

a synopsis of

How to Manage Project Opportunity and Risk

—
why *uncertainty* management
can be a *much* better approach
than *risk* management

Chris Chapman and Stephen Ward
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Overview

Projects are about the planning and delivery of beneficial change. This beneficial change may involve the creation of a desired physical asset or some less tangible organizational change. In either case, the pursuit of opportunities is an inherent central concern.

Throughout any project what can be achieved is subject to uncertainty. Uncertainty underlies risk and the pursuit of inherent project opportunities, both of which require careful management alongside an ongoing search for all other opportunities to improve performance. This book explains how and why uncertainty management should be employed in all projects to pursue *all opportunities* in the face of *all relevant uncertainty and risk*. This approach goes well beyond what can be achieved with most risk management practice.

The target readership for this book includes two groups of experienced professionals. One group is director level senior managers who would like to broaden the scope and effectiveness of their organization's current 'risk management' process capability for projects, operations and corporate strategy contexts, what some refer to as enterprise risk management (ERM). The second group is those involved in implementing that capability in a projects context. Aspiring members of both these groups are also target readers. This is a very broad target audience, beyond the scope of all 'project risk management' books.

In part this wide target readership is driven by the wide scope of the 'project' concept which we believe needs to be addressed by everyone involved in projects. In broad terms a corporate view of 'projects' includes projects of all types and sizes, from the small and simple to the large and complex, including programmes and portfolios of programmes, fully integrated with associated corporate operations and corporate strategy. This book uses 'project' in this broad sense, with a direct concern for the whole lifecycle of projects and the associated deliverable asset or organisational change, from conception to termination. In all cases links between projects, operations and corporate strategy are part

of the corporate perspective, and enhancing corporate performance is the basic concern. This goes well beyond the scope of common project risk management practice – one component of 'the bigger picture' this book addresses.

In part the very wide target audience for this book is also driven by a belief that whether experienced or not, board members or aspiring project management team members, all readers need a clear understanding of what an effective and efficient uncertainty management process for clarifying opportunity and risk can achieve, and in broad terms how and where it can be used. This kind of 'uncertainty management' approach goes well beyond the scope of common practice 'risk management' in any context. *All managers at all levels* also need to understand why much common practice risk management is seriously limited in comparison, and why a change of approach is warranted.

In terms of managing performance under conditions of uncertainty and risk, common practice risk management offers a very limited perspective. Limitations include insufficient scope, inappropriate framing assumptions, unhelpful working assumptions, and limited objectives in relation to managing opportunity, uncertainty and risk. Typically risk management is regarded as a process for 'keeping things on track' by identifying potentially adverse 'risk events' or threats to performance, and aspiring to neutralise them. The potential for favourable events or opportunities is sometimes acknowledged, but common practice risk management guidance and tools do not provide a convincing basis for exploring, let alone evaluating, all opportunities to enhance performance.

Opportunity needs a broad interpretation that embraces all ways to improve performance, including creative and lateral thinking in formulating plans, exploitation of favourable circumstances, elimination of unfavourable behaviours, and seeking better tradeoffs between all objectives, including objectives that are not measurable.

Risk needs to be seen in terms of downside implications of any sources of uncertainty when commitments are made. Shaping plans to achieve a minimum level of risk for any given level of expected performance for all relevant objectives at any given stage of the project lifecycle should be a core concern. When relevant, robust contingency plans to cope with bad luck as well as ambitious base plans to capitalise good luck should be central to shaping plans. Realistic expectations are always relevant.

'Risk events', that may or may not occur, need to be seen as just part of a broad view of uncertainty that also includes sources of ambiguity, inherent variability and systemic uncertainty. Recognised lack of certainty has to include 'the unknowable', but sometimes uncertainty is usefully viewed as 'incomplete knowledge', which can be reduced at a cost or by the unfolding of the project lifecycle. All sources of uncertainty require attention, at an appropriate level of decomposition for the lifecycle position and process objectives. 'Risk events' and the inherent variability that much common practice risk management focus on are often the least important uncertainties, while ambiguity and systemic uncertainty are usually key.

