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Introduction

1.1 Introduction

In this introductory chapter, we describe the project and project stakeholder perspectives that we have adopted to frame this book and its content. The chapter synopses will guide you in choosing the actual sequence you wish to follow for individual reading, but we recommend that you do follow the order for Chapters 4–10, as these chapters embrace the sequential and systematic application of the cycle of project risk management processes.

1.2 The Project Perspective

Our world has become increasingly 'project-driven'. This is largely because projects are seen to be more 'containable' than other methods of achieving development goals. Projects are perceived as having clearly identifiable beginnings and finite endings (although sometimes these are hard to pinpoint precisely). The fulfilment of sought-for objectives is intended to deliver desirable (and hopefully measurable) outcomes. This perspective assumes that the project approach is more manageable than other ways of doing things, although this assumption may not always translate easily or fully into reality.

Projects are endeavours usually surrounded by *uncertainty* and often cloaked in *risk*. While we tend to regard them as exclusively human undertakings, projects do occur in the natural world. Beavers build dams across watercourses; termites construct elaborate edifices to shelter themselves from harsh extremes of weather; birds build nests to accommodate their young. These creatures also face risks as they go about their 'project' work.

Managing risks is thus an important part of managing projects, as much for human society as for the natural world. Our book describes a comprehensive and systematic approach to the management of project risks. Whilst we have no plans for further references to animals and insects, their potential contribution to risk management should not be ignored. Bio-mimicry has become an important source of innovation for contemporary society in engineering and other fields, and there is every reason to suppose that it could also contribute to risk management.

Managing Project Risks, Second Edition. Peter J. Edwards, Paulo Vaz Serra and Michael Edwards.

Project management, as an art and a science (hence its vulnerability to many interpretations), stems largely from a construction industry that has been project-based since human beings first attempted to create shelter for themselves. We have become increasingly aware of the need to organise the ways in which our building activities are planned, resourced and carried out in order to satisfy our need to develop our physical environment. Traditionally, therefore, project management has been associated with building projects, and many books (including those on risk management) retain that perspective exclusively.

For this book, we have tried to embrace the project-driven nature of contemporary society more fully and have deliberately adopted a generic project perspective.

All projects are exposed to risks. While particular risks will be different for different projects, different project stakeholders and different project environments, we seek to demonstrate that it is possible to adopt a *systematically* uniform approach in order to deal with those risks. Thus, while many of the examples presented in this book are taken from projects in the construction industry, we have sought to include some from other fields. The actual risks will not be identical (although many will be similar), but the risk management principles remain the same.

1.3 The Project Stakeholder Perspective

All projects involve *stakeholders*: those people or entities that have the capacity to influence the decision-making associated with projects. We explore this concept in greater depth later in this book. Suffice it to say here that every project involves multiple stakeholders (or at least more than one). For example, I may decide to embark on a renovation project on my house. While it is 'my' project, it is likely that other family members will be involved, that tradesmen will be engaged and external suppliers sourced. I may have to approach consultants for advice or even apply for permits from local authorities. To a greater or lesser extent, each and all of these will influence the decision-making that inevitably surrounds the project. Anyone with that influential capacity has to be regarded as a stakeholder. How much influence they can exert will determine the nature, level and treatment of the risks involved.

Similarly, you may propose a project to write a book as a sole author. However, if you want others to read it and if you want to earn royalties from its publication, other people will become involved in, and help to make decisions about, the publication process. The same scenario actually applies to more artistic and creative works. While the intellectual inputs may be entirely individual on the part of the artist, if the project outcomes are intended to become available to others, or even to just a single end-user or purchaser, then we might argue that the follow-up process is also part of the project and thus susceptible to decision-making beyond that of the original artist. Few artists can afford to ignore their 'market' entirely.

A single project stakeholder perspective is thus only tenable if the project outcomes were never meant to be available to anyone other than the project originator.

However, while all may be involved in bringing a project to fruition, each stakeholder is likely to have at least some objectives that are different to those of other stakeholders. By definition, as we shall see in Chapter 3, this means that each stakeholder will be exposed

to different risks, albeit possibly of a similar type but of varying uncertainty in terms of likelihood and consequence. Each stakeholder may have to manage its risks in ways that may be subtly different to those of other project stakeholders.

