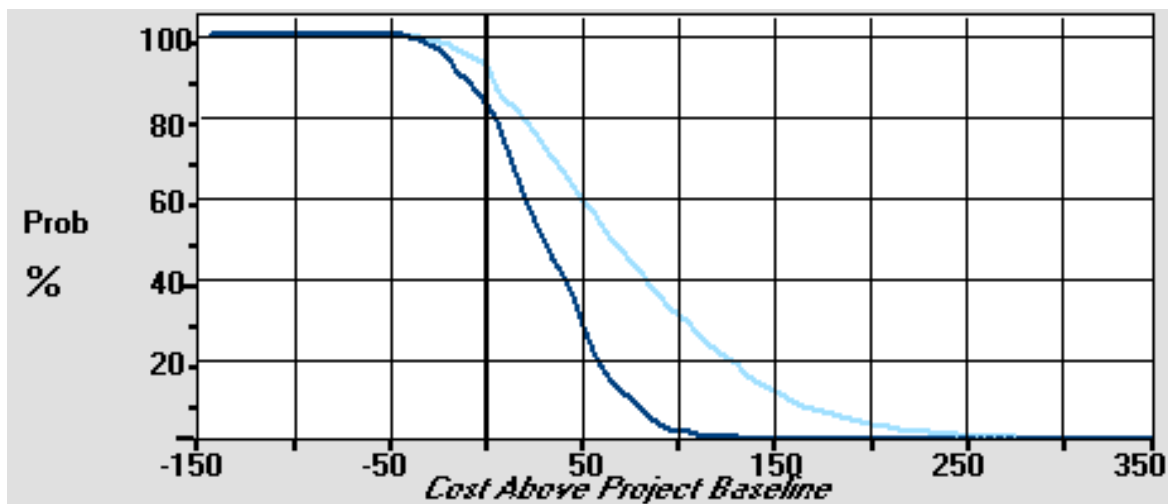




NOWECO

Northwest Controlling Corporation Ltd.

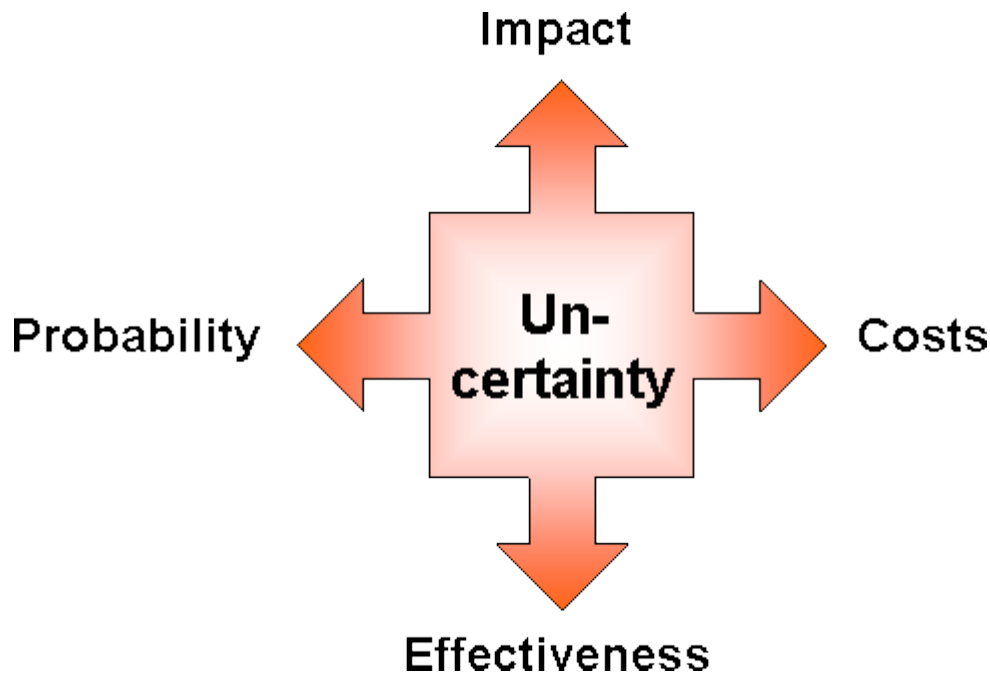
RiskDecision



**Software to manage
risks and opportunities**

THE DIMENSIONS OF UNCERTAINTY

Modern risk management focuses on understanding and controlling the following four uncertainty dimensions:



The risk or the opportunity is determined in terms of probability of occurrence and the impact in case of an occurrence. This calculated cost amount is opposed by the costs of candidate actions. The effectiveness compares both the costs of the risk or opportunity and the actions costs. One or more candidate actions can be considered as effective when the decrease in risk costs is higher than the respective action costs.