The focus of this book is generic 'performance uncertainty management processes' (PUMPs), designed to clarify uncertainty, opportunity and risk in all kinds of projects and organizations. The emphasis is the strategy shaping stages of the project lifecycle, in particular shaping the development of project execution and delivery strategy plans. However, a fully integrated approach to the whole lifecycle is addressed, using a 'PUMP pack' – a set of related PUMPs for all relevant lifecycle stages, from project conception through to termination. A key feature of this book is an in depth explanation of central issues and a full discussion of important practical considerations associated with ensuring that processes are both effective and efficient. Throughout key issues and approaches are

illustrated with real case examples, and references to further reading are provided where appropriate.

While the focus of this book is uncertainty management in a project context, many of the core issues are wider, and the wider applicability of the approach adopted here is important. Organizations need to speak the same language and use the same basic concepts when addressing opportunity, uncertainty and risk in any part of the organization. The implications of this for operations management, corporate level strategic management and what some see as enterprise risk management are not addressed directly until Parts III and IV, but this generality is a core aspect of our approach.

If the thinking developed by the end of Part IV is fully exploited, the subtitle of this book can be viewed as the key message for all contexts, and the main title can be viewed as just the example context.

Structure outline

Part I (Chapters 1-4) is the first of four parts. It discusses key concepts and frameworks. It begins by exploring the corporate context of projects and the key types of uncertainty present through the project or asset lifecycle. A twelve stage characterisation of the lifecycle provides a framework for considering the application of a PUMP at different stages in the lifecycle, when different performance considerations operate. Following chapters explore the key features of an uncertainty management approach within this framework, including the concepts of risk and opportunity using a simple approach to quantifying uncertainty, the implications of related qualitative treatment of uncertainty, and key motives for undertaking uncertainty management. The final chapter in Part I outlines the seven phase structure of a generic PUMP framework, and briefly compares this with a number of other published risk management process frameworks.

Part II (Chapters 5-11) elaborates the basic seven phase generic process introduced in Chapter 4, with one chapter for each phase, assuming application in the execution and delivery strategy development stage of the project lifecycle. Each chapter discusses the processes involved in each phase plus conceptual and practical issues that require attention. Examples are provided to help link the idealized process to the practice they are based on, to facilitate their application in practice.

Part III (Chapters 12-13) outlines a fully integrated approach to the whole asset lifecycle, explaining how the basic PUMP needs to be modified to effectively manage uncertainty in each stage of the lifecycle, from project conception through to asset utilisation and termination.

Part IV (Chapters 14-16) outlines what corporate management needs to do to create and develop corporate uncertainty management capability.

This book is a re-titled, expanded and extensively rewritten third edition of *Project Risk Management: Processes, Insights and Techniques*, an international standard first published in 1997, significantly revised for the 2003 second edition. The structure of this book is similar to the second edition. However, the second edition Part II has been split into two parts, there has been some rearrangement of material between chapters, and the text has been extensively revised throughout, with more flexible plain English terminology, broader concepts, new material, additional recent examples, and many updated references. An important aspect of these revisions has been to clarify the scope and significance of an uncertainty management perspective which addresses uncertainty associated with ambiguity in a wide variety of forms, and opportunity management very widely defined as well as threat management. *All* readers of previous editions will find it

worth treating this third edition as a new book to assimilate the full implications of the new perspective in the intended holistic terms.

Part I Setting the scene

1 Uncertainty in and around projects

Chapter 1 considers the extent of uncertainty in and around projects in a corporate context. It begins by considering the nature of projects and the range of associated assets or organisational changes that may be delivered by projects, and the relationship between projects, corporate strategy and operations.

Considering projects associated with a single deliverable asset or organisational change, a detailed description of the asset/change lifecycle and the activities involved in each stage of the lifecycle is presented. This description utilises a twelve stage *nominal* framework that distinguishes different aspects of the four basic life cycle stages of conceptualisation, planning, execution and delivery and utilisation of the asset or change delivered by a project. The purpose of the additional stage detail is making it simpler to use in an effective systematic manner.