Logically, therefore, whatever the *organisational* arrangement of stakeholders in a project, any attempt to insist upon a common risk management system for all stakeholders for that project is neither practical nor advisable, particularly where the stakeholders are autonomous entities. Even where projects are undertaken 'in-house' by an organisation, e.g. under Project Management Office (PMO) or Enterprise Project Management (EPM) arrangements, there will still be other stakeholders involved, including other departments within the host organisation and external stakeholders supplying goods or services to the project.

In this book, we have deliberately adopted a stakeholder perspective that assumes that each stakeholder implements its own risk management system for each of the projects in which it is involved. Ideally, each stakeholder will employ an overarching approach that, while dealing individually with all of its risks on each of its projects, will apply common principles of risk management throughout and will capture risk knowledge from each project to the benefit of the whole stakeholder organisation.

The unique project and project stakeholder perspectives outlined above provide the essential context for the whole of this book.

1.4 Overview of Contents

The chapter synopses in this section should help you to determine the topic reading sequence you wish to follow. For those who are involved in teaching project risk management, the synopses may help you to formulate a useful reading programme for your students.

In Chapter 2, we explore an understanding of risk itself, providing definitions and common terms. Positive and negative concepts of risk (threat risk and opportunity risk) are presented. We consider the *psychology* of risk, together with risk *awareness*. Risk and uncertainty are distinguished, and their association is clarified. The dynamic nature of risk is discussed. Approaches to classifying risks are considered. The important topic of risk communication is introduced here, but is treated more comprehensively in Chapter 20 (Communicating Risk).

Chapter 3 is all about projects, further consolidating the essential platform upon which the processes of managing project risks can be presented. The nature of projects is considered, in terms of their life cycles and processes. Additional thought is given to project stakeholders and their influence. Project decision-making is considered, and the chapter concludes with some thoughts about what may constitute a risky project.

National and international risk management standards are described in Chapter 4, which then presents a systematic approach to project risk management in the form of an experiential learning cycle. This provides an essential precursor for the more detailed presentation of the stages of the risk management process in subsequent chapters.

In Chapter 5, the important preliminary task of establishing the internal and external contexts for a project is presented, together with the risk drivers (the issues that shape and influence risks) operating in those contexts.

For risks to be managed, they must first be identified. This process is dealt with in Chapters 6 and 7. Approaches to identifying project risks are first considered, followed by presentation of several risk identification tools.

Following identification, risks should be analysed and assessed in terms of their individual and comparative magnitudes or severity levels. Chapter 8 presents simple ways of doing this that will provide an informed basis for subsequently deciding what should be done about the identified and assessed risks. The emphasis in this chapter is on qualitative risk assessment, but some quantitative examples are offered.

The response options and types of proposed treatment actions available for project risks are presented in Chapter 9. At this point, the risk management process usually moves from exploration and planning to the active reality of implementing the project. Most risks are now 'closer' in time. Chapter 10 therefore deals with activities related to monitoring and controlling risks during the project delivery process.

It is said that '*if we do not remember history, we are doomed to repeat it*' (George Santayana, 1863–1952: https://en.wikipedia.org/wiki/George_Santayana). In Chapter 11, the importance of project risk learning is considered, specifically through risk knowledge management. Knowledge about risks, captured from individual projects, should be systematically recorded by the stakeholder organisation as a means of gaining important wisdom about risk that can be exploited for future projects.

While Chapter 11 concludes the coverage of the essential processes of systematic project risk management, we believe that our book would be incomplete without some attention to other topics closely associated with risk.

Relatively new to the risk management literature is the way in which risks are *culturally* shaped. Chapter 12 explores this concept from the perspectives of society in general and from the organisational characteristics of project stakeholders.

Modern projects are often described as *complex*, especially when they fall into the category known as 'mega-projects'. Complexity and its implications for project risk management are discussed in Chapter 13, and in this second edition we also present an early-stage project complexity assessment tool that allows users to identify which parts of a project may contribute most to its complexity.

In addition to complexity, many projects (regardless of their nature or scope) are beset by *political* influences that affect how they are conceived and delivered. This has impacts on the risk management activities of the stakeholders. Political risks are discussed in Chapter 14. New material here includes topics related to ethics, professional misconduct, fraud and corruption, and a risk-based corruption model.

