

PRACTICAL GUIDE

PROJECT RISK MANAGEMENT

SECOND EDITION



**The Most Important Methods and Tools
for Successful Projects**

ROLAND WANNER

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Successful Projects**

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Subjects include: project risk management, project management, risk identification, risk analysis, pmbok, pmi, project control, risk management process, risk monitoring and control, tools methods and standards, software projects, engineering and technology

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Preface

There's hardly an area of activity in project management in which demand, acceptance, and practice greatly differ from the way it does in risk management. In this book, you will learn more about the many different reasons for this. An important point, however, is that many stakeholders have not recognized some basic facts: Projects collapse under risks! This statement seems trivial at first glance, but it is not so obvious for most stakeholders. Upon closer consideration, you would recognize that risks brought imbalance to your project or steered it into catastrophe. Risks were not recognized, ignored, not taken seriously, underestimated or simply neglected.

Far Away in Asia

Suppose you are a project manager for the construction of a small chemical plant in China with a contract value of 30 million Dollars. Upon completion of the contract a penalty of 100'000 Dollars per day was defined, if the project closure exceeds the agreed handover date. When handing over, the plant must have produced the product in the appropriate quality over a certain period of time. In the project schedule you have scheduled a few days reserve because of this penalty. If something unexpected happens in the project, which has larger extent, it can be very costly to your company.

When first commissioning the system your technician has determined that an important electronic device, that controls the entire production process, is wired incorrectly. This is further not a problem – the wiring can be corrected. An hour later your engineer noticed that the wrong wiring caused a short circuit and has damaged the internal electronic components of the measuring instrument. A repair on site is not possible. The device must therefore be replaced. The delivery time is 4 weeks – delivery to China not included. As a result, the handover date will be exceeded by at least 6 weeks. Can you imagine what this missed deadline is costing your company?

You, as project manager are monitoring the commissioning in China and take the bad news of your technician. "That's just what we need, a real disaster!" Immediately you pick up the phone and call worried your sub-project manager Peter in the U.S., who is responsible for the control sys-

tem. "Peter, what do we do now?" "No problem, I'm sending you a device via DHL." This takes however 3 days." You are speechless and amazed? How is this possible?

Peter is responsible for the risks and actions in the area of the control system. During the risk identification, the possibility of a failure of this very important device has been identified. The probability was indeed considered very low, but the potential impact as very high. As a preventive measure Peter ordered a replacement device from the supplier already two months ago. It is now available immediately from the supplier. This even checked Peter one week ago. It will be shipped in the next hour immediately from the supplier via DHL. If the risk would not have occurred, they could have used the device with another chemical plant. If it had been outdated by then, the 20,000 Dollar expensive equipment could be sold to the customer in China as a spare part for a favorable price. But what would have happened if this risk had not been identified? What damage for the project and the company would have resulted from this? The effort for risk analysis has been more than worthwhile.

Do Not Wait Until the Next Project Crisis!

How much tension and excitement can you handle during your project? If you do not practice risk management, then I promise you that you will experience a highly interesting project! Something will always be happening and you will never get peace. It may still be exciting to correct problems on multiple project areas in the beginning – but as time goes by, you will be so stressed that you would rather throw everything down. Do you really want it to come this far? The next project crisis will definitely come again. Do not remain idle; you should instead practice precaution through active risk management!

Projects are going to incur risks, whichever way you look at it. Nevertheless, risks are often happily ignored. The numbers and plan values present an illusion of safety, on the basis of which a very good impression can be made. Furthermore, there are short-term individual interests, politics, and greed – everything that distorts the clear view of the actual circumstances. No one wants to know anything about risks once the pressure is large enough. You fall into the role of the worrier too fast. "Something like this just happens every now and then," is usually the standard comment. That sounds like irrevocable fate, as if success or failure of a project is somehow predetermined.

Risks do not arise on their own; there are reasons, which usually make themselves known so you can do something about them. Managing risks does not mean to react to random events without a plan and then wait and see what happens. Rather, it means to systematically and actively search for risks and then seize the appropriate actions against them.