Summary of the twelve stage *nominal* asset/change (project) lifecycle

<i>Four basic lifecycle stages</i>	<i>Twelve stage framework</i>
Conceptualization	Concept shaping
	Concept gateway
Planning	Design, operations and termination (DOT) strategy development
	DOT gateway
	Execution and delivery strategy development
	Strategy gateway
	Tactics shaping
	Tactics gateways
Execution and delivery	Execution
	Delivery
Utilisation	Operation and support
	Termination

This lifecycle *nominal* structure provides a framework in which uncertainty management can be deployed in any appropriate framework for particular contexts. An immediate implication is that the scope and nature of the process used to manage project uncertainty should be driven by where in the lifecycle it is located, to effectively address the questions relevant to that stage. For example, business case concerns in the concept shaping stage can seem very different to design and operations concerns involving environmental issues, although there are important connections. Further, governance concerns need clear separation from shaping the plans, facilitated by the separate gateway stages.

Within each life cycle stage, uncertainty management requires consideration of seven basic questions: who is involved, what are their motives, what is the deliverable of interest, which way will each life cycle stage deliver what is needed, what resources are required, when do activities have to take place, and where will the project take place? These questions, referred to as the 'seven Ws', form a second framework that is used throughout the book.

Adding to the scope of uncertainty that needs to be managed is the need to recognise that uncertainty within the lifecycle and seven W frameworks can involve four different components: ambiguity, inherent variability, uncertainty about the occurrence of particular events, and systemic uncertainty.

Two further concepts are briefly introduced. One is a view of all sources of uncertainty as composites, which can be successively decomposed to understand their nature and associated responses, in a manner and to a level that reflects the need for clarity about their nature at a given stage in the lifecycle. The other is a view of uncertainty focused on the achievement of objectives.

2 Uncertainty, risk and opportunity

Chapter 2 uses all the basic definitions and linking conceptual frameworks from Chapter 1 to explore the nature of uncertainty in terms of its relationship with opportunity and risk. It first introduces the need to use 'range-based estimates' rather than the 'point estimates' conventionally employed, distinguishing between targets, expectations and commitments, with explicit identification of 'provisions' and 'contingencies'.

This framework is then used to define a 'minimum clarity' approach to quantifying uncertainty. This simple depiction is used to further explore important distinctions between targets, expected outcomes and commitments.

A focus on uncertainty about performance above or below any particular opportunity/risk datum point highlights the relative nature of opportunity and risk. Effective management of uncertainty involves managing opportunity and risk together, and offers a richer perspective than an approach focussing on risk alone.

In comparison, widely used simplistic probability impact-grids are inherently limited, and should be made redundant, for reasons briefly explored.

The second half of this chapter uses three different cost estimating contexts to illustrate how approximate, subjective estimating can be used to efficiently inform decision making about alternative options and aspects of estimates that warrant deeper levels of analysis. The examples involve cost estimating at the concept stage for highways construction projects, cost estimating for a small contractor, and the use of simple estimates of cost distributions to choose between alternative equipment acquisition options. The latter example introduces the idea of selecting 'risk efficient' options that involves looking for desirable tradeoffs between risk and expected performance.

3 Key motives for uncertainty management

Chapter 3 begins by outlining roles for uncertainty management in each stage of the project or asset lifecycle. These roles suggest a set of generic objectives for PUMPs applied in each stage of the life cycle. Each individual project can draw on these possibilities as appropriate to the context. Documentation as part of a formal PUMP serves a number of useful purposes, such as clearer thinking and clearer communication,

worth pursuing in their own right. In this context a 'clarity efficiency' concept is introduced, concerned with maximising the insight that can be communicated for any given level of analysis effort and cost, and choosing an appropriate level of detail.

Another key objective is the identification of opportunities to change base plans and develop contingency plans in the context of a search for 'risk efficiency', taking an aggressive approach to the level of risk which is appropriate for long-term corporate performance maximization. Encouraging and facilitating cultural changes such as a positive attitude to uncertainty, creativity in options generation, and constructive insubordination, can also be important objectives.

Uncertainty quantification is a vital tool in this process, especially if the full potential value of cultural changes is to be realized, and dysfunctional organizational behaviour associated with confusing targets, expectations and commitments, provisions and contingency sources is to be avoided. But qualitative analysis and its documentation can also help to capture corporate knowledge in an effective fashion, for use in both current and future projects, and explicit corporate culture management can pay major dividends.