Chapter 15 is an entirely new chapter. Crises and disasters feature ever more prominently in our contemporary world, perhaps because of the global media attention that they attract. We think it is important to consider this from a risk management perspective, but since neither crises nor disasters are projects *per se*, we have resorted to the device of treating the *planning* processes for crisis response and disaster recovery as 'project' vehicles for discussing risk management approaches. We have drawn upon a 'rich picture' of pertinent planning factors to focus the discussion, and we hope readers will appreciate the value of this new chapter.

In Chapter 16, opportunity risk is considered a desirable obverse of the two-sided coin of risk. Differences in the management of threat and opportunity risks are considered.

Strategic risk management, as a responsibility of senior management distinct from the everyday processes of systematic risk management but still highly relevant to them, is discussed in Chapter 17.

Chapter 18 provides guidance about the process of building and maturing a risk management system in a project-based organisation, while Chapter 19 considers computer-based risk management software applications along with other IT-based tools.

The important topic of risk communication is expanded in Chapter 20. Starting with a theoretical foundation, this chapter presents a model of communication and its components. We then consider the implications for communicating risk information, not only within a project stakeholder organisation, but also externally to other project stakeholders and beyond that to the public. Our placement of this chapter late in the book is deliberate, as it allows us to draw on all the various aspects of project risk management and reconsider them from a communication perspective.

In Chapter 21, we offer conclusions about project risk management and some views about its future.

Appendices then present the main case study projects used in our book. These include:

A) A correctional facility project.
B) A rail improvement project.
C) An aid-funded project and project consultant.
D) A train mock-up project.
E) A hot-rod car project.
F) An aquatic theme park project.
G) Risk governance guidance document.
H) Rise and fall of a plumbing company.

The case studies exemplify topics discussed in earlier chapters, and we refer to them throughout the book. They provide comparisons and contrasts in terms of project risk management principles and processes.

Without wanting to be too radical, we suggest that you consider reading the case studies first! They will give you a greater *awareness* of the different contexts for different projects and organisations. Then, as you read the rest of the book, you will better appreciate the references we make to them. We are also certain that you will find other instances where no case study references are made but which are highly relevant to your own project risk management experience – and that creates a 'win-win' outcome for you and for us!

The case studies, together with the many other examples included in the book, should provide a rich menu of topics for discussion and tutorial groups in a student learning environment.

1.5 Limitations Caveat

Our book provides a comprehensive treatment of systematic risk management for projects. In our view, it is lacking only in two aspects. We do not include comprehensive or sophisticated mathematical techniques for quantitatively analysing and assessing risks, nor do we

provide detailed information about specialised computer applications associated with such decision-support analysis. The two omissions are deliberate.

A sound understanding of the concepts of risk and the principles and processes of risk management is an essential prerequisite to mathematical risk modelling. If risks are not understood conceptually, then no amount of mathematical treatment and analysis will resolve that deficiency and the data inputs and outputs associated with sophisticated computerised modelling tools are likely to be spurious – a truly 'black box' situation that presents a comprehension dilemma. Obtaining adequate and reliable quantitative input data to service such models may itself be a difficult and expensive, if not impossible, task.

We do not claim that mathematical modelling has no place in project risk management, but rather that it is not a critical requirement for *every* project. Where such modelling is needed, the necessary expertise can be acquired or hired separately, as long as the project stakeholder fully appreciates the need for such effort, is willing to commit the resources required for it and also understands the value, implications and limitations of what the modelling will deliver.

Highly mathematical approaches in risk management are thus beyond the purview and objectives of this book, and they really warrant a separate treatment.

In practice, most project stakeholders rarely need to undertake complex mathematical risk analyses. What they most want is to identify the risks they face and assess them in order to determine or prioritise resource requirements, explore treatment options, decide upon appropriate responses and then successfully monitor and control the treated (or untreated) risks as the project proceeds from inception through the procurement process and beyond. The content of this book is therefore based on these premises and focuses on the more *practical* requirements of project risk management.

Although some discussion of computerised systems is presented in Chapter 19, detailed information about currently available risk management software applications is not provided. Despite any good intentions on our part, the frequent upgrading of such applications, and the rapid pace of development in modern information technology (IT) and artificial intelligence (AI), would almost certainly impact negatively the 'shelf-life' of the book.

We hope you will find this book useful in your project work and that you will enjoy reading it.