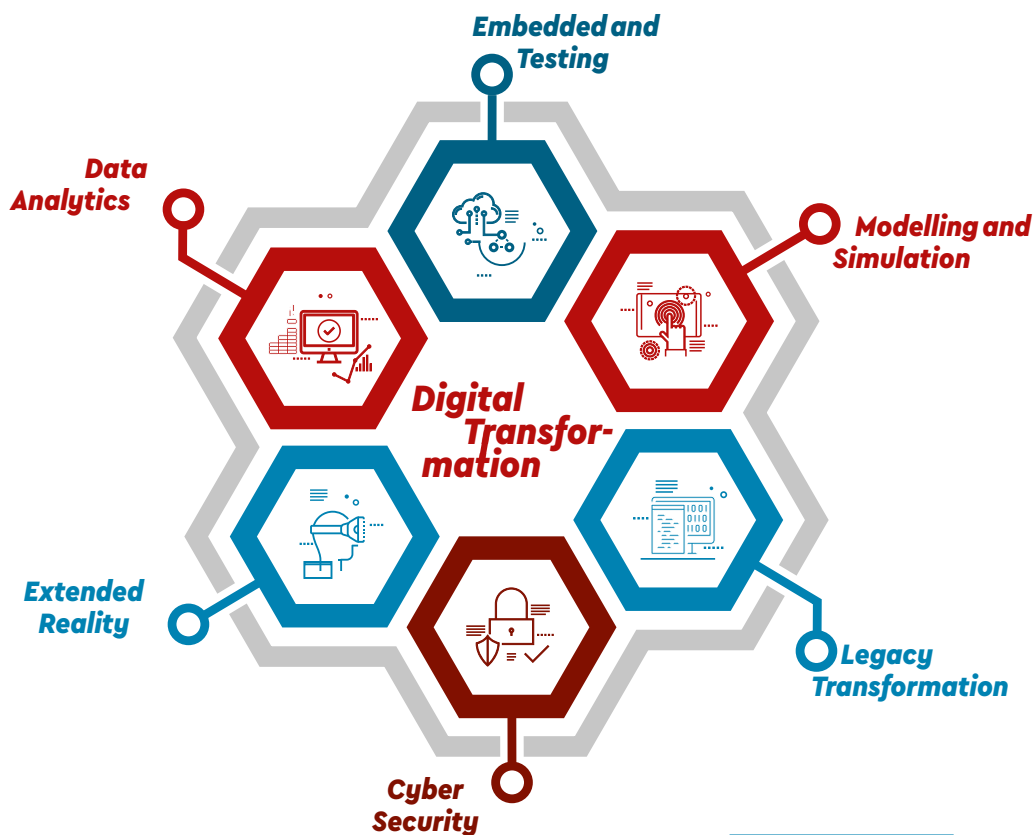


**FERCHAU Aviation Group**

# Taking Aerospace and Defence Engineering to the Next Level

**With digital transformation at the top of the industry players' current agendas, aerospace and defence engineering is experiencing a change of paradigm. Development processes have been redefined and entirely new products and services introduced. At the same time, hardware and software updates must be managed and complex security issues be addressed. The challenges are tremendous - but also the potential for cost, efficiency and quality improvement. Combining decades of aerospace and defence experience with cross-industrial digital transformation know-how, the FERCHAU Aviation Group is the perfect end-to-end partner for the joint realisation of this potential.**

**The key to success**

- More than 200 specialised engineers
- Decades of aerospace and defence experience meet cross-industrial digital transformation know-how
- State-of-the-art knowledge and technology
- Highest quality according to ISO and industry standards
- Strong customisation skills as well as serial solutions
- End-to-end support

## Embedded and Testing



No matter whether we are in space, in the air or on the ground – nowadays, new product development is often driven by the customer's request for "smart" solutions. The result: highly networked embedded systems. **Based on our cross-sector experience from working with mission-critical products containing electrical, electronic, mechanical hardware and software elements, the FERCHAU Aviation Group offers**

**reliable end-to-end support along the entire embedded systems life cycle.**

Our portfolio extends from test equipment design to the development and production of industrial and airborne embedded hardware and software to qualification and certification. Based on state-of-the-art methods such as model-based systems engineering (MBSE), our employees provide high-quality solutions which are tailored to our customers' needs.