This chapter also introduces the idea of 'opportunity efficiency'. This is a convenient label for a practical overall optimality concept that involves stretching to do the best we can with limited time, knowledge and other resources – making the best of our circumstances. 'Opportunity efficiency' requires 'clarity efficiency', 'risk efficient' tradeoffs between risk and expected performance for all relevant attributes, as well as appropriate tradeoffs between all relevant performance criteria. A high risk-reward choice in cost terms in conjunction with a low safety or environmental risk approach may be the wise choice, and clear articulation of the associated rationale at board level may be essential.

4 An overview of generic process frameworks

Chapter 4 outlines the seven phase structure of the basic performance uncertainty management process (PUMP) framework that is the focus of the book. The seven phases are:

- Define the project
- Focus the uncertainty management process
- Identify *all* the relevant sources of uncertainty, response options and conditions
- Structure *all* uncertainty
- Clarify ownership
- Quantify *some* uncertainty
- Evaluate *all* the relevant implications

In any given application, efficiency and effectiveness requires an iterative process. Analysis is progressively refined using successive passes where this is useful, employing the deliverables of earlier passes to evaluate where more effort is most likely to prove worthwhile. The basic PUMP framework is compared with a number of other published risk management process frameworks, as a basis for understanding the transferable nature of the concepts developed in the rest of this book for users of alternative frameworks.

Part II The generic process in one key lifecycle stage

Part II elaborates the seven phase generic process framework of the basic PUMP outlined

in Chapter 4, using one chapter for each phase, in Chapters 5 to 11. Each Part II chapter assumes the PUMP is being applied in the execution and delivery strategy development stage of the project lifecycle. This stage offers the most convenient context for detailed discussion. Part III looks at variations required for all other life cycle stages.

5 Define the project

The define phase involves consolidating a description of the project effort to date at a strategic level to define the project in a form suitable for the rest of the PUMP in the present lifecycle stage. Resolving any gaps and inconsistencies exposed by this exercise is part of the ongoing aspects of this phase. This definition process considers the nature of the project of interest, its lifecycle stages, and the nature of the seven Ws as they relate to the project.

The deliverables of the define phase are a clear, unambiguous, shared understanding of the project to date and its management processes at a strategic level suitable for the rest of the PUMP work on.

6 Focus the process

The basic PUMP provides a framework for uncertainty management, but the precise scope, purpose and detail of analysis undertaken in each PUMP phase will depend upon the application context. There is no 'one best approach' for all circumstances. The focus phase of the basic PUMP is about adapting the basic process to the specific project context and lifecycle stage of immediate interest. A key aspect of focus phase considerations is the degree of complexity to employ in analysis.

The focus phase highlights the importance of considering in scope terms the why, who, what, whichway, where, when, wherewithal aspects of the uncertainty management process, before considering more detailing planning of a PUMP application. Effective operation of the focus phase is predicated on all relevant management as well as all relevant project staff having a good understanding of the key motives for uncertainty management as discussed in Chapter 3.

A comprehensive and complete focus phase should clarify all the key aspects of the chosen PUMP approach viewed as a project in its own right, in a manner accessible to all relevant people. The deliverables of the focus phase for each pass at each stage in the project lifecycle are a clear, unambiguous, shared understanding of how the PUMP is going to operate in a given context, and what it should deliver.

7 Identify *all* the relevant sources of uncertainty, response options and conditions

The PUMP approach addresses the identification of *all* relevant sources of uncertainty and response options in a closely coupled manner – in part because unidentified responses are a source of ambiguity. Effects or consequences viewed in qualitative terms are part of the glue between sources and responses. For example, some sources involve potential consequences that demand an effective reactive response, but others demand an effective preventative response, and some need both.

Sometimes a simple residual 'everything else of relevance' composite has to be used to ensure important sources of uncertainty do not get overlooked, and minor issues which

collectively compose to big issues are not set aside or overlooked.

All relevant assumptions treated as conditions should be treated in a closely coupled manner – in part because they are sources of uncertainty if the associated assumptions may not hold exactly. Efficient and effective identification requires a highly iterative process.

