

IQZ

Institut für Qualitäts- und Zuverlässigkeitsmanagement GmbH

We cut your corporate risks



Your customer demands an extended warranty period? You are facing challenges with respect to functional safety or warranty management? You need safety and reliability analyses? If so, IQZ is your competent partner.

The IQZ is one of the leading consultancy companies when it comes to the integrated implementation of safety and reliability beyond a product's life-cycle. Our experts not only come up with the necessary processes with your help but also fill these with the latest state-of-the-art methods. Our spectrum of clients ranges from SMEs in mechanical engineering through to DAX-30 companies from the aerospace industry.



Ihr Qualitäts-Zulieferer.

Institut für Qualitäts- und Zuverlässigkeitsmanagement GmbH

www.iqz-wuppertal.de

Our services / your benefits

- » Process advice and organisation
- » State-of-the-art portfolio of methods
- » Experience in interdisciplinary and international projects
- » Close cooperation with universities (e.g. Bergische Universität Wuppertal, HAW Hamburg, HWR Berlin)
- » Broad-based network and involvement in numerous committees (VDI, VDA, COG Deutschland, Maschinenbaunetzwerk Bergisch Land)

Priority fields

- » Quality management
- » Reliability management
- » Functional safety
- » Warranty management
- » Risk management
- » Risk simulation
- » Spare parts management
- » Site-Specific risk assessment
- » Machine reliability



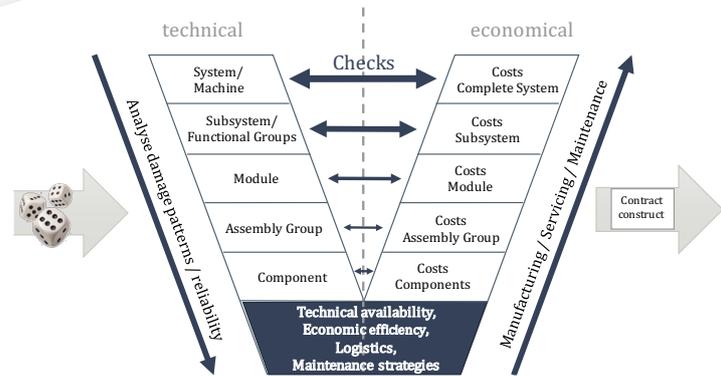
RISK SIMULATION (Monte-Carlo)

*How can technical, organisational and economic risks be identified and assessed in companies?
How can I make rare events visible? How can different kinds of complex relationships be represented?*

Modern systems are subject to a number of different influences. The challenge is thus to combine different information so as to obtain an integrated, realistic risk assessment. This information does not have to be exclusively technical parameters; risk assessments also often take economic information into account. Analytical methods frequently come up against their limits during a risk assessment. It is often very difficult if not impossible to integrate different types and levels of information. So how can this be done?

A risk simulation using the Monte-Carlo method is one very practical solution. The Monte-Carlo simulation is a computer-based simulation method that is used in numerous fields and is becoming increasingly popular. Complex systems, contracts and other relationships are mapped and validated on the basis of a number of simulated random events. Determining these simulated events avoids complex analytical formula and the simulation objects are played through "for real". There is an almost unlimited number of combinations for the simulation. And their realisation and implementation in various software environments (from MS Excel-VBA through to special CAS) poses no problems.

As a development partner for such models, the simulation experts at the IQZ can draw on many years of experience in theoretical and advanced Monte-Carlo simulation in various fields of application.



Special application possibilities

- Highly complex systems with a small data basis
- Maintenance contracts over long periods
- Integration of scheduled and unscheduled events
- Technical dependencies between different components and systems
- Economic dependencies in the form of contractual agreements
- Different types of information (databases, expert knowledge, individual events)
- Assessment of rare events

Our services

- » Preparation of the risk simulation for maintenance contracts on a technical and economic basis
- » Simulation of the reliability and safety of complex plants and systems
- » Process simulation on different levels and for different influences
- » Simulation and preparation of stress profiles and customer usage behaviour
- » Derivation of maintenance strategies

Portfolio of methods

- » Monte-Carlo simulation
- » Statistical data analysis and forecast
- » Sensitivity analyses
- » Optimisation algorithms
- » System modelling