What is often forgotten is that risk management is not only concerned with dangers but also with opportunities. Risks are directly connected with opportunities. If you factor the opportunities in to the risk disclosure, you are additionally increasing the chances for your project's success.

Pursue Prevention Through Active Risk Management!

Professional project risk management is, unfortunately, a very rarely constant in business, and, if it exists, it is only half-heartedly put into practice. This has many reasons: an important reason is the business culture and the maturity of project management. A person who avows to risk management, has to reduce acceptance obstacles, want a culture of openness, transparency and team spirit and not view risk management as a contradiction. If you practice risk management in your projects as project manager, then you have to act out of conviction. If it doesn't seem to make sense to you, then you should leave it at that. It will only become an alibi exercise.

Don't wait for the next project crisis. Pursue prevention through active risk management! This book is packed with essential knowledge on how to successfully apply risk management in projects. You will receive hands-on instructions and tips that you can immediately implement in your project. With this knowledge, you can make your projects even more successful and protect your project life from many problems.

I wish you good luck with your next project, but don't rely on it alone!

For Whom was This Book Written?

As a buyer of this book, you probably already have some experience in project management. However, in this book you will learn all the additional elements of effective project risk management that will deepen your knowledge.

This book was written primarily for project managers, because project risk management is a crucial activity of the project manager. Then there are of course project team members, project controllers, the project office manager and the project portfolio manager, who can extend their knowledge considerably.

The terminology described in this book follows the generally accepted PMBOK® Guide Fifth Edition 2013.

Introduction



Why do Projects and Risks Belong Together?

Wouldn't it be nice if projects didn't have any risks? It would make the project life for a lot of project managers easy – "Easy Project Life!". You could spare a lot of work, stress and surprises. Unfortunately, projects are afflicted with risks by nature. The following project characteristics, therefore have a strong influence on the risk level of a project:

- **Uniqueness:** The project includes at least some elements that have never been done before.
- **Complexity:** Diverse associated requirements in the technical or commercial area, at interfaces or in organizational areas.
- **Assumptions and Constraints:** The future development, both pronounced (open) and implicit (hidden) could prove to be false.
- **People:** The project team and senior management, customers, suppliers and subcontractors are all unpredictable to a certain extent.
- **Requirements of Stakeholders:** Their expectations and goals can change, overlap, or sometimes contradict.
- **Changes:** Each project changes and moves slightly from the known presence in an unknown future.
- **Environment:** Both the internal, organizational environment and the external environment, in which changes occur, can often not be controlled by the project.

These project characteristics belong to the nature of all projects and cannot be eliminated without changing the project itself. A project, for example, which isn't unique, has no restrictions, doesn't concern any people, and doesn't generate any changes, would, in fact, not be a project anymore!

Even the attempt to remove the risk elements of a project would turn it into something else and it probably wouldn't be a project in the classical sense anymore. Provocatively said: "No risk, no opportunity!"

Projects are carried out to generate a benefit. At the same time, you are accepting the associated risks and trying to master these. It is impossible to imagine a project without risks; the "Zero Risk Project" is a contradiction in itself. Effective risk management is therefore vital for the success of a project.

I would be careful if your project didn't have any risks!

Can You Even Manage Risks?

Something is not OK with the phrase "risk management" in my opinion. If you have dealt with risks for a certain amount of time, then ask yourself why this method is actually called "risk management". There must be a misunderstanding. You are probably asking yourself why I am coming to this statement? Keep reading and you'll find out.

In today's economic world, you strive to skillfully manage five types of resources: capital, physical things, people, information, and time. That usually works well, except for the part about time. Is time management possible? Time, as an invisible resource, continually elapses – no one gets more than the other. The clock cannot be turned back or accelerated; therefore, time cannot be managed. We can only manage "ourselves," according to the time. It's quite similar to risk management.

Can you manage risks? You can answer this question yourself after a short explanation of what a risk is. A risk is an uncertainty, which lies in the future and may or may not possibly occur. If this uncertainty occurs, it becomes a certainty, which means a problem. This uncertainty (the risk) is invisible and, therefore, not capable of being seized. Can you manage something like that?