**At a glance: our competences**

- Development of certified hardware and on-board software for industrial and aerospace application
- Development of specific test instruments and systems
- Component qualification and support
- Performance of verification activities
- Test case development
- Test equipment manufacturing
- Test automation

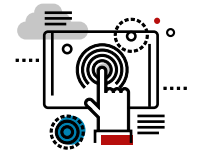
**At a glance: our competences**

- All MSBE phases
- Simulation development for aerospace and industrial systems
- Development and production of simulators for different industrial applications with specific hardware in the loop (HiL) and software in the loop (SiL) needs
- Configurable and customisable interfaces

Traditional development approaches struggle to keep pace with the rising complexity of today's end products.

**The FERCHAU Aviation Group uses MBSE to meet the increasing requirements of complex systems and achieve the shortest possible time to market (TTM).** MBSE strives to create a digital model of the (entire or sub-) system, enabling multi-directional validation of constraints between the system's environment and its components.

The ultimate result is a digital twin which also allows for early virtual simulation and testing. It thereby provides valuable possibilities to reduce prototyping and physical testing, which belong to the main cost drivers during development. Our experts adapt the MBSE approach specifically to your individual needs, whilst providing further sophisticated software- and hardware-based simulator products to support this process.



## Legacy Transformation



In order to take aerospace and defence engineering to the next digital level, the updating of outdated hardware and software is inevitable. **With decades of experience in managing software and hardware obsolescence within the industry, the FERCHAU Aviation Group supports you professionally during every step of this process.** Our certified specialists not only undertake

evaluation and prototype realisation, benchmarking and data management, but further redesign, develop, and certify software and hardware as a replacement for legacy systems. All of this is provided as reliable end-to-end work packages, thus taking the responsibility for obsolescence management off our customers' shoulders.

**At a glance: our competences**

- Redesign and standardisation of obsolescent hardware and software
- OS and tool baseline replacement
- Data management and visualisation
- Proof of concept and prototyping
- Benchmarking and profiling
- Database design and administration
- Component verification and redesign/requalification

**At a glance: our competences**

- Security analysis (compliance with standards, IT security concepts, endpoint protection, vulnerability and security configuration assessment and management)
- Secure IT implementation (communication servers/gateways, network security)
- Secure software development
- Penetration testing

Holistic cyber security measures are an integral part of digital transformation. Nevertheless, current insight shows that companies from all industries still have a long way to go when it comes to protecting their operations against digital threats.\* **The FERCHAU Aviation Group helps customers to close this critical gap in the aerospace and defence sector and beyond.** Our cyber security

professionals not only undertake penetration testing and manage the roll-out and operation of security tools, but further provide consulting and customised concept development to make industrial and mission-critical applications safer. Across industries, these measures are essential for guaranteeing stable operations.



## Cyber Security

\* Live Security Study 2017/2018 – A representative study by Bitkom Research on behalf of F-Secure.

## Extended Reality



Virtual, augmented and mixed reality offer huge potential for training and visualisation. **Drawing on extensive knowledge from building software-based virtual maintenance trainers and mock-up-based aircraft cabin trainers, the FERCHAU Aviation Group offers a variety of extended reality services and products, such as application development and implementation, 2D/3D animation,**

**and video production.** Our specialists combine modern know-how and technology with profound experience in civil and military aircraft as well as complex ground-based devices. Based on this, we provide high quality solutions to customers from the aerospace and defence industries and beyond.

### At a glance: our competences

- Implementation of virtual or mixed training applications (maintenance training, setup and usage training, familiarisation)
- Creation of VR/AR applications for simulation, training or marketing purposes
- 3D modelling
- Transformation of CAD data
- 2D/3D animation
- Video production (recording and rendering, cutting, compositing)

The ability to gather and analyse large quantities of data provides unprecedented opportunities for cost, quality and efficiency improvement along product lifecycles. **Our experts at the FERCHAU Aviation Group link long-term industry experience to the latest methods and tools to leverage the benefits of data analytics in aerospace and defence engineering.** Our portfolio includes

products and services in the areas of data analysis, data evaluation and machine learning and the development of user-friendly and interactive dashboards as well as automated reports. This creates foresight regarding parameters such as status and performance, whereby our support contributes to predictive maintenance, thus reducing aircraft having to be grounded.

## Data Analytics



### At a glance: our competences

- Data analysis
- Data mining and cleansing
- Graphic data display (dashboards)
- Automated reports
- Advanced analytics
- Machine learning
- Forecasts (maintenance, failure, bottlenecks)



Trainee in a virtual training environment.

**More information about our expertise**

**[ferchau.com/go/aviation](https://ferchau.com/go/aviation)**

**Connecting People and Technologies  
for the Next Level**

Member of the  
**FERCHAU Aviation Group**