“It is difficult to say what is impossible, for the dream of yesterday is the hope of today, and the reality of tomorrow.”

Robert H. Goddard

Supply Chain on parts for Industry 4.0

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Airbus Lead Buyer Electronics
ESCON Nordwijk
13th of March 2019
Agenda

• Challenges – not limited to Space

• Challenges in Space Supply Chain for Industry 4.0

• Challenges in the Electronics Market
Challenges – not limited to Space

- New Space
- Constellations
- New Technologies
- New ways of working
- Digital world
- Cost pressure
- New Players
- Speed
- Environmental Requirements
- Electronics everywhere
Traditional Space Supply Chain

End Customer  Prime  Equipments  Components

Connected via detailed specifications defining requirements

2-5 years

Single supply chain for each project: works and worked well in the past due to limited sets of requirements and clear separation from the Space Industry to other industries!

Negatives: manual processes, low speed, high cost, low flexibility, Niche Supply Base for Space,...
**Industry 4.0**

*Deloitte, 2015*

- **Digital Transformation**
  - Vertical Networking
  - Horizontal Integration
  - Through-Engineering
  - Acceleration Through Exponential Technologies

- **Disruptive Transformation**
  - Artificial Intelligence
  - Advanced Robotics
  - Collaborative Connected Platforms
  - Networks
  - Advanced Manufacturing

**Industrial Revolutions**

1st: Mechanization, water power, steam power
2nd: Mass production, assembly line, electricity
3rd: Computer and automation
4th: Cyber Physical Systems

Ref. Wikipedia
Future Space Supply Chain in Industry 4.0

Challenging targets:
- drastically reduced cost & delivery schedules,
- New ways of working,
- Quantities & Quality levels vary,
- Environmental requirements changed,
- Broader Supply Base, Planning, Forecasting,
- Higher integration, Link to industrial production lines,
- High variety in requirements,...

Connected Digital Supply Chain –
Transparent and predictive production/supply flow!

Traditional Space, New Space, New ways of working,...
EEE 4.0 – toward full digitalization

- Design generating EEE demand – automated in system
- Automated demand process
- Stock Airbus?
- Supplier 1?
- Supplier 2?
- Supplier x?
- Analysis of proposals
  - Artificial Intelligence?
  - RFP/RFI
  - Proposal into Tool
  - Full transparency on delivery dates, cost, Non-Conf,...

Future

Decisions

Automated PO process

Real Time
Challenges in the electronics market
Some facts and thoughts about the electronics market
**Market Situation** Electronic Components

Growth Rate Electronic Components

- US: +8%
- EU: +5.2%
- China: +12%
- Japan: +4%

2018

Electronic market: high growth rates 2018 (trend for 2019/2020 even higher) – dominated by US and China

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**Aerospace & Defence**

Within the global aerospace and defence sector, “electronic components are projected to witness the highest growth” of all hardware components through 2023. North America will remain the market leader in terms of component demand.

**Commercial Aircraft**

Analysis by Deloitte projected global revenue for commercial aircraft to grow by 4.8% in 2018 year-on-year, driven primarily by demand for narrow-body commercial aircraft intended to meet increasing travel demand.

Electric propulsion and associated trends such as autonomous flight and urban air mobility are widely seen as the “third revolution in aerospace”, with an ongoing industry-wide shift toward electrically-powered aircraft. Over 100 electrically-powered commercial aircraft are entering production over the next two decades.

**Automotive**

The automotive sector is seeing an uptick in demand, spurred on by the economic recovery and centered around the United States and, especially, China. Rising demand for automobiles is complicated by a shift in demand for type of vehicle. Demand for electric and internet-connected vehicles is on the rise across the board, with Germany expected to build as many electric vehicles in 2021 (1.3 million) as existed in total globally in 2016.

Increasing shares of the market. Electric vehicles and smart (autonomous and otherwise) vehicles require significantly more electric components and demand on all types is accelerating. The relative stability of the sector as well as accurate available forecasts make the automotive industry a high priority for electronic component suppliers.
Market Situation Electronic Components

Impressive amount on Mergers & Acquisitions - all affecting Airbus:
Is there enough budget left to increase the production capacity to the needed level?
The increasing demand across industries combined with high amount of Mergers & Acquisitions in recent years are increasing lead times and prices and are adding significant risk onto the Supply Chain of Airbus products. This trend will be seen also in the next years!

**Passive Components**
MLCC major player of MLCC is refusing Purchase Orders and will provide in 2019 the equivalent of the quantity consumed in 2017. Some references will become progressively obsolete in the coming 3 years (-30% quantities per year as of 2017)
Prices have raised for some actives and passive components (chip resistors and MLCC) and the trend will not be reversed in 2019
Let’s share thoughts and collaborate to ensure EEE availability for Space

Airbus Task Force EEE

taskforce_eee@airbus.com
Airbus Task Force EEE is interested to collaborate with you on the following topics:

- Create awareness on the EEE market situation
- To avoid any impact on the products provided to Airbus or built in Airbus
- To help in cases of immediate shortages risking the OQOTO delivery to Airbus
- Short-/Mid-/Longterm mitigation plans in case of issues!

Due to the critical market situation in electronics Airbus has established a Task Force EEE to secure the delivery of all electronic equipment used in Airbus applications

Common initiative lead by the Airbus Procurement Synergy Group Electronics – closely alignment across Airbus Group
Integration one voice to Supply base

This initiative shall create awareness to a critical situation in the Electronic market. We encourage the whole Airbus Supply Chain to collaborate with us in an open and transparent way to secure OQOTOC delivery of our suppliers to us and to enable Airbus to stick to our delivery commitments!

Methods / Processes - way of working

For further information or urgencies please feel free to contact your business partner at Airbus or directly the Task Force project team:

Generic Email address taskforce_eee@airbus.com
Thank you!