You cannot manage risks, but rather measures

You cannot manage risks! However, you can take actions to affect the probability or the effect of the risk. These actions can then be managed through planning, monitoring and controlling. You can't influence (manage) the risk that it could rain. However, you can manage actions that could reduce or avoid the possible damage caused by the rain by packing an umbrella or by closing the roof of your convertible.

Threat or Opportunity?

Are risks for you just something negative? Upon first glance, risks may seem to be the opposite of security; however, this perception falls short. Especially from the business point of view, uncertainties often contain a positive element. If, for example, you react to market risks, it's also always related to a possible realization of market opportunities. The term "risk," therefore, has to be taken away from an entirely negative interpretation and has to be added to the opportunity aspect. A risk is always a threat and an opportunity at once. The Chinese symbol for crisis is a combination of "danger" and "opportunity." This is no coincidence; a crisis always offers – according to Buddhists, but above all Chinese understanding - the chance for a fresh start.

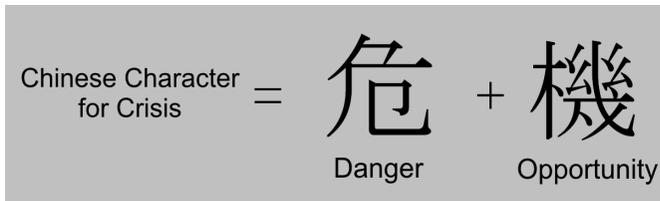


Figure 1: Crisis – Danger or Opportunity?

Risk Attitude and Risk Appetite

What Is Your Risk Attitude?

Organizations and stakeholders are willing to accept varying degrees of risk depending on their risk attitude. These risk attitudes are driven by perception, tolerance and other biases, which should be explicit wherever possible. Risk responses reflect an organizations perceived balance between risk taking and risk avoidance. The risk attitude of both, the organization and the stakeholders may be influenced by a number of factors, which are, according to the PMBOK, broadly classified into these three themes:

Risk appetite, which is the degree of uncertainty an entity is willing to take on, into anticipation of a reward.

Risk tolerance, which is the degree, amount or value of risk that an organization or individual will withstand.

Risk threshold, which refers to measures along the level of uncertainty or the level of impact at which a stakeholder may have a specific interest. Below that risk threshold, the organization will accept the risk; above it will not be tolerated.

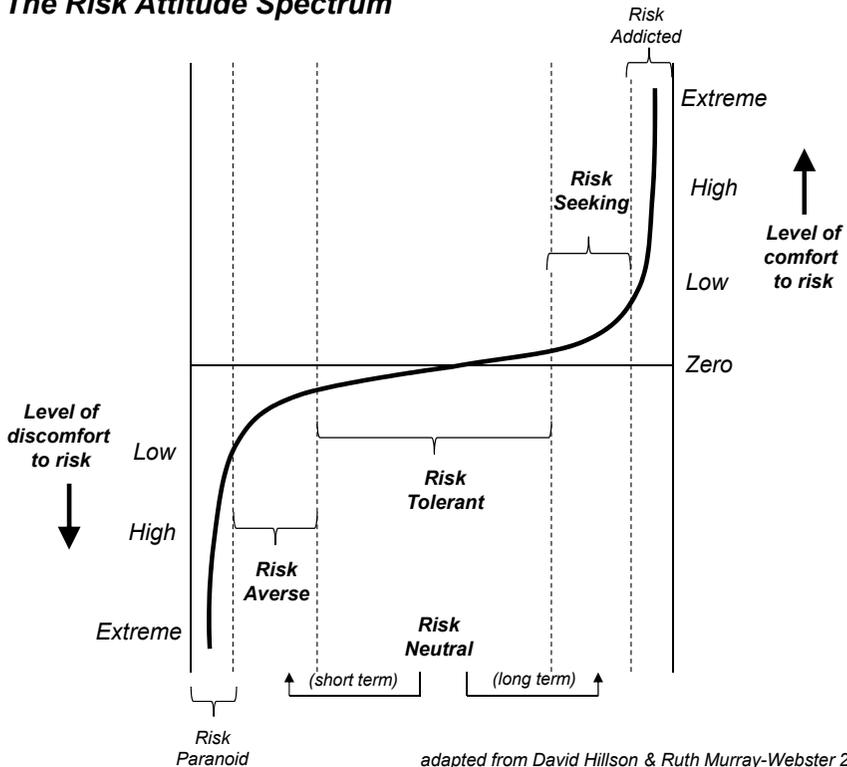
Are You Risk-Averse or Rather Risk Seeking?