The identify phase has to use the project objectives and directly linked project plans aspect of the project's seven Ws, plus the process objectives, to structure the sources of uncertainty and responses of immediate interest and to choose a useful place to start. As analysis progresses in an iterative manner, other criteria and the rest of the project plans embraced by the seven Ws plus the remaining lifecycle stages will be used to structure all relevant uncertainty. The identification of responses and clarification of assumptions is a closely coupled process

The key deliverable is a clear, common understanding of all the relevant sources of uncertainty facing the project, and what can be done about them to the extent this is relevant, explained at an appropriate level of clarity.

8 Structure *all* uncertainty

The purpose of the structure phase of the basic PUMP is to improve understanding of the relative importance of different sources of uncertainty given identified response options, to explore relevant interactions, to test the assumptions implicit or explicit in analysis to date, and to address important qualitative aspects of the analysis not yet considered.

Assumption testing involves testing simplifying assumptions and developing alternative assumptions where appropriate. This may call for more complex structure or simpler structure to improve clarity efficiency.

Exploring relevant interactions includes identifying interdependencies and links not yet considered such as distinguishing between responses specific to particular sources of uncertainty and responses which assist with the accumulated effects of many different sources – general responses that build in robustness.

It can be particularly useful to understand chains of causes and effects, even in terms of qualitative influence diagrams, so that virtuous and vicious circle scenarios can be identified and appropriate contingent responses can be prepared in order to manage associated threats and opportunities. Failure to address complexity, such as interdependence between sources of uncertainty, can result in seriously misleading conclusions.

The structure phase is a very important part of the PUMP approach. It is about transforming the information generated earlier into a qualitative model of project related uncertainty, ideally summarized in diagrams, and testing the robustness of the qualitative model.

9 Clarify ownership

The ownership phase has to:

1. select or develop a suitable basic plan for relationship and contracting strategy which aligns objectives as far as possible for all relevant parties;
2. distinguish the sources of uncertainty and associated response options which the project client (owner or employer) is prepared to own and manage from those the

- client wants other parties (such as contractors) to own or manage;
3. allocate responsibilities for managing sources of uncertainty;

Ownership issues may involve formal or explicit contracts, like a legally binding contract between a client and a contractor. Additionally, ownership issues may involve informal or implicit contracts, like the relationships between a project manager, project staff, and heads of departments in the same organization providing project inputs like the design of what the project will produce.

Clarification of ownership has to consider the following issues:

- ‘what are the objectives of the contracting strategy?’ (the contract why),
- ‘which parties are being considered?’ (the contract who),
- ‘what aspects of uncertainty and associated opportunity/risk require allocation?’ (the ‘what’ of the ownership phase viewed as a project),
- the implementation details of the approach (the contract whichway),
- the instruments (the contract wherewithal), and
- the timing (the contract when).

The deliverables provided by the ownership phase are clear allocations of ownership and management responsibility, efficiently and effectively defined, and legally enforceable as far as practicable when appropriate.

10 Quantify *some* uncertainty

The key deliverable provided by the quantify phase of the PUMP is probability distribution based estimates of *some* uncertainty associated with sources of uncertainty and response options identified earlier in the PUMP. This quantification of uncertainty associated with cost, duration, or other measurable project performance criteria provides a basis for making choices which shape the project to achieve ‘opportunity efficiency’. They also provide a basis for understanding which sources of uncertainty and associated responses are important, perhaps worth more attention, and which are relatively unimportant.

Quantification of uncertainty is an important way of increasing understanding of what matters, and how it matters, given assumptions about possible future conditions. However, it is not possible or even desirable to attempt quantification of all sources of uncertainty. Practical considerations require an approach to quantification of some uncertainty and structuring the qualitative residual that is both useful and cost effective. This implies a process of quantifying uncertainty and dealing with the residual that is iterative, initially starting with rough quantitative estimates of key sources of uncertainty, and refining or restructuring these estimates when and where this increases understanding of uncertainty and informs decision making. A first pass through the quantify phase involves a focus on sizing sources of uncertainty which were deemed worth separate quantification on a first pass through the identify phase. A first pass through the evaluate phase then follows. Subsequent looping back from the PUMP evaluate phase for further passes, through all or some of the PUMP phases, can refine understanding of those sources and responses that are identified as important.

This chapter suggests a particular quantification process for *some* uncertainty. It also suggests linked approaches to qualitative treatment based on scenario analysis.

