

AVIATION



**ESG – DEDICATED TO SOLUTIONS.**

*Partnership – Passion – Innovation*

**For almost five decades, ESG has been one of the leading German companies for the development, integration and operation of electronic and IT systems. As an independent technology and process partner we provide high quality services in system and software development, logistics, training and consultancy for our military, public authority and industrial customers. We deliver qualified solutions in the areas of aviation, military logistics, vetronics and naval systems, IT and communications, automotive, traffic and transport, industrial goods and commercial vehicles.**

*In the 21<sup>st</sup> century with its mobile society, the aircraft industry plays a central role in the development of future technologies. The roots of our company lie in this dynamic field.*

*The business area Aviation is a partner in the development and integration of avionic systems for fixed-wing and rotary-wing aircraft and Unmanned Aircraft Systems (UAS), together with their ground systems and with other special systems. With our logistic services, we ensure the operational reliability, availability and safety of these systems during their entire lifecycle.*

*As a design organisation with EASA and German Federal Armed Forces approval we analyse the process landscape of our customers and their suppliers. We provide customer- and project-specific consultancy in the fields of process assurance, quality management, configuration management and certification, and provide on-site support for customer-specific implementations.*



**ANALYSIS, STUDIES, SYSTEM COMPARISONS**

Our customers profit from our extensive expert knowledge, our realisation know-how and our consulting expertise, which extend over the whole product lifecycle. As a result of our hardware neutrality and independence from manufacturers, we offer objective analysis, system comparisons and technology consulting, ranging from requirements analysis through to product support. Our highly qualified staff are experts with extensive and state-of-the-art knowledge in the fields of technology and processes. With the help of modern simulation tools and demonstrators, we can offer accurate assessments of technical developments and of process optimisation to support the minimisation of development risks, and provide decision support.

**PROCESS CONSULTING SERVICES**

- ▶ Process analysis and evaluation
- ▶ Certification support
- ▶ Configuration management as an integrated process
- ▶ Analysis and optimisation of quality management systems
- ▶ Process implementation
- ▶ Familiarisation and training



## RESEARCH & TECHNOLOGY

We support our customers with analysis, experimental studies and technological research projects. To this end, we develop and operate demonstrators, simulators, flying manned and unmanned test vehicles and prototypes. Our cockpit mock-ups and ground stations for manned and unmanned airborne systems are equipped with task-specific input devices and displays featuring the latest technology. We simulate the most diverse aircraft, cockpit functions, tasks and missions and test their functionality prior to development.

## ANALYSIS AND RESEARCH & TECHNOLOGY SERVICES

- ▶ Technical and operative analysis
- ▶ Technical and logistic consulting for system definition and procurement
- ▶ Consulting and design for product support of manned and unmanned aircraft
- ▶ Preparing customer-specific programme planning and tender documents
- ▶ Consulting and support for the customer for system acceptance and roll-out, including training
  
- ▶ Customer-oriented technology consulting and feasibility studies
- ▶ Development of experimental systems
- ▶ Optimisation of man-machine interfaces using rapid prototyping
- ▶ Early verification of mission and system concepts
- ▶ Optimisation of development time and costs





Picture: Messe Berlin

## SYSTEMS DEVELOPMENT

In the area of systems development we aim to create both practical and innovative solutions for complex mission systems. We guarantee an optimal interaction between the individual components of an avionic system and ensure not only that the sensors, data processing systems and communication systems capture high volumes of information in real-time, but also that this data is processed and presented to the user through an ergonomic man-machine interface appropriate to the specific situation.

### SYSTEMS DEVELOPMENT SERVICES

- ▶ System analysis, system design and specification
- ▶ Equipment and system engineering
- ▶ System integration
- ▶ Laboratory/platform integration, including test
- ▶ Rig and test bench realisation
- ▶ Certification/approval

## SOFTWARE DEVELOPMENT

The reliability of modern avionic systems can only be ensured when all individual components work together in an optimal way. Sophisticated functions are realised by real-time software. The systematic development process for software comprises numerous closely connected sub-disciplines in the areas of informatics and project management. Our services cover the entire development and operation cycle of software – beginning with the planning and extending up to the deployment, including in-service support and maintenance.