In recent years, the financial world was chaotic and who knows what else to expect. The risks will be big in the future too and some may even become reality. Risks threaten the financial world, while political risks threaten in the Middle East. The demographic change in our society carries risks into our latitudes and our projects are carried out in an environment full of uncertainties.

Managers, politicians and project managers at all levels must, therefore, ask themselves, "What should we do in this environment of constant uncertainties?" The answers probably depend a lot on whether we are still here, if something "happens," or if we have the attitude, "let the devil may care." But you will agree with me that proactive action is most often better than reaction if something does happen. Therefore, we need to adjust appropriately to the new and challenging future perspectives. But what is appropriate?

The attitude towards risks is different from person to person. The spectrum reaches from risk-averse (uncomfortable with uncertainty) to risk tolerant (no special reaction) up to risk seeking (uncertainty is welcomed).

The Risk Attitude Spectrum



adapted from David Hillson & Ruth Murray-Webster 2007

Figure 2: The Attitude Towards Risks

There are four ways how we can adapt to risks as a person or organization:

Risk-averse: Being averse to risks. Discomfort at uncertainties. Here, the focus is on taking as few risks as possible, avoiding risks to protect oneself, or to prevent risks.

Risk-tolerant: Risk-tolerant organizations feel somewhat comfortable with most uncertainties and accept risks as a normal characteristic of daily life, business and projects. They have a rather lax attitude to risks. Risks do not have an obvious or significant impact on their behavior.

Risk-neutral: Risk-neutral organizations are willing to briefly take reasonable risks in order to generate long-term benefits. A clear trade-off between risks and reward.

Risk-seeking: High risk tolerance. Uncertainty is welcomed. Deliberately, risks are taken - often in the hope that they will not occur and that the appropriate action yields large profits.

Which of these risk behaviors is now appropriate for projects? Each, of course, can be useful, depending on the already existing uncertainties and potential opportunities. On the one hand, it depends on our personal attitude towards risks. On the other hand, the choice highly depends on the applicable situation and how the uncertainty affects, in our opinion, the defined goals. The attitude towards risks has a substantial impact on risk management activities. A risk-averse product innovation team does just as little good as a risk seeking nuclear safety inspector.

Risk Appetite – How Hungry Are You?

The term "Risk Appetite" was actually used in the past only by academics. However, since the current financial and sovereign debt crisis, we are faced with it frequently. But what is the real difference between "Risk Appetite" and "Risk Attitude"? This is often confusing and quite frequently these terms are used as synonyms. Let's part from the risk terminology. Appetite is an inner desire, a feeling that is difficult to be measured and appears as hunger, hunger for food. How can you quantify appetite? High, medium, low, I could wolf down a whole horse or rather only a salad? A appetite is something that comes from within. Attitude, however, is something else. It deals with positioning yourself. Herein, one has the freedom to choose in which direction. If you are on a diet and are hungry, then you will rather opt for a salad.

Risk or Reward?

As you have noticed, risks not only include uncertainties, which could have negative consequences, but also uncertainties with positive consequences. Risks also have a direct connection to profits. Simply said: the more risks a business is willing to take for its projects, the bigger the possible profit. Now, we have to weigh how much risk are we willing to take and what is the potential opportunity in return?



Whoever doesn't take any risks will definitely stand still! The will to take a risk depends directly on the possibility to generate an appropriate opportunity out of it. A business should encourage responsible risk-taking and not punish setbacks. Only when it comes to personal safety is risk-taking not an option!

