



silver atena

A MEMBER OF ASSYSTEM

SAFETY ENGINEERING

SILVER ATENA – FUNCTIONAL SAFETY EXPERTS



FUNCTIONAL SAFETY EXPERTISE PAIRED WITH EXPERIENCE

SILVER ATENA has been developing safety-relevant applications for over 15 years. Hence, functional safety is not just a catchphrase to us. The development of customised electronic systems with safety-relevant functions is one of our core competencies. It is our daily business – in each project and any industry.

Safety management and engineering are integral components of a comprehensive development process. Even in projects with highly demanding safety requirements our approach is effective and efficient.

Management, analyses, audits and assessments throughout the development process ensure that your products meet the specified safety goals and comply with the industry specific regulations.

With our multi-domain expertise we optimally assist you from the initial planning to certification or release. Our support ranges from taking over individual tasks to complete product development in autonomy including safety management and engineering.

We successfully apply our knowledge in different domains and make safety-relevant developments for the aerospace, automotive and transportation industry.

SILVER ATENA has been developing technologically demanding products for its customers from concept to serial product for many years. For optimum results our experienced safety experts integratedly work together in development teams on all safety-relevant aspects.



SAFETY MANAGEMENT AND ENGINEERING THROUGHOUT THE ENTIRE LIFE CYCLE

SAFETY MANAGEMENT

- Project-specific planning and coordination of safety-relevant activities in all phases of the safety life cycle for internal and external development (supplier management)
- Independent tracking of safety-related activities

SAFETY ENGINEERING

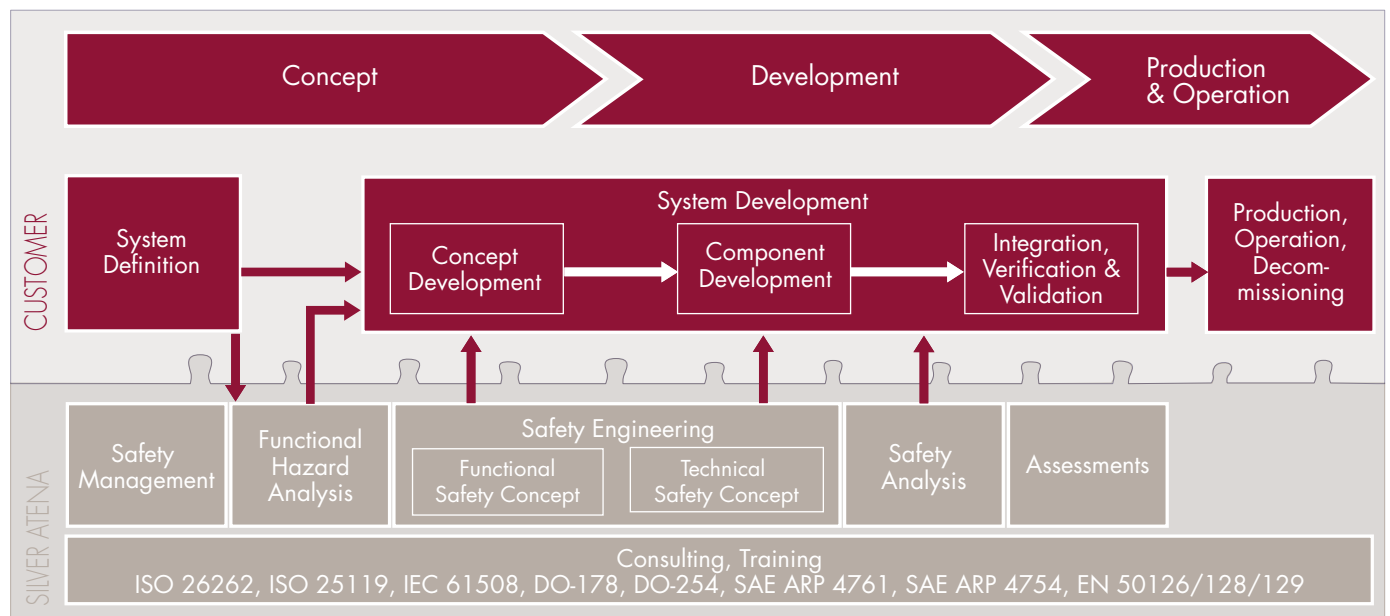
- Performance and moderation of functional hazard analyses
- Design of safety concepts for systems, software, hardware and components
- Application of the technical concepts to the application development
- Performance of reliability and safety analyses to evaluate the design
- Execution of safety-related audits and assessments
- Preparation, compilation and documentation of the final safety case

