

**Soft-Train**



*At Soft-Train  
Technology Works*

# Risk Management (2 Days) ST00055

**COURSE GOAL:** To enable the student to identify potential risks to programs/ processes early and to implement effective abatement or control measures.

**PREREQUISITES:** None

**LEARNING OBJECTIVES:**

Upon completion of this course the student will be able to:

- Implement a risk management plan
- Identify Risks and analyze them both qualitatively and quantitatively
- Plan an appropriate response to all risks

**KEY TOPICS:**

**I. Healthy Skepticism for Risk Management**

- A. Common Mode Failure
- B. What Counts as Risk Management
- C. Anecdote: The Risk of Outsourcing Drug Manufacturing
- D. What Failure Means

**II. Risk Management: A Very Short Introduction**

- A. The History of Risk Management
- B. Methods of Assessing Risks
- C. Risk Mitigation
- D. Surveys on the State of Risk Management

**III. How Do We Know What Works?**

- A. An Assessment of Self-Assessments
- B. Potential Objective Evaluations of Risk Management
- C. What We May Find

**IV. The “Four Horseman” of Risk Management: Attempts to Prevent an Apocalypse**

- A. Actuaries
- B. War Quants: How World War II Changed Risk Analysis Forever
- C. Economists
- D. Management Consulting
- E. Comparing the Horsemen
- F. Major Risk Management Problems to be Addressed

**V. An Ivory Tower of Babel:  
Fixing the Confusion About  
Risk**

- A. The Frank Knight  
Definition
- B. Risk as Volatility
- C. A Construction  
Engineering Definition
- D. Risk as Expected Loss
- E. Risk as a Good Thing
- F. Risk Analysis and Risk  
Management versus  
Decision Analysis
- G. Enriching the Lexicon

**VI. The Limits of Expert  
Knowledge: Why We Don't  
know What We Think We  
Know about Uncertainty**

- A. The Right Stuff: How a  
Group of Psychologists  
Saved Risk Analysis
- B. Mental Math: Why We  
Shouldn't Trust the  
Numbers in Our Heads
- C. "Catastrophic"  
Overconfidence
- D. The Mind of Aces:  
Causes of Overconfidence
- E. Inconsistencies and  
Artifacts: What Shouldn't  
Matter Does
- F. Answers to Calibration  
Tests

**VII. Worse Than Useless: The Most  
Popular Risk Assessment  
Method and Why It Does Not  
Work**

- A. A Basic Course in  
Scoring Methods
- B. Why Ambiguity Does Not  
Offset Uncertainty
- C. Unintended Effects of  
Scales: What You Don't  
Know Can Hurt You
- D. Clarification of Scores  
and Preferences

**VIII. Black Swans, Red Herrings,  
and Invisible Dragons:  
Overcoming Conceptual  
Obstacles to Risk Management**

- A. Righteous Indignation:  
The Belief that  
Quantitative Risk  
Analysis is Impossible
- B. A Note About Black  
Swans
- C. Frequentist vs.  
Subjectivist
- D. We're Special: The Belief  
that Risk Analysis Might  
Work, But Not Here

**IX. Where Even the Quants Go  
Wrong: Common and  
Fundamental Errors in  
Quantitative Models**

- A. Introduction to Monte  
Carlo Concepts
- B. The Risk Paradox
- C. The Measurement  
Inversion
- D. Where's the Science: The  
Lack of Empiricism in  
Risk Models
- E. Financial Models
- F. The Problem with  
Correlations
- G. How Modelers Justify  
Excluding the Biggest  
Risks
- H. Is Monte Carlo Too  
Complicated?

**X. The Language of Uncertain  
Systems: The First Step  
Toward Improved Risk  
Management**

- A. Getting Your  
Probabilities Calibrated
- B. The Model of  
Uncertainty:  
Decomposing Risk with  
Monte Carlo
- C. A Few Modeling  
Principles

D. Modeling the Mechanism

**XI. The Outward-Looking  
Modeler: Adding Empirical  
Science to Risk**

- A. Why Your Model Won't Behave
- B. Empirical Inputs
- C. Introduction to Bayes: One Way to Get Around the Limited Data Problem
- D. Self-Examinations for Modelers Who Care About Quality

**XII. The Risk Community: Intra-  
and Extra-organizational  
Issues of Risk Management**

- A. Getting Organized
- B. Managing the Global Probability Model
- C. Incentives for a Calibrated Culture
- D. Extra-organizational Issues: Solutions Beyond Your Office Building
- E. Final Thoughts on Quantitative Models and Better Decisions