Factory 4.0: a competitiveness factor for Safran, "a lever to transform the aeronautics sector"

The world’s aeronautics industry is undergoing unprecedented upheaval due to the exponential growth of commercial aviation. The integration of new technologies into industrial facilities and the exploitation of big data have now become a reality, completely transforming the aeronautics sector. Safran Electronics & Defense has already begun its digital transformation, with virtual and augmented reality, cobotics, additive manufacturing, interconnectivity of machines, big data, etc.

A new competitiveness challenge...

For several years, the aeronautics sector has been undergoing an unprecedented acceleration worldwide. Record-breaking order books require increasingly ambitious objectives for ramping up production, at every level of the supply chain. This context means that companies in the sector are confronted by a new competitiveness challenge.

...requiring significant gains in performance and agility

To deal with the increase in demand, some companies, like Safran, have already geared up to welcome the 4th industrial revolution, by implementing big data and "the internet" in their factories. Tomorrow’s factory will be smart and connected! What is at stake? Increased performance (cost, quality, deadlines) and agility.

Revolutionary technologies focused on data production and exploitation

As a high-tech company, Safran Electronics & Defense has already started to shape the industry of tomorrow. The company is modernising its industrial facilities by equipping them with pioneering digital technologies, enabling it to optimise not only productivity but also its employees’ working conditions:

**Virtual reality**

At the Poitiers industrial centre of excellence, virtual reality is at the heart of the primary mirror project (M1) for the Extremely Large Telescope. It enable employees to produce virtual models of the site’s facilities, in order to anticipate needs and risky situations with much greater precision.

**3D simulation**

In parallel, the Safran Electronics & Defense Poitiers site is using 3D simulation to produce models of the new facilities, so as to test their resistance and functioning before they have even been designed!

**Closed door machining**

The industrial site at Mantes-la-Ville is specialised in aeronautical actuators. By incorporating two Machining Centres and a robotised line of autonomous machines requiring minimal human intervention it is opening up new horizons for machining technologies, by maximising productivity and enabling operators to concentrate on tasks representing greater added value.

**Cobotics**

With its brand new Transducer Unit assembly line, the Mantes-la-Ville site is introducing collaborative robotics into its production line. In real time it combines the robot's capacities (strength, precision, repetition, etc.) with the human being’s added value (know-how, analysis, decision, etc.).

**Big data**

At the Fougères industrial centre of excellence in electronics, big data is now being used to optimise customised monitoring of stored components by means of Device Unique ID.

The result is connected industrial facilities

Digitisation of production processes (from engineering and R&D to logistics and production) delivers invaluable potential benefits:

- Reduction of development times, stock, non-quality,
- Greater flexibility,
- Better traceability, response times and visibility,
- Optimisation of production cycles,
- Etc.

These technologies of the future such as intelligent robotics, additive manufacturing, augmented reality, Internet of Things, big data, digital simulations and artificial intelligence offer maximum performance potential destined to revolutionise the aeronautics sector.

However these transformations raise critical HR issues. This is why Safran Electronics & Defense has already started to train its workforce in new digital skills (data analysis, AI, 3D printing, etc.), and behavioural skills (working in project mode, agility), and to
recruit new talents capable of supporting this digital transition.

By accelerating its digital transformation, Safran Electronics & Defense, aims to maintain the level of excellence of its know-how, and play a key role in the emergence of the 4th industrial revolution.

*To learn more about this subject, see the study carried out at the end of 2018 by the Boston Consulting Group, commissioned by the DGE, the DGA and the GIFAS: “L’industrie du futur : enjeux et perspectives pour la filière aéronautique.”*