Holistic System
Cost Risk Management

Holistic because various, well-known and acknowledged scientific methods will be applied depending on project status and depth of analysis.

System (systematic) because we proceed systematically, based on a methodological and planned approach, and with a competent and moderated team. We work step by step, analytically, transparently and well-documented.

What does “Holistic System Cost Risk Management” stand for?
A successful risk management process requires the following three complementary elements:

Methods
Generic risk management according to ISO 31000.
Design and integration of methods (e.g. ISO 31010) according to project or enterprise requirements.

Raising awareness
Workshops prepare the field for common perception of risk management by all stakeholders.

Moderation
Experts guide through the process and provide a consistent framework for analysis and assessment of risks.

Goals of your “Holistic System Cost Risk Management”?

- Comprehensive overview (Risk Map) of all your relevant threats and opportunities
- Systematic mitigation and control of all your relevant risks
- In case risks occur there will be clear evidence that you have done everything expectable / feasible according to “best practice” at the right time.
**Leistungen**

**Cost Management**
- **Cost Estimation** - We provide probabilistic methods to consider uncertainties and increase the value of information.
- **Project Cost Controlling** - Coaching by Experts, with many years of experience with high-profile projects, the unique challenges of your project will be successfully mastered.
- **Project Analysis - 2nd Opinion** - accompanying project validation in different aspects (e.g. feasibility, cost, risk, schedule) according to the four-eyes principle.
- **Project Review** - It is a retrospective analysis with a focus on project base scope changes. A Project review allows the evaluation of the present systems -> Lessons Learned.

**Risk Management**
- **System Risk Management**
  System Risk Management (SRM) provides various, well-known and acknowledged scientific methods, which will be applied depending on project status and depth of analysis.
  We proceed systematically, based on a methodological and planned approach, and with a competent and moderated team. We work step by step, analytically, transparently and well-documented.
- **Development and Implementation of Cost and Risk Management Systems**
  Risk and cost management systems are usually reduced to the purely mathematical classification aspect; i.e. which methods, whether qualitative or quantitative, are to be adopted. For successful implementation and, in a broader sense, successful management, in addition to choosing the appropriate methods an adequate awareness of all stakeholders and expert facilitation through the process is also indispensable.
  **RAMS - Reliability, Availability, Maintainability, Safety**
  RAMS analysis evaluates the reliability, availability, maintainability and safety of a system for the complete life cycle time.

**Projects (Selection)**

**Technical Controlling - Railway Technology Gotthard Base Tunnel**
The Gotthard Base Tunnel is the centerpiece of the north-south connection between Basel and Milan. With 57 kilometers at its completion by the end of 2016 is the longest rail tunnel in the world.

Services: Technical Controlling, Design and Build Railway Technology

**BMVI - Risk Management System for Federal Roads and Highways (Bonn)**
Support and development of a comprehensive integrated risk management according to ISO 31000 for the Federal Ministry of Transport and Digital Infrastructure (BMVI in German).

Services: Development and Implementation of a Risk Management System for Federal Roads and Highways
## Projects (Selection)

### Koralm Base Tunnel

With a total length of 32.8 km and a maximum cover of 1,250 m the base tunnel will traverse the Koralpe mountain range and will connect the Austrian states of Styria and Carinthia.

- **Services:** Probabilistic risk assessment, Moderation of the process during planning and construction stage
- **Project costs:** approx. 2.1 Billion $

![Source: http://www.koralmtunnel.eu](source)

### Citytunnel Feldkirch

The heart of the project is the 4-arm underground roundabout with a diameter of 58 m, which connects the 4-section city tunnel underneath Feldkirch.

- **Services:** Probabilistic cost estimation, Verification of the existing cost estimation and schedule
- **Project costs:** approx. 330 Million $

![Source: http://www.feldkirch.at/stadt](source)

### MTA New York City - Risk Assessment Consultant Services

MTA New York City Transit is the largest public transportation agency in North America and one of the largest in the world. The subway has a daily ridership of 5.6 million and an annual ridership in 2014 of roughly 1.751 billion.

- **Services:** Indefinite quantity risk assessment consultant services for New York City Transit and MTA HQ current or proposed projects

![Source: http://www.mta.info](source)

### Brenner Base Tunnel

The Brenner Base Tunnel is the main element of the new Brenner railway from Munich to Verona. At 64 km, it is the longest underground railway connection in the world, a pioneering work of engineering and it will markedly improve passenger travel and freight transport through the heart of Europe.

- **Services:** Support and validation probabilistic risk assessment
- **Project costs:** approx. 12 Billion $

![Source: http://www.bbt-se.com/projekt/bbt](source)

### NAGRA - Swiss National Cooperative for the Disposal of Radioactive Waste

Safe long-term disposal of radioactive waste in deep geological repositories is a challenging task that NAGRA has committed to implementing in the interests of man and the environment.

- **Services:** Probabilistic cost estimation and risk analysis, software development, process development, staff training

![Source: http://www.nagra.ch](source)

### Federal State of Vorarlberg

The division road construction of the transportation ministry of the state of Vorarlberg is responsible for all federal road across the state including bridge and tunnel construction.

- **Services:** Development of cost and risk management processes and integration in a manual, software development, staff training

### Confederation Line, Ottawa Light Rapid Transit

The line will be 7.8 miles /12.5 km long and will have 13 new stations. The project consists of a tunnel through the downtown core and above grade rail outside of the downtown area. Ten of the thirteen stations will be located along the above grade line.

- **Services:** Probabilistic risk assessment including fault tree and event tree analysis
- **Project costs:** approx. 1.9 Billion $

![Source: http://www.confederationline.ca](source)
Main Products

**Cost Risk Tool RIAAT**  [Link]

RIAAT has been specifically developed for operative risk and cost management and allows for active and dynamic project management.

**Overview:**
- **Cost components:** Definition of a basic cost structure
- **Cost estimation:** Costs are structured in a hierarchical tree structure; central price database.
- **Risk analysis:** Qualitative and quantitative assessment: comprehensive overview (Risk Map) of all relevant hazards; definition of risk controls.
- **Probabilistic method:** Distributions can be applied to increase the accuracy of forecasts.
- **Cost controlling:** Order administration (including additional costs, invoicing and forecasts); cashflow functions — costs can be broken down into annual amounts over the project period to determine cash outflows: Visualization of data in various charts.
- **Reports:** Compilation of detailed reports with customized tables and charts. Data can be exported into MS Excel.

**PEP - Project Cost Estimation Software**  [Link]

PEP has been developed specifically for cost estimations based on .NET - initially for the **Semmering Base Tunnel** in Austria.

- Hierarchic cost structuring using tree view
- Cost estimation based on pricing procedure incl. source management
- Visualization of data in various diagrams
- Supports data export to MS Excel

Sample user interface and integrated Risk Fact Sheets