Renaults' chef designer, Le Quément, on the new, adventurous design of the Renault luxury models: "Of course we are taking risk, but it would be even more of a risk not to risk anything at all."

Why Risk Management?



The Significance of Risk Management for Businesses

The topic of risk management is becoming more important for businesses because of the strategic importance of projects, especially because projects are becoming more demanding and complex. On the other hand, large projects always mean a bigger financial risk for companies.

Identifying opportunities and risks early and being capable of approaching these actively and as a whole are key success factors of a risk-aware management in today's market activities. The opportunity and danger potential will increase by the rapidly changing technology and the opening of markets all around the world. At the same time, changing economic and social conditions are a huge challenge for many businesses.

The topic of risk management has gained in importance in the last few years, particularly in the eyes of the legislators and the regulatory authorities. Ever since the accounting scandals during the "New Economy" in the USA and Europe between 1999 and 2004, the topic of Corporate Governance is being discussed more strongly once again.

Since 1 May 1998, corporations in Germany are encouraged to establish a company-wide risk monitoring system (§91 Paragraph 2 of AktG) by law of the "Corporate Sector and Supervision Transparency Act" (Gesetz zur Kontrolle und Transparenz im Unternehmensbereich – KonTraG – similar to Sarbanes Oxley Act) for the minimization of risks (now extended and effectively superseded by Basel III), which are recommendations on banking laws and regulations. With the new capital resources agreement of the Basel Committee on Banking Supervision, new conditions are being created, which are incentives to support further development of risk management in the banking sector.

Web Sites of Interest

The Risk Doctor – <http://www.risk-doctor.com/> (highly recommended)

PMI Risk Management Specific Interest Group <http://www.risksig.com/>

Software Engineering Institute - Carnegie Mellon, Risk & Opportunity Management <http://www.sei.cmu.edu/risk/>

NASA Risk Management Page <http://www.hq.nasa.gov/office/codeq/risk/>

Department of Defense, Extension to: A Guide to the Project Management Body of Knowledge (PMBOK® Guide), First Edition June 2003, Chapter 11, Project Risk Management

<http://www.risk-services.com/DoDExtPMBOKJune2003.pdf>

Department of Energy's Risk Management Guide,

<https://www.directives.doe.gov/directives-documents/400-series/0413.3-EGuide-07>

All of the internet links in this book were current upon publishing of this second edition in January 2015. However, it cannot be ruled out that some of them have changed in the meantime.

Recommended Books

Project Risk Management

Risk Management – Tricks of the Trade, Rita Mulcahy PMP, RMC Publications 2010

Practical Risk Management: The ATOM Methodology, Second Edition, David Hillson, Peter Simon, 2012

Identifying and Managing Project Risk: Essential Tools for Failure-Proofing Your Project, Tom Kendrick PMP, 2009

General Project Management

A Guide to the Project Management Body of Knowledge: PMBOK® Guide, Fifth Edition, 2013

About the Author

Roland Wanner has been in the project business for 30 years already and has seen lots of projects – some of them successful, others that have failed. After his education as a mechanical engineer and industrial engineer he spent 5 years as a project manager and after that several years as a project controller and project portfolio manager in mechanical engineering and construction. For more than 10 years he's worked as a project management specialist, project portfolio manager and project office manager in the banking and insurance sector.

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Thank you for buying this book! We have done our best to ensure high quality in content and design. Much effort was made to make this book as complete and correct as possible. However, it can't be ruled out that a mistake was made in one part of the book or another, whether contextual or grammatical. Maybe you think a certain piece of information is lacking or a certain subject should be expanded. We rely on your opinion!

We appreciate your ideas, thoughts and suggested corrections. Please send them to: info@pm-risk.com

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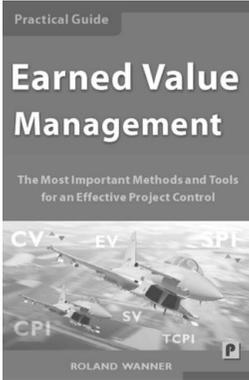
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