DATA ENTRY, STRUCTURE AND ASSESSMENT

RiskDecision provides the user with the opportunity to define structures for the risks and opportunities and to assign these during entry of data. These structures do not only serve to better overview the amount of data but also allow good selections of data.

To assess uncertainties in RiskDecision there are two methods: the qualitative assessment and the quantitative assessment. Some uncertainties lend themselves to qualitative assessments (aesthetics, environment impact, human factors, etc.) while others are more readily quantifiable (part failure, late delivery, cost escalation.). RiskDecision accommodates your judgements by one of two methods and lateron even allows to change from one to the other:

The non-numerical, qualitative mode accepts qualitative assessments of probability, impact and cost (Low, through Medium to High).

The Numerical Mode accepts quantitative estimates (% for uncertainty probability and costs or schedule inputs for impact and action costs). To accommodate planning uncertainties, this mode accepts probabilistic estimates (normal, triangular, discrete or uniform) for each impact and action cost entry.

RISKDECISION AND THE UNCERTAINTY MANAGEMENT SYSTEM

We are convinced that any management task needs to be performed by human beings. A software only can be a tool. That is why RiskDecision supports the uncertainty management process as much as it can serve the user: RiskDecision is no software to administer data.

Processes of Uncertainty Management	Decision Support using RiskDecision	Features in RiskDecision
Mission/Project Statement & Objectives		
Project or Business Plan & Strategies	<i>Deduction of project / business specific uncertainty structure</i>	Building Structures through Categories
Identification of Uncertainties (Risks & Opportunities)	<i>Description of uncertainties and structuring in categories</i>	Database of structured Uncertainties
Assessment: Probability & Impact	<i>Qualitative (0, L, M, H) and quantitative (by distribution curve) assessment</i>	Assessment and Illustration: Uncertainties and Risk Factor
Prioritisation of Uncertainties	<i>Selection of most critical uncertainties using the risk assessment map</i>	Graphical Comparison of Uncertainties regarding Risk Factor
Identification of Proactive Candidate Actions	<i>Description of candidate actions and assessment of action costs</i>	Database of cost-assessed candidate actions
Assessment of Candidate Actions & Decision	<i>Selection of cost-efficient actions using the decision support map</i>	Graphical Comparison of candidate actions
Implementation of Effective Actions	<i>Assessment of uncertainties after decision</i>	Re-assessment, result test by ROI & Cost Analysis

THE DECISIONS

Risk-related costs are of high importance for decisions in risk management. In the following we briefly like to indicate how RiskDecision provides you with quantitative data for decisions.

PRIORITISING

In RiskDecision you can find the Risk Assessment Map. The higher the probability of the occurrence of a risk and the higher the impact in case of occurrence the more important risk mitigation may become (red circled risks in Figure 1).

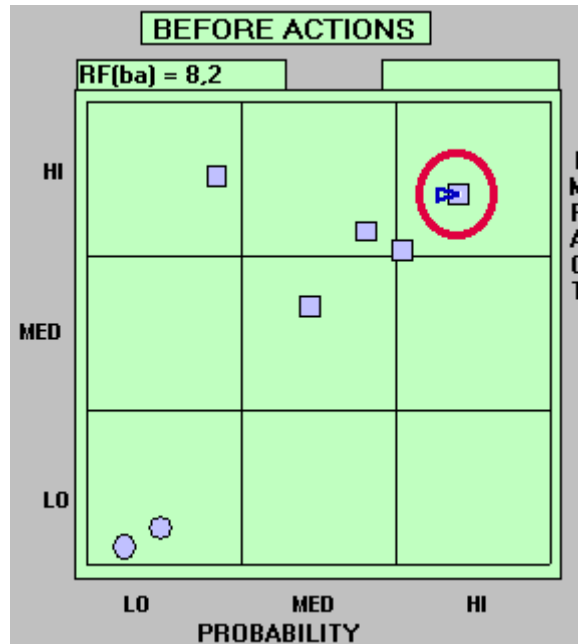


Figure 1

SELECTION OF ACTIONS

Which actions are finally implemented depends next to their effectiveness on the costs. To do so RiskDecision uses the risk factor defined as product of "Probability" and "Impact". Such risk factor can be considered as costs of a risk. These costs of a risk are confronted with the action costs in RiskDecision. The decision is clear: The less the action costs in relation to the costs of a risk, the more efficient is the action. RiskDecision displays this graphically by comparing candidate actions (red circle in Figure 2) in the Decision Support Map.