Recognising that much uncertainty may be best treated as conditions and that qualitative and quantitative analysis need clear integration requires explicit management.

11 Evaluate *all* the relevant implications

The purpose of the evaluate phase is to combine the results of the quantify phase in the context of all earlier PUMP phases and evaluate all relevant decisions and judgments. The evaluate phase includes the synthesis of individual source of uncertainty quantification, the presentation of results, plus the interpretation of results, bearing in mind all relevant sources that were not quantified and treated as conditions or assumptions. It includes process decisions like ‘do we need to refine earlier quantitative or qualitative analysis, and if so where?’ It also includes project decisions like ‘is plan A better than plan B, and do we also need a plan C plus an exit strategy plan D?’

A first pass can be used to portray overall uncertainty using an initial rough sizing of uncertainty associated with *all* the key sources that require management. A first pass with this rough sizing objective provides the initial understanding of which areas need the most attention, and which can receive less attention. A second pass through the PUMP phases can be used to explore and confirm the importance of the key issues, obtaining additional data and undertaking further analysis of issues where appropriate. Further passes can further refine and restructure understanding.

One key feature of the approach described in this chapter is the use of a nested structure for the probability distributions provided by the previous phase to build up a picture of combined sources of uncertainty, with built-in sensitivity analysis provided by ‘sensitivity diagrams’. Another is the use of cumulative probability curves to represent alternative courses of action in ‘decision diagrams’. Joint use of these two forms of diagram provides the basis of a formal process of seeking understanding of what matters, spending more time on what matters, and moving towards overall ‘opportunity efficiency’. One feature of their use is clarity about tradeoffs between risk and expected performance in terms of all relevant objectives. Optimal choices in terms of this issue are influenced by the level of decomposition involved. This in turn depends on the nature of context issues – such as ‘do we just want to know how much it should cost if we want to do something?’, or ‘are we now committed to getting it done or going broke?’

Part III The generic process in all lifecycle stages

Following the discussion of a PUMP applied in the execution and delivery strategy development stage of the project lifecycle, Part III considers the additional issues raised by designing and operating an efficient and effective PUMP in other all other stages of the lifecycle.

12 Fully integrating the strategy shaping stages

Part II discussed PUMPs in the execution and delivery strategy shaping stage of the project lifecycle, assuming that a PUMP had not been applied in earlier lifecycle stages. Chapter 12 generalises the Part II discussion by considering the use of PUMPs in all the strategy shaping stages and associated governance stages of the project lifecycle.

This chapter first considers strategy gateway PUMPs, which involve consolidating and explaining the strategy, then taking a governance perspective to 'go', 'no-go' and 'maybe' decisions. It is important to separate planned, low cost iterations from unplanned high cost iterations. It is also important to fully test shaped strategies from an independent perspective. Creative PUMP process use demands 'enlighten governance'. 'Enlightened governance' demands board level judgements which comprehend the full complexity of all the relevant issues. Strategy gateway PUMPs provide crucial support for decisions to proceed or not at the gateway stage concerned with overall strategy assessment. They also serve as a model for gateway processes at other points in the lifecycle.

Following sections begin with PUMPs for the design, operations and termination (DOT) strategy shaping stage. One of the key messages from fully integrating the DOT shaping stage with the rest of the strategy stages in PUMPs terms is that the same concepts and models apply, but the language changes significantly. Following sections consider PUMPs used at the DOT gateway, concept shaping stage, and the concept gateway.

Further sections generalise the client focus of Part II by considering pertinent issues from contractor perspective, and the importance of considering all relevant stakeholder perspectives, employing PUMPs as early as possible in the project lifecycle.

A key area for method development is finding more formal and structured ways to link the corporate objectives or benefits of a project to concept shaping issues, project and corporate portfolio relationship issues, buyer and seller (client and contractor) issues, design issues and operations issues.

Confusion about common practice framing assumptions for NPV (Net Present Value) approaches to 'business case' issues is one of the issues explored. Biased option choices driven by inappropriately embedding risk or opportunity cost issues into discount rates is illustrated by a government decision involving permanent disposal of intermediate level nuclear waste. The implications for limited company and personal option choice decisions are also explored briefly.

