

Complex risk evaluation techniques

2 days on-line

Overview

- All organisations recognise the need to identify and manage the wide variety of risks impacting the business.
- Many however, only use a very limited number of techniques to assess the risks.
- The use of more sophisticated tools will provide much greater insight into risk events better manage the implications on an enterprise-wide basis
- By adopting a wide range of techniques, new understanding of the key risks risk will emerge, and efficient controls can be implemented.

After completing this course you will be able to

- **IMPLEMENT** proven ways to improve your risk evaluation process.
- **GAIN** knowledge of the following more sophisticated techniques
 - Root Cause Analysis
 - Scenario planning
 - FMEA
 - Monte Carlo Simulations
 - Markov chains
 - Bayesian networks
 - Delphi analysis
- **APPRECIATE** and apply the business application of these techniques

Takeaways

- Monte Carlo pricing case study
- Bayesian network case study
- Root cause analysis and FMEA examples
- Delphi study – population growth prediction

Course Outline

The need for more comprehensive risk assessment methods

- The limitation of risk workshops
- Delphi (expert analysis)
- Ishikawa diagrams (fishbone analysis)
- Failure mode and effect analysis (FMEA)
- Scenario planning
- Root cause analysis
- Monte Carlo analysis
- Bayesian networks
- The pros and cons of the various methods

Fishbone/ Ishikawa Analysis

- Steps in fishbone analysis

- Problem identification
- Primary and secondary causes
- Preparing fishbone diagram
- Uses of Fishbone analysis
 - Product failure analysis
 - Loss of key personnel
 - Errors in invoicing
 - Customer complaint handling

Root Cause Analysis

- Steps in root cause analysis
- The Pareto process
- Failure Mode and Effect analysis (FMEA)
- The 5 why process
- Fault tree analysis
- Practical uses of Root cause analysis

Monte Carlo simulations

- Mathematical technique that allows people to account for risk in quantitative analysis and decision making.
- Provides a range of possible outcomes and the probabilities
Determines a probability distribution
- Markov chains
 - Uses of Monte Carlo simulations
 - Pricing strategy
 - Determining the optimum duration of a project
 - Determining demand patterns of customers

Bayesian networks

- The risk events where the probability of one event is conditional on the probability of a previous one
- Adding more data to an original idea to enhance decision making
- Use of Bayesian networks
 - Advanced Spam filters
 - Customer surveys
 - Website usability
 - IT Network failure
 - Medical diagnosis

Delphi (expert analysis)

- Getting consensus from experts of different backgrounds and perspectives
- Comparing the opinions of qualified experts from different fields
- Determining acceptable risk by using experts to assess e.g. total credit given versus credit available or to establish creditworthiness criteria
- Worked example