TRAINING

- Individual beginner and expert level trainings and coaching for the standards ISO 26262, IEC 61508, SAE ARP 4754/4761, DO-178 and DO-254
- Training on the analysis of component and system reliability and safety

CONSULTING

- Consultancy regarding the application, introduction and implementation of safety processes
- Technical consultation starting at system design level down to the very details of the hardware and software realisation





YOUR ADVANTAGES

HIGH PROJECT TRANSPARENCY THROUGH CONSISTENT PROJECT MANAGEMENT REGARDING

- Costs (price metrics)
- Complexity (pragmatic approach, realistic safety objectives)

FLEXIBLE & TAILOR-MADE SOLUTIONS

- Adapted to customer needs
- Effective support up to certification

SYNERGIES AND SAFETY

- References in several industries, e.g. Aerospace, Automotive, Aero Engines, Railway
- Experience in developing complete systems, hardware and software
- One contact person for the entire safety development
- You can concentrate on your core competencies

EXPERIENCE

AUTOMOTIVE

- CHASSIS SYSTEMS:
STEERING SYSTEMS, ROLL STABILISERS, ESP
- E-/HYBRID DRIVE, HYDROGEN TECHNOLOGY, FUEL CELLS
- MAIN/AUXILIARY UNITS
- DRIVER ASSISTANCE SYSTEMS

AEROSPACE/DEFENCE

- CABIN ELECTRONICS
- AVIONICS
- AIR SYSTEMS
- WIRELESS SYSTEMS
- POWER DISTRIBUTION
- AUTONOMOUS FLYING

AERO ENGINES

- TURBINE ENGINES
- DIESEL ENGINES
- HYBRID DRIVES
- eDRIVES

RAIL

- AUTOMATIC TRAIN PROTECTION AND OPERATION
- RBC, EVC, CTC, STM, CIP, FBP, DMI
- DATA AND DIAGNOSTICS UNITS

ENERGY/INDUSTRY

- GAS TURBINES
- WIND TURBINES

SAFETY ANALYSES

		APPROACH & PURPOSE
FHA	Functional Hazard Analysis	<ul style="list-style-type: none"> • Consideration of functional fault effects- Determination or confirmation of the Design Assurance Level (DAL)/Safety Integrity Level (SIL)
FTA	Fault Tree Analysis	<ul style="list-style-type: none"> • Starting with the dangerous event (top event) possible fault causes are determined and the failure behaviour is modelled using Boolean algebra • Determination of the failure rate for the dangerous event
FMEA ACCORDING TO VDA	Failure Mode Effect Analysis	<ul style="list-style-type: none"> • Determination of critical points in the system and definition of preventative measures
COMPONENT FMEA	Failure Mode Effect Analysis	<ul style="list-style-type: none"> • Determination of component fault effects of each individual subcomponent. Analysis of the effect with respect to the impact on the superordinate level. • FMEDA/FMECA: Determination of the absolute failure rate and the relative metrics (e.g. SFF, SPFM, LFM) • Consideration of the software functionality concerning fault determination and reaction regarding HW failure modes
FMEDA/FMECA	Failure Mode Effect and Diagnostic Analysis/Failure Mode Effect and Criticality Analysis	



SILVER ATENA

As one of the market leaders in high-integrity engineering, SILVER ATENA is known for professional competence and many years of experience in international development projects. The core competencies of SILVER ATENA cover the entire development spectrum of safety-critical systems, including systems, hardware, software and safety engineering. As an independent system supplier SILVER ATENA develops solutions for the growth markets automotive, aerospace, aero engines, rail, transportation and energy. By integrating teams and in tight cooperation with the customer, we produce holistic solutions to complex engineering challenges.

SILVER ATENA offers the development, implementation and maintenance of customer-specific hardware and software applications. Extensive consultancy services in the areas of engineering, process and technology compliment the portfolio.

LOCATIONS

SILVER ATENA ELECTRONIC SYSTEMS ENGINEERING GMBH
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HEADQUARTERS MUNICH

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PORTFOLIO

- **Engineering:**
System, Hardware, Software, HMI, Safety, Security, Test
- **Control Units (Fail Safe/Fail Operative):**
Aircraft Engine Controller, Motor- and Hybrid ECUs, Chassis-ECUs, Power Electronics (Recuperation, Inverter)
- **Test and Simulation:**
HIL Modular Test System, E-Motor/Generator/Power Supply Simulation, Automatic Model DLL, Environmental Tests (EMC, Environmental Simulations, Mechanical Simulations)
- **Development Tools:**
RBE/MBSE, Bus/Sensor Gateways, Network and Routing Software
- **Consultancy:**
Safety Consulting, Systems, Technology and Process Consulting, Training

BREMEN

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HAMBURG

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