13 Fully integrating the strategy implementation stages

This chapter builds on Chapter 12 and all the Part II chapters by considering the application of PUMPs after the strategy gateway.

The first part of this chapter considers particular features of a PUMP applied after the strategy gateway watershed, in the detailed planning part of the lifecycle designated as the tactics shaping and tactics gateways stages. The purpose of PUMPs in the tactics shaping and tactics gateway stages of the project lifecycle is to use all the analysis of preceding strategy shaping stages as a platform for developing opportunity efficient detailed plans that will pass appropriate assessments and result in a project ready for execution and delivery

In the subsequent lifecycle stages of execution, delivery, operation and termination, PUMP use has to be embedded in four quite different 'macro' tasks:

- managing planned execution and delivery actions;
- rolling execution and delivery action plans forward;
- monitoring and controlling; and
- managing crises and being prepared to respond to disasters.

The 'doing' rather than 'planning' focus of all four of these macro tasks involves very different modes of operation to the specific or general tasks within PUMPs addressing earlier lifecycle stages. Additionally, these four macro tasks have to be managed in parallel, and on a continuous basis throughout each post planning stage, accompanied by enlightened governance over all these four tasks.

The chapter concludes with a brief consideration of the implications of the strategy-operations-project links that shape projects. This includes recognising the implications of short, medium and long term planning horizons for decision making at the various gateway stages, and the need to reflect corporate strategy changes in each lifecycle stage where this is cost effective.

Part IV Key corporate implications

Success in all projects needs a great deal more than the PUMP pack ideas developed in Parts I to III. Pertinent additional organizational and human behavioural factors include: effective governance, supporting infrastructure, appropriate organisational culture, employee capabilities, incentives, and motivation that can influence both planning and implementation of projects.

14 Developing corporate capability as a project

Chapter 14 takes a corporate perspective on project uncertainty (risk) management processes and considers what is involved in establishing and sustaining an organization's capability to employ PUMP methodology. This draws on frameworks and processes discussed in Parts I to III, and provides a practical guide to starting to plan the corporate change that may be needed.

The approach adopted is to consider the establishment and operation of this PUMP capability as a project in its own right, and to examine this project in terms of the seven Ws framework plus the project (asset/change) lifecycle framework of Chapter 1.

Effective development of an organization's performance uncertainty management capability for projects requires recognition and critical evaluation of where and how project uncertainty management already occurs in the organization, decisions about where attempts to develop the use of PUMPs should be made, and further decisions about who should be involved and what skills and capabilities they need.

15 Contracts and governance as frameworks for enlightened relationship management

This chapter considers contracts and governance as frameworks for enlightened relationship management. This is in part a question of generalising the meaning of 'contracts' and 'governance' to accommodate uncertainty associated with the way people behave, in part a practical guide to what this means.

The focus is client-contractor relationships because this is one of the most common and clear-cut contexts in which ownership issues arise. It is also a useful context to illustrate basic ownership issues which apply in most multi-party situations, including intra-organizational contexts where legal contracts are replaced by various forms of

agreement ranging from formal terms of reference, written undertakings, informal 'understandings', to traditional working practices.

Enlightened relationship management within a particular organization needs to address similar issues to those associated with uncertainty management involving inter-organizational contracts. The parties involved may be individuals, teams, different organizational units, or different levels of management in the organizational hierarchy. While formal contracts between such parties are not usually present, written or unwritten agreements serve a similar purpose, and issues related to aligned incentives and appropriate allocation of risk and responsibility for managing sources of uncertainty are similar to the inter-organizational contexts.

16 A corporate capability perspective

The final chapter looks at important corporate implications of adopting a PUMP approach beyond projects, highlighting the significant limitations of common practice enterprise risk management. It is argued that the basic PUMP approach together with attendant concepts applies to corporate strategic management and operations management as well as to all levels of project, in programme and portfolio terms, over the complete asset lifecycle of all projects in an organization. There are some new issues, most needing coordinated treatment. This has significant implications for existing common practice corporate processes for risk management.

This chapter also considers the corporate capabilities that organizations should develop to support and deliver effective management of uncertainty, opportunity and risk. These capabilities include organizational learning, an appropriate organization culture, appropriate human resources capability, and decision support for addressing uncertainty.