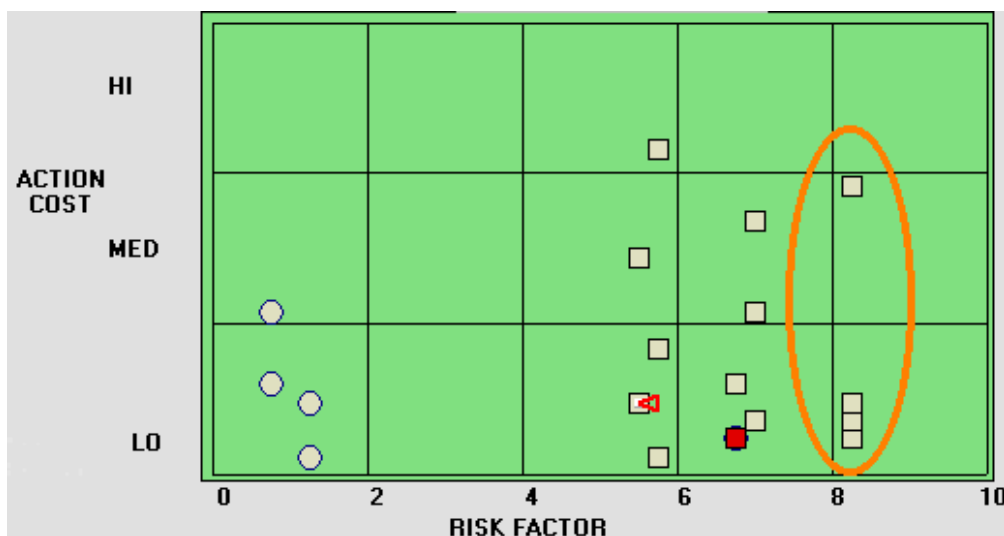


Figure 2

EFFECTIVENESS OF AN ACTION

RiskDecision analyses the success of implemented actions. The key figure is the Return-on-Investment (ROI). The reduction of costs of a risk ($20.0 - 7.0 = 13$) is put in relation the action costs (10) to determine ROI ($13 / 10 = 1.3$). In other words: If the reduction of the costs of a risk (13) is higher than the action costs (10), the decision appears to be a good one.

	PROB %	IMPACT				RF	
		Dist. Type	Units	Minimum	Most Prob		Max or SD
Before Actions	35	Normal/Gauss.	\$K		20,0	5,0	7,0
After Actions	50	Normal/Gauss.	\$K		40,0	5,0	20,0
Meets Filter Criteria						YES	ROI = 1,3

Figure 3

COST ANALYSIS

If you have e.g. a project, of course you like to have information on the total risk situation - before action as well as after action. This is done in RiskDecision by using the Monte Carlo Simulation. For the future is uncertain and therefore not known, a series of random future situations are simulated and evaluated. These are graphically displayed: the cost situation before actions, the reduced costs after actions.

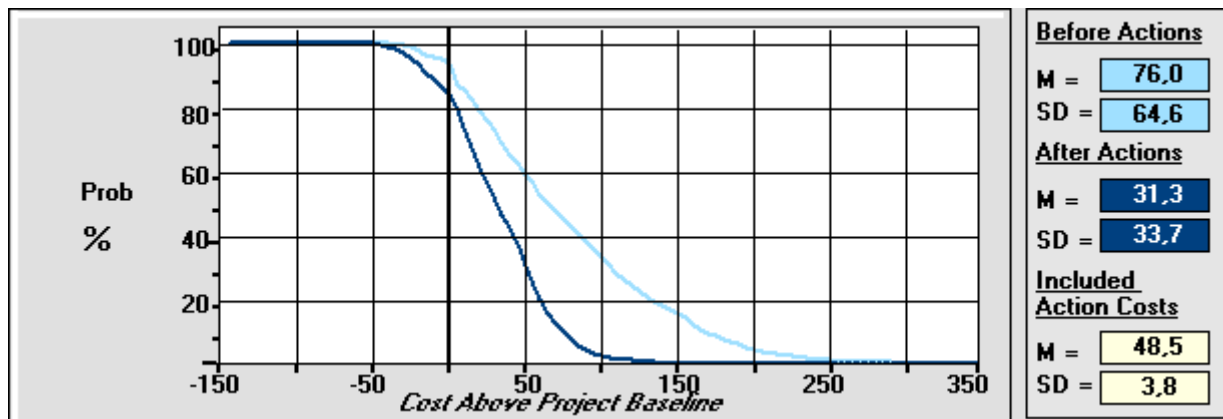


Figure 4

A FEW QUESTIONS AND ANSWERS

Q: What is the idea behind RiskDecision?

