital Assistants
  - IoT communication distributed
• Potential Enabled capabilities based on IoT
• Potential Enabled capabilities based on IoT

Enabled Capabilities
- Connect Machines to Network
- Automated delivery of materials to Point of Use
- Automatic tool configuration via MES/ERP/DDMS
- Predictive analysis / AI for quality analysis
- Health monitoring & predictive maintenance
- Locate and trace parts
- Locate Components & Industrial Means
- Reduce environmental waste (energy, heat, …)
- Automation of document generation & editing
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# Use Cases
1. GAP GUN
2. Robotic Connection (Roboshave)
3. Autoclaves Connection
4. Smart assets
5. AGV Connection
6. SMART BONDING
7. H&S Monitoring
8. Indoor Asset tracking
9. CBM and predictions in legacy machinery
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  ...

Production system corporate solutions

PLM
ERP
Data Lake
MES
IoT Platform

Enabling Technology

Shopfloor
IoT Needs building on security

1: Have one universal IoT Platform
2: Have a solution for tracking parts (onsite and through the supply chain) and industrial means
3: Ability to connect sensors monitoring all resources (machines, buildings, etc.)
4: Configure tools and record measurements
5: Capability to connect and control all relevant machines, legacy or new
6: Provide the connectivity to enable these capabilities

→ Legal limitations regarding data classification and use of wireless technologies
Thanks !