### SOFTWARE DEVELOPMENT SERVICES

- ▶ Software architecture and design
- ▶ Software implementation
- ▶ Software integration and test
- ▶ Software maintenance and modification
- ▶ Documentation
- ▶ Certification



*The business area Aviation is the centre of expertise for systems and software development and product support. Technically demanding, innovative and high-performance avionic systems are the decisive factors for the operational reliability and success of modern aircraft. Due to the constantly increasing flow of information with which the user is faced, as well as increasing automation and the networking of systems, the interrelations, architectures and failure modes of these safety-critical systems become more and more complex.*

## PRODUCT SUPPORT

Our services begin with concepts for Integrated Logistic Support (ILS) and Logistic Support Analysis (LSA), in order to optimise the costs over the lifecycle and to ensure the highest levels of operational availability. Thereafter, ESG offers services covering the entire lifecycle of complex technical systems.

With the help of targeted strategies, efficient processes and modern standards, we ensure the availability and effectiveness of complex systems. We are a partner for the entire product support as well as for technical logistic services and technical development support.

## PRODUCT SUPPORT/LOGISTIC SERVICES

- ▶ Product support/technical logistic support and technical development support
- ▶ Documentation
- ▶ Analysis of operational and maintenance data
- ▶ Obsolescence management and hazardous substance management
- ▶ Conceptual design of measures for operational life extension of complex systems

***As a design organisation with EASA and German Federal Armed Forces approval we take on full responsibility for the development, integration and certification of customer-specific systems, as both small and large modifications, for manned and unmanned, fixed- and rotary-wing aircraft and for the supervision of these systems as prime contractor during their entire service lives with our custom Product Support services. Our close cooperation with the customer, our independence and our neutrality guarantee the integration of the most suitable components and so ensure the optimal solution.***

#### DESIGN ORGANISATION

As reliable and experienced experts we support our customers in finding solutions to specific requirements and problems. We deliver tailored solutions by providing custom system development, integration and rollout. Our success is based on the constant exchange of information and on cooperation with our customers as partners, as well as on many years of experience in the aviation and military industries. Additionally, our services benefit from technology transfer with other ESG divisions and across all sectors, providing our customers with the optimal and innovative results of the synergies. We offer integrity in providing the confidential handling of all security-related issues.

#### QUALIFICATION:

- ▶ Certification according to DIN EN 9100 / ISO 9001
- ▶ Design organisation according to EASA Part 21 J/G
- ▶ National design organisation approval
- ▶ Software development according to such processes as RTCA/DO-178 B and the V-Model XT



#### TRAINING AND TRAINING RESOURCES

We offer extensive and customised training services. These cover all phases of the training programme: from analysis and conception through to the implementation of complex training topics. As a specialised systems company for avionic systems we know and understand the technical requirements in creating and implementing modern training resources for flying and technical personnel. On the basis of a modular architecture, we implement virtual desktop trainers and part task trainers for specific training topics as well as sophisticated simulators, including the modelling of surroundings, terrain databases and simulation of tactical environments.

#### TRAINING SERVICES:

- ▶ Analysis of training / education requirements
- ▶ Training concepts, preparation and execution
- ▶ Computer- / web-based training
- ▶ Virtual desktop trainers
- ▶ Part task trainers / flight training devices





**MARKET SEGMENTS:**

Our services cover the most diverse areas of the military and civil aviation industries:

- ▶ Fixed-wing aircraft and UAS (Unmanned Aircraft Systems)
- ▶ Rotary-wing aircraft and special systems
- ▶ Technology and cross-cutting programmes
- ▶ Civil systems

**ESG SPECIALISED SYSTEMS (References):**

- ▶ Special High Altitude Parachute System: Development and Integrated Logistic Support
- ▶ MAT Mission Avionics Test Helicopter: Development of the “flying laboratory”
- ▶ Equipment for Special Forces: Development and construction of provisional landing zones and airstrips for parachutists, rotary-wing aircraft and transport aircraft
- ▶ PTA Police Tactical Workstation: Development and integration into police helicopters
- ▶ MTA Mission Tactical Workstation: Development and integration into military helicopters (e.g. CH-53)
- ▶ UMAT Unmanned Mission Avionics Test Helicopter: Development of the “unmanned flying laboratory”
- ▶ Cockpit Procedure Trainer Sea Lynx MK88A
- ▶ Helicopter Pilot Screening System (FPS-H)
- ▶ Night Vision Capability C-160 Transall
- ▶ Sensor-Based Landing Aid (SeLa)