A: RiskDecision is a management tool. It is designed to be learnt and handled easily. The objective of using RiskDecision is the assistance in assessing uncertainties, actions and decisions.

Q: How does RiskDecision assist in assessing uncertainties?

A: RiskDecision allows assessment of uncertainties both in a qualitative and a quantitative manner. The result of such assessment is the risk factor as product of probability and impact. In RiskDecision you can compare uncertainties in terms of probability and impact. This way you can set priorities in handling uncertainties.

Q: How does RiskDecision assist in assessing candidate actions?

A: At first of course you need to consider the effectiveness of any action. Because of the effectiveness changing over time the assessment remains with the user without creating a model that calculates effectiveness of an action over time and against other candidate actions taken. Such effectiveness is opposed by the action costs. Therefore, you can compare candidate actions in RiskDecision in terms of costs.

Q: How does RiskDecision assist in making decisions?

A: The decision which uncertainties needs first consideration is done by prioritising. The decision for any action to be implemented can be made by assessing costs pre-supposed a sufficient effectiveness. Whether the decision has been good, is told by the Return-on-Investment which is calculated for quantitative uncertainties. You can also watch a graphic showing risk reductions or opportunity enhancements. A Monte-Carlo Analysis shows possible cost curves with regard to uncertainties and implemented actions. All these are indicators for the success of your uncertainty management.

Q: Why is the software not being concerned with the effectiveness of actions, for these are the driving factors for decision?

A: The value of the effectiveness is not a constant. Firstly, the effectiveness changes with the time which means the user has to define the effectiveness in a time curve. Secondly, any actions cannot solely be considered by itself. But also with regard to other implemented or non-implemented actions. Such "additional" effectiveness can be expressed as co-variance regarding another action or a bundle of actions being considered. In simple words, the assessment of effectiveness needs to include whether the effectiveness of an action is increased, unchanged or diminished in context with other actions. It would require an unacceptable amount of time and work to determine the effectiveness of an action. Therefore the evaluation remains up to the user, i.e. the subjectivity of the user which might be preferable compared with an insufficiently built mathematical model when the user is experienced.

Q: Who is using RiskDecision?

A: Amongst others these companies are using RiskDecision:

Interface Consulting, Intl.

Ball Aerospace

Private Mgt. Consult & Research

EDS

Envirowin
AAI Corporation
US West - Fed. Services Div
Ball Cryogenics
Alstom Signalling Ltd.
Risk Services & Technology
CTA, Inc
Virtual Management Inc.
Elf Autochem
Marotz, Inc.
Resource Calculations Inc. (GB)
Cruise & Associates
Ball Corp.
Hewlett Packard
Miller Civil Engineering (GB)
UK Nirex, Rand
Titan Client/Server Tech.
Ron Estell
PMP
Creative Solutions
Southwest Multimedia Corp.
Noweco Ltd.
AT&T Bell Laboratories
Champion Business Systems
Ball Aero & Comm Group
Public Service, Colorado
Leeds Corp.
Sauer Company, London (GB)
U.S. Air Force
Litton Amecon
CFO Magazine
General Dynamics Systems
Malt-O-Meal
Montgomery Watson, Inc
Kaman Sciences Corp.
Project Mgt Services, Inc.
Raytheon Aircraft
Mitre Corporation
AAI Engineering Support
Blue Line Enterprises
GKI (Switzerland)
MCI
Applied Decision Analysis

Vail Associates
Hughes Aircraft Corp.
Leshen-Nivuv, (Israel)
Management Services
Aerojet Corp.
BASG
Northcroft (GB)
IDI

McLure Enterprises
Malincroft, Inc.
EdenTec, Inc.
Univ of Colorado
Univ. of Texas
US Army
John Paling & Co., Ltd.
E-Systems
SW Productivity Resource, Inc.
Ball Communications
Palisade Corp.
Nellcor Puritan Bennett
Bell Atlantic
AAI Systems Management
Stentor Res. Centre, (Canada)
Ericsson, Inc.
Veritas
Eastman Kodak
Government Support
Decision Precision
Boeing Corp.
W S Atkins - Midlands (GB)
Western Dynamics Inc.
CMD Corporation
Analytical Mgt. Services
Wenell Gruppen, (Sweden)
NCR
Tecalote Corp.
Digital Equipment Corp.
US Gov.
DCMAO
Sybase
Time Line Solutions Corp.
Sandia National Labs

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