REQUIREMENTS FOR INDUSTRY 4.0

Vivien CROES
Airbus Space Electronics
Airbus Space Electronics

Part of Airbus Defence and Space

2 Factories in Europe
Élancourt (FR) - Tres Cantos (ES)

~ 800 employees
200 M€ revenue
2,000 boards/year

A Mutating Industry

More competitive
→ strong and lasting price drop

More reactive
→ strong and lasting shortening of production and development cycles

More standardized
→ Increase of production series size following the NewSpace trend

Ambition 2021

1. Strengthening our position of global leader in space electronics
2. Increase significantly our productivity

Élancourt plant

Creation of an Excellence Center
Pilot Site

3 Transformation Axis

Technological Innovation
Industrial Performance
Extended Collaboration

2019
2021
Activities of Airbus Space Electronics

**Platform Avionics**
- On-Board Computers
- Platform Data Handling & Interface Units
- System-on-Chips, Hybrids & Components

**Gyros & Actuators**
- Astrix Inertial Measurement Unit / IRU series
- Control Momentum Gyros

**Power Conversion**
- Power Conditioning & Distribution Units
- PPU for Electric Propulsion
- Drive Electronics
- DC/DC Converters

**Payload Data Handling**
- Solid State Recorders / Mass Memories and Payload Data Processing
- Instrument Control Units
- Video Electronics
- Security Electronics

**Launcher Electronics**
- Ariane and Vega electronics

**PureLine**
- Disruptive products for New Space applications
Manufacturing Space Electronics

Components Reception & Preparation → Screen Printing → Solder Paste Inspection → Pick & Place → Vapor Phase Reflow → 3D Automatic Optical Inspection → Selective Wave Soldering → LIMITED Manual Assembly

LIMITED Final Visual Control → Assembly Control Flying Probe → Automated Board tests → Conformal Coating → LIMITED Final Visual Control → Final Assembly → Environmental & Functional Equipment Tests → Packing & Shipping

Key Point

Factory 4.0 @ELC – Space Electronics
Manufacturing Digital Environment

SAP ERP

Connected to the Engineering Digital Tools and to a dedicated Business Intelligence Tool

MCT

SAP ME

Factory 4.0 @ELC – Space Electronics
**Bottom-Up Approach** → from the operational needs to the **co-creation** of an adapted and efficient solution.
Who are we working with?

- Industrial Partners
- SMEs & Start-ups
- Île de France Region
- Academic Partners
- Airbus Space Electronics
- Competitiveness Clusters
- Space Agencies (ESA, CNES)
Edge Computing in an Industrial Environment

Operational Constraints

- **Simplicity** to maintain
- Not always the **latest hardware**
  - Old protocols (when existing)
  - Industrial networks
  - No wireless…
- Need to be integrated to the industrial environment (SAP or other).

Business Constraints

- Very **small** batches
  - Statistics can be a difficulty
  - Low non recurrent efforts are needed
- **Defence applications**: no external internet connection!

Opportunities

- Extremely **high quality**:
  - Need highly reliable controls
  - Lot of data can be collected
- **Automation** is a must to survive in the New Space world
- No internet connection → the more locally measured and treated, the better

Despite the difficult situation for innovation credits, do not hesitate to contact me!
Factory 4.0 for Space Electronics

Thank you!